
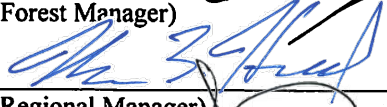


EASTERN REGION
STATE FOREST LANDS
ANNUAL WORK PLAN
FISCAL YEAR 2023

Prepared: 
(Forest Manager)

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Date

Reviewed: 
(Regional Manager)

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Date

Approved: 
(Environmental Specialist)

2022.07.05
Date

Prepared By:

Michael G. Schofield, MFS – Chesapeake Forest & Pocomoke State Forest Manager

Alexander S. Clark, MFS – Assistant Forest Manager

Contributors:

Skip Jones, Parker Forestry Services Inc.

DNR Interdisciplinary Team

Citizens Advisory Committee

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A. FOREST OVERVIEW

CHESAPEAKE FOREST AND POCOMOKE STATE FOREST

The Chesapeake Forest which is owned by the State of Maryland and managed by the Maryland Forest Service through the Department of Natural Resources originally consisted of 58,000 acres of forest land. These lands were part of a 1999 divestment by the Chesapeake Forest Products Corporation. At that time, a partnership between the State of Maryland, The Conservation Fund, and Hancock Timber Resources Group moved to purchase the forests. The original 1999 plan was prepared by a 10-person technical team assembled by The Sampson Group, Inc. Oversight and decision making for the technical team was provided by a Steering Committee composed of representatives from Maryland Department of Natural Resources, The Conservation Fund, the Chesapeake Bay Foundation, and the local forest industry.

The Chesapeake Forest currently consists of 75,653 acres divided into 186 Management Units distributed across six counties. Chesapeake Forest also includes the Seth Demonstration Forest in Talbot County, Wicomico Demonstration Forest in Wicomico County, and Fred W. Besley Demonstration Forest in Dorchester County. In spite of this scattered character, the forests include some of the last large segments of unbroken forest in a region that is largely agricultural in nature. Chesapeake Forest Lands include more than 6,000 acres of wetlands or swamps and comprise portions of 23 separate watersheds, many of which have been given a high priority for conservation action under the Maryland Clean Water Action Plan. They contain established populations of threatened and endangered species, including the Delmarva fox squirrel (*Sciurus niger cinereus*), bald eagle, and some 150 other species that have been identified as rare, threatened, or endangered in the region. Abundant populations of deer, turkey, and waterfowl create the basis for extensive hunting opportunities and other recreational activities on the land.

The 18,492-acre Pocomoke State Forest is almost entirely contained within Worcester County, except for 388 acres in Somerset County and 154 acres in Wicomico County. The Chesapeake Forest has 19,978 acres within Worcester County, and several tracts from both Chesapeake Forest and Pocomoke State Forest adjoin each other offering greater habitat and recreational management opportunities. In addition, since both forests contain similar forest types, many of the same management guidelines and principles are used. There are differences between the two forests, however. Pocomoke State Forest contains many older tracts of forestland still in their natural state, nearly 5,000 acres of cypress and hardwood forest that borders a state scenic river, and areas of state designated Wildlands.

For additional information about Chesapeake Forest and Pocomoke State Forest please visit their respective web pages located at: <http://dnr.maryland.gov/forests/Pages/mdforests.aspx>.

HISTORIC FOREST CONDITIONS AND THE ROLE OF FIRE

The average pre-European-settlement fire frequency was on the order of 7-12 years for forests of the Eastern Shore of Maryland, with higher frequencies of 4-6 years in the southeastern Maryland counties of Wicomico, Worcester, Somerset, and Dorchester (Frost, 1998). These frequencies are high compared to most areas of the Northeast. Since it is unlikely that lightning was a significant contributor to these fires, Native American populations must have been. A conclusion is that fire in the Northeast was predominantly a phenomenon associated with human activity (Pyne, 1982).

The forest that covered the Eastern Shore in pre-colonial times was primarily a hardwood one, though increasingly mixed with pine to the southward (Rountree & Davidson, 1997). The large patches of pine-dominated woods today are largely second growth, the result of extensive clearing in historic times. In aboriginal times, the woods of the Eastern Shore were likely to be oak-hickory, oak-gum, or oak-pine types, all of which still exist in second-growth form.

Captain John Smith said in the early seventeenth century, “A man may gallop a horse amongst these woods any waie, but where the creekes or Rivers shall hinder”. Father Andrew White wrote that the woods around St. Mary’s were so free of underbrush that a “coach and fower horses” could be driven through them (Rountree & Davidson, 1997). The open conditions could be partly attributed to the closed canopies of these mature forests, which shaded out undergrowth, but it is also likely that periodic fire helped to maintain the park-like conditions.

It is reasonable to assume that Eastern Shore tribes also used fire to periodically burn the marshes that were important sources of mollusks, fish, furbearers, waterfowl, edible tubers, and reeds for housing. Fire would have been useful for herding game, enhancing visibility or access, or retarding invasion of woody growth. More often than not, these fires would have spread into adjacent woodlands and, if of sufficient intensity, created the open seedbed conditions conducive to establishment of loblolly pine. Even today the pattern of loblolly pine “islands” and “stringers” in and adjacent to marshes of the lower Eastern Shore is common.

If, as Rountree and Davidson suggest, oaks were the most prevalent species in pre-settlement times, then the possible role of fire in maintaining these forest types must also be considered. Frost stated, “Light, understory fires may have been the norm for millions of hectares of eastern hardwood forest...” (Frost, 1998). Oak species range from slightly tolerant to intolerant of shade, indicating that disturbance is desirable to promote regeneration and growth. Furthermore, acorn germination and initial seedling establishment are most successful where light understory burns have scarified the seedbed and reduced competition (Burns & Honkala, 1990). The extensive presence of oaks on the Shore was an indicator that low-intensity understory fires were common, either intentionally set by Native Americans to create “open woods” or drive game, or the incidental result of land-clearing.

Natural stands of loblolly pine (*Pinus taeda*) became much more widespread around the turn of the 20th Century, particularly in the counties south of the Choptank River, largely due to the influence of economic factors. First was the abandonment of agricultural fields as farmers moved to more lucrative jobs in the towns and cities. Loblolly pine is an opportunistic species, which found the recently abandoned fields prime sites for reproduction by natural seeding. The second factor was the rise of large-scale commercial lumbering. Steam locomotives, often used to haul logs from the woods, were notorious for throwing sparks along the tracks and starting fires. Both the clearing of the forests by large-scale logging and the subsequent fires resulted in large areas of open, scarified land suitable for pine regeneration. By the middle of the twentieth century, loblolly pine had become the predominant forest cover type in the lower counties of the Eastern Shore.

FOREST TYPES AND SIZE CLASSES

Young loblolly pine forests mostly established since the early 1980’s are what characterize a high proportion of the Chesapeake Forest. Mixed pine and hardwood forests still occupy some of the lands, and many riparian areas and flood plains contain stands of mixed hardwoods. In general, the mixed pine-hardwood and hardwood stands are older, mature forests.

Mature mixed pine-hardwood, bottomland hardwood, and bald-cypress forests comprise the majority of the Pocomoke State Forest. In general, the mixed pine-hardwood, hardwood, and bald cypress stands are older, mature forests, while loblolly pine stands are more evenly distributed across all age classes.

Table 1 provides a habitat diversity matrix of both Eastern Region State Forests that provides a current baseline from which future changes in age structure or forest type diversity can be assessed for potential habitat or biodiversity effects.

Table 1. Forest Diversity Analysis

Acres of forest type and forest structure by structural groups, with percent of total area in each forest type/structure group combination.

Forest type	Structure Stage							Total Area
	Open 0 - 5 yrs	Sapling 6 - 15 yrs	Growing 16 - 25 yrs	Maturing 26 - 40 yrs	Mature 41 - 60 yrs	Big Trees 61+ yrs	Uneven Aged	
Loblolly Pine	510	2,107	10,992	33,144	10,808	1,643	291	59,495
<i>(Percent)</i>	0.54%	2.24%	11.69%	35.24%	11.49%	1.75%	0.31%	63.26%
Shortleaf Pine	2	10	0	0	12	336	17	378
<i>(Percent)</i>	0.00%	0.01%	0.00%	0.00%	0.01%	0.36%	0.02%	0.40%
Mixed Pine (Pond, Pitch, Virginia, etc.)	20	0	0	0	0	102	75	198
<i>(Percent)</i>	0.02%	0.00%	0.00%	0.00%	0.00%	0.11%	0.08%	0.21%
Atlantic White Cedar	0	8	3	0	0	0	0	12
<i>(Percent)</i>	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
Mixed Pine/Hardwood	11	1,042	1,382	1,838	1,856	8,834	187	15,150
<i>(Percent)</i>	0.01%	1.11%	1.47%	1.95%	1.97%	9.39%	0.20%	16.11%
Bottomland/Mixed Hardwoods	0	231	345	423	205	10,454	6	11,663
<i>(Percent)</i>	0.00%	0.25%	0.37%	0.45%	0.22%	11.11%	0.01%	12.40%
Bottomland Hardwoods/Bald Cypress	0	0	0	0	18	3,842	0	3,860
<i>(Percent)</i>	0.00%	0.00%	0.00%	0.00%	0.02%	4.09%	0.00%	4.10%
Cut/Marsh/Field/Powerline/Road	3,296	0	0	0	0	0	0	3,296
<i>(Percent)</i>	3.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.50%
Total	3,839	3,398	12,723	35,406	12,898	25,211	576	94,050
<i>(Percent)</i>	4.08%	3.61%	13.53%	37.65%	13.71%	26.81%	0.61%	100.00%

DESIRED FUTURE CONDITIONS

The desired future conditions of Chesapeake Forest and Pocomoke State Forest reflect a transition between the former industrial forest management and the future multiple-purpose management under State ownership. Some of the changes between the former forests and the future forests will be subtle, and many will take decades to emerge.

Some of the changes that will occur over time include:

- Maintenance or enhancement of water quality
- Protection of natural resources, including biological diversity
- Contribution to the local resource-based economy
- Providing opportunities for appropriate low-impact, resource-based public use
- Widening of Riparian Forest and Wetland Buffers to protect and enhance water quality, as well as provide mature forest habitat for species that need such conditions;
- More mixed hardwoods and hardwood/pine forests associated with the buffers, in which timber harvesting maintains a mature forest stand after it is achieved;
- Longer pine plantation rotations, particularly in areas where wildlife habitat relies on large pine trees. These will be harvested, but at older, larger sizes, which has implications for the future timber industry on the Shore.
- Less intensive methods of forest regeneration, including the use of natural pine regeneration whenever and wherever it can succeed. This has been shown to result in somewhat slower tree growth for the first 2-4 years compared to the more intensive methods of soil preparation and planted seedlings, but those early differences disappear later in the rotation. As a result, when forests are being managed for longer rotations, the less intensive regeneration methods should not result in a loss of productivity. They do, however, reduce up-front costs significantly as well as produce less soil and site disturbance.

Changes that may take years to emerge and may be almost imperceptible for a long time include:

- The planned shift to longer rotations for additional saw logs will emerge slowly as today's young stands reach larger sizes. The emphasis on thinning will produce significant amounts of pulpwood and forest-based jobs.
- The development of riparian forest buffers in areas now planted to young pine plantations will take time. These areas must grow into buffers, so for the near future, there may be more pine pulpwood produced from buffer zones than from outside them, as additional pines are removed to create openings for hardwoods.
- Measurable improvements in stream water quality may come slowly. Much of the water flowing across these forests comes from agricultural and developed areas. Efforts will be made to create areas that can trap nutrients, but the measured progress is likely to be slow to emerge.
- Major impacts on the wildlife habitat depending on large trees will not occur until today's young forests have time to grow. Improved Delmarva fox squirrel habitat will emerge rapidly after about 20 years, but not before.
- Changing recreational patterns will require time for the Department to assess all the tracts, assure public safety and landowner relationships. Some of this assessment has already occurred and Public Use of several tracts has been implemented.

FOREST MANAGEMENT ZONES

Due to the large size and diverse landscape of the lands in this project, the planning team identified specific areas based on physical attributes that need to dominate future management decisions. The following are brief descriptions of the management zones. Additional information of each management zone type can be found in the Sustainable Forest Management Plan.

GENERAL FOREST MANAGEMENT AREAS

General Forest Management areas are those sites unconstrained by other more demanding management restrictions. It is important to note that production of forest products in no way precludes the contribution from these lands to other forest functions such as recreation, habitat, and water quality. In the general management

areas, the loblolly pine forest will be managed on a 30-40 year rotation for a mixture of saw logs and pulpwood. In the early years of implementing this plan, it may be necessary to harvest some younger stands, as this is the only way to re-distribute stand ages so that the current preponderance of 5-25 year-old stands does not become a recurring problem in future management rotations.

Loblolly pine forest within the general management areas will be managed to produce a rapidly growing, vigorous and healthy forest while supporting local natural resource based industries and at the same time protecting water quality through adherence to Best Management Practices. In this forest type, wildlife habitat will be early and mid-succession habitat that provides structural diversity within the array of mixed forest stands and riparian, wetland, and wildlife buffers.

ECOLOGICALLY SIGNIFICANT AREAS (ESA)

Sites containing rare plant and or animal communities will be identified and managed for their special qualities. The DNR Wildlife & Heritage Service will be involved in assuring that special sites are properly inventoried, marked, and managed, and that adequate records are created and maintained for each site. Specific prescriptive management recommendations have been developed for each site by the Heritage Division.

Portions of a number of the ESA management areas overlap DFS, FIDS and the Riparian areas, however, management prescriptions will focus on enhancing and protecting the designated ESA. Each ESA area has been broken down into as many as three zones with specific management prescriptions for each zone.

FORESTED RIPARIAN BUFFERS

Minimum three hundred foot (300 ft.) riparian forest buffers or wetland buffers will be marked, established and maintained according to the guidelines listed in. All management activities within these areas will be designed to protect or improve their ecological functions in protecting or enhancing water quality. The long-term goal is to achieve and maintain a mature mixed forest stand. Where the current forest is a pine plantation, the shaping of the riparian forest buffers will generally commence at the time of the first silvicultural activity on the adjoining stands. Management will generally focus on thinning pines to encourage hardwood growth, marking boundaries so that field personnel and contractors can conduct operations properly, and closely monitoring activities to prevent soil disruption or damage and protect stream bank and wetland integrity. In these areas where young pine plantations currently exist, the desired forest conditions may take several decades (and appropriate treatments) to emerge.

DELMARVA FOX SQUIRREL (DFS) HABITAT

DFS Core Areas are defined as a complex of Chesapeake Forest Lands currently occupied by Delmarva Fox Squirrels. DFS Future Core areas are defined as a complex of Chesapeake Forest and Pocomoke State Forest lands where location, vegetative composition and structure appear suitable for translocation of DFS.

In all designated DFS management areas, the forest will be managed on longer rotations while encouraging an additional hardwood component in the over story. The goal is to grow an older forest with larger mature trees that are held on the landscape for a longer period of time. This will be accomplished through a regiment of pre-commercial and commercial thinning operations to increase growth rates of the residual trees. Thinning operations will favor retaining larger diameter trees including hardwood mast trees. A minimum basal area of 70 to 80 sq. ft. per acre will be retained in order to maintain adequate canopy closure. The plan requires that DFS

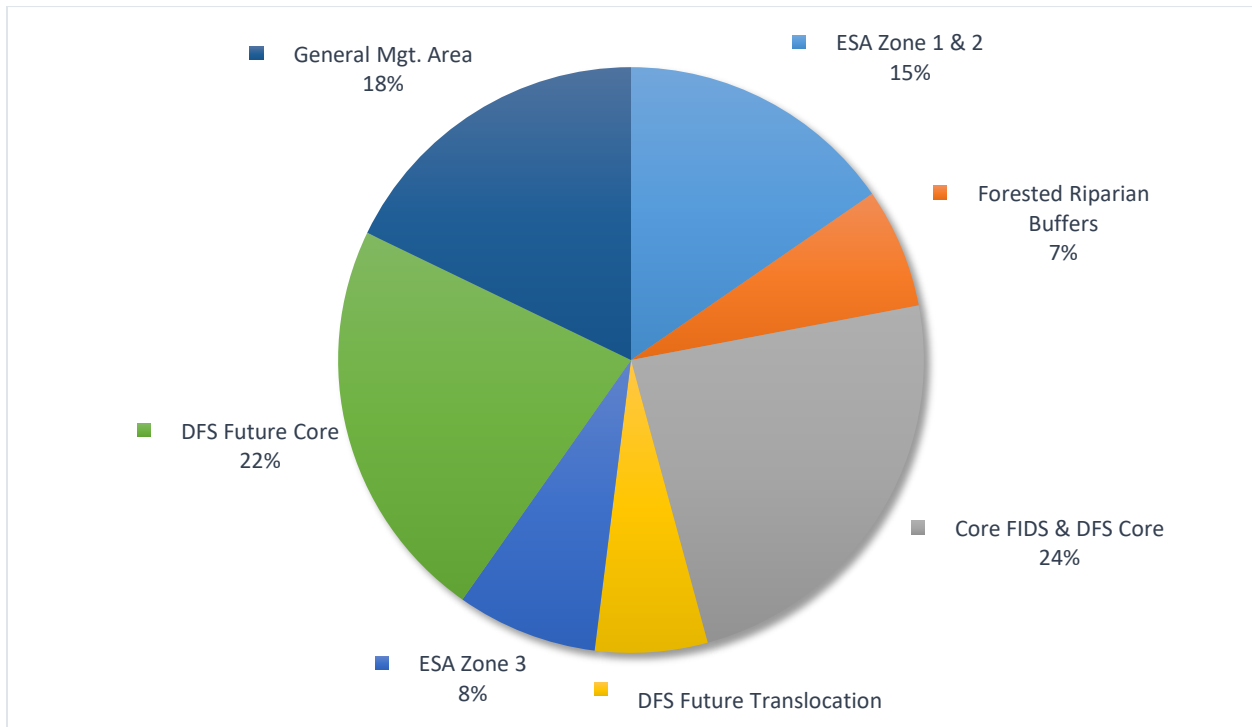
Core management areas at any point in time must retain 50% of the forest in “suitable DFS habitat”, which is defined as stands that are 40 years old. The individual stands designated as suitable DFS habitat will be retained on the landscape for 20 years, setting a requirement for a minimum rotation length of 60 years.

FOREST INTERIOR DWELLING SPECIES (FIDS) HABITAT

In the designated Core FIDS areas, the goal is to improve the stocking of hardwood species so as thinning operations occur, basal areas will not to fall below 70 square feet per acre. Long rotation ages greater than 100 years will be the goal and the preferred harvest method will be singletree selection. Mixed stands of pine and hardwoods will be encouraged, and the use of herbicides will be avoided except to control invasive species and for research.

CHESAPEAKE FOREST & POCOMOKE STATE FOREST MANAGEMENT ZONES

The following graph depicts the percentage of acres in each forest management zone for both Eastern Region forests.



UNIQUE COMMUNITY TYPES

INLAND SAND DUNE AND RIDGE WOODLANDS

This natural community occurs on dry, sandy dunes and ridges of the coastal plain. These landforms developed during the late Pleistocene when colder climate processes associated with Wisconsin glaciation influenced much of the region. At the time, prevailing northwest winds transported surficial sands across the Delmarva and deposited them on the east sides of the Nanticoke, Wicomico, and Pocomoke rivers and formed “dune fields” on uplands in

the central part of the peninsula. Today, these landforms support woodland vegetation of pine and oak, as well as a variety of rare and threatened plant and animal species. Currently, there are two globally rare natural community types associated with inland sand dunes and ridges. One characterized by shortleaf pine (*Pinus echinata*) and another dominated by a mixture of hardwoods such as white oak (*Quercus alba*), black oak (*Quercus velutina*), and southern red oak (*Quercus falcata*). Both community types share many common associates such as Pitch pine (*Pinus rigida*), post oak (*Quercus stellata*), sand hickory (*Carya pallida*), and a variety of ericaceous shrubs. In general, the herbaceous layer is sparse and consists primarily of light-demanding species tolerant of dry, sandy conditions. Examples of these species include yellow false indigo (*Baptisia tinctoria*) and the State threatened sundial lupine (*Lupinus perennis*). Frequent low-intensity fire is important in maintaining these natural communities and the distribution of species that depend upon them.

NON-RIVERINE SWAMPS

This natural community includes seasonally flooded “flatwoods” and depressions of the coastal plain. These habitats develop on flat, ancient estuarine terraces and shallow depressions with seasonally perched water tables. This results in standing water throughout the early part of the growing season followed by a period of drawdown. Hydroperiods are variable between swamps and largely dependent on rainfall and drought cycles. The forested canopy structure of flatwoods and depression swamps range from open to closed with composition ranging from hardwood dominated to a mixture of hardwoods and pines. Swamps dominated by oak species such as willow oak (*Quercus phellos*), pin oak (*Quercus palustris*), swamp chestnut oak (*Quercus michauxii*), and cherrybark oak (*Quercus pagoda*) are considered highly rare because most have been logged and subsequently invaded by successional hardwoods such as red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), and black gum (*Nyssa sylvatica*). Pond pine (*Pinus serotina*) and loblolly pine (*Pinus taeda*) are prominent components of many flatwoods on the lower Coastal Plain. Nonriverine Swamps have been greatly reduced in Maryland through ditching, draining, logging, and conversion to agriculture.

ATLANTIC WHITE CEDAR SWAMPS

Atlantic white cedar (*Chamaecyparis thyoides*) swamps occur discontinuously along the Nanticoke, Wicomico, and Pocomoke Rivers. They are best developed above regular tidal influence between tidal swamp forests and sandy uplands where groundwater discharge and the accumulation peat over time provide favorable growing conditions. A few examples have also been documented from seasonally saturated to flooded basin wetlands associated with ancient estuarine terraces in the Pocomoke River watershed. Atlantic white cedar (*Chamaecyparis thyoides*), swamp tupelo (*Nyssa biflora*), pond pine (*Pinus serotina*), and sweetbay magnolia (*Magnolia virginiana*) often comprise the tree canopy. In the understory, shrubs and vines are common but variable, often including an abundance of common greenbrier (*Smilax rotundifolia*). The herbaceous layer is often sparse and may include species of sedges, manna-grasses, and rushes. Slightly elevated hummocks of sphagnum mosses (*Sphagnum* spp.) frequently form large patches. The extent of Atlantic white cedar has been greatly reduced over the past 200 years by logging. Today, remaining stands exist as patches representing only a fraction of historical estimates. All natural community types classified as Atlantic white cedar swamps are considered globally and state rare.

DELMARVA BAYS

Delmarva Bays are seasonally flooded wetland depressions on Maryland’s coastal plain. They developed from ancient interdunal depressions approximately 16,000 years ago when the climate of the Coastal Plain was very cold and windy and supported an extensive sand dune ecosystem. The majority of Delmarva Bays have been shaped by

these wind and erosional processes into circular depressions up to one meter in depth with prominent sand rims. A perched water table and seasonal fluctuations in groundwater recharge and precipitation cause these wetlands to be irregularly flooded or seasonally inundated. During very dry seasons, surface water may be absent or limited to the deepest point within the bay. Likewise, during very wet years when rainfall is abundant, bays may retain water throughout the entire growing season. Depth and duration of seasonal inundation are apparently the most important factors influencing plant communities and the degree to which woody species become established. Dry-season fires in adjacent uplands may spread into Bays and may be another factor limiting the invasion of woody species, although fire frequencies throughout the region have been much reduced in recent decades. The vegetation of Delmarva Bays is closely linked to its hydrologic regime. As water levels draw down or recede during the growing season, plant communities typically develop concentric rings from the outer edge towards the center or deepest point in the bay. Outer rings of a bay may include shrubs of buttonbush (*Cephalanthus occidentalis*), fetterbush (*Leucothoe racemosa*), swamp loosestrife (*Lysimachia terrestris*), and sweet pepper-bush (*Clethra alnifolia*) or nearly monospecific stands of Walter's sedge (*Carex striata*), maidencane (*Panicum hemitomon*), and Virginia chain fern (*Woodwardia virginica*). Interior portions of Bays may include species such as Eaton's panicgrass (*Dichanthelium spretum*), warty panicgrass (*Panicum verrucosum*), and Virginia meadow-beauty (*Rhexia virginica*). Many of these species grade into the "draw down pocket" or lowest portion of a bay, which is the last to desiccate during the growing season. Common to this zone are slender fimbry (*Fimbristylis autumnalis*) and flood tolerant shrubs like buttonbush (*Cephalanthus occidentalis*). Many plants and animals considered rare in Maryland are known to occur in Delmarva Bays. Delmarva bays and their associated life zones have their own ESA designations identified and mapped.

BALD CYPRESS SWAMPS

Bald cypress swamps are forested wetlands that contain bald cypress (*Taxodium distichum*) as a dominant species in the canopy. In addition to bald cypress, swamp tupelo (*Nyssa biflora*) and pumpkin ash (*Fraxinus profunda*) are also characteristic in the canopy. Bald cypress swamps occur in the tidal and upper non-tidal reaches of the Pocomoke River in Maryland. These habitats are mostly freshwater and are periodically flooded by lunar tides. Stands are found in low floodplains, forming a corridor between open tidal marsh and non-tidal habitats. Due to flooding, these stands typically contain hummocks and hollows where the hollows are frequently flooded and hummocks are occasionally flooded. Due to the "drier" nature of the hummocks, they often support a diversity of woody and herbaceous species.

VERNAL POOLS

Vernal pools are small (~0.1-2 ha), non-tidal palustrine forested wetlands. They exhibit a well-defined, discrete basin and lack a permanent, above-ground outlet. The basin overlies a clay hardpan or some other impermeable soil or rock layer that impedes drainage. As the water table rises in fall and winter, the basin fills forming a shallow pool. By spring, the pool typically reaches maximum depth (~0.5-2.5 m) following snowmelt and the onset of spring rains. By mid- to late summer, the pool usually dries up completely, although some surface water may persist in relatively deep basins, especially in years with above average precipitation. This periodic seasonal drying prevents fish populations from becoming established, an important biotic feature of vernal pools. Many species have evolved to use these temporary, fish-free wetlands. Some are obligate vernal pool species, so-called because they require a vernal pool to complete all or part of their life cycle. vernal pools occur throughout the state as scattered, isolated habitats. They are most numerous on the lower coastal plain, especially on the mid to upper eastern shore, and uncommon west of the fall line. They are typically situated in low areas or depressions in a forest, but they can also occur in floodplain forests as isolated floodwaters, among backwaters of old beaver

impoundments, old sinkholes, or as perched spring- or seep-fed basins along mountain slope benches, or at the base of slopes. vernal pools may persist in cleared areas such as cropland, pastures, and clearcuts, but usually in a highly degraded ecological state. Because vernal pools occur throughout the state in a variety of forest types and settings, the vegetation in and around these habitats varies considerably. However, many vernal pools exhibit similar vegetative structure. For example, pools tend to have a semi-open to closed forest canopy around them and the degree of canopy closure generally decreases with increasing pool size. The basin substrate consists of dense mats of submerged leaf litter and scattered, coarse woody debris. Herbaceous vegetation is usually absent to sparse in and around the basin, although small mossy patches frequently occur along the basin edge. A dense shrub layer may occur along the shoreline or in small patches within the basin, especially on the coastal plain, but many pools also lack a well-developed shrub layer.

SOILS

The region features flat topography, near-sea level elevations, and poorly drained soils. Soils are naturally low in fertility, but soil erosion and sediment runoff for forestry activities is seldom a problem, given reasonable management care. Seasonally wet conditions affect the timing and type of forest management activities. For management activities on the Forest, the soils in the region were classified into 5 Soil Management Groups (SMG), based on soil characteristics. See Appendix A for a listing of soil types by soil management group and a listing by county of symbols used by soil survey reports.

The Five (5) Groups (SMG's) were defined as follows:

- SMG 1 - wet soils with firm sub-soils that can physically support machines when wet.
- SMG 2 - wet soils with non-firm sub-soils that cannot support machines when wet.
- SMG 3 - soils that are less wet than either 1 or 2; highly productive forest sites.
- SMG 4 - very sandy, often dry soils that are generally not highly productive forest sites.
- SMG 5 - very wet, low-lying soils that are too wet for forestry operations.

To facilitate plan development and future management, digital soils data was utilized from the USDA Natural Resources Conservation Service for, Caroline, Dorchester, Somerset, Talbot, Wicomico, and Worcester Counties.

B. ANNUAL WORK PLAN SUMMARY

INTRODUCTION

This section summarizes the proposed activities that will occur on all public forest lands (94,145 acres) managed by the Maryland Forest Service within the Eastern Region during the 2022 fiscal year. These lands include the Chesapeake Forest, Pocomoke State Forest, Wicomico Demonstration Forest, Seth Demonstration Forest, and Fred W. Besley Demonstration Forest. Fiscal Year 2023 runs from July 1, 2022 to June 30, 2023. The following proposed activities are the results of a multi-agency effort. The multi-agency approach has ensured that all aspects of these lands have been addressed within the development of this plan.

All projects and proposals within this Plan have been developed to meet one or more of the Land Management Guidelines and Objectives as seen in the Chesapeake Forest and Pocomoke State Forest Sustainable Forest Management Plans including:

- **Forest Economy** - management activities with a purpose to maintain an economically sustainable forest and contribute to the local economy through providing forest-related employment and products.
- **Forest Conservation** - management activities with a purpose to protect significant or unique natural communities and elements of biological diversity, including Ecologically Significant Areas, High Conservation Value Forests and old growth Forests. Old growth forest management serves to restore and/or enhance old growth forest structure and function.
- **Water Quality** - management activities designed to protect or improve ecological functions in protecting or enhancing water quality.
- **Wildlife Habitat** - management activities with a purpose to maintain and enhance the ecological needs of the diversity of wildlife species and habitat types.
- **Recreation and Cultural Heritage** - management activities with a purpose to maintain and enhance areas that serve as visual, public camping, designated trails, and other high public use areas.

NETWORKING WITH DNR AND OTHER AGENCIES

MARYLAND DNR AGENCIES:

- Wildlife & Heritage – Identify and develop restoration projects, report and map potential Ecological Significant Areas (ESA) as found during fieldwork, release programs for game and non-game species. Mapping will be done with Global Positioning Systems (GPS). Participates on the Inter-Disciplinary Team (ID Team) and assists in the development of a forest monitoring program.
- Natural Resource Police – Enforcement of natural resource laws on the forest.
- Land Acquisition & Planning – Provides assistance in the development of plans, facilitates meetings with various management groups, develops Geographic Information System (GIS) maps for public review, and conducts deed research and boundary recovery. Also participates on the ID Team.
- Maryland Conservation Corps (MCC) – Assists in painting boundary lines, installing gates and trash removal.
- State Forest & Park Service – Participates on the ID Team.
- Chesapeake & Coastal Service – Develops watershed improvement projects, assists in the development of a forest monitoring programs and participates on the ID Team.

OTHER AGENCIES:

- DNR Contract Manager – Assists the Forest Manager in the designs and implementation of management activities on the donated portion of the forest. Also participates on the ID Team.
- Third party forest certification via annual audits
- The Chesapeake Bay Foundation – Identifies sites for future water quality improvement projects and assists in the implementation by providing volunteers for reforestation.
- National Wild Turkey Federation – Establishes and maintains handicap-hunting opportunities within the forest and provides funding for habitat protection and restoration.
- US Fish & Wildlife Service – Assists in prescribed burns for Delmarva Fox Squirrel (DFS) habitat. Also assists in maintaining open forest road conditions as fire breaks.
- Maryland Forest Association - Master Loggers Program provides training in Advanced Best Management Practices for Forest Product Operators (i.e. Foresters & Loggers) workshops on the forest.
- Network with Universities and Colleges

- Maryland Environmental Lab, Horn Point – Conducts water quality monitoring on a first order stream not influenced by agriculture. These samples will serve as a local base line for other samples taken on other Delmarva streams.
- Allegany College – Conduct annual field tour for forestry school student’s showcasing Sustainable Forest Management practices on the forest under dual third party certification.

C. MAINTENANCE PROJECTS

Forest roads will undergo general maintenance to maintain access for forest management activities (i.e. logging, prescribed burning, and wildfire control). Interior roads within each complex will be brush hogged where possible by the MFS & the WHS. Many of the roads have grown shut and require special heavy equipment to remove the larger trees. Brushing of these roads will improve access for the public and help maintain firebreaks for communities at risk from wildfire. Recreational trails will be mowed and cleared to meet the requirements of the specific user group(s). Engineering and Construction projects such as bridge and culvert replacements will be prioritized based on need and condition.

Forest boundary lines will be maintained using the DNR yellow band markings. Signs will be placed along the boundary lines designating the type of public access to the property. New acquisitions will be converted from their previous ownership markings to the DNR yellow band markings.

Illegal trash dumps will continue to be removed off the forest as they are discovered. The average amount of trash removed from the forest each year has been 36 tons. In our efforts to control and eradicate this issue, we will continue to coordinate with Natural Resources Police (NRP), local sheriff departments, the State Highway Administration, and County Roads departments.

D. RECREATION PROJECTS

- Host the annual Chesapeake Forest lottery for vacant tracts designated for hunt club access only. Vacant tracts are those that existing clubs opted not to continue to lease or land that has recently become available due to acquisitions or right-of-ways being opened.
- Progress on the Corker’s Creek bridge project (elevated boardwalk and bridge to connect Pocomoke River State Park – Shad Landing to Pocomoke State Forest)
- Continue to move forward in the process to establish a trail from the town of Snow Hill to Shad Landing through the Pocomoke State Forest Wildlands
- Host the Annual Ultra-Marathon “Algonquin 50K” race on Chesapeake Forest and Pocomoke State Forest.
- Host the Fat Tire Bike event with the Eastern Shore IMBA on Chesapeake Forest and Pocomoke State Forest.
- Continue to explore additional Resource Based Recreational (RBR) opportunities on the forest. This may include hunting, horseback riding; water trails, hiking trails, bird watching opportunities, geocaching, etc.
- Continue work on active Recreational Trails Grants
 - Algonquin Cross County Trail Extension
 - Mattaponi Pond Trails and Camping Project
 - Pusey Branch Trail Extension and Enhancement Project
 - Seth Demonstration Forest Trail Enhancement Project
 - Summerfield Trails
- Perform general maintenance on the existing trail system

E. SPECIAL PROJECTS

- Maintain dual forest certification. Summaries of the previous year's audit findings can be found in Appendix B.
- Conduct information and educational opportunities on the forest.
- Update and maintain forest information in a GIS database, which will result in a new updated forest wide field map.
- Continue the effort to inventory and protect historic sites (i.e. cemeteries, old home sites, Native American Indian sites) using GPS and GIS technology.
- Collect native genotype pond pine (*Pinus serotina*) and short-leaf pine (*Pinus echinata*) on the forest in an effort to aid future management objectives on the Pocomoke and Chesapeake Forests.
- Provide assistance to the State Tree Nursery with maintenance of Seed Orchards on the Pocomoke State Forest.

F. WATERSHED IMPROVEMENT PROJECTS

- Work continues on the Indiantown/Brookview Ponds watershed improvement project from the FY2013 AWP. Currently the project is in Phase IV, which deals with restoring the natural hydrology of the site through the use of ditch plugs.
- Monitoring of hydrologic, terrain, and vegetation conditions on the Foster Estate pond restoration continues. Response to invasive species, primarily Phragmites, will be taken as needed.

G. SPECIAL WILDLIFE HABITAT PROJECTS

- Initial site review and selection for possible quail management and habitat restoration.
- Planning and execution of the early successional habitat project on the Foster tract with prescribed burning and targeted herbicide applications continues.
- Continued collaboration with the bobwhite quail habitat improvement public/private partnership project

H. ECOSYSTEM RESTORATION PROJECTS

Various ecosystem restoration projects continue to proceed, including the Brookview Ponds ESA restoration and management of the Furnace Tract lupine site. In general, site preparation of high priority ESA sites and prescribed burning was performed when and where possible.

XERIC HABITAT TREATMENT AND MONITORING PLAN (ABSTRACT)

SITE NAME:

Pocomoke State Forest – Furnace, Foster and Warren Tracts

CONTACT INFORMATION:

Project Contact: Jen Selfridge, Maryland Dept. of Natural Resources, Wildlife and Heritage Service, P.O. Box 68, 909 Wye Mills Road, Wye Mills, MD 21679. Office: 410-827-8612 x102 Email: jennifer.selfridge@maryland.gov

Pocomoke Forest Manager: Mike Schofield, Maryland Dept. of Natural Resources, Forest Service, 3461 Worcester Hwy, Snow Hill, MD 21863. Office: 410-632-3732 Email: mike.schofield@maryland.gov

EXPERIMENTAL DESIGN:

Number of plots or treatment units: Furnace (6), Foster (3), Warren (3)

Size of plots/units: The Furnace Tract comprises roughly 350 acres and the 6 treatment plots range from 43-85 acres each. The Foster Tract comprises 4800 acres and the main unit where the treatment plots will be located is 23.6 acres (the rest of the tract is heavily forested). This 23.6 acre area will be divided into 3 plots of different sizes. The Warren Tract is approximately 120 acres and the main unit we will work in is 30 acres. There will be 3 treatment plots within the 30 acre unit and each will be approximately 3 acres.

Please provide a brief explanation of the treatment plan for each plot/unit including a description of existing vegetation, the proposed work, timing, objectives, and rationale. Use the attached spreadsheet for estimated costs. Please include a site plan or sketch plan.

FURNACE: Most of the plots will be burned on a rotational basis and the cost of this work will be used for match. We are interested in the response of pollinators and vegetation on plots that are burned every 1-2 years versus every 3-4 years. Ideally we will burn 3 of the plots every year and 3 of the plots every 3rd year but this is heavily dependent on available fuel and on weather conditions. Of the 6 plots, 4 were burned in 2017, 1 was burned in 2018, and one has not yet been burned although a burn is scheduled for a future fall date.

In addition to burning we would like to take two of the plots and mechanically clear them in addition to burning. Finally, one plot (the one scheduled to burn in the future) is a site for frosted elfins and cannot be burned in its entirety. This plot will be divided into 3 sub-plots, one of which will be burned in combination with herbicide treatments, while the other two will be managed by mechanical clearing and herbicides.

FOSTER: The 23.6 acre area was burned in 2018. We have not yet determined when or if it will be burned again during the course of this project. Of the burned area, a portion of it is targeted for herbicide treatments of gum and pine; the initial treatment was done in September 2018. A second portion will also be targeted for herbicide treatment as well as mowing where feasible (there are many stumps that need to be avoided). A third portion will serve as a control and will be treated only with prescribed fire.

WARREN: The 30 acre unit was burned in the spring of 2018. We will take 9 of the acres and divide them into three adjacent units. One will be burn only, one will be burn and mow, and the third will be burn and disc.

Maps of all three properties with sketches of the management units are attached.

MONITORING PLAN:

VEGETATION

Outline your vegetation monitoring protocol. If you are using the project protocol or something similar, please explain how you will locate your transects in relation to your treatment plots, number of transects, and the timing of your sampling. If you are using a different method, please briefly explain the differences.

We are using the line-point intercept sampling outlined as the preferred method for this study. We have no recent vegetation data for any of these plots. We did not collect any vegetation data this year but plan to start next year.

BEEES

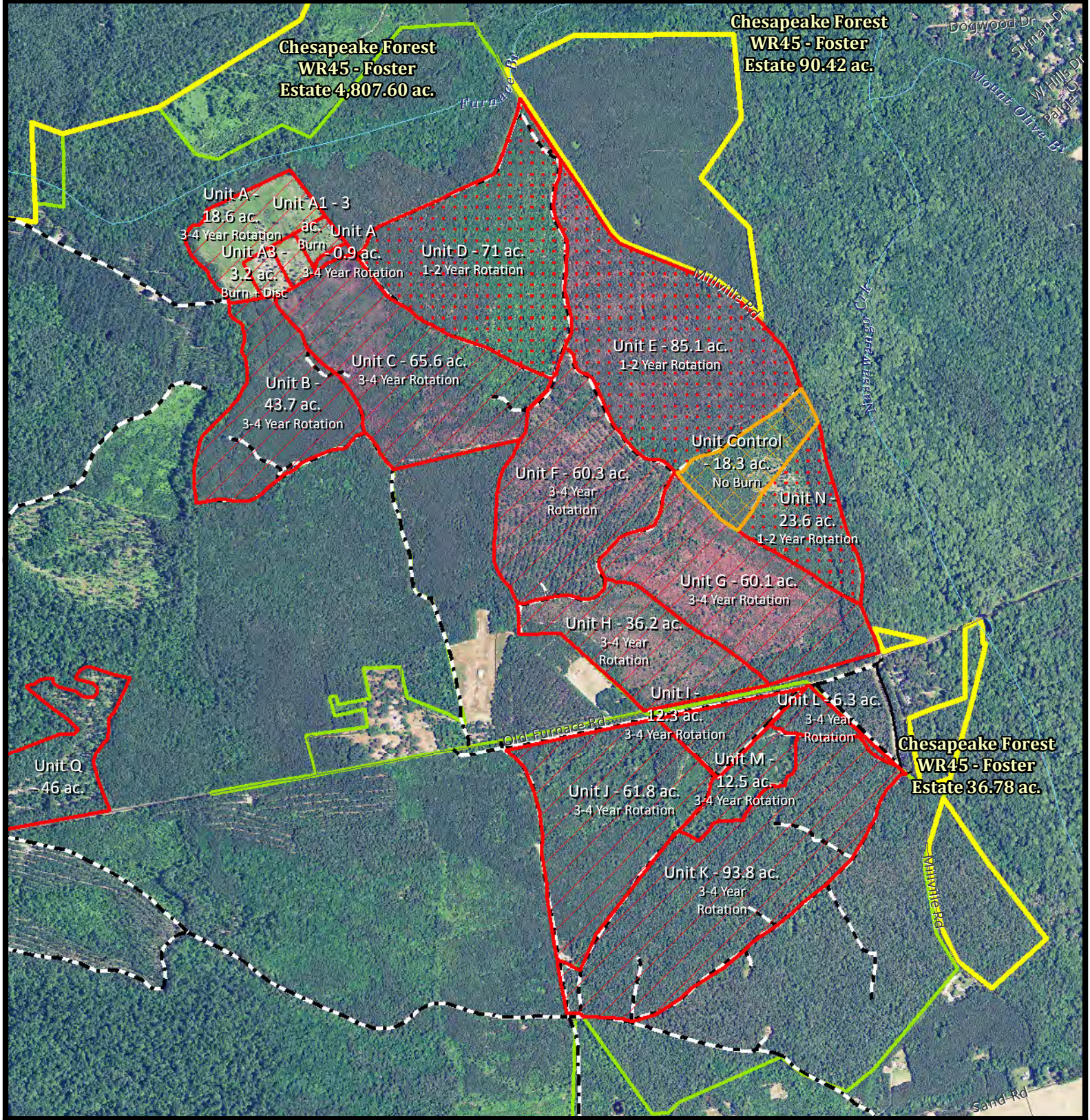
Do you intend to continue or begin bee surveys in future years?

We did conduct bee surveys at both the Foster and Furnace Tracts in 2018. We did not (and cannot) put out bee bowls at the Furnace Tract during the spring survey because of the potential to kill frosted elfin butterflies. However we will still hand collect. We can do bee surveys at the Warren Tract if there is someone able to identify them. Our understanding was that each state could only submit 3 transects per season. This is hard for us because we are also working at Green Ridge State Forest, and have to this point been submitting 2 samples from Pocomoke and 1 from Green Ridge, but that will need to be revisited.



BUTTERFLIES AND MOTHS

Do you have an interest in surveying for butterflies and moths in future years?

It would be relatively easy to add butterfly surveys if they could overlap the time spent netting for bees or be added onto that time. It would be incredibly expensive and time consuming to add moth surveys. It would be great to have the data but it would probably not be feasible to trap, pin and identify moths without hiring someone to do this at a private contractor rate. Additionally, all of our locations are fairly remote with no light sources nearby; we may be attracting moths to lights from fair distances and could not confidently tie their presence to any of our management techniques.



Legend

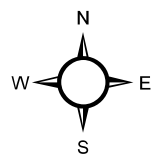
-  Chesapeake Forest
-  Pocomoke State Forest



This map is for planning purposes only.
This map is not a boundary survey

Furnace, Nazareth Church, Warren tracts
Proposed Burn Units

Scale: 1:15,840
Date: 9/27/2018



Chesapeake Forest
WR45 - Foster
Estate 4,807.60 ac.

Furnace Br

Unit A - 18.6 ac.
3-4 Year Rotation

Unit A1 -
3 ac.
Burn

Unit A2 -
2.9 ac.
Burn + Mow

Unit A3 -
3.2 ac.
Burn + Disc



Unit A - 0.9 ac.
3-4 Year Rotation

Unit D - 71 ac.
1-2 Year
Rotation

Unit C - 65.6 ac.
3-4 Year Rotation

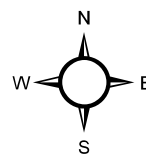
Unit B -
43.7 ac.
3-4 Year Rotation

Legend

-  Chesapeake Forest
-  Pocomoke State Forest



This map is for planning purposes only.
This map is not a boundary survey





Warren tract
Proposed Burn Units

Scale: 1:3,960
Date: 9/27/2018



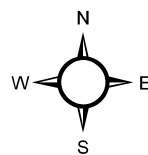


Legend

-  Chesapeake Forest
-  Pocomoke State Forest



This map is for planning purposes only.
This map is not a boundary survey



Foster Estate
Proposed Burn Units

Scale: 1:3,960
Date: 9/27/2018



I. MONITORING PROJECTS

- Maryland Wood Duck Initiative – D03 – Little Blackwater – Cliff Brown
- Lupine and Frosted Elfin – Furnace Tract – WHS – Jennifer Selfridge
- Bat Study – Bats and Prescribed Burning – WHS – Dana Limpert
- Delmarva Fox Squirrel – Hunt Club Monitoring Project – USF&WS – Cherry Keller
- Trail Monitoring – Recreation Trail Grant trail counters
- Maryland Biological Stream Survey – Stream Sampling on Pocomoke State Forest – DNR Resource Assessment Service – Matt Ashton
- Water quality monitoring project at Hickory Point – USGS Wetland and Aquatic Research Center – Dr. Beth Middleton

J. REVIEW PROCESS

INTERDISCIPLINARY TEAM COMMENTS

2023 Chesapeake/Pocomoke Forest Reviews from Freshwater Fisheries Staff

Freshwater Fisheries is providing additional comments on some of the proposed FY2023 Chesapeake/Pocomoke Forest work.

CF23-01- No additional comments.

CF23-02- No additional comments.

CF23-03- No additional comments.

CF23-04- No additional comments.

CF23-05- Area to be thinned included areas within the 50'-300' buffer. All steps available should be taken to minimize ground disturbance and soil transport off site.

CF23-06- No additional comments.

CF23-07- No additional comments.

CF23-08- No additional comments.

CF23-09- Area to be thinned included areas within the 50'-300' buffer. All steps available should be taken to minimize ground disturbance and soil transport off site. The area mapped also includes area within the 50' no cut buffer. Those areas should be excluded.

CF23-10- Area to be thinned included areas within the 50-300' buffer. All steps available should be taken to minimize ground disturbance and soil transport off site.

CF23-11- No additional comments.

CF23-12- No additional comments.

CF23-13- No additional comments.

CF23-14- No additional comments.

CF23-15- Area to be thinned included areas within the 50-300' buffer. All steps available should be taken to minimize ground disturbance and soil transport off site.

CF23-16 and 17- Area to be thinned included areas within the 50'-300' buffer. All steps available should be taken to minimize ground disturbance and soil transport off site. The area mapped also includes area within the 50' no cut buffer. Those areas should be excluded.

CF23-18- No additional comments.

CF23-19- Area to be thinned included areas within the 50-300' buffer. All steps available should be taken to minimize ground disturbance and soil transport off site.

PO23-1- A stream or other water feature may be present southwest of Old Furnace Rd. The immediate area does not appear to be part of the thinning, but if one is present, it should be buffered accordingly.

PO23-2- Area to be thinned included areas within the 50'-300' buffer. All steps available should be taken to minimize ground disturbance and soil transport off site. The area mapped also includes area within the 50' no cut buffer. Those areas should be excluded.

PO23-3- No additional comments.

PO23-4- No additional comments.

PO23-5- No additional comments.

PO23-6- No additional comments.

Curtis Dale -DNR-

Fri, Sep 17, 6:29 PM

to Marc, Adam, Mike, me

Hey guys,

Sorry for the delay in getting back to you but thank you for the opportunity to weigh in. I have reviewed the work plan and am excited by the projects mentioned. The Corker's Creek Trail and Bridge project, Summerfield Trails, Algonquin Cross Country Trail, Mattaponi Ponds Trails and Camping Project and the Algonquin 50k are of particular interest due to their positive impact and involvement with the park. Connecting the park with the State Forest via connecting trail systems provides an amazing recreational opportunity for our guests. We look forward to working with you more in depth as these connector projects become a reality.

It's nice to review and better understand the methodology behind your management of the forest. I'm interested in the plan for first thinning adjacent Milburn Landing park property and the Naslanco Property. I understand how performing that type of forest management work promotes better forest health but I have not seen first hand how that impacts recreation along the trails at those sites. I'll be interested to see how that goes and discuss it with you further in the future.

You guys are great neighbors and I appreciate continuing to work with you. Keep us posted on how this unfolds and let us know if we can be of any assistance.

Ranger Curtis Dale

Park Manager
Pocomoke River State Park
Department of Natural Resources
3461 Worcester Highway
Snow Hill, Maryland 21863
curtis.dale@maryland.gov
(410) 632-2566 (O)

From: **Jay Kilian -DNR-** <jay.kilian@maryland.gov>
Date: Fri, Oct 1, 2021 at 8:18 AM
Subject: Re: CF/PSF Draft 2023 Annual Work Plan
To: Mike Schofield -DNR- <mike.schofield@maryland.gov>

Hi Mike-

Thank you for the opportunity to review the Eastern Region State Forest Lands FY2023 Annual Work Plan. My intent with this annual review is to make you aware of important stream biodiversity and resources within the catchments of your proposed harvest stands. Some of this information may be redundant with what you receive from the Natural Heritage Program.

Eight of the proposed stands are within stronghold watersheds that support rare fishes. Three stands are also within Tier II High Quality waters (see details below). The standard 300-foot riparian buffer that you all maintain for all forest harvesting operations should minimize impacts to these important aquatic resources - leaving trees that provide direct canopy cover to the stream channel to maintain cooler water temperatures and minimize potential stream bank erosion. Additionally, movement of equipment through the stream or buffer zone should be avoided when possible during these harvest activities. Please contact the Natural Heritage Program for other BMP guidelines and recommendations associated with these rare aquatic species. Please also see the link below and contact Maryland Department of Environment (Angel Valdez) for more information on protection of Maryland's Tier II waters. https://mde.state.md.us/programs/Water/TMDL/WaterQualityStandards/Pages/Antidegradation_Policy.aspx

Let me know if you have any questions. Have a good weekend-
Jay

PO6-20-2/ PO6-20-4: These stands are located within the Lower Pocomoke River watershed – a stronghold watershed that supports populations of the rare Banded Sunfish (S2) and Mud Sunfish (S2).

W46-7000067: This stand is within the Nassawango Creek watershed – a stronghold watershed that supports populations of the rare Banded Sunfish (S2) and Mud Sunfish (S2). This watershed is also a Tier II High Quality stream catchment designated by Maryland Department of Environment.

W46-7167022/ Mancuso: These stands are within the Upper Pocomoke River watershed – a stronghold watershed that supports populations of the rare Banded Sunfish (S2) and State Threatened Glassy Darter. These stands are also within a Tier II High Quality catchment (Adkins Race) designated by Maryland Department of Environment.

WRO2-3760014/ WRO2-3760001/ WR02-3760008: These stands are located within the Upper Pocomoke River watershed – a stronghold watershed that supports rare fishes including Banded Sunfish (S2) and Mud Sunfish (S2).

CITIZEN'S ADVISORY COMMITTEE MEETING

December 9, 2021

**IF YOU HAVE ANY CHANGES EMAIL, ADDRESS OR PHONE NUMBERS
PLEASE ADD TO THIS PAGE**

Chesapeake & Pocomoke Forest Annual Work Plan Meeting

Participant Name: (Please Print)	Email, address or phone # changes/updates here
MICHAEL J. HINMAN	NONE CELL # [REDACTED]
Anthony Rang	[REDACTED]
Jared Parks	[REDACTED]
Alexander Clark MD Forest Service	[REDACTED]
Lerry Beauchamp	[REDACTED]
Elizabeth Hill	[REDACTED]
Mike Schofield	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]

General comments from the CAC meeting – December 10, 2021:

- Add a pie chart and language for management zones
- Add language about desired future conditions

From: **Bill Giese**

Date: Thu, Nov 4, 2021 at 3:28 PM

Subject: 2023 Work Plan

To: Mike Schofield -DNR-

After reviewing the 2023 Chesapeake Forest Work Plan, I see no issues with the proposed plan. I will try to attend the Dec. 10 review meeting at 9:00 am.

Thank You

William Giese

Mike,

Great to see you today and thanks for the parting gifts...

I only had a few comments on the plan so I thought I would send them before I forgot.

First, I would like to emphasize my support for the continuation of **no-hunting on Sundays** on Public Areas of State Lands. There are far too many other interests that will be completely shut out of using those lands for what amounts to nearly half the year with hunting starting Sept 1 and going through early Feb. I already think that hunting gets an oversized share of the access to public lands over that time which is not commensurate with their use of said lands compared to hikers, bikers, birders, equestrians, etc. However, since hunting is a useful management technique, I have never voiced my concern around equitable use. If Sundays were opened to hunting on public lands, it would not be beneficial to public access in the state overall and would come with a lot of confrontation and public outcry.

That said, if those areas of the State's lands that are designated for hunting leases are not open access within the hunting season and no confrontations with other open public access areas are possible, I don't see any reason to limit lease holders to hunting 6 days a week. I would not support this if Sunday hunting on those leased areas would impact open public access on other lands.

Second, I would like to voice my support for the State finding a way to continue the Master Logger Program. If the State is to have a requirement for loggers to be certified as Master Loggers to work State lands, then the State should have a state-specific training program to produce and train those individuals. If MD truly lacks the resources to have such a program, reciprocity with neighboring states should be considered over trainings from farther away. Also, it seems to me that education (from an accredited university for undergraduate, master's, and/or PhD levels) in forestry should be considered as satisfying at least part of any training requirement the state has. Even if the long-term plan for the State's forests is a no-cut future (not advocating for this), there is no good way to get there without logging and other forest management that would require those certified Master Loggers. Having a training requirement

that the State can't provide that affects what work can be done on State lands is a ridiculous situation that needs to be rectified... and "no-training required" is not an option.

I am not against some virtual training, but if there is more virtual training, then there should also be more field days for interaction between participants and hands-on training as well. They don't let me drive a car without training in one first, so why would we certify folks for logging without at least some hands-on training???

Thanks for the opportunity to serve on the CAC and weigh in on the plan.

All the best.

Jared
Jared R. Parks
Land Programs Manager
Lower Shore Land Trust
[100 River Street](#)
[Snow Hill, MD 21863](#)
www.lowershorelandtrust.org
O# (443) 234-5587



January 5, 2022

Mr. Jack Perdue
Forest Stewardship
Maryland Forest Service
580 Taylor Avenue, E-1
Annapolis, Maryland 21401

Dear Mr. Perdue,

I would like to begin by commending you and your team on the excellent job you do managing the forest resources of the Chesapeake and Pocomoke Forests. I really appreciate the hard work and dedication implementing forest sustainability from you and your staff. As one of the newest members of the Citizens Advisory Committee representing the forest industry, thank you for the appointment to the Committee and for the opportunity to comment on the 2023 Annual Work Plan.

I did not find any of the proposed projects for the Eastern Region State Forest Lands Annual Work Plan 2023 to be controversial. Therefore, I do not have any specific comments at this time. I believe all the recommended projects will improve the overall quality of the forest when implemented.

I do have a general comment regarding the forest road systems throughout the Chesapeake and Pocomoke Forests. The FY 2023 Annual Work Plan does discuss the forest roads undergoing general maintenance to maintain access for forest management activities. I believe this needs to be a high priority for the State to address. Through my observations, I've seen many road systems closing in quickly due to high numbers of small diameter hardwood saplings along the edges. These roads are critical for forest management, wildfire control, and recreational access. I do realize that maintaining many miles of forest roads is a large task and this will continue to be an ongoing occurrence. I wish you success in getting this project maintained and trust the road system will get the attention it deserves.

Thank you for your dedication to Maryland's forest resources.

Sincerely,

A handwritten signature in blue ink that reads "Anthony Rang".

Anthony Rang
Area Forester, Pixelle Specialty Solutions



OLD-GROWTH FOREST NETWORK

Connecting people with nature by creating a national network of protected, mature, native forests

PO Box 21
Easton MD 21601
410-251-1800
oldgrowthforest.net
info@oldgrowthforest.net

February 18, 2022

Thank you for the opportunity to comment on the 2023 Annual Work Plan for the Chesapeake/Pocomoke State Forests.

First of all, thank you for making the comment period more well-known by including it in your DNR Newsletter. If it were not for that announcement I wouldn't have known when the comment period was. There could still be improvements in reaching more citizens about the comment period, but this is a start.

Once again, the comment period is in late winter when almost all of the plants and insects are dormant, so it is impossible for me to say if there are any rare or endangered organisms in the areas planned for harvest. I assume that staff from the Heritage program has inspected all these areas, but having worked for Heritage myself I know that it can be easy to miss things. Ideally the comment period would be longer and it would include some time in the growing season.

On page 13 the plan states that the forest is managed for the following objectives:

- Forest Economy (silviculture)
- Forest Conservation
- Water Quality
- Wildlife Habitat
- Recreation and Cultural Heritage

Yet once again the plan is heavy with silvicultural objectives (thinning and harvests), and barely touches on the rest of the list. This has been a consistent failure of the Maryland Forest Service for decades. I was pleased to see that no cutting was planned in 2023 for older, remnant native forests. This is a positive change.

It seems that there is cutting, burning, and herbicide application in the forest for the sake of studying the effects on pollinators and quail. The work is being done on the forest, but are the effects being monitored? Where are the results for the citizens to see? For the record, the supporters of the Old-Growth Forest Network are against cutting for the purpose of creating "early successional habitat." Before you launch into a project like that, please do a survey showing how much early successional habitat already exists on the Eastern Shore. We feel that there is plenty, and that is not the reason quail population have declined. If you are truly concerned about quail populations, then why is it legal to shoot three per day per hunter on DNR forest lands? Your program to cut for quail is listed as a "public/private partnership." Who is the private group? I'm guessing it is a hunter friendly organization? Can any group form a partnership with DNR to cut forests? Could we form a partnership to keep forests standing? In conclusion we need more transparency. Including information about the exact herbicides that are being used on our public lands.

The work plan would benefit from some improvement to the way the data is presented. In particular, the Forest Diversity Analysis showing structure stage (pg 6). The 61+ column should be divided. Perhaps into 61-80, and then 81+ for starters? Also, it is unclear what is meant by "Uneven aged." Please clarify. What are the oldest trees in these uneven age stands?

Another place where the data could be presented in a more meaningful fashion is the pie chart for forest management zones (pg 9). The graph depicts the percentage of acres in each forest management zone for both



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Eastern Region forests. It is my understanding that there is such a thing as an Old-Growth Ecosystem Management Area (OGEMA). Is this on the graph somewhere but listed as something else, like ESA 3? Please include definitions of these zones at a minimum.

Speaking of old-growth ecosystem management areas, why have I never seen one marked anywhere on the maps? Silvicultural site maps should show the location of the management zones for "old growth and future old-growth." So many other management areas are shown on the maps (such as DFS, see for example pg 49) but these OG areas are missing. Although these are public forests, I have found this information very difficult to view on maps. Where is that information available to the public?

Good work on extending the recreational trails, and for applying for more grants for this work. Please show the recreational trails on the silvicultural site maps. It is unclear if the black and white lines on the maps are roads or trails or both. For instance, on P-23-S-04 and P-23-S-06 I believe some of the lines are trails. This has been a problem in the past -- with Chesapeake/ Pocomoke State Forest doing silvicultural work along and across the trails. This creates a less than ideal experience for recreational users. Since recreation is one of the objectives for the forest, silvicultural activities should not take place near trails.

Notes on specific silvicultural plans

I believe there is an error on the plan regarding CF-23-S-12. This is described as a 286 acre regeneration harvest, but that doesn't match what is shown on the silvicultural site map. Also, if the harvest were that large the total for regeneration harvest would be 381 acres instead of the 133 acres you list. Therefore, I believe the acreage listed is an error.

On CF-23-S-08 it appears that you are cutting the heart out of a large forest area. This fragmentation is harmful to forest interior dwelling birds (FIDS). Please remove this cut.

Additional notes

Please list members of the Citizen's Advisory Committee and who they represent. From what I can see there is one woman and five men? Any people of color? Please consider rebalancing your membership.

Regarding the comments you will receive on the work plan, please keep in mind that almost all of the comments in favor of the cutting are coming from those who will benefit financially. Meanwhile citizens with no financial stake in the cuts are overwhelmingly opposed.

Standing timber stores the most carbon and keeps it out of the atmosphere. Studies show that no matter what type of harvest takes place (including thinning) the result is more carbon released and less stored when compared to "no management." I'd be happy to share the references on this if you are interested.

Joan Maloof, PhD
Founder and Director
Professor Emerita, Salisbury University



March 1, 2022

Mr. Jack Perdue Program Manager
Forest Resource Planning
Maryland Forest Service
580 Taylor Ave., E-1
Annapolis MD 21401

Dear Jack and Mike,

Thank you for the opportunity to comment on the 2023 Annual Work Plan for the Chesapeake Forest Lands and the Pocomoke State Forest. We are happy to offer the following suggestions.

First, thanks for your continued commitment to supplying timber and pulpwood to the forest products industry here on the Shore. The contribution from State lands is a vital component of the overall supply of timber and it is important that DNR maintains a fair share, one that is commensurate with the amount of land the State now owns. In fact, timber from state lands is becoming increasingly important with the startup of the old Cropper Brothers mill. In addition, there are planned expansions for piling operations and we have recently had inquiries from a company across the Bay and one in North Carolina regarding the availability of high grade sawlogs from the Shore. These developments promise new and expanded markets for State timber. It is important to note that state timber lands represent about one-third of the total timber lands with tracts sizes over 10 acres within the five lower Shore counties.

As you know, our business has grown and we plan to continue to do so, with a new pellet operation and an expanded firewood plant. This, coupled with our expanding shavings operations, promise markets for not only pine timber and pulpwood but also for such previously "unloved" species as sweet gum and maple. Timber from State lands is increasingly important to our continued success.

There are a few operational details that you might consider for this and future plans. We now better understand the issues with an instantaneous comparison of "acres planned" and "acres accomplished" for the past decade as displayed in the appendices of previous plans. We agree that these comparisons can be misleading and don't yield much usable data. We do think some indication of accomplishments is important, however. You might consider a simple summary of wood volumes harvested each year or perhaps the annual change in timber revenues as suitable indications of accomplishments. Either measure would provide some indication of progress over time and identify important trends.

It might also be useful to provide a simple list of projects from the previous year and progress made toward completing them, i.e., was the project started, completed or partially completed. Over time, this would allow purchasers to better understand the scope of various sales wherein your planning and review work has been completed and where some wood might be available. Certainly, that would help in our own planning and

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procurement efforts. Along that line, as the plan notes, there is perhaps an overabundance of timber in the 26-40 age class and this is the obvious target for most of the thinning operations in this and previous plans. It would be interesting to see if your efforts are moving toward a more desirable age class distribution.

As demographics of the Shore's population changes and as we see increasing tourism, we believe it is becoming most important to properly explain some of the more obvious forestry practices. For example, the recent clearcut near Furnace Town to benefit Elfin Fringed Butterflies is a wonderful story, but what visitors see is a pretty harsh looking clearcut in the absence of any further explanation. Perhaps some interpretive signs to describe such practices as well as thinnings and young plantations visible from major roadways would be helpful in building support for forest management and perhaps forestalling undue future criticism. Maryland Forests Association is working on a number of communications and education efforts and it would be well worth exploring the cooperative possibilities with Beth and Joe.

Last year, we noted comments of the Old Growth Forest Network on the draft annual work plan. While the stated goal of the Network regarding protecting at least one older stand of timber in each county is laudable, their comments last year seemed to indicate an expanding mission. Particularly disturbing is their comment, "we believe forest harvesting should be halted, or sharply curtailed on state forests". It was encouraging, however, to hear Ms. Maloof of the Network acknowledge during a February 25 legislative hearing the she believed old growth on state forests were adequately protected. A bit contradictory perhaps, but useful nonetheless.

We also urge the DNR to clearly refute such misleading statements by the Network regarding the revenues and costs of timber management and the alleged competition with private timberland owners. In truth, without timber from state lands, we would see a significant reduction in the size of the industry, a commensurate drop in timber demand and a willingness on the part of private landowners to seek other, more profitable uses of their lands, a result that is clearly contrary to the goal of restoring water quality in the Chesapeake Bay. Finally, although a relatively rare occurrence here on the Shore, a crown fire in a young stand that is overly dense because it couldn't be properly thinned could be devastating. A call to discontinue timber management on state lands could lead to such consequences.

Lastly, we believe it would be beneficial to develop a better understanding of each purchaser's operations. For example, our company has made great strides in incorporating technology into our wood procurement and logging operations. We also believe we've been able to log some wetter sites in a manner that would meet the State's SFI and FSC standards. A day in the field with our folks and DNR staff to explore our mutual interests would be well spent, in our view.

Over the past several years, I feel we have made a lot of progress toward an effective working partnership with DNR and your local staffs. Such a relationship is vital to both of our continued successes and we appreciate your willingness to work with us and the job that you do.

Thank you for the opportunity to comment on the work plan and we'll look forward to working with you toward its implementation.

3667 St. Lukes Road, Salisbury, Maryland 21804 (410) 742-5540; www.esforest.com

Sincerely,

Tom Johnson

Tom Johnson,
President

3667 St. Lukes Road, Salisbury, Maryland 21804 (410) 742-5540; www.esforest.com



March 3, 2022

Maryland Department of Natural Resources
580 Taylor Avenue
Tawes State Office Building
Annapolis, MD 21401

Re. 2023 Draft Work Plans for Maryland's Four State Forests

On behalf of the Maryland Ornithological Society (MOS), I wish to thank DNR for the opportunity to submit comments on the four 2023 draft work plans for Maryland's state forests. Our comments are as follows.

Eastern Region (Chesapeake and Pocomoke State Forests)

We commend the authors for the wealth of information in this plan, including vegetation types and the history of these forests.

We approve of the continuing measures to enhance habitat favored by forest interior birds (FIDs). We are pleased to see that bird watching is mentioned under recreational activities. We are glad to see that monitoring of bees and butterflies is being considered and that there is continued focus on the conservation of the Delmarva Fox Squirrel.

We applaud the plans for its inclusion of control of invasive species of plants, notably *Phragmites*.

Finally, we are glad to see that there are no plans for ORV trails in these forests. As noted below in more detail, ORVs disturb the forest for other users, nesting birds and wildlife.

Green Ridge State Forest

We would have preferred to see a more detailed plan. Bird watching is not mentioned at all as a recreational activity. Despite this omission, Green Ridge State Forest is visited by birders for its notable birds, as evidenced by having no less than fourteen eBird hot spots. Ruffed Grouse and Blue-headed vireo are examples of the choice species which breed here. We ask that bird watching be included as a recreational activity.

We would like to have seen more information on plans to control invasive plant species.

Savage River State Forest

We are pleased to note the project to determine the effects of the insecticide, imidacloprid, on *Laricobius* beetles (predators of hemlock woolly adelgids). Similarly, we appreciate the study of genetic variation in Black-throated Blue Warblers with environment and over time. We are glad to learn of the continuing study of wood turtle populations. We approve of the efforts to control the four species of invasive plant species noted.

We would like to see bird watching listed as one of the recreational activities which is encouraged in this forest since MOS members and other birders already visit it for its rich assemblage of birds which occur. This is evidenced by there being four eBird hotspots in the forest. Least Flycatcher, Black-throated Green, Chestnut-sided warblers and Hermit Thrush are examples of birds which only breed in this far western part of the state.

This forest is being maintained for multiple users, most of which are mutually compatible. The notable exception is the off-road vehicle (ORV) user. A number of studies link reduced bird nesting success and even abandonment of territories to noise and similar disturbance. ORV noise and rapid movement is also disturbing to other wildlife, which may vacate areas of heaviest use.

We note that there are already ORV trails at Meadow Mountain, East Shale Road, Margraff Plantation, Negro Mountain and the newly reopened one at St. John's Rock. We strongly urge that no new ORV trails be built and that existing ones not be expanded.

Potomac and Garrett State Forests

We commend the plan for its concern for rare and uncommon breeding birds and the ongoing efforts to control certain invasive plant species.

We would like to see bird watching listed under 'Recreational Opportunities'. MOS members and other birders already visit this forest for the wide variety of birds which occur there, as indicated by there being six eBird hotspots in the forest. Ruffed Grouse, Blackburnian, Canada and Cerulean warblers and Rose-breasted Grosbeak are examples of choice birds which breed only in this far western part of the state.

As noted above for the Savage River plan, and reiterated here for emphasis, this forest is being maintained for multiple users, most of which are mutually compatible. The notable exception is the off-road vehicle ORV user. This noisy form of recreation is disturbing to all others who visit this forest and can seriously interfere with bird nesting success and disturb other forms of wildlife.

There are already ORV trails at Snaggy Mountain Road, Piney Mountain Road, Laurel Run Road Wallman Road and Burkholder Road. We strongly urge that no new ORV trails be built and that the existing ones not be expanded.

In closing, please note that MOS is a volunteer Maryland organization founded in 1945. We now have approximately 1900 members, divided into 15 chapters. MOS is devoted to the enjoyment, study and conservation of wild birds and their habitats, with special focus on Maryland's birds.

We thank you for taking the time to consider our comments and ask that you contact me with any questions or responses to said comments.

Yours sincerely



Kurt R. Schwarz
Conservation Chair
Maryland Ornithological Society
www.mdbirds.org
7329 Wildwood Ct.
Columbia, MD 21046
410-461-1643
krschwa1@verizon.net

Chesapeake Forest / Pocomoke State Forest AWP Public Comments

2022.04.25

Thank you for investing in OHV trail development.

SB606 was passed to not just maintain existing OHV trails, but to create new ones as well. Saint John's Rock new trail development is exciting and will appeal to, and generate more users. This should be a trend to be continued at Savage Forest to further develop a desirable OHV trail system for its desired end users.

The repairs within Potomac-Garrett Forest to the bridges and erosion controls are important and necessary, but will be incomplete without expanding the OHV's accessible to these existing trails, and growing them as well.

With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation. The eastern shore desperately needs public access to OHV trails.

Anonomous

There are no OHV trails available on the Eastern shore even though there are a number of available options such as Tuckahoe State Park or easement land underneath high voltage power lines.

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The repairs within Potomac-Garrett Forest to the bridges and erosion controls are important and necessary, but will be incomplete without expanding the OHV's accessible to these existing trails, and growing them as well.

With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

Bob Rosekrans, Stevensville MD

As a longtime resident of the Eastern Shore, I am sending to you some comments regarding DNR 2023 Annual Work Plan for the Chesapeake/Pocomoke State Forests. I appreciate the advocacy by Joan Maloof and others who work actively on behalf of our old-growth forests and conservation in Eastern Maryland. Please seriously consider their comments regarding ecosystem management.

Please make easily available to the general public such as myself— information from your office regarding the status of and plans for MD forest conservation, water quality, and wildlife habitat. It is critical that our state continuously enact measures that will foster the health of these areas and that our citizenry be aware of the action being taken..

Like Ms. Maloof, I am against cutting in forests for the purpose of creating early successional habitat. Based upon my reading, I believe that this is not needed or productive. Let's continue to store carbon in our standing trees;

let's not release more carbon into the atmosphere through unneeded thinning and cutting. We in Maryland must do our part to protect the health of our local environment as we combat the increasing negative effects of climate change.

Patricia Campbell

Thank you for the opportunity to comment on the 2023 Annual Work Plan for the Chesapeake/Pocomoke State Forests.

On CF-23-S-08 it appears that you are cutting the heart out of a large forest area. This fragmentation is harmful to forest interior dwelling birds (FIDS). **Please remove this cut.**

On P-23-S-04 and P-23-S-06 It looks like some of the lines have trails. This has been a problem in the past -- with Chesapeake/ Pocomoke State Forest doing silvicultural work along and across the trails. Since recreation is one of the objectives for the forest, **silvicultural activities should not take place near trails.**

On page 13 the plan states that the forest is managed for the following objectives:

- Forest Economy (silviculture) • Forest Conservation
- Water Quality
- Wildlife Habitat
- Recreation and Cultural Heritage

But the plan is heavy with silvicultural objectives (thinning and harvests), and barely touches on the rest of the list. Please re-assess the last three objectives and **provide more action in these areas**

And I am **against cutting for the purpose of creating "early successional habitat."** Before you launch into a project like that, please do a survey showing how much early successional habitat already exists on the Eastern Shore. There appears to be plenty, and that it is not necessarily the reason quail population have declined. Studies indicate that pesticides and loss of meadow habitat are the main reasons for the decline. And If you are truly concerned about quail populations, then it seems odd to allow a limit of three quail per day per hunter on DNR forest lands. Do the math, that's a lot of dead birds in a population that is already experiencing a big decline.

Captain Iris Robertson, Royal Oak MD

Thank you for investing in OHV trail development.

SB606 was passed to not just maintain existing OHV trails, but to create new ones as well. Saint John's Rock new trail development is exciting and will appeal to, and generate more users. **The current St. John's Rock trail is inadequate and a tad lame; it appears to have been designed and implemented by someone who isn't a real trail rider. Simply having it parallel the roadway is boring. With all the land to work with, that area needs long loops over varying terrain and elevations. Please have experienced trail cutters design and implement the new sections.** This should be a trend to be continued at Savage Forest to further develop a desirable OHV trail system for its desired end users.

The repairs within Potomac-Garrett Forest to the bridges and erosion controls are important and necessary, but will be incomplete without expanding the OHV's accessible to these existing trails, and growing them as well.

With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

Thank you,

--

Paul Layer, Damascus, MD

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Thank you,

Jeff Nelson, Frederick, Maryland

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Thank you,

Larry Wellman

Thank you for investing in OHV trail development.

SB606 was passed to not just maintain existing OHV trails, but to create new ones as well.

I'll be interested to use Saint John's Rock and am asking for new trail development there.

This should be continued at Savage Forest to further develop a desirable OHV trail system.

The repairs within Potomac-Garrett Forest to the bridges and erosion controls are important and necessary, and will expand the OHV's accessible to these existing trails, and growing them as well.

It is time to reopen OHV trails on the Eastern Shore.

Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

I feel that horses do as much damage to the environment as OHVs and motorcycles and the restriction on horses should be considered on many trails especially ones closest to watersheds.

Billy Gleaves, Woodbine, Maryland

I live in Carroll County, Maryland and I am the Vice President of the Road and Trail Motorcycle Club (R&T Club) in Frederick Maryland.

Thank you for investing in OHV trail development.

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Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

Brian Holsonbake

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With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

Zac Coombs

I live in Salisbury MD. I moved here from PA where there was an abundance of places to ride dirt bikes, quads, and off road vehicles. Since moving to Maryland, especially the Eastern Shore, I have come across a big out cry for places to ride.

I myself was looking into attempting to start an ORV park when I came across MDOHVA. I have been informed of the big accomplishments out in Garrett County, and hope to bring the same enthusiasm here to the shore.

Eastern shore keep club, MD dirt bikers, Delmarva Power sports, as well as many other social media groups and locals would very much like to see the reopening of old trails, or better yet, the addition of new ones.

We are hoping with improved funding, and with help from MDOHVA we can make this a reality.

Thank you for investing in OHV trail development.

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With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

Kurt Leonard

Thank you for investing in OHV trail development.

I am an active off-road motorcyclist have reviewed some of the current forest annual work plans and find it encouraging that motorized ORV use is included in several plans.

SB606 was passed to not just maintain existing OHV trails, but to create new ones as well. Saint John's Rock new trail development is exciting and will appeal to, and generate more users. This should be a trend to be continued at Savage Forest to further develop a desirable OHV trail system for its desired end users.

The repairs within Potomac-Garrett Forest to the bridges and erosion controls are important and necessary but will be incomplete without expanding the OHV's accessible to these existing trails and growing them as well.

With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore and southern Maryland as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

I am a longtime Maryland resident living in Waldorf.

Joe Epperson

It is important to me that the State Of Maryland continue to invest in OHV trails in our forests.

Thank you for investing in OHV trail development.

SB606 was passed to not just maintain existing OHV trails, but to create new ones as well. Saint John's Rock new trail development is exciting and will appeal to, and generate more users. This should be a trend to be continued at Savage Forest to further develop a desirable OHV trail system for its desired end users.

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Kevin Diamond, Ellicott City, MD

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Levi Lantz

Thank you for investing in OHV trail development.

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With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

James Ratino, Westminster MD

Thank you for investing in OHV trail development.

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With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

Steven Borgfeld, Carroll County, MD

Thank you for investing in OHV trail development. Cooperation between the Maryland OHV alliance and the DNR has proven to be a win-win for both parties. Let's try to continue the dialogue and expand ORV access in a more equitable fashion across the state.

SB606 was passed to not just maintain existing OHV trails, but to create new ones as well. Saint John's Rock new trail development is exciting and will appeal to, and generate more users. This should be a trend to be continued at Savage Forest to further develop a desirable OHV trail system for its desired end users.

The repairs within Potomac-Garrett Forest to the bridges and erosion controls are important and necessary, but will be incomplete without expanding the OHV's accessible to these existing trails, and growing them as well.

With trails returning to Western MD, it is time to create and reopen trails on the Eastern Shore as well. Please utilize SB 606 funding to fund a sustainability study for OHV recreation.

Thank you for all that you do !

Tom Phipps

K. SILVICULTURAL PROJECTS

SILVICULTURAL ACTIVITY OVERVIEW

Tables 2 and 3 summarize the proposed silvicultural activities for the 2023 annual work plan on approximately 2,058.6 acres (2.7%) of the Chesapeake Forest and 316.6 acres (1.7%) of Pocomoke State Forest, for a total of 2,375.2 acres (2.5%) on both forests.

Table 2. 2023 Chesapeake Forest Silvicultural Activity Overview. (CF-23-S-1 – CF-23-S-19)

Activity	Acres
First thinning	1228.3
Second thinning	696.7
Regeneration Harvest	133.6
Total	2,058.6

Table 3. 2023 Pocomoke State Forest Silvicultural Activity Overview. (P-23-S-1 – P-23-S-6)

Activity	Acres
First Thinning	316.6
Total	316.6

DEFINITIONS OF SILVICULTURAL ACTIVITIES

- **Reforestation** – Reforestation reestablishes forest cover either naturally or artificially (hand planting), and may be accompanied by some kind of site preparation during the same fiscal year. The nature of the site preparation will be determined by field examination. It is occasionally followed, in the same fiscal year, with grass control in the form of chemicals (hand-applied by ground crews). Site conditions will dictate application rates, etc., in each case.
- **Site Preparation/Regeneration** – While natural regeneration is the preferred method of reforesting harvested areas, alternative plans should be in place in case natural regeneration is unsuccessful. Alternatives include prescribed burning, herbicide, light mechanical disturbance, or a combination thereof followed by planting of native pines and/or hardwoods as the management zone dictates.
- **Pre-Commercial Thinning** – Pre-commercial thinning is the removal of trees to reduce overcrowded conditions within a stand. This type of thinning concentrates growth on more desirable trees while improving the health of the stand. This treatment is usually done on stands 6 to 10 years of age. The number of trees retained will depend on growth, tree species present, and site productivity. This activity is conducted with hand held power tools and not heavy equipment, thereby reducing adverse impact to the soil.
- **First Commercial Thinning** – Usually performed on plantations 20-25 years old. The objective is to facilitate forest health and promote development of larger trees over a shorter period of time. This is accomplished in plantations by removing every 5th row of trees and selectively thinning (poor form & unhealthy trees) between rows. In naturally regenerated stands, thinning corridors will be established every 50 feet and the stand will be selectively thinned along both sides of the corridor. Approximately 30-40% of the total stand volume will be removed in this process. Stocking levels are determined using a loblolly pine stocking chart based on the basal area, DBH, and trees per acre of the stand (USDA Forest

Service, 1986). Crown ratio and site index are other factors that are used to decide whether to thin or not.

- **Second Commercial Thinning** – Usually performed on stands 35-40 years old. The objective is to lengthen the rotation age of the stand and produce larger, healthier trees. In some cases, this technique is used to improve habitat for the Delmarva Fox Squirrel (DFS) and Forest Interior Dwelling Species (FIDS). Approximately 25-30% of the total stand volume will be removed in this process.
- **Selection Harvest** – This includes the removal of single trees and groups of trees within a given stand. This method will be used to distribute age classes and to adjust species composition within a given stand (i.e. riparian buffers, ESA, DFS & FIDS areas).
- **Shelterwood Harvest** – The shelterwood method involves the gradual removal of the entire stand in a series of partial cuttings that extend over a fraction of the rotation (Smith, 1986). The number of trees retained during the first stage of the harvest depends on the average tree size (diameter at breast height) on the site. As with seed tree regeneration, the shelterwood method works best when overstory trees are more than 30 years old and in their prime period of seed production potential (Schulz, 1997).
- **Seed Tree Harvest** – This type of harvest is designed to regenerate pine on the site by leaving 12 to 14 healthy dominant trees per acre as a seed source. The seed trees are typically left on the site for another rotation, but can be removed once sufficient pine regeneration is achieved. The seed tree method regenerates loblolly pine effectively and inexpensively in the Coastal Plain, where seed crops are consistently heavy (Schulz, 1997).
- **Variable Retention Harvest** – This harvest type focuses on the removal of approximately 80 percent of a given stand in one cutting, while retaining approximately 20 percent as wildlife corridors/islands, visual buffers, and/or legacy trees. Coarse woody debris (slash/tree tops) is left evenly across the site to decompose. A Variable Retention Harvest (VRH) is prescribed to help regulate the forest growth over the entire forest, ensuring a healthy and vigorous forest condition. Harvesting of young loblolly pine stands is done to help balance the age class distribution across the forest. Currently, about 20% of the two forests is 19 years of age or younger. VRH are also used to regenerate mixed natural stands within ESAs, DFS & Core FIDS areas. The preferred method of regeneration is by natural seeding from adjacent stands, or from trees cut in the clearing operation. If adequate natural regeneration is not obtained within 3 years of the harvest, hand planting of the site is typically required (not required for certain restoration projects, such as bay restoration).
- **Regeneration Harvest** – This type of harvest removes up to 95% of a stand in one cutting, while retaining at least 5% in green tree retention areas. Factors such as riparian areas, soil types, ecologically significant areas, snags, and legacy trees will determine the placement of green tree retention areas. Coarse woody debris (slash/tree tops) is left evenly across the site to decompose. A regeneration harvest is prescribed to help regulate the forest growth over the entire forest, ensuring a healthy and vigorous forest condition. Regeneration harvests are most typically implemented in General Management and ESA Zone 3 areas, but they can also be used to regenerate mixed natural stands within ESAs, DFS and Core FIDS areas. The preferred method of regeneration is by natural seeding from adjacent stands, or from trees cut in the clearing operation. If adequate natural regeneration is not obtained within 3 years of the harvest, hand planting of the site is typically required (not required for certain restoration projects, such as bay restoration).
- **Aerial Release Spraying** – An aerial spray of herbicide is used to reduce undesirable hardwood species (i.e. sweet gum & red maple) within the stand. In many cases, a reduced rate (well below the manufacturer's recommendation) is used. A reduced rate has been used on the CF successfully to kill the undesirable species while maintaining the desirable ones (yellow poplar & oaks). All forms of aerial spraying are based on precision GPS mapping and accompanied by on-board flight GPS controls. GPS-

generated maps shows each pass of the aircraft and are provided by the contractor to demonstrate precision application. Aerial applications are not allowed in specially designated wetland areas or within 150 feet of riparian areas on the forest.

- **Prescribed Fire** – Prescribed fires are set deliberately by MFS personnel, under proper weather conditions, to achieve a specific management objective. Prescribed fires are used for enhancing wildlife habitat, encouraging fire-dependent plant species, reducing fuel loads that feed wildfires, and prepare sites for planting.
- **Riparian Buffer Zone Establishment** – Riparian buffer zones are vegetated areas adjacent to or influenced by a perennial or intermittent bodies of water. These buffers are established and managed to protect aquatic, wetland, shoreline, and/or terrestrial environments and ultimately the Chesapeake Bay. Boundaries of riparian buffer zones will be marked, surveyed (GPS) and mapped (GIS). Selective harvesting and/or thinning may occur in these areas to encourage a mixed hardwood-pine composition.

SILVICULTURAL PRESCRIPTIONS & STAND DATA

SOMERSET COUNTY

[CF-23-S-01]

Proposal Name: S10 – Seed Tick Farm – Stand 8

Harvest Area: 40.6 acres

Forest Community Types and Development: Overstocked loblolly pine plantation established in 2001.

Habitats and Species of Management Concern: General Management

Water Resources: Wicomico Creek watershed, Dividing Creek tax ditch

Soil Resources: HmA, HuA, HvA, KgB, MuA, and RwB

Historic Conditions: Cemetery and house site as shown on plat, no evidence of cemetery found

Silvicultural Prescription: First thinning

[CF-23-S-02]

Proposal Name: S10 – Seed Tick Farm – Stand 9

Harvest Area: 7.0 acres

Forest Community Types and Development: Mature loblolly pine naturally regenerated in 1949.

Habitats and Species of Management Concern: General Management

Water Resources: Wicomico Creek watershed

Soil Resources: HvA, MuA, and RwB

Historic Conditions: No known historic features

Silvicultural Prescription: Regeneration harvest, retain hardwoods and native pines such as pitch, shortleaf, and pond

[CF-23-S-03]

Proposal Name: S21 – E. Mace Smith – Stand 37

Harvest Area: 22.1 acres

Forest Community Types and Development: Overstocked loblolly pine plantation established in 1999 and pre-commercially thinned in 2009.

Habitats and Species of Management Concern: DFS Core

Water Resources: Manokin River watershed

Soil Resources: OKA and QuA

Historic Conditions: No known historic features
Sivilcultural Prescription: First thinning, retain significant hard mast species

[CF-23-S-04]

Proposal Name: S21 – E. Mace Smith – Stands 10, 22, 23, and 45

Harvest Area: 219.1 acres

Forest Community Types and Development: Stand 10 is an overstocked loblolly pine plantation established in 1985 and first thinned in 2008. Stand 22 is an overstocked loblolly pine plantation established in 1989, sprayed in 1995, and first thinned in 2007. Stand 23 is an overstocked loblolly pine plantation established in 1984 and first thinned in 2008. Stand 45 is overstocked loblolly pine naturally regenerated in 1978, sprayed in 1996 and first thinned in 2008.

Habitats and Species of Management Concern: ESA Zone 1, ESA Zone 3 Pulpwood, and DFS Core

Water Resources: Manokin River and Monie Bay watersheds

Soil Resources: AoA, FhA, OKA, OtA, QuA, and WdB

Historic Conditions: No known historic features

Sivilcultural Prescription: Second thinning, retain significant hard mast species and shortleaf, pond, and pitch pines

WICOMICO COUNTY

[CF-23-S-05]

Proposal Name: W22 – Greenhill – Stands 25, 26, 28, 33, and 35

Harvest Area: 443.8 acres

Forest Community Types and Development: Stand 25 is overstocked loblolly pine plantation established in 1999 and sprayed in 2013. Stands 26 & 28 are overstocked loblolly pine plantations established in 1995. Stand 33 is an overstocked loblolly pine plantation established in 2003. Stand 35 is an overstocked loblolly pine plantation established in 1990.

Habitats and Species of Management Concern: Stream Buffer and DFS Future

Water Resources: Nanticoke River Lower Wicomico River watersheds

Soil Resources: MtA, MtB, OKA, OtA, and Zk

Historic Conditions: No known historic features

Sivilcultural Prescription: First thinning, retain significant hard mast species

[CF-23-S-06]

Proposal Name: W22 – Greenhill – Stands 19 and 21

Harvest Area: 344.2 acres

Forest Community Types and Development: Stand 19 is an overstocked loblolly pine plantation established in 1998. Stand 21 is an overstocked loblolly pine plantation established in 2005.

Habitats and Species of Management Concern: Stream Buffer and DFS Future

Water Resources: Nanticoke River and Lower Wicomico River watersheds

Soil Resources: MtA and OtA

Historic Conditions: No known historic features

Sivilcultural Prescription: First thinning, retain significant hard mast species

[CF-23-S-07]

Proposal Name: W46 – Wicomico Demonstration Forest – Stands 22 and 135

Harvest Area: 74.0 acres

Forest Community Types and Development: Stand 22 is an overstocked loblolly pine naturally regenerated in 1990. Stand 135 is an overstocked loblolly pine plantation established in 1990.

Habitats and Species of Management Concern: ESA Zone 1, ESA Zone 1 Sand Ridge, ESA Zone 3 Pulpwood, and DFS Future

Water Resources: Upper Pocomoke River watershed

Soil Resources: BhA, CoA, FmB, KgB, LfA, MuA, NnB, RsB, and WdA

Historic Conditions: Cemetery and old home site as indicated on map

Silvicultural Prescription: First thinning, follow inland dune recommendations and retain pitch, shortleaf, and pond pines and hardwoods. Retain any Atlantic White Cedar trees. NHP would like to meet with Mike and Alex on site to discuss possible opportunities for Atlantic White Cedar restoration where appropriate along the toe slope of the dune.

[CF-23-S-08]

Proposal Name: W46 – Wicomico Demonstration Forest – Stand 67

Harvest Area: 19.9 acres

Forest Community Types and Development: Stand 67 is a mature loblolly pine plantation established in 1940. Portions of this stand burned in 1985, 2002, and 2021.

Habitats and Species of Management Concern: DFS Future

Water Resources: Nassawango Creek watershed

Soil Resources: HvA, KgB, MuA, and RsB

Historic Conditions: Cemetery as indicated on map

Silvicultural Prescription: Regeneration harvest, follow dune guidelines and retain significant hard mast species, and pitch, shortleaf, and pond pines.

WORCESTER COUNTY

[CF-23-S-09]

Proposal Name: WR02 – Littleton Fooks – Stands 1, 8, and 14

Harvest Area: 174.5 acres

Forest Community Types and Development: Stand 1 is an overstocked loblolly pine plantation established in 1991 and first thinned in 2009. Stand 8 is an overstocked loblolly pine plantation established in 1991 and first thinned in 2004. Stand 14 is an overstocked loblolly pine plantation established in 1991 and first thinned in 2005.

Habitats and Species of Management Concern: Stream Buffer and General Management

Water Resources: Upper Pocomoke River watershed

Soil Resources: AsA, BhA, EkA, FaA, HmA, HuA, KeA, and MuA

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning

[CF-23-S-10]

Proposal Name: WR16 – Wainwright – Stands 1 and 6

Harvest Area: 52.9 acres

Forest Community Types and Development: Stand 1 is overstocked loblolly pine naturally regenerated in 1995. Stand 6 is an overstocked loblolly pine plantation established in 1998 and pre-commercially thinned in 2004.

Habitats and Species of Management Concern: ESA Zone 1, ESA Zone 3 Pulpwood, Stream Buffer, and General Management

Water Resources: Pusey Branch, Dividing Creek watershed

Soil Resources: AsA, EkA, FaA, HuA, KeA, KsA, KsB, MuA, and OtA

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning, followed by prescribed burning during the dry season. Inland dune guidelines will be followed and native pitch, shortleaf, and pond pines and significant hardwoods will be retained.

[CF-23-S-11]

Proposal Name: WR16 – Wainwright – Stand 2

Harvest Area: 34.9 acres

Forest Community Types and Development: Overstocked loblolly pine plantation established in 1988, pre-commercially thinned in 1994, and first thinned in 2004.

Habitats and Species of Management Concern: ESA Zone 1, ESA Zone 3 Pulpwood, and General Management

Water Resources: Dividing Creek watershed

Soil Resources: AsA, FaA, HuA, KsA and MuA

Historic Conditions: No known historic features

Silvicultural Prescription: Second thinning, followed by prescribed burning during the dry season. Inland dune guidelines will be followed and native pitch, shortleaf, and pond pines and significant hardwoods will be retained.

[CF-23-S-12]

Proposal Name: WR16 – Wainwright – Stands 1, 2, and 6

Harvest Area: 37.0 acres

Forest Community Types and Development: Stand 1 is overstocked loblolly pine naturally regenerated in 1995. Stand 2 is an overstocked loblolly pine plantation established in 1988, pre-commercially thinned in 1994, and first thinned in 2004. Stand 6 is an overstocked loblolly pine plantation established in 1998 and pre-commercially thinned in 2004.

Habitats and Species of Management Concern: ESA Zone 3 Pulpwood

Water Resources: Dividing Creek watershed

Soil Resources: AsA, EkA, FaA, HuA, KeA, KsA, KsB, MuA, and OtA

Historic Conditions: No known historic features

Silvicultural Prescription: Regeneration harvest

[CF-23-S-13]

Proposal Name: WR20 – Pusey #3 – Stand 1

Harvest Area: 17.2 acres

Forest Community Types and Development: Stand 9 is an overstocked loblolly pine plantation established in 1999.

Habitats and Species of Management Concern: ESA Zone 1, DFS Future, and General Management

Water Resources: Pusey Branch, Dividing Creek watershed

Soil Resources: AsA, BhA, KsA, LO, MuA, and RuB

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning, retain any hardwoods as well as pitch, shortleaf and pond pines.

[CF-23-S-14]

Proposal Name: WR20 – Pusey #3 – Stand 1

Harvest Area: 25.5 acres

Forest Community Types and Development: Stand 9 is an overstocked loblolly pine plantation established in 1999.

Habitats and Species of Management Concern: ESA Zone 3 Pulpwood

Water Resources: Pusey Branch, Dividing Creek watershed

Soil Resources: AsA, BhA, KsA, MuA, and RuB

Historic Conditions: No known historic features

Silvicultural Prescription: Regeneration Harvest, retain any hardwoods as well as pitch, shortleaf and pond pines.

[CF-23-S-15]

Proposal Name: WR21 – Bethards – Stand 1

Harvest Area: 21.9 acres

Forest Community Types and Development: Stand 1 is an overstocked loblolly pine plantation established in 1998 and pre-commercially thinned in 2006.

Habitats and Species of Management Concern: Stream Buffer and DFS Future

Water Resources: Pusey Branch and Dividing Creek watershed

Soil Resources: AsA, BhA, KsA, Ma, MuA, and RuA

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning, retain significant hard mast species, follow inland dune guidelines

[CF-23-S-16]

Proposal Name: WR24 – Johnson & Johnson – Stands 11, 13, 14, and 16

Harvest Area: 87.6 acres

Forest Community Types and Development: Stand 11 is an overstocked loblolly pine plantation established in 1999. Stand 13 is an overstocked loblolly pine plantation established in 1994. Stand 14 is overstocked loblolly pine naturally regenerated in 1993. Stand 16 is an overstocked loblolly pine plantation established in 1998 and pre-commercially thinned in 1998.

Habitats and Species of Management Concern: ESA Zone 3 Sawtimber, Stream Buffer, and DFS Future

Water Resources: Dividing Creek and Lower Pocomoke River watersheds

Soil Resources: EmA, KeA, Ma, MtB, NsA, OtA, and WdB

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning, retain significant hard mast species and pitch, shortleaf, and pond pines

[CF-23-S-17]

Proposal Name: WR24 – Johnson & Johnson – Stands 1, 4, 7, and 10

Harvest Area: 268.3 acres

Forest Community Types and Development: Stand 1 is an overstocked loblolly pine plantation established in 1982 and first thinned in 2001. Stand 4 is an overstocked loblolly pine plantation established in 1975 and first thinned in 2001. Stand 7 is an overstocked loblolly pine plantation established in 1966, first thinned in 1993, sprayed in 1995, fertilized in 1996, and partially burned in 2016. Stand 10 is overstocked loblolly pine naturally regenerated in 1976 and first thinned in 1994.

Habitats and Species of Management Concern: ESA Zone 3 Sawtimber, Stream Buffer, and DFS Future

Water Resources: Dividing Creek and Lower Pocomoke River watersheds

Soil Resources: KeA, Ma, MpA, MtA, NsA, OtA, WdA, and WdB

Historic Conditions: No known historic features

Silvicultural Prescription: Second thinning, retain significant hard mast species and pitch, shortleaf, and pond pines

[CF-23-S-18]

Proposal Name: WR40 – Dunn Swamp – Stand 4

Harvest Area: 44.1 acres

Forest Community Types and Development: Stand 4 is a mature loblolly pine plantation established in 1978, first thinned in 1994, and second thinned in 2000. Stand 2 is an overstocked loblolly pine plantation established in 1988, pre-commercially thinned in 1994, sprayed in 1995, fertilized in 1996, and first thinned in 2004.'

Habitats and Species of Management Concern: Core FIDS and General Management

Water Resources: Lower Pocomoke River watershed

Soil Resources: KeA, MtA, and OtA

Historic Conditions: No known historic features

Sivilcultural Prescription: Regeneration harvest, retain significant hard mast species and pitch, shortleaf, and pond pines

[CF-23-S-19]

Proposal Name: WR45 – Foster Estate – Stand 30

Harvest Area: 44.1 acres

Forest Community Types and Development: Stand 30 is an overstocked loblolly pine plantation established in 2000.

Habitats and Species of Management Concern: ESA Zone 1 Sand Ridge, Stream Buffer, and DFS Future

Water Resources: Dividing Creek and Nassawango Creek watersheds

Soil Resources: AsA, BhA, KsA, KsB, LO, MuA, and RuB

Historic Conditions: No known historic features

Sivilcultural Prescription: First thinning, follow inland sand dune recommendations and retain significant hard mast species and pitch, shortleaf, and pond pines

POCOMOKE STATE FOREST

[P-23-S-01]

Proposal Name: P02 – Nazareth Church – Tract 7, Stands 4, 5, and 6; Tract 8, Stand 1; Tract 34, Stand 1

Harvest Area: 163.4 acres

Forest Community Types and Development: Tract 7, Stand 4 is an overstocked loblolly pine plantation established in 1994 and pre-commercially thinned in 2001. Tract 7, Stand 5 is an overstocked loblolly pine plantation established in 2005. Tract 7, Stand 6 is overstocked loblolly pine naturally regenerated in 1994. Tract 8, Stand 1 is overstocked pine/hardwood naturally regenerated in 1994. Tract 34, Stand 1 is an overstocked loblolly pine plantation established in 1994.

Habitats and Species of Management Concern: ESA Zone 1 and DFS Future Core

Water Resources: Dividing Creek watershed

Soil Resources: AsA, BhA, CeB, EvD, HuA, KsA, KsB, Ma, MuA, RuA, and RuB

Historic Conditions: Homesites and cemetery as indicated on map

Sivilcultural Prescription: First thinning, retain significant hard mast species.

[P-23-S-02]

Proposal Name: P04 – Dividing Creek – Tract 13 – Stands 17 and 22

Harvest Area: 33.6 acres

Forest Community Types and Development: Stand 17 is overstocked loblolly pine naturally regenerated in 1994 and pre-commercially thinned in 2006. Stand 22 is an overstocked loblolly pine plantation established in 2005.

Habitats and Species of Management Concern: Stream Buffer and DFS Future Core

Water Resources: Dividing Creek watershed

Soil Resources: AsA, FaA, HuA, KsA, RoB, and WdA

Historic Conditions: No known historic features

Sivilcultural Prescription: First thinning, retain significant hard mast species

[P-23-S-03]

Proposal Name: P04 – Dividing Creek – Tract 14 – Stand 12

Harvest Area: 17.4 acres

Forest Community Types and Development: Overstocked loblolly pine naturally regenerated in 2003 and pre-commercially thinned in 2011.

Habitats and Species of Management Concern: DFS Future Core

Water Resources: Dividing Creek watershed

Soil Resources: HbA, HmA, HuA, OtA, and WdA

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning, retain significant hard mast species. Lidar indicates a possible depression wetland on this stand, possibly a sandpit or vernal pool? If accurate, a minimum 100' buffer should be delineated around this wetland.

[P-23-S-04]

Proposal Name: P05 – Milburn Landing – Tract 16 – Stand 5

Harvest Area: 10.7 acres

Forest Community Types and Development: Overstocked loblolly pine naturally regenerated in 2002.

Habitats and Species of Management Concern: DFS Future Core

Water Resources: Lower Pocomoke River watershed

Soil Resources: FaA, KeA, NnA, RoA, WdA, and WdB

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning, follow inland dune guidelines and retain significant hard mast species and native pines such as pitch, shortleaf, and pond pine

[P-23-S-05]

Proposal Name: P05 – Milburn Landing – Tract 17 – Stands 2 and 3

Harvest Area: 52.5 acres

Forest Community Types and Development: Stand 2 is overstocked pine/hardwood naturally regenerated in 1994. Stand 3 is overstocked pine/hardwood naturally regenerated in 2002.

Habitats and Species of Management Concern: ESA Zone 1 and DFS Future Core

Water Resources: Lower Pocomoke River watershed

Soil Resources: MeA, MkB, MpB, MtB, and SaB

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning. Dune guidelines should be applied here with hardwoods, pitch, pond, and shortleaf pines retained.

[P-23-S-06]

Proposal Name: P06 – Hudson – Tract 20 – Stands 2 and 4

Harvest Area: 39.1 acres

Forest Community Types and Development: Stand 2 is overstocked pine/hardwood naturally regenerated in 1997 and pre-commercially thinned in 2008. Stand 3 is overstocked pine/hardwood naturally regenerated in 2002.

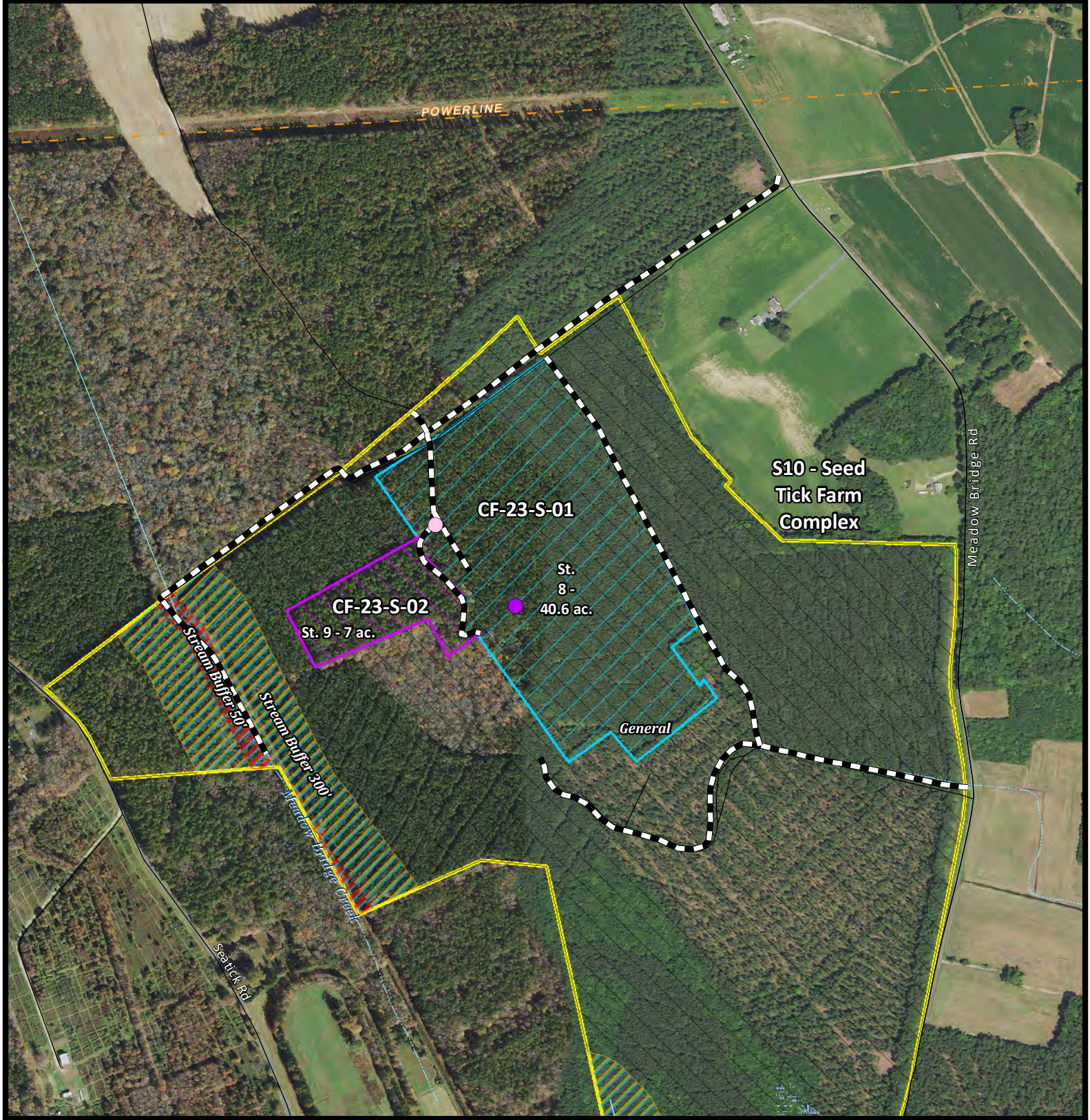
Habitats and Species of Management Concern: ESA Zone 1 and DFS Future Core

Water Resources: Lower Pocomoke River watershed

Soil Resources: CeB, EvB, FaA, HbB, HmA, RuA, and RuB

Historic Conditions: No known historic features

Silvicultural Prescription: First thinning, retain significant hard mast species. In order to avoid harm to rare plant populations, keep harvest equipment/vehicles within the limits of disturbance of the harvest area.





CF-23-S-01

Scale: 1" = 660'
Date: 07/2021



Legend

CF AWP Activity

-  2023 First Thinning
-  2023 Regeneration Harvest

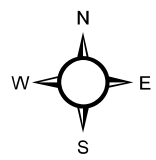
CF Management

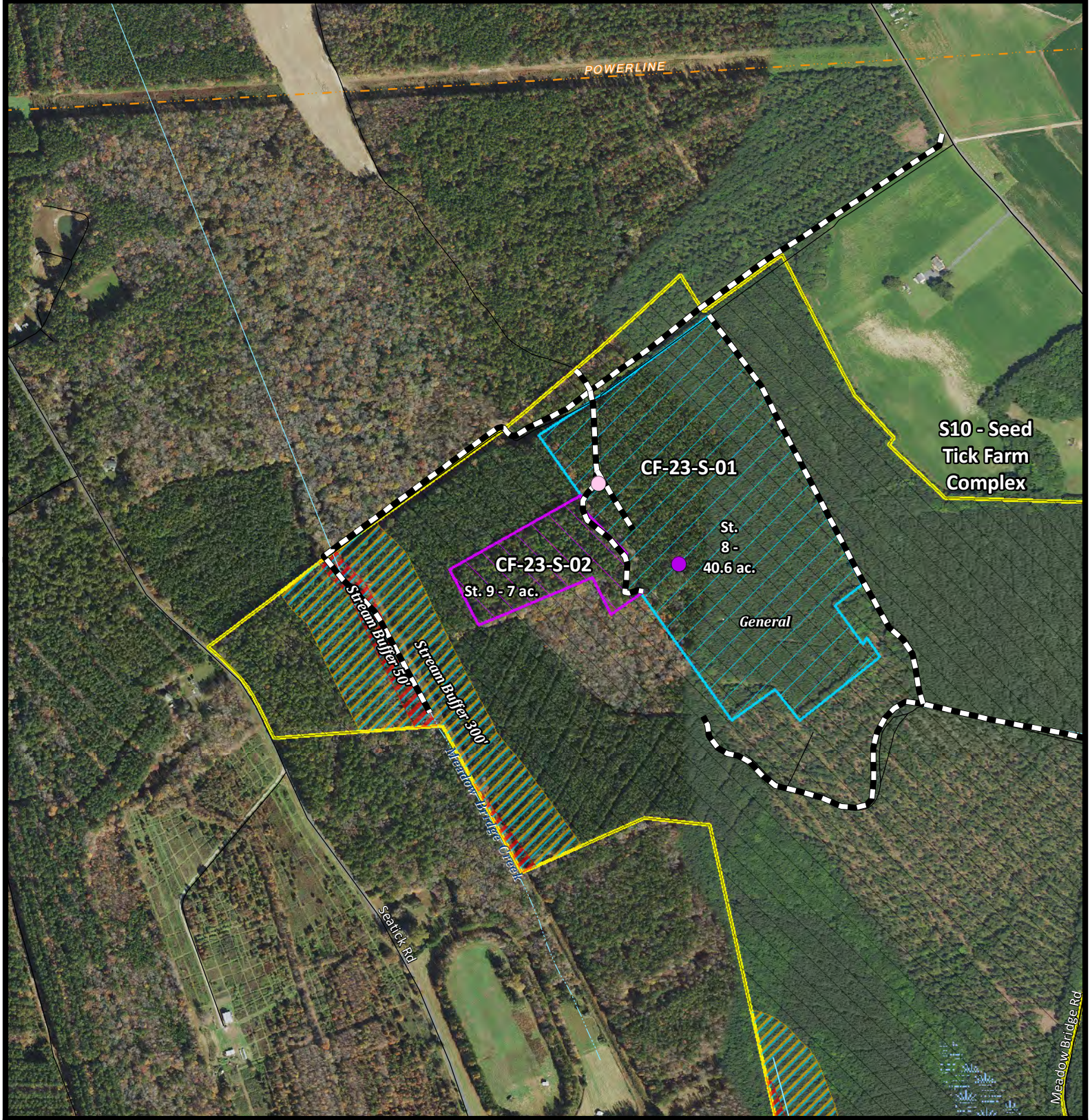
-  General
-  Stream Buffer 50'
-  Stream Buffer 300'

-  Cemetery
-  Home Sites





This map is for planning purposes only.
This map is not a boundary survey







Legend

CF AWP Activity

-  2023 First Thinning
-  2023 Regeneration Harvest

CF Management

-  Stream Buffer 50'
-  Stream Buffer 300'
-  General

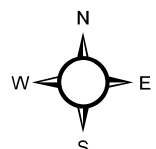
-  Cemetery
-  Home Sites

CF-23-S-02

Scale: 1" = 660'
Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey



CF 23 S 04

Pine Pole Rd

S21 - E. Mace Smith Complex

St. 45 - 63.5 ac.
CF-23-S-04

CF-23-S-03
St. 37 - 22.1 ac.



St. 23 - 53.9 ac.
CF-23-S-04

DFS Core



St. 22 - 35.4 ac.
CF-23-S-04

Legend

CF AWP Activity

-  2023 First Thinning
-  2023 Second Thinning

CF Management

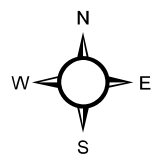
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-  Cemetery
-  Home Sites

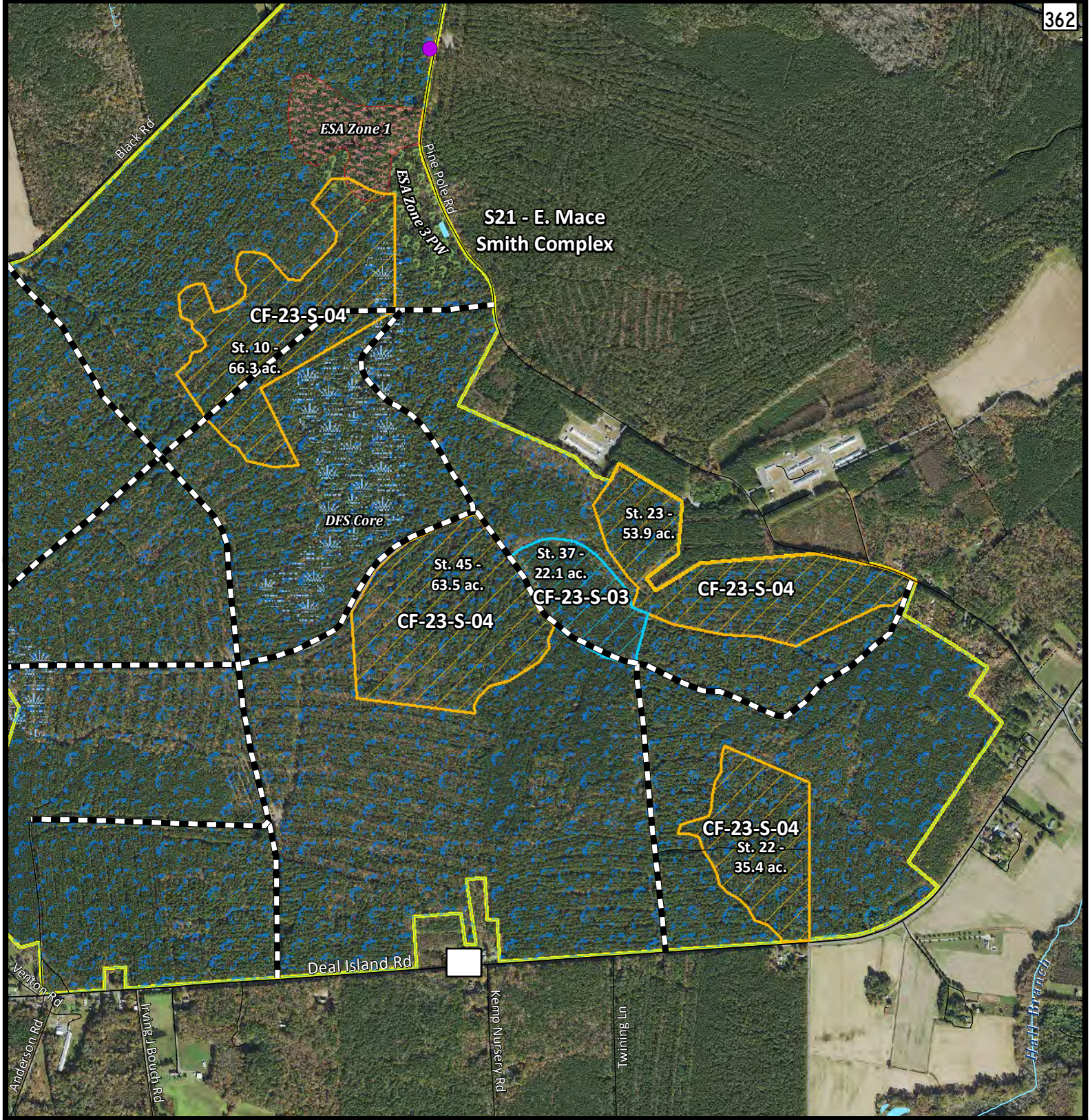
CF-23-S-03

Scale: 1" = 660'
Date: 07/2021



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This map is not a boundary survey





S21 - E. Mace Smith Complex

CF-23-S-04

St. 10 -
66.3 ac.

DFS Core

St. 45 -
63.5 ac.

CF-23-S-04

St. 37 -
22.1 ac.

CF-23-S-03

St. 23 -
53.9 ac.

CF-23-S-04

CF-23-S-04

St. 22 -
35.4 ac.

Deal Island Rd

Veriton Rd

Anderson Rd

Irving J Bouch Rd



Kemp Nursery Rd

Twining Ln



Hart Branch



Legend



CF AWP Activity

-  2023 First Thinning
-  2023 Second Thinning

CF Management

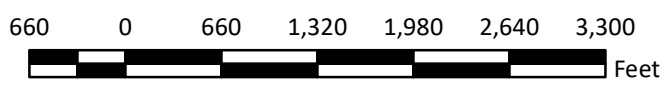
-  DFS Core
-  ESA Zone 1

-  ESA Zone 3 PW
-  Stream Buffer 300'

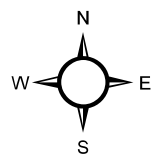
-  Cemetery
-  Home Sites

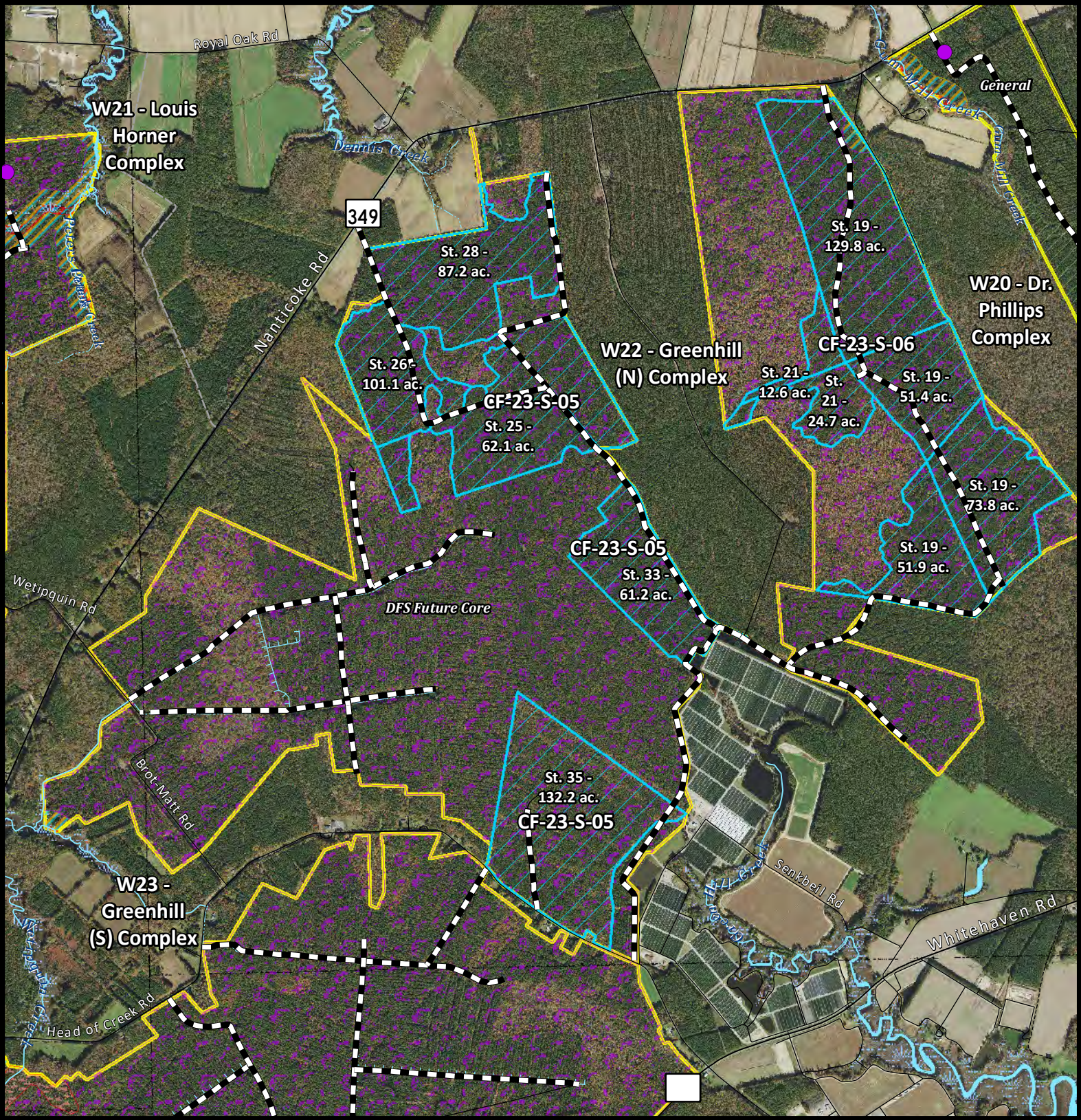
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Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey





Legend

CF AWP Activity

2023 First Thinning

CF Management

Core FIDS

DFS Future Core

ESA Zone 1

General

Stream Buffer 50'

Stream Buffer 300'

Cemetery

Home Sites

CF-23-S-05

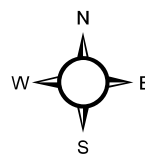
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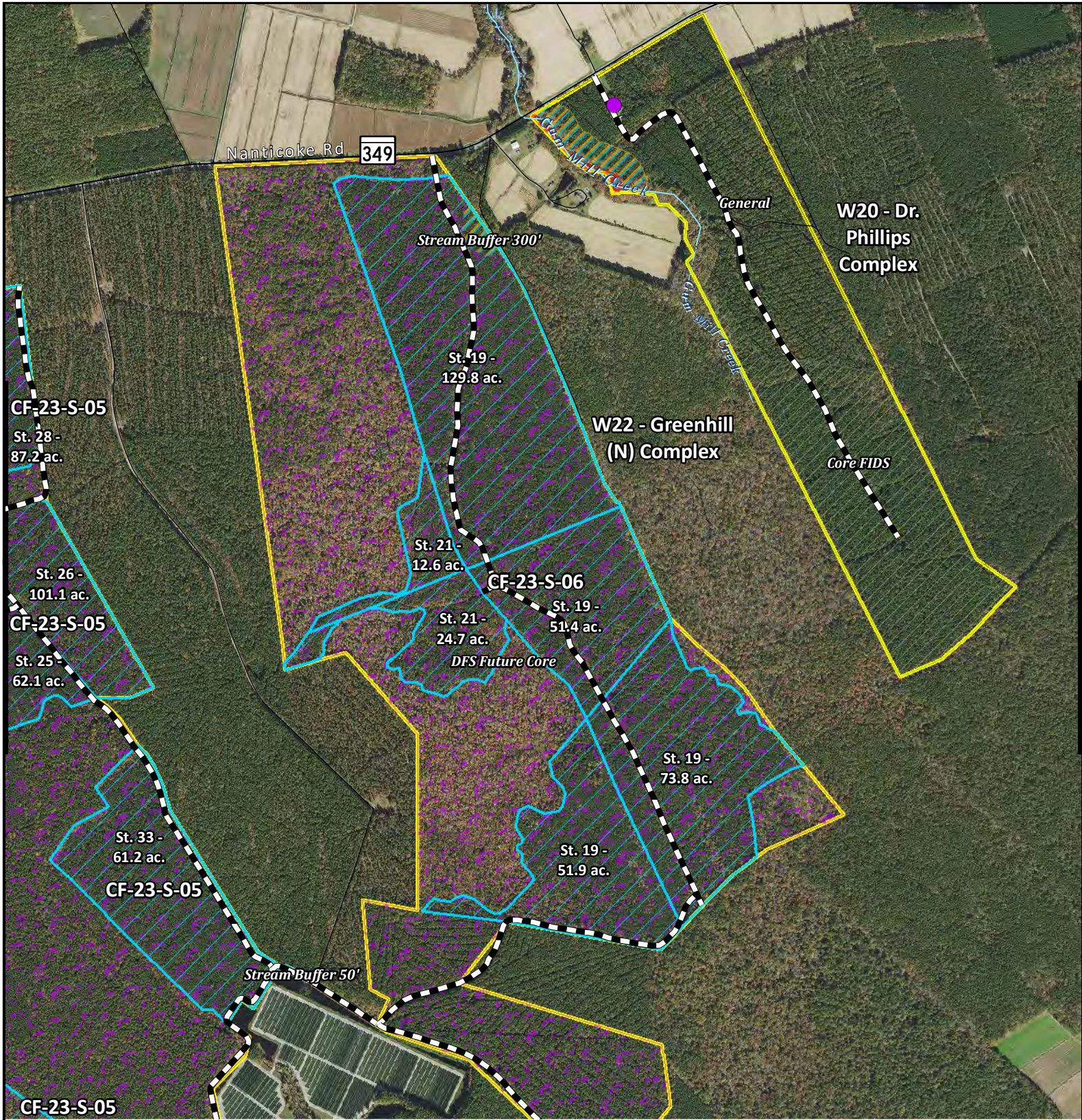
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This map is not a boundary survey



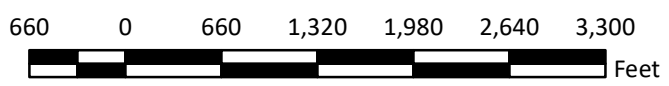


CF-23-S-06

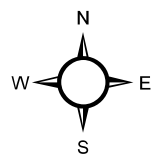
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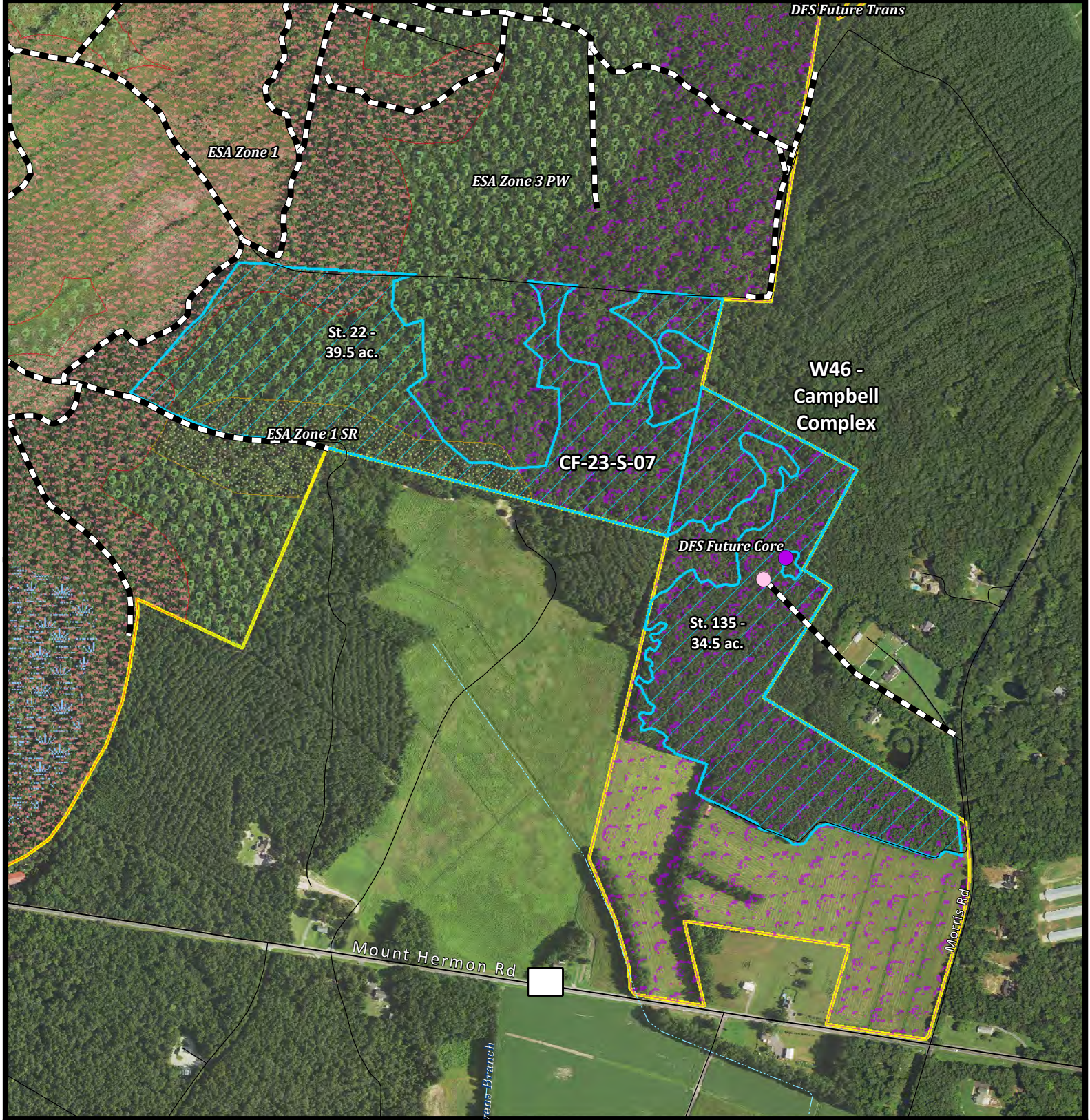
Legend

- | | | | |
|------------------------|----------------------|--------------------|------------|
| CF AWP Activity | CF Management | General | Cemetery |
| 2023 First Thinning | Core FIDS | Stream Buffer 50' | Home Sites |
| | DFS Future Core | Stream Buffer 300' | |



This map is for planning purposes only.
This map is not a boundary survey





CF-23-S-07

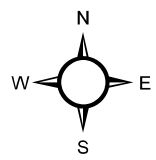
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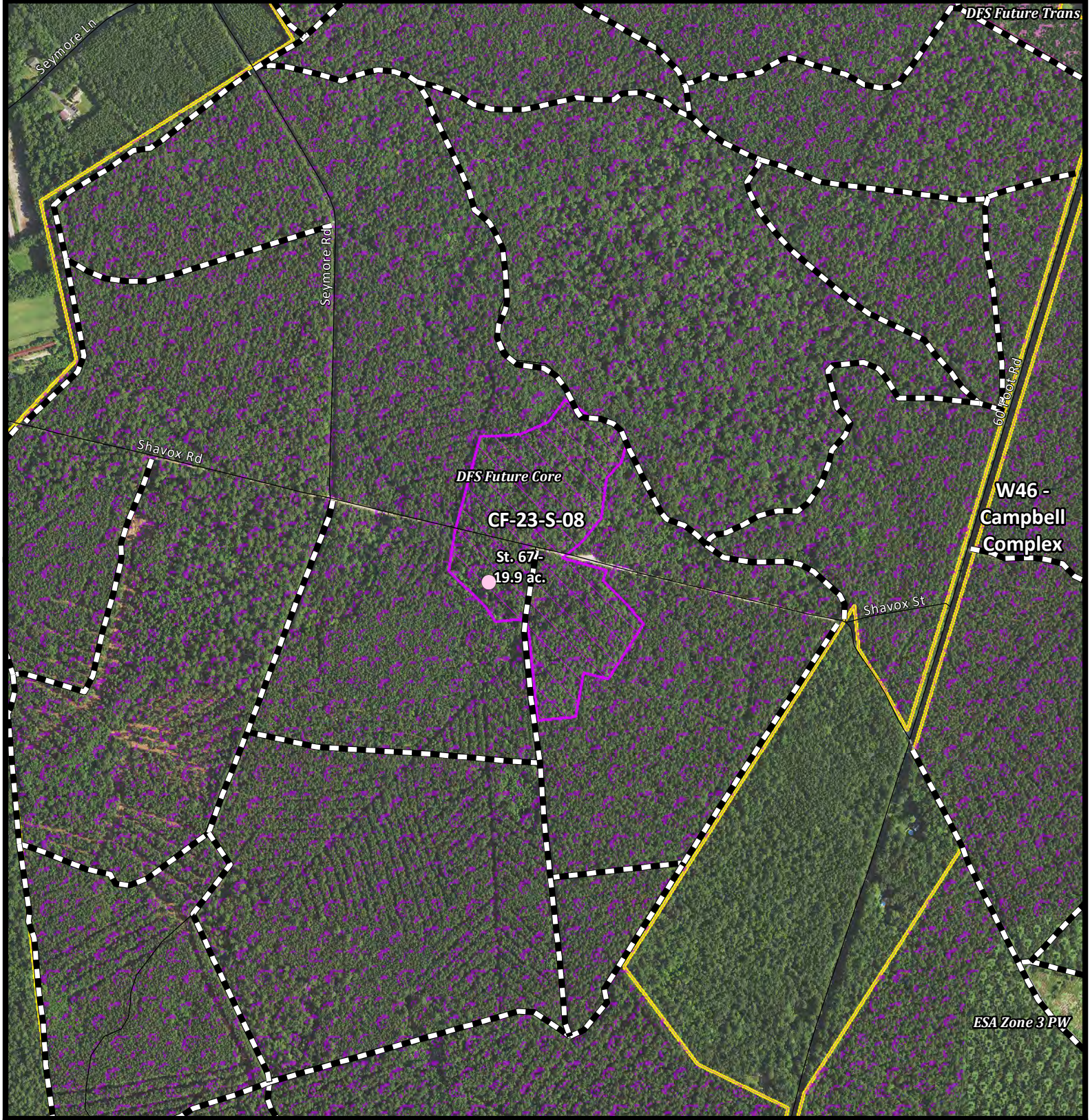
Legend

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|------------------------|--------------------------|---------------|------------|
| CF AWP Activity | CF Management | ESA Zone 1 | Cemetery |
| 2023 First Thinning | DFS Future Core | ESA Zone 1 SR | Home Sites |
| | DFS Future Translocation | ESA Zone 3 PW | |



This map is for planning purposes only.
This map is not a boundary survey





CF-23-S-08

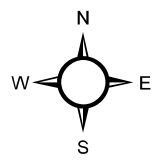
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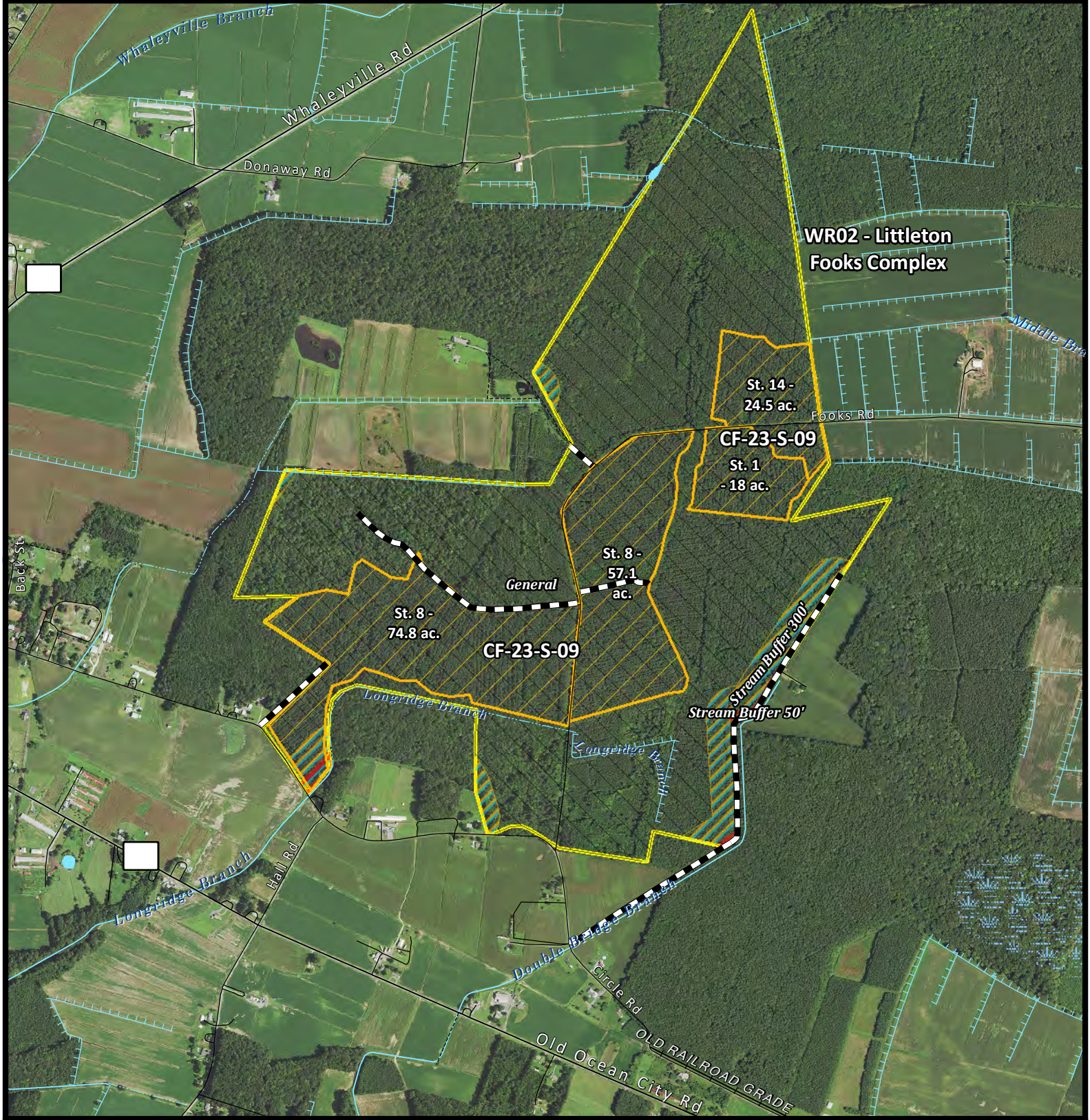
Legend

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|---------------------------|----------------------|--------------------------|------------|
| CF AWP Activity | CF Management | DFS Future Translocation | Cemetery |
| 2023 Regeneration Harvest | DFS Future Core | ESA Zone 3 PW | Home Sites |



This map is for planning purposes only.
This map is not a boundary survey





WR02 - Littleton Fooks Complex

St. 14 - 24.5 ac.
St. 1 - 18 ac.
CF-23-S-09

St. 8 - 57.1 ac.
General
St. 8 - 74.8 ac.
CF-23-S-09

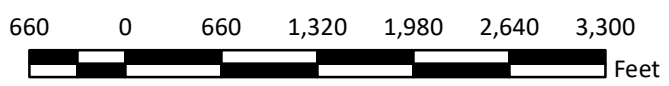
Stream Buffer 300'
Stream Buffer 50'

CF-23-S-09

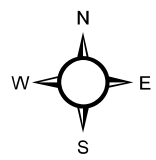
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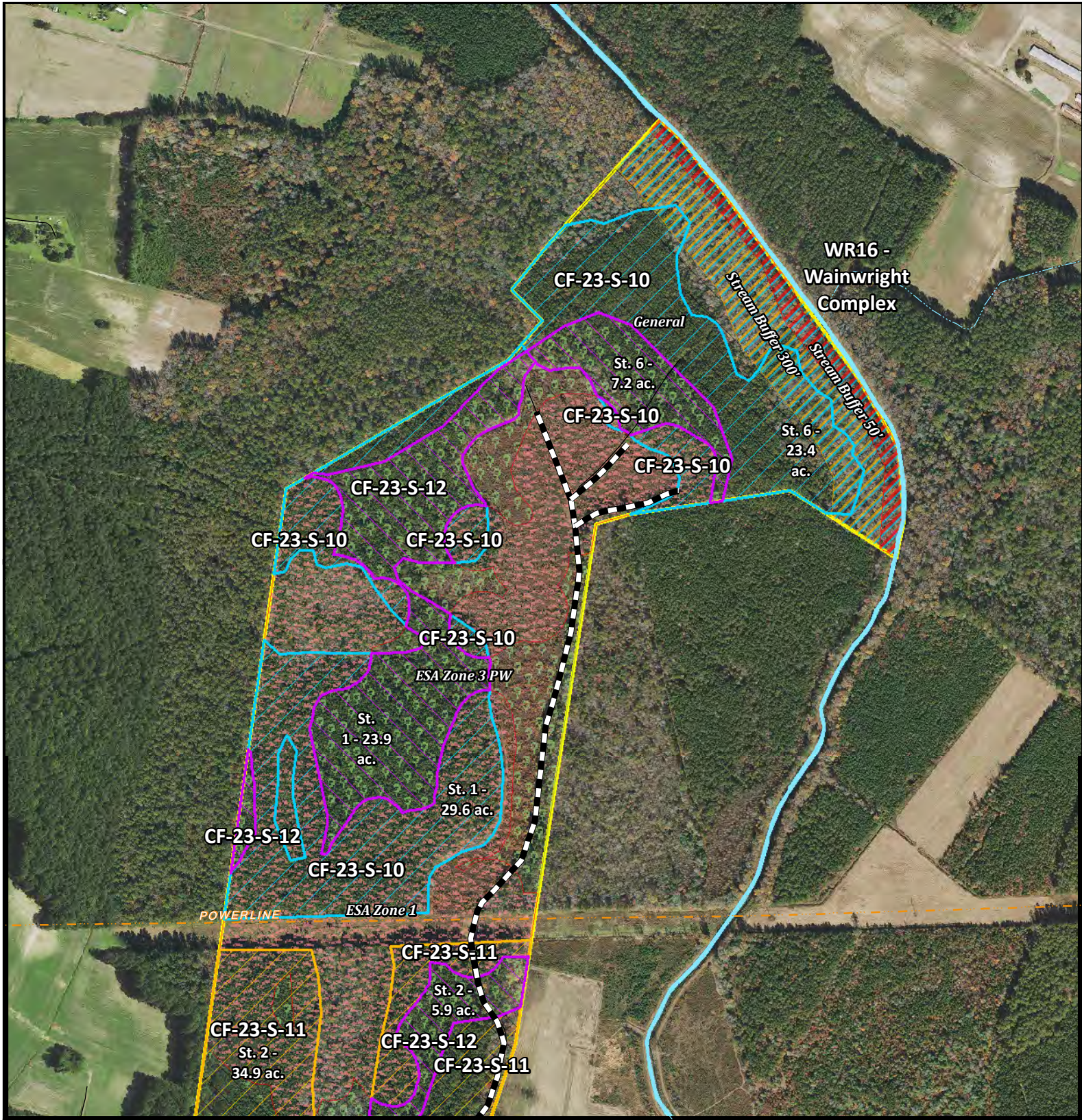
Legend

- | | | | |
|------------------------|----------------------|--------------------|------------|
| CF AWP Activity | CF Management | Stream Buffer 50' | Cemetery |
| 2023 Second Thinning | General | Stream Buffer 300' | Home Sites |



This map is for planning purposes only.
This map is not a boundary survey





Legend

CF AWP Activity

- 2023 First Thinning
- 2023 Second Thinning
- 2023 Regeneration Harvest

CF Management

- ESA Zone 1
- ESA Zone 3 PW
- General
- Stream Buffer 50'
- Stream Buffer 300'

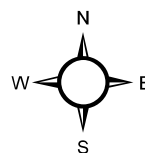
- Cemetery
- Home Sites

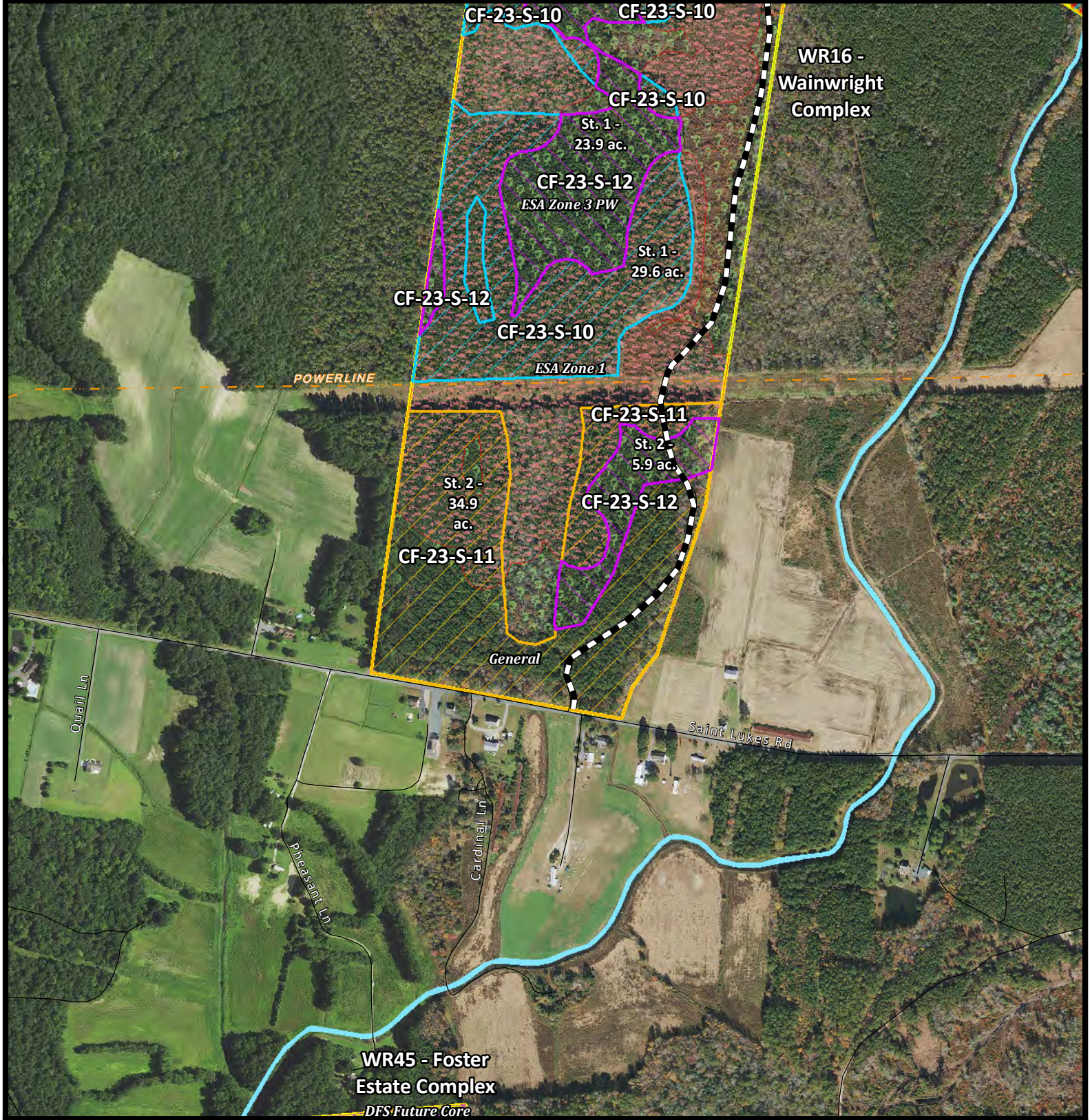
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Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey





Legend

CF AWP Activity

- 2023 First Thinning
- 2023 Second Thinning
- 2023 Regeneration Harvest

CF Management

- DFS Future Core
- ESA Zone 1
- ESA Zone 3 PW

- General
- Stream Buffer 50'
- Stream Buffer 300'

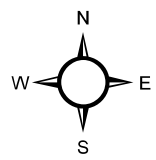
- Cemetery
- Home Sites

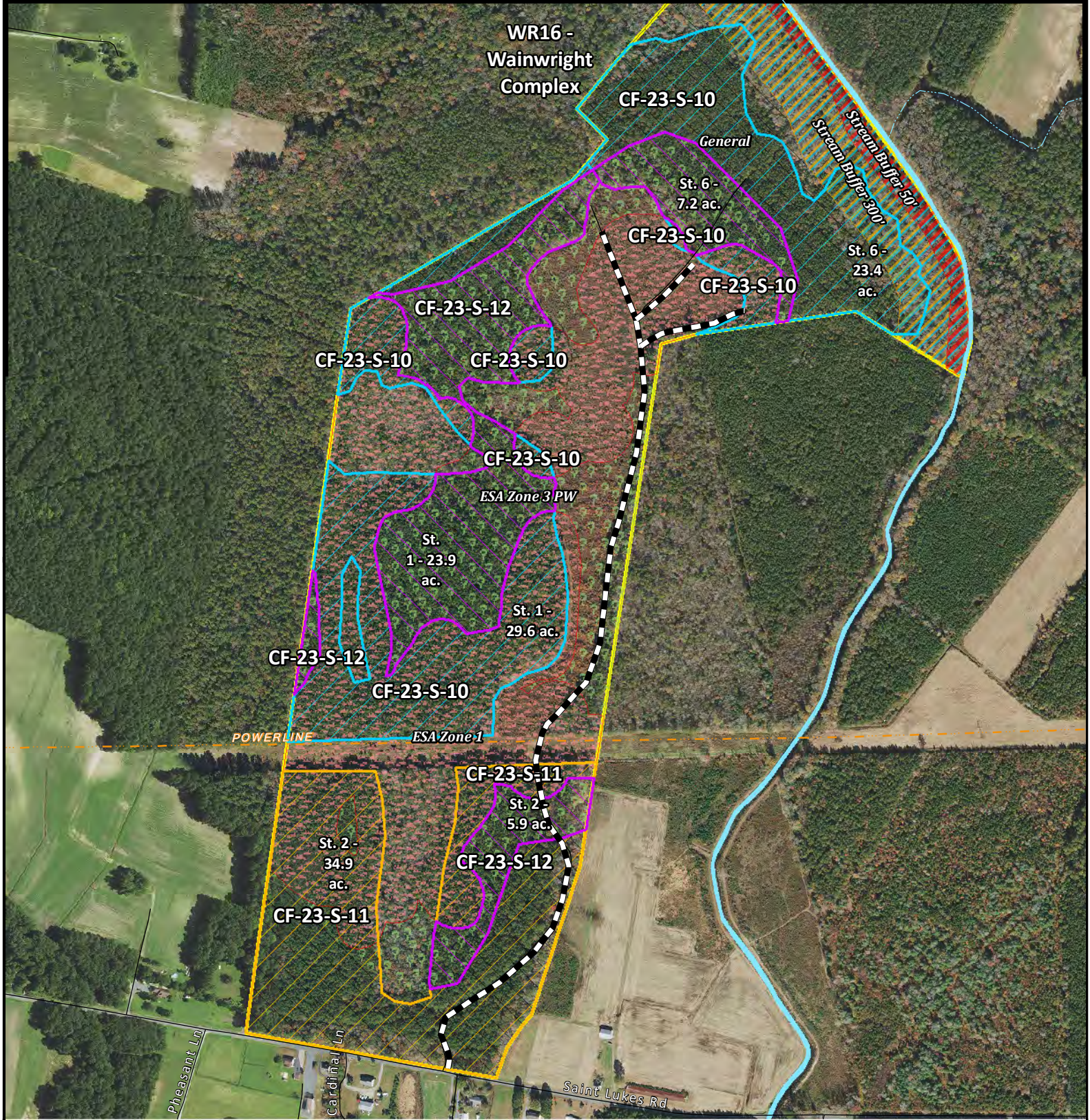
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Scale: 1" = 660'
Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey





Legend

CF AWP Activity

- 2023 First Thinning
- 2023 Second Thinning
- 2023 Regeneration Harvest

CF Management

- ESA Zone 1
- ESA Zone 3 PW
- General
- Stream Buffer 50'
- Stream Buffer 300'

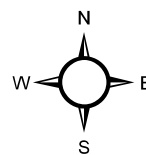
- Cemetery
- Home Sites

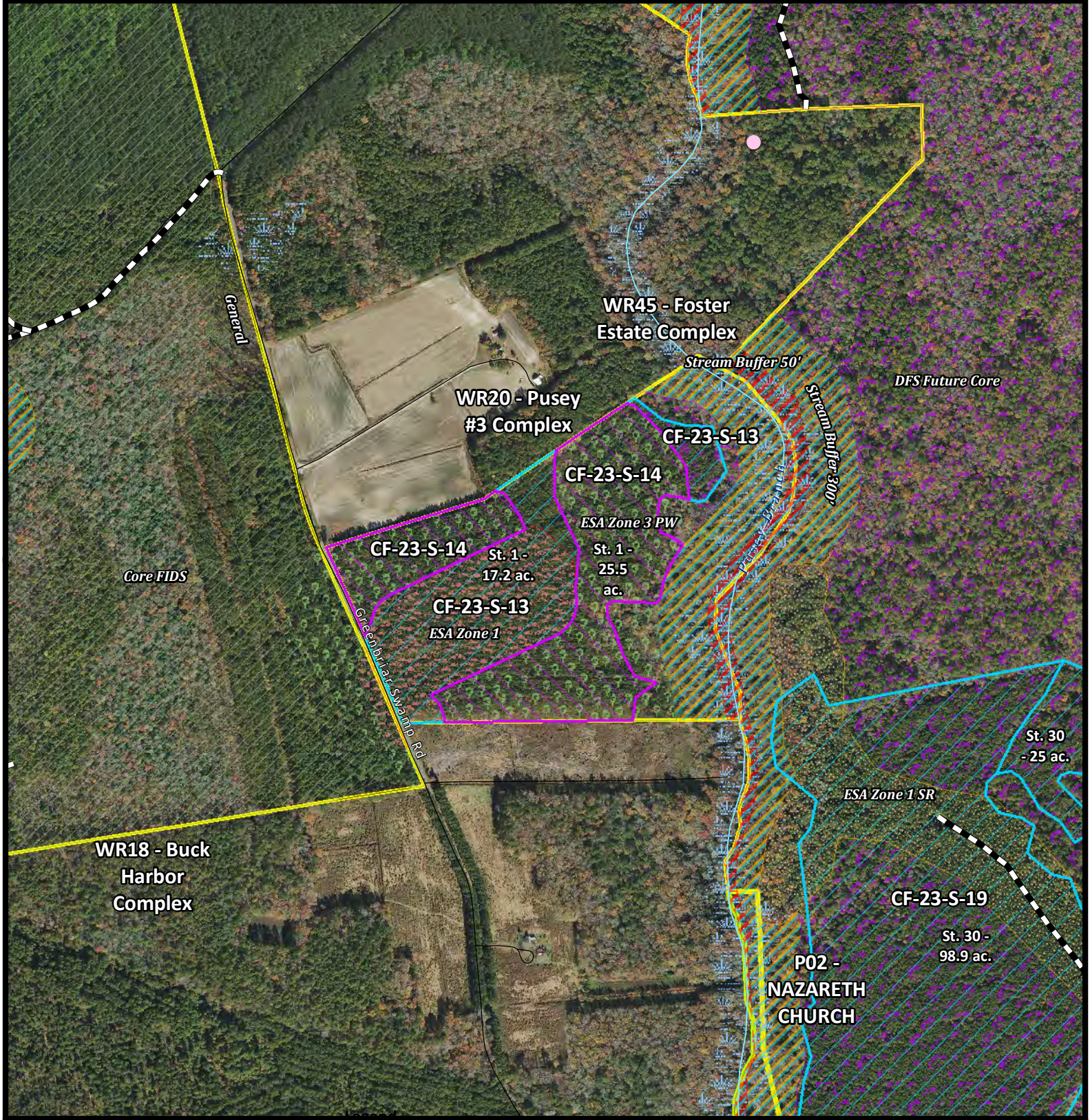
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Scale: 1" = 660'
Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey





CF AWP Activity

- 2023 First Thinning
- 2023 Regeneration Harvest

CF Management

- Core FIDS
- DFS Future Core
- ESA Zone 1
- ESA Zone 1 SR
- ESA Zone 3 PW
- General
- Stream Buffer 50'
- Stream Buffer 300'

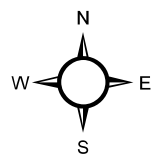
- Cemetery
- Home Sites

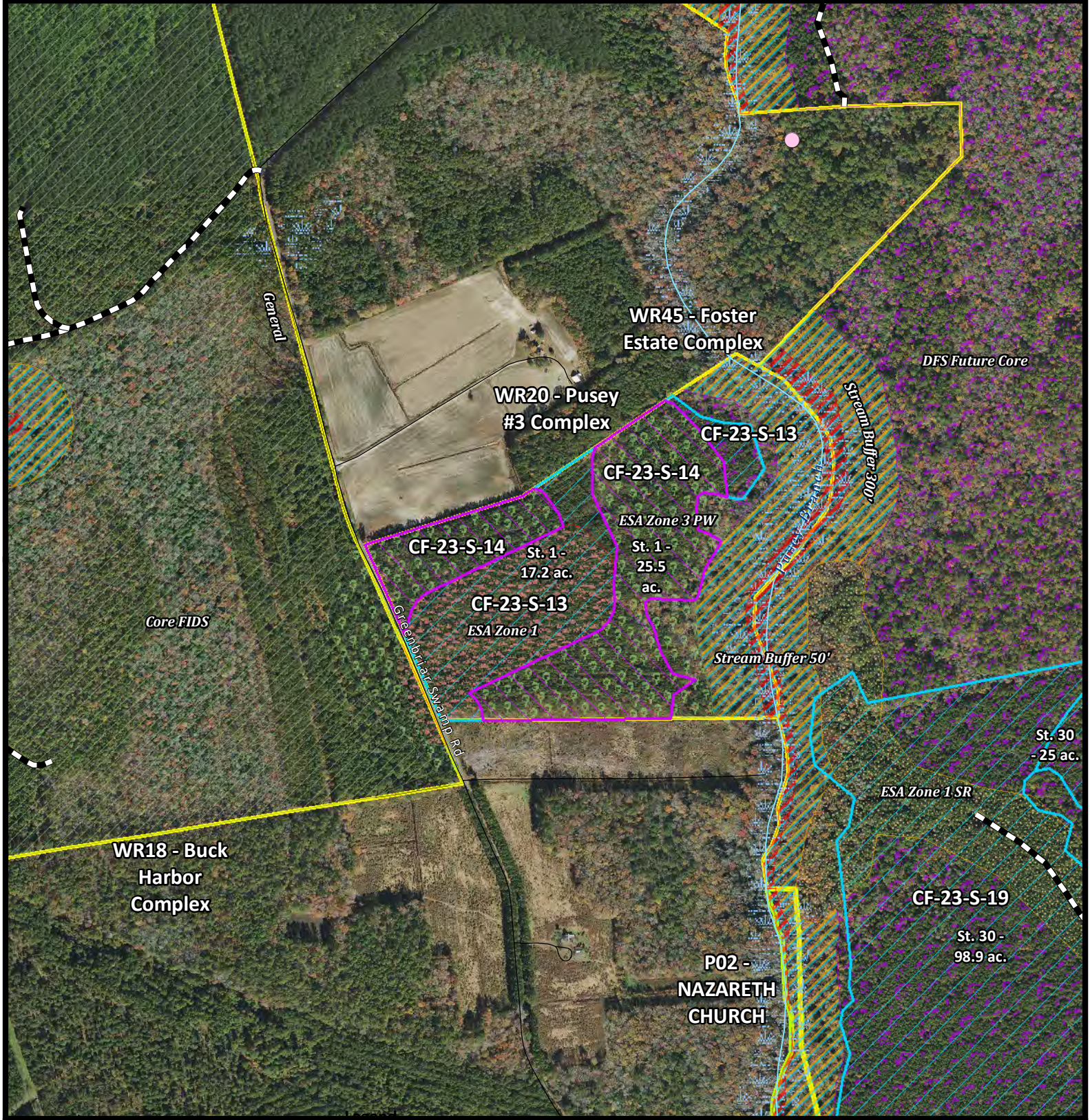
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Scale: 1" = 660'
Date: 07/2021





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This map is not a boundary survey















CF AWP Activity

-  2023 First Thinning
-  2023 Regeneration Harvest

CF Management

-  Core FIDS
-  DFS Future Core
-  ESA Zone 1
-  ESA Zone 1 SR
-  ESA Zone 3 PW
-  General
-  Stream Buffer 50'
-  Stream Buffer 300'

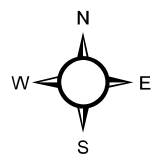
-  Cemetery
-  Home Sites

CF-23-S-14

Scale: 1" = 660'
Date: 07/2021



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WR45 - Foster Estate Complex

CF-23-S-19

St. 30 - 98.9 ac.

ESA Zone 1 SR

WR21 - Bethards Complex

St. 1 - 21.9 ac.

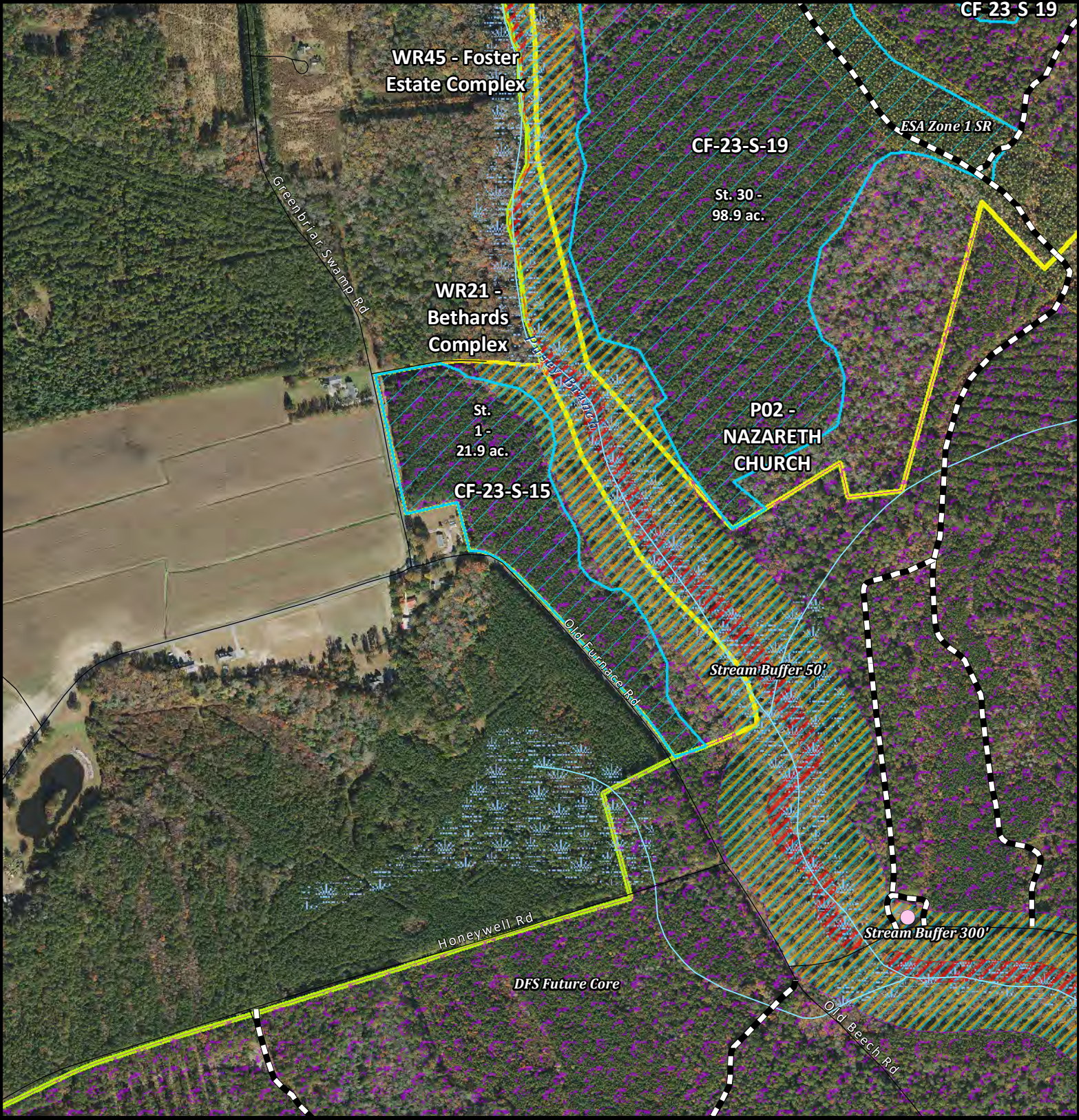
CF-23-S-15

P02 - NAZARETH CHURCH

Stream Buffer 50'

Stream Buffer 300'

DFS Future Core



Legend

CF AWP Activity

2023 First Thinning

CF Management

DFS Future Core

ESA Zone 1 SR



Stream Buffer 50'



Stream Buffer 300'

Cemetery

Home Sites

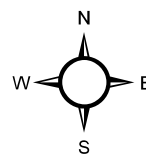
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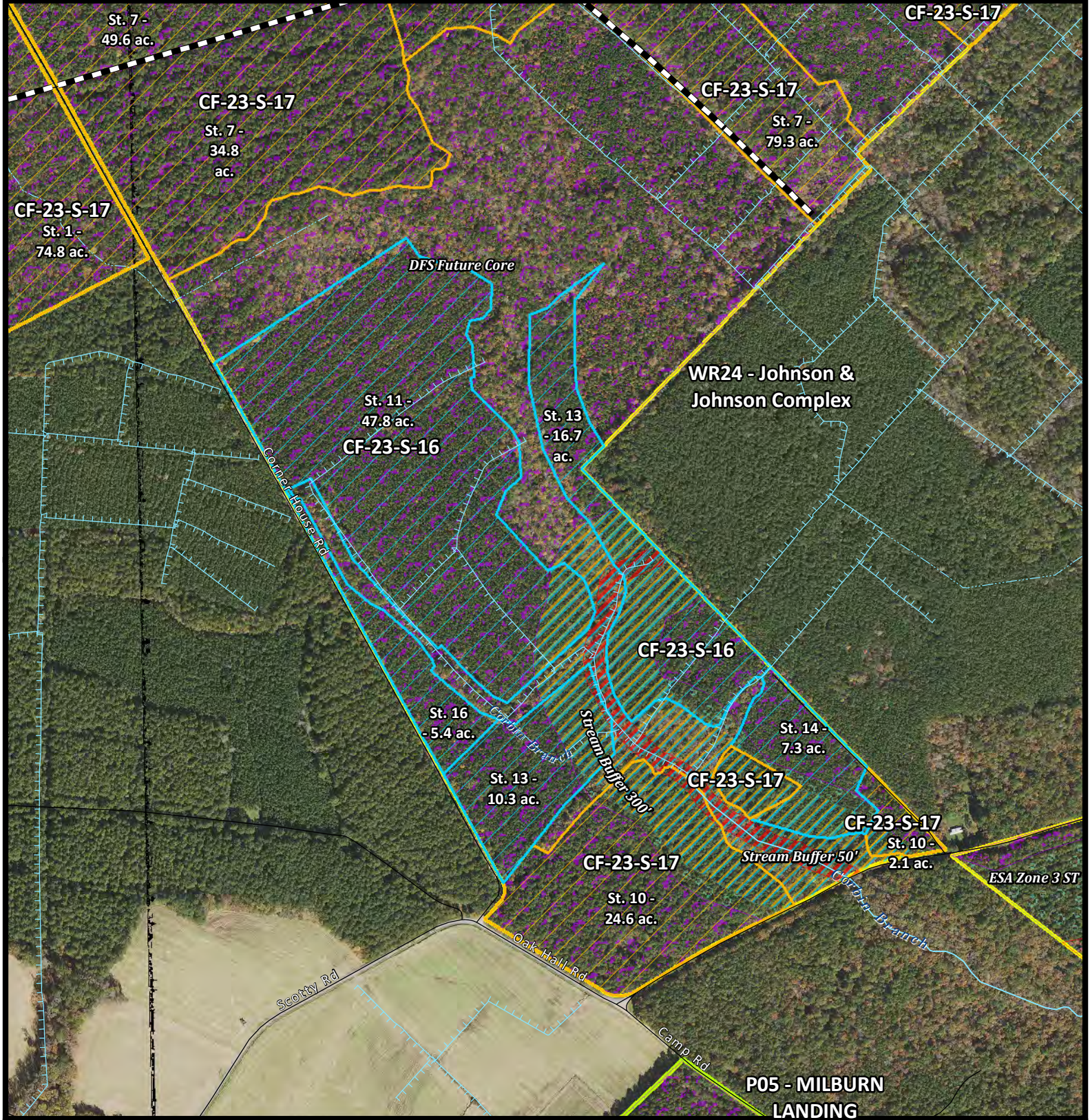
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Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey





Legend

CF AWP Activity

- 2023 First Thinning
- 2023 Second Thinning

CF Management

- DFS Future Core
- ESA Zone 1

- ESA Zone 3 ST
- Stream Buffer 50'
- Stream Buffer 300'

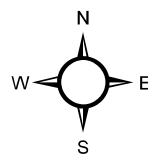
- Cemetery
- Home Sites

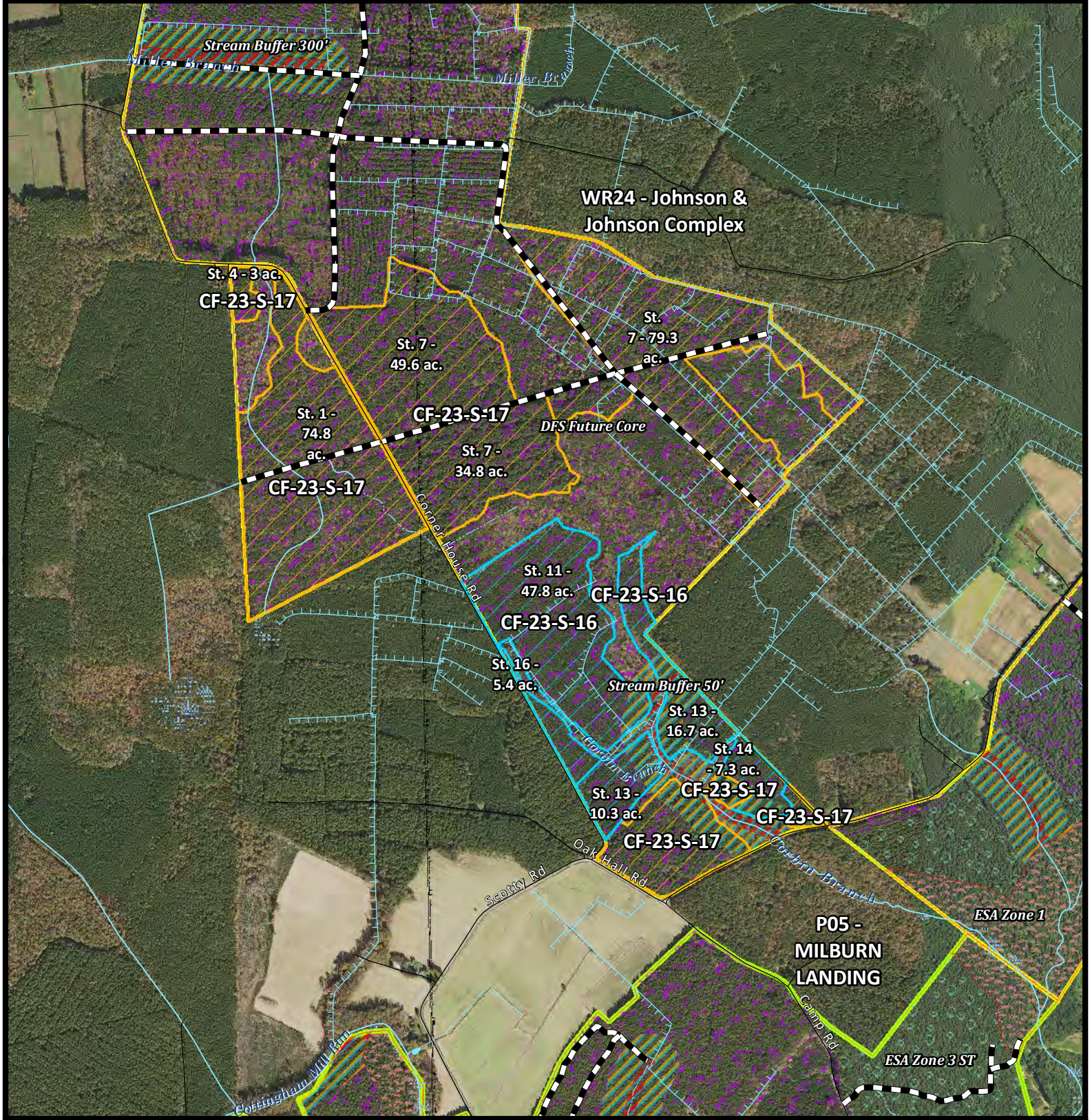
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Scale: 1" = 660'
Date: 07/2021



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This map is not a boundary survey



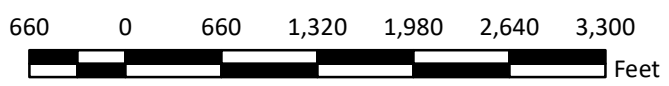


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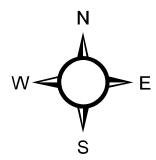
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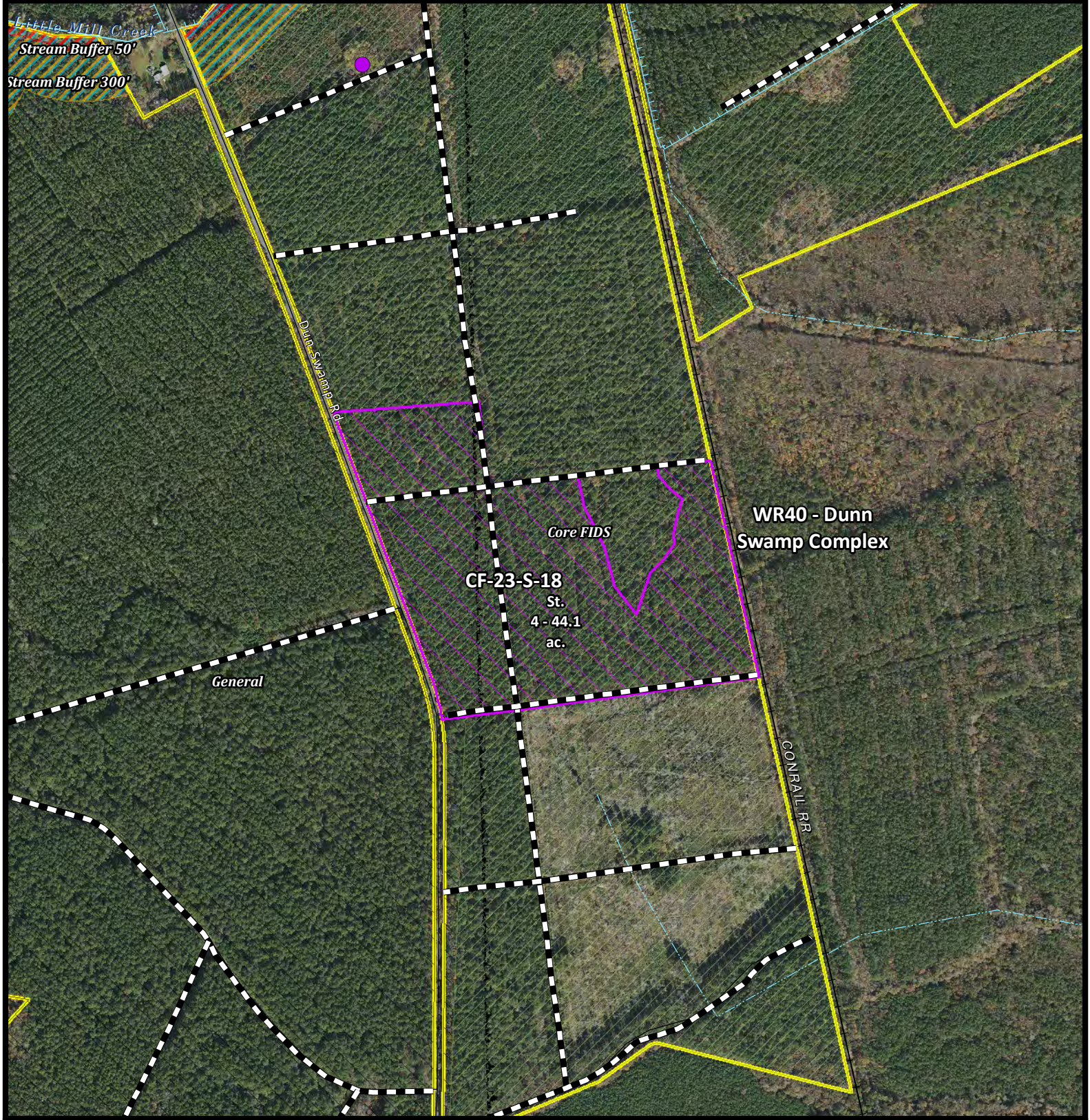
- | | | | |
|------------------------|----------------------|--------------------|------------|
| CF AWP Activity | CF Management | ESA Zone 3 ST | Cemetery |
| 2023 First Thinning | DFS Future Core | Stream Buffer 50' | Home Sites |
| 2023 Second Thinning | ESA Zone 1 | Stream Buffer 300' | |

Scale: 1" = 1,320'
Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey





CF-23-S-18

Scale: 1" = 660'
Date: 07/2021

Legend

CF AWP Activity

2023 Regeneration Harvest

CF Management

Core FIDS

General

Stream Buffer 50'

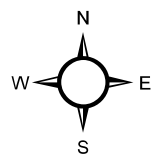
Stream Buffer 300'

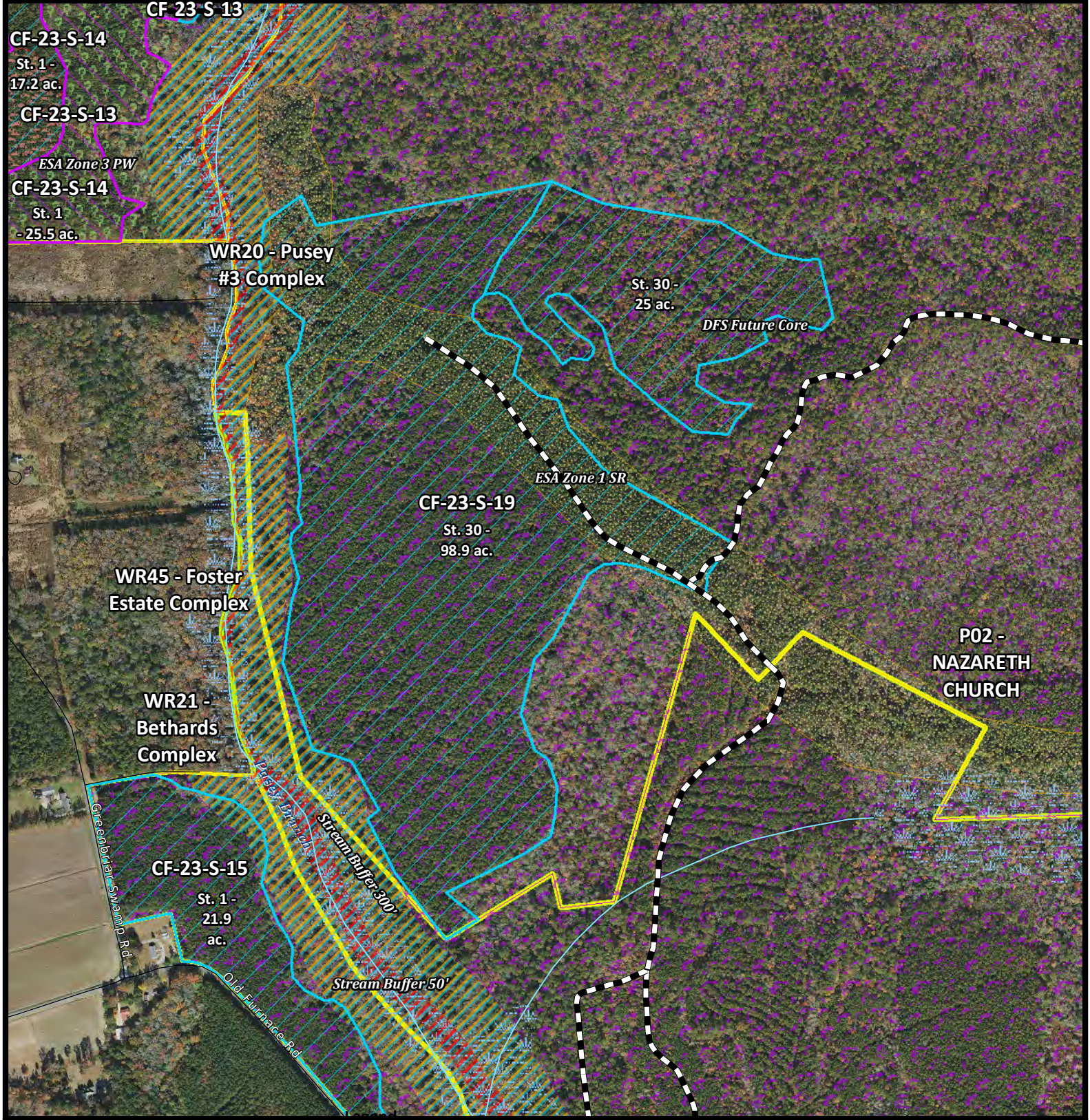
Cemetery

Home Sites



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This map is not a boundary survey





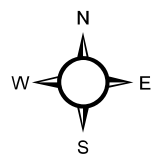
- | | | | |
|---------------------------|----------------------|--------------------|------------|
| CF AWP Activity | CF Management | ESA Zone 3 PW | Cemetery |
| 2023 First Thinning | Core FIDS | General | Home Sites |
| 2023 Regeneration Harvest | DFS Future Core | Stream Buffer 50' | |
| | ESA Zone 1 | Stream Buffer 300' | |
| | ESA Zone 1 SR | | |

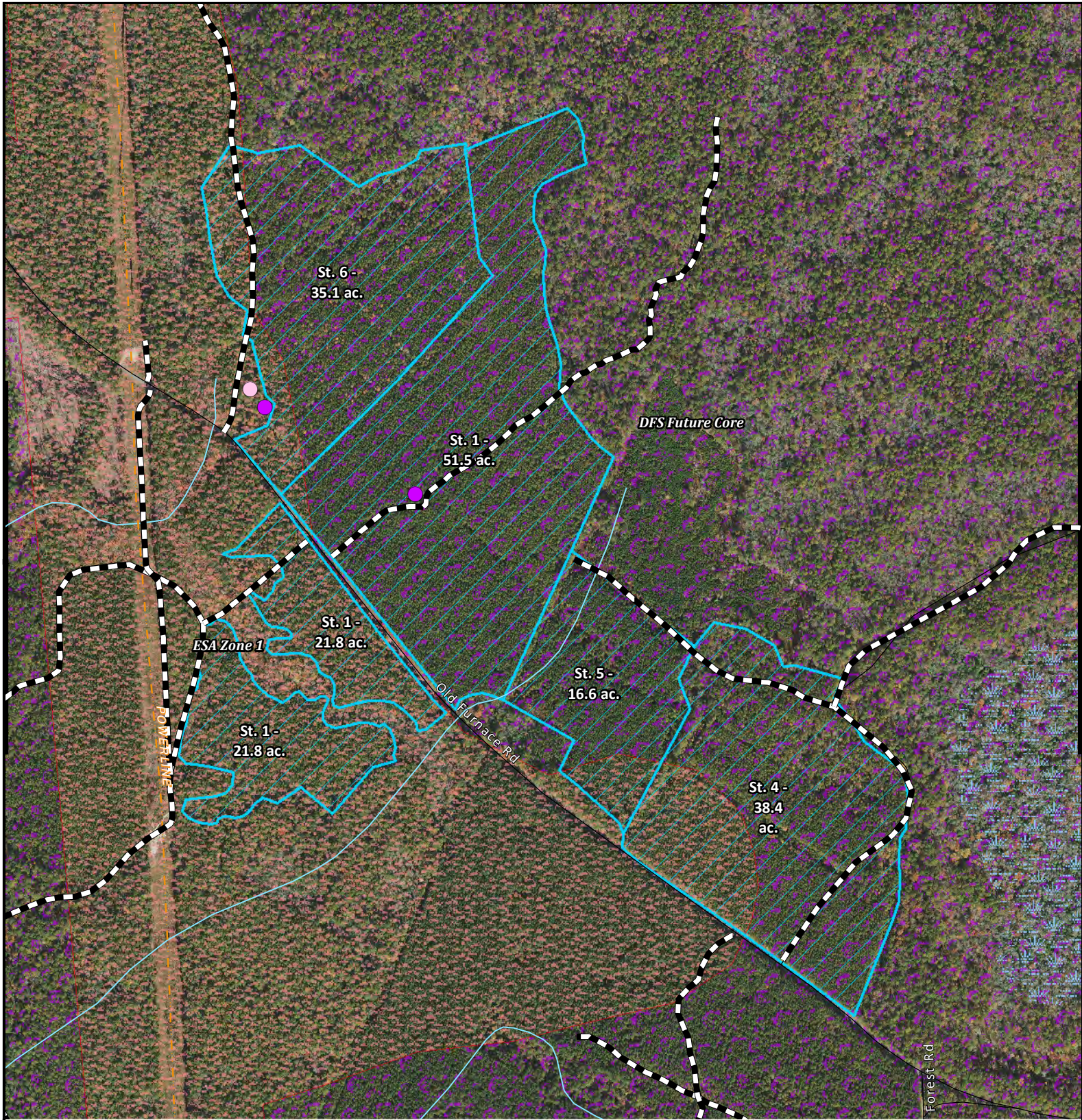
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Scale: 1" = 660'
Date: 07/2021



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This map is not a boundary survey







P-23-S-01

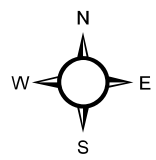
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Date: 07/2021

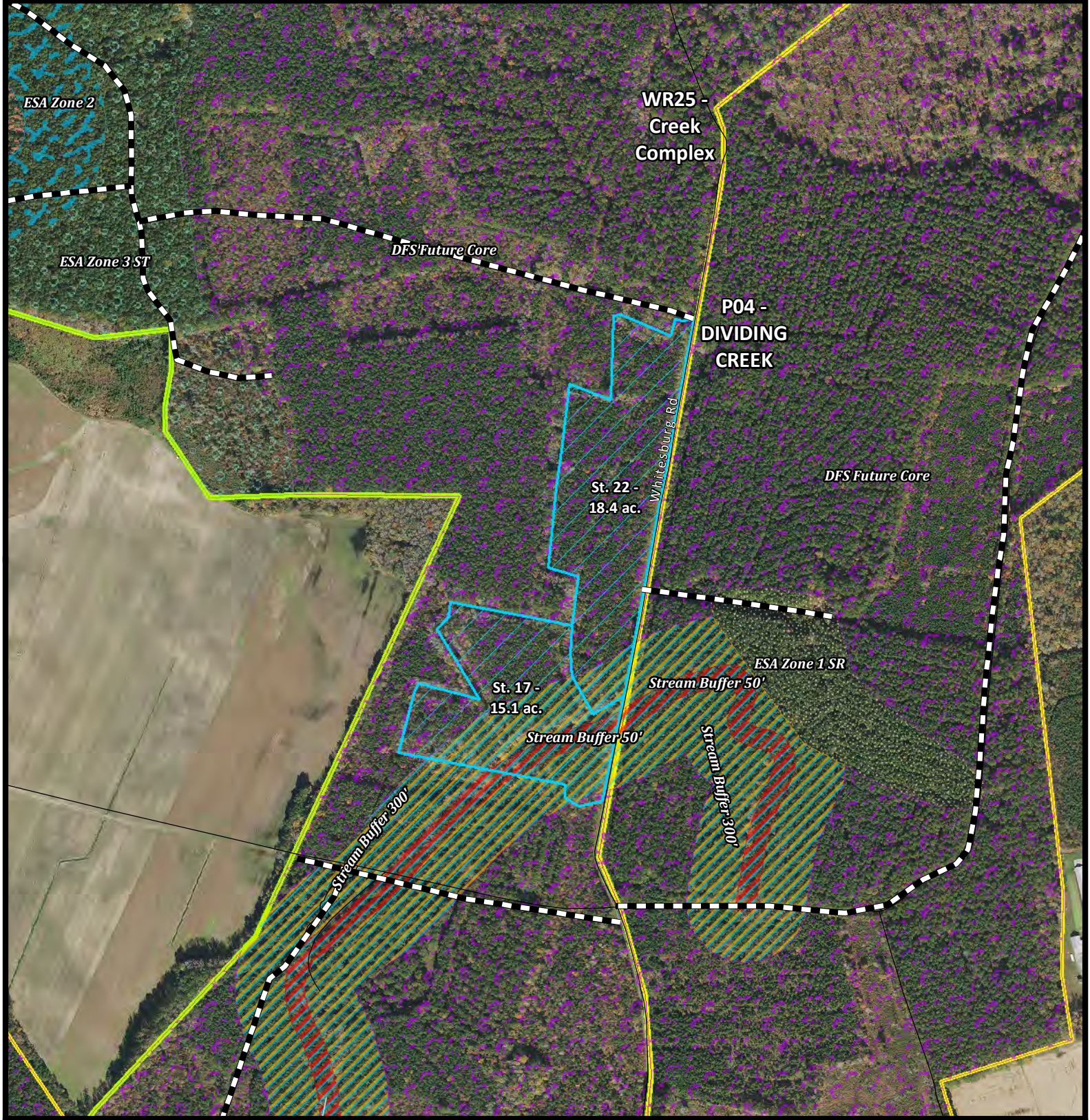
Legend

- | | | | |
|--|---|--|--|
| CF AWP Activity | PSF Management |  ESA Zone 1 |  Cemetery |
|  2023 First Thinning |  DFS Future Core | |  Home Sites |



This map is for planning purposes only.
This map is not a boundary survey





Legend

CF AWP Activity

2023 First Thinning

PSF Management

DFS Future Core

ESA Zone 1

ESA Zone 2

ESA Zone 3 ST

Stream Buffer 50'

Stream Buffer 300'

Cemetery

Home Sites

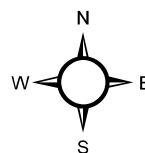
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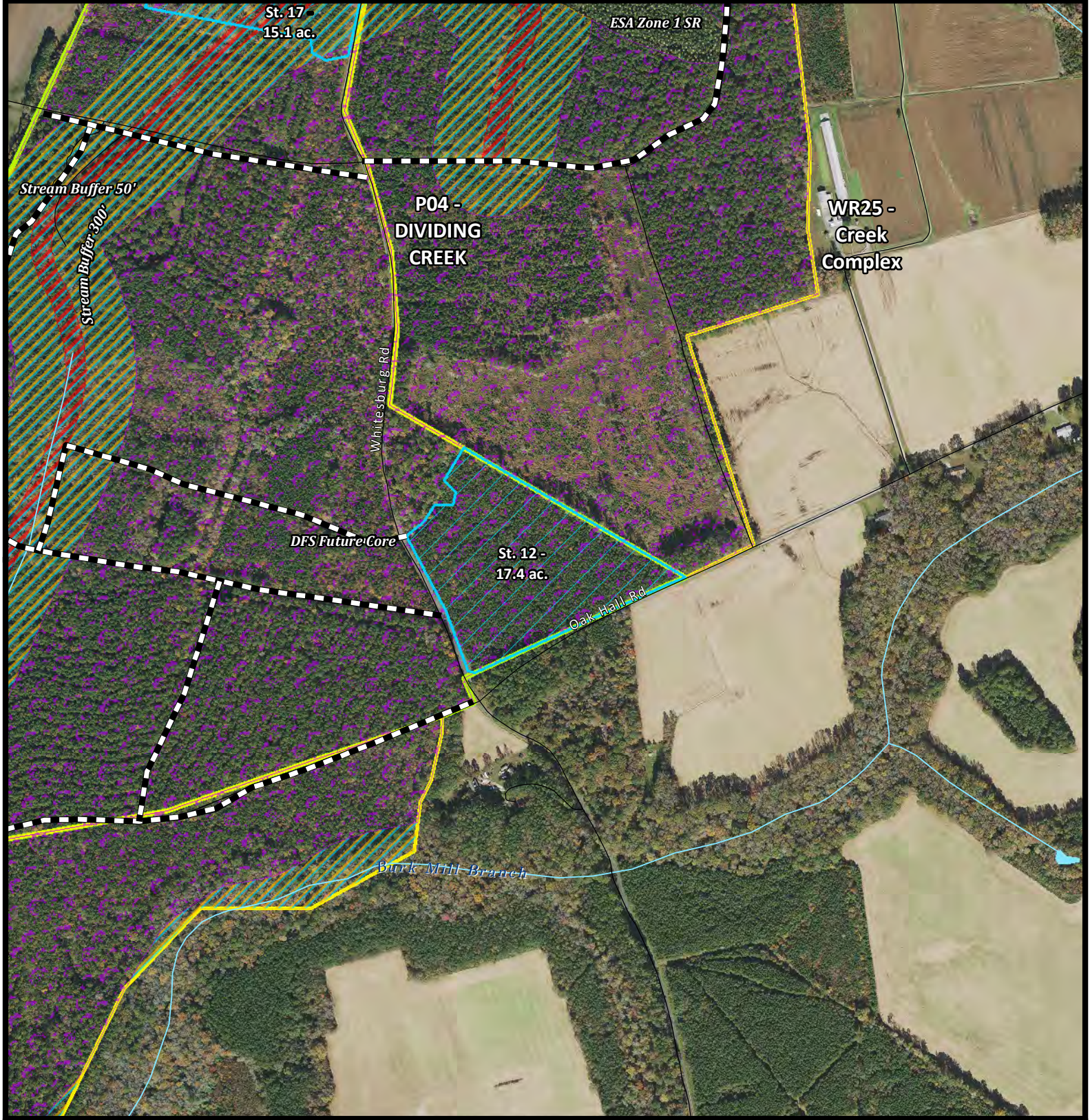
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Date: 07/2021



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P-23-S-03

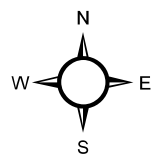
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Date: 07/2021

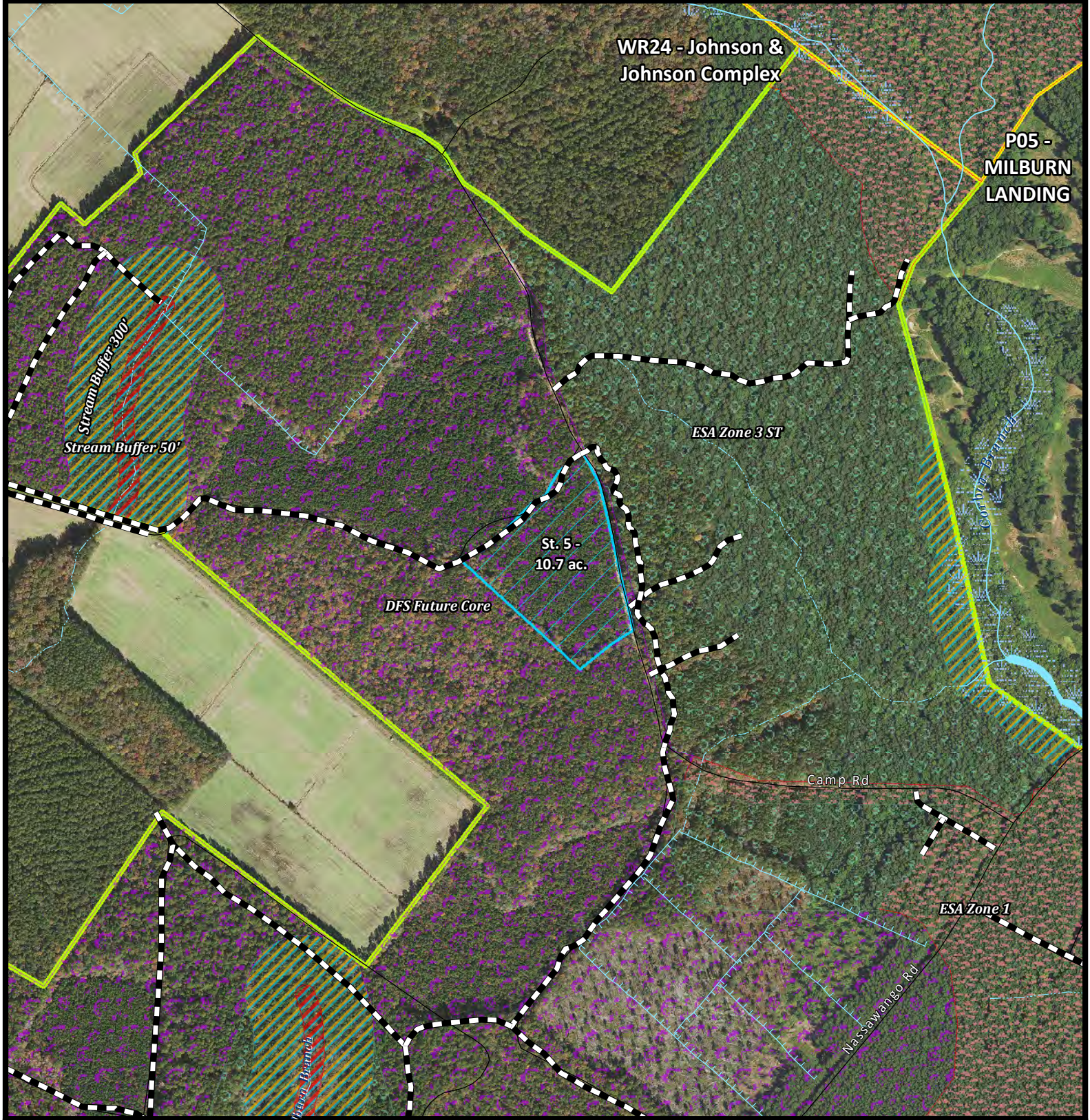
Legend

- | | | | |
|------------------------|-----------------------|--------------------|------------|
| CF AWP Activity | PSF Management | Stream Buffer 50' | Cemetery |
| 2023 First Thinning | DFS Future Core | Stream Buffer 300' | Home Sites |



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This map is not a boundary survey





WR24 - Johnson & Johnson Complex

P05 - MILBURN LANDING

Stream Buffer 300'

Stream Buffer 50'

ESA Zone 3 ST

St. 5 - 10.7 ac.

DFS Future Core

Camp Rd

ESA Zone 1

Nassawango Rd

Branch

Legend

CF AWP Activity

2023 First Thinning

PSF Management

DFS Future Core

ESA Zone 1

ESA Zone 3 ST

Stream Buffer 50'

Stream Buffer 300'

Cemetery

Home Sites

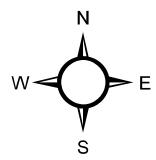
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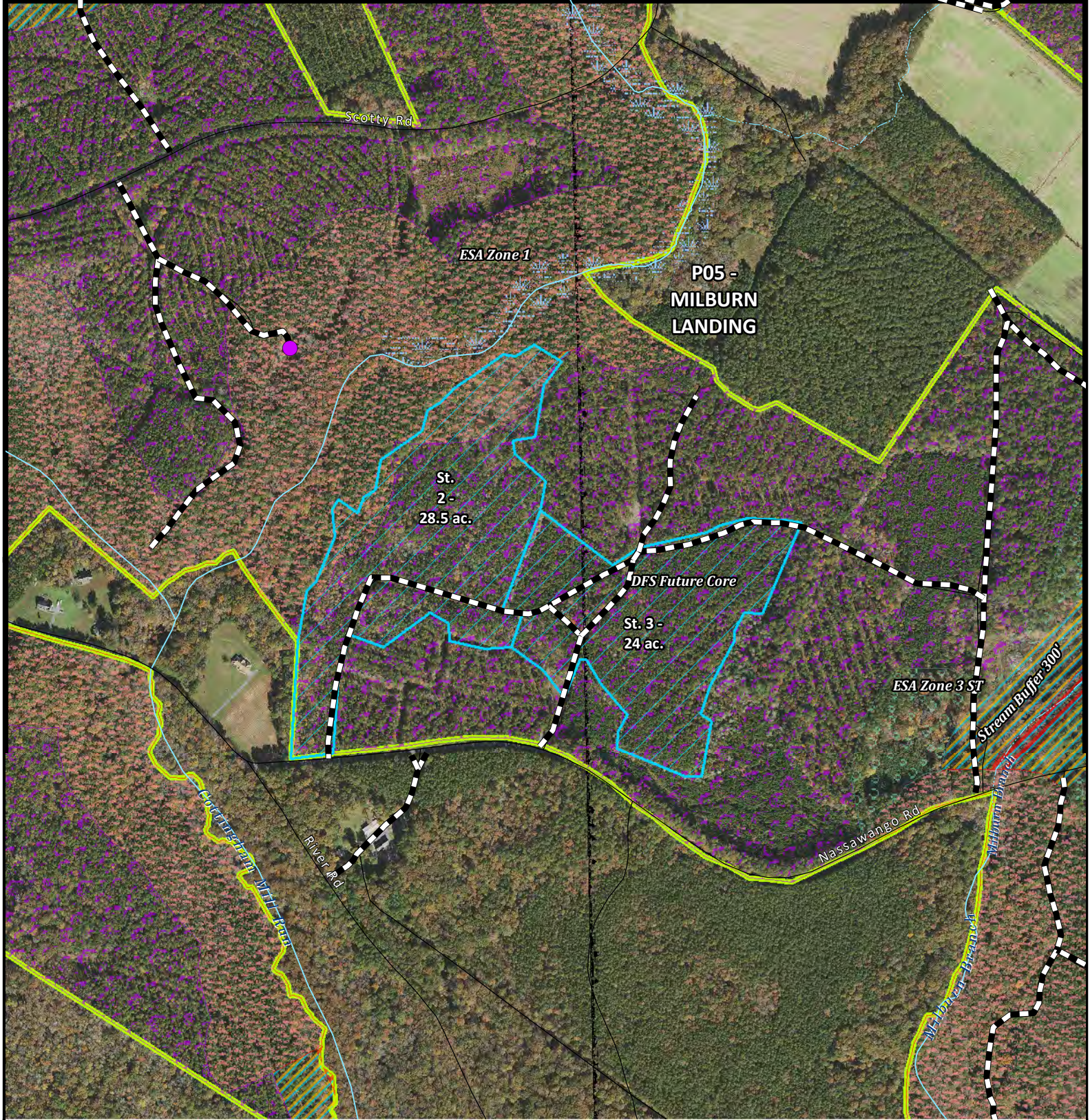
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Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey





Legend

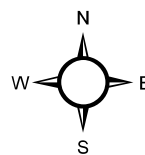
- | | | | |
|------------------------|-----------------------|--------------------|------------|
| CF AWP Activity | PSF Management | ESA Zone 3 ST | Cemetery |
| 2023 First Thinning | DFS Future Core | Stream Buffer 50' | Home Sites |
| | ESA Zone 1 | Stream Buffer 300' | |

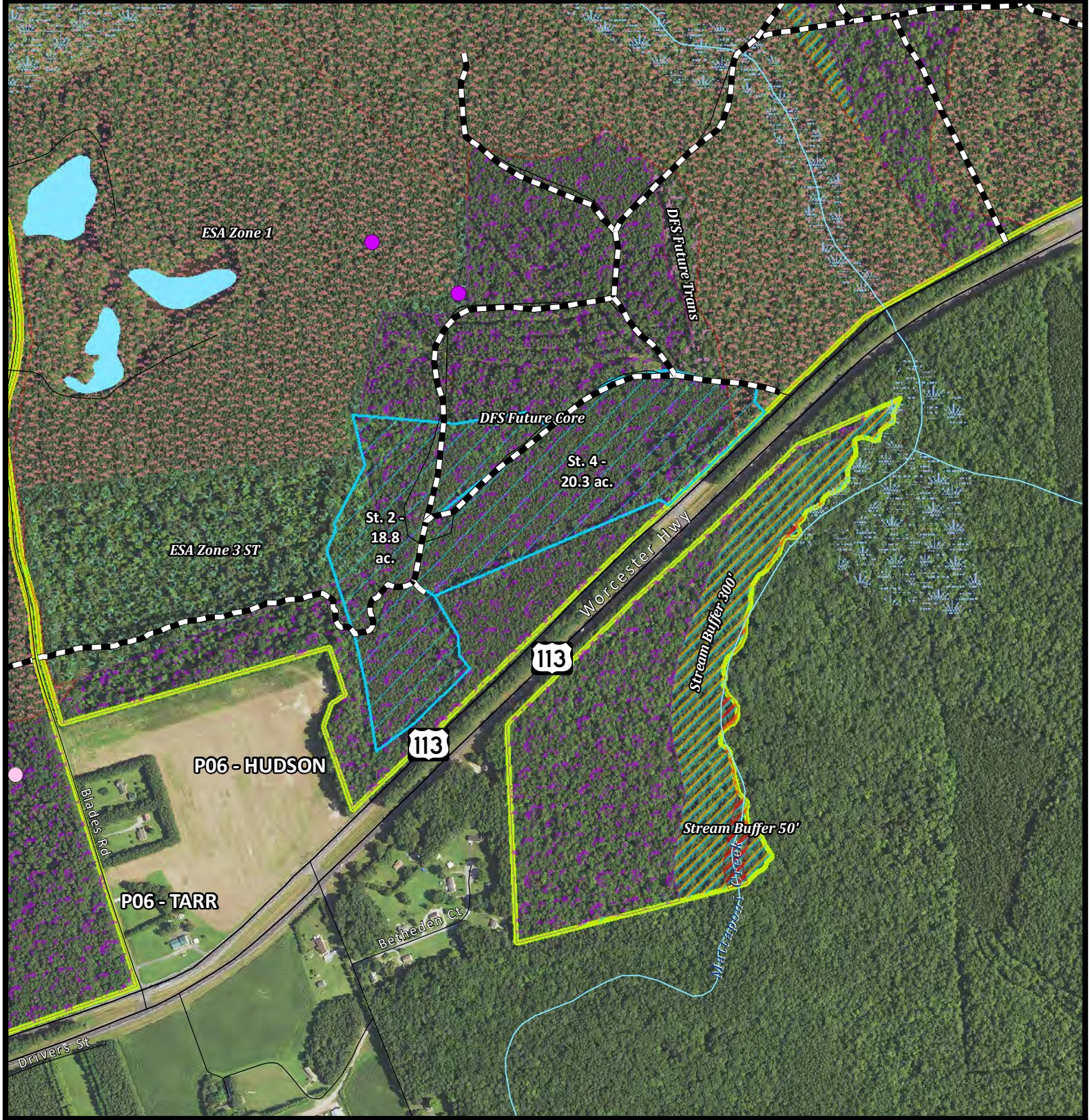
P-23-S-05

Scale: 1" = 660'
Date: 07/2021



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This map is not a boundary survey





Legend

CF AWP Activity

2023 First Thinning

PSF Management

DFS Future Core

DFS Future Translocation

ESA Zone 1

ESA Zone 3 ST

Stream Buffer 50'

Stream Buffer 300'

Cemetery

Home Sites

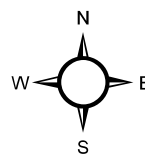
P-23-S-06

Scale: 1" = 660'

Date: 07/2021



This map is for planning purposes only.
This map is not a boundary survey



L. BUDGET

Introduction

This section of the plan is designed to cover the annual funding sources and costs associated with the operational management of the Chesapeake Forest and the Pocomoke State Forest (CF/PSF).

The numbers expressed in this section are approximates typically found from one year to the next. Variations do occur based on management prescriptions, economic conditions, weather, certification audit year, and public use of the forest.

Funding Sources

1. General Fund – Monies generated from Maryland State taxes. These funds are appropriated by the General Assembly through the annual state budgeting process.
2. Timber Revenue – Monies generated from the sale of forest products such as sawtimber, poles, pilings and pulpwood.
3. Hunting Leases – Monies generated by the Chesapeake Forest Hunting Lease Program.
4. Agricultural Leases – Monies generated from leasing agricultural fields on the forest to local farmers.
5. Grants – Monies generated from outside agencies/groups through a competitive grant request process.

Operational Costs

1. State Employee Salaries – There are four classified (full time) state employees assigned to the CF/PSF: Forest Manager, GIS Forester, Forest Technician, and an Administrative Assistant.
2. Contractual Employee Salaries – There are typically four contractual employees working 10 to 12 months per year on the forest.
3. Land Management – This includes the cost of contract management services and payments to loggers for harvesting and delivering forest products to processing mills.
4. Land Operations – This includes costs for road maintenance, non-commercial harvesting, tree planting, herbicide application, monitoring, equipment purchase & maintenance, etc.
5. County Payments – All counties except for Worcester are paid at a rate of 15% of the total revenue in lieu of property taxes. In Worcester County, 25% of the revenue generated off the forest is paid to the county since the total acreage of Park and Forestry properties exceeds 10% of the total County land base.
6. Public Drainage Association (PDA) Fees – This is a fee collected for large public drainage ditches that are present on the forest. Monies are used by the PDA to maintain the ditches.
7. Forest Certification – Monies used to maintain state forest lands certification through annual third party audits. Every fifth year is a full recertification audit, which costs \$40,000. Subsequent surveillance audits cost \$20,000.

Chesapeake Forest/Pocomoke State Forest Budget

Funding Sources

1. General	\$	439,956
2. Timber Revenue	\$	1,100,000
3. Hunting Leases & Camping Permits	\$	586,946
4. Agricultural Leases	\$	33,202
5. Recreation Trail Grant(s)	\$	30,000
Total	\$	2,190,104

Operational Costs

1. State Employee Salaries	\$	285,049
2. Contractual Employee Salaries	\$	83,062
3. Land Management	\$	981,034
4. Land Operations	\$	438,242
5. County Payments	\$	171,770
6. Public Drainage Association Fees	\$	9,647
7. Forest Certification	\$	19,605
Total	\$	1,988,409

Net Revenue	\$	201,695
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APPENDIX A SOIL SERIES MANAGEMENT GROUPS, ABBREVIATIONS, AND SYMBOLS

Soil Series	SMG	Caroline	Dorchester	Somerset	Wicomico	Worcester
Acquango sand	4					AcB, AcC
Annessex-Manokin complex	1			AoA, AoB		
Askecksy loamy sand	1	AsA			AsA	As
Askecksy-Urban land complex	1				AtA	
Beaches	-		Be	Be	Be	Be
Berryland mucky loamy sand	2				BhA	BhA
Bestpitch and Transquaking	5		BT			
Boxiron and Broadkill soils	1			BX		BX
Broadkill mucky silt loam	1					Br
Brockatonorton sand	3					BkA, BkB
Cedartown loamy sand	4	CdA, CdB			CdA	
Cedartown-Rosedale complex	4					CeA, CeB
Chicone mucky silt loam	5		Ch			Ch
Corsica and Fallsington soils	2			CRA		
Corsica mucky loam	1	CoA			CoA	
Corsica mucky loam, Carolina Bay	1	CrA				
Downer loamy sand	3		DnC			
Downer sandy loam	3		DoA, DoB	DoA, DoB		
Elkton loam	1		EkA			
Elkton mucky silt loam	1		EoA			
Elkton sandy loam	1					EkA
Elkton silt loam	1	EmA	EmA	EmA		EmA
Endoquepts and Sulfaquepts	5			EQB	EQB	
Evesboro loamy sand	4					EvA, EvB, EvC
Evesboro sand	4	EwA, EwB	EwC, EwE		EwA, EwB, EwC	
Evesboro-Galestown complex	4			EzB		
Fallsington loam	2	FgA		FgA	FgA	
Fallsington sandy loam	2	FaA	FaA	FaA	FaA	FaA
Fallsinston-Glassboro complex	2			PhA		
Fort Mott loamy sand	3		FmA, FmB		FmA, FmB	FmA, FmB
Fort Mott, Evesboro, and Downer soils	3		FNE			
Fort Mott-Urban land complex	3				FuA, FuB	
Galestown loamy sand	4	GaA, GaB	GaA, GaB	GaB	GaA, GaB	GaA, GaB, GaC
Galestown and Rosedale soils	4	GAE				
Glassboro loam	2			GIA		
Hambrook loam	3	HcA	HcA, HcB	HcA		
Hambrook sandy loam	3	HbA, HbB, HbC		HbB	HbA, HbB	HbA, HbB
Hambrook-Sassafras complex	3					
Hammonton loamy sand	3			HmA		HmA, HmB
Hammonton sandy loam	3	HnA	HnA	HnA	HnA	
Hammonton-Fallsington-Corsica complex	2	HoB				
Hammonton-Glassboro complex	3			HgB		
Honga peat	5		Ho	Ho	Ho	
Hurlock loamy sand	2			HuA		HuA
Hurlock sandy loam	2	HvA	HvA	HvA	HvA	
Ingleside loamy sand	3	IeA, IeB, IeC			IeA, IeB	
Ingleside sandy loam	3	IgA, IgB, IgC	IgA, IgB	IgA, IgB		
Ingleside-Runclint complex	3			IkC		
Kentuck silt loam	5					KeA
Keyport fine sandy loam	3				KfA, KfB	
Keyport silt loam	3		KpA	KpA		
Klej loamy sand	2					KsA, KsB
Klej-Galloway complex	2	KgB	KgB	KgB	KgB	
Lenni loam	2	LgA			LgA	
Lenni sandy loam	2	LhA			LfA	
Longmarsh and Indiantown soils	5	LO		LO	LO	LO
Manahawkin muck	5	Ma		Ma	Ma	Ma
Manokin silt loam	3			MdA, MdB		
Matapeake fine sandy loam	3					MeA, MeB

Soil Series	SMG	Caroline	Dorchester	Somerset	Wicomico	Worcester
Matapeake silt loam	3					MkA, MkB
Mattapex fine sandy loam	3		MpA		MpA	MpA, MpB
Mattapex silt loam	3	MtA, MtB	MtA, MtB		MtA, MtB	MtA, MtB
Miscellaneous water	-	M-W		M-W	M-W	
Mullica-Berryland complex	2			MuA	MuA	MuA
Nanticoke and Mannigton soils	5	NM	NM	NM	NM	NM
Nassawango fine sandy loam	3				NnA, NnB	NnA, NnB
Nassawango silt loam	3	NsA, NsB	NsA, NsB		NsA, NsB	NsA, NsB
Othello and Kentuck soils	1		OkA	OKA	OKA	
Othello silt loam	1		OtA	OtA	OtA	OtA
Othello silt loam, loamy substratum	1			OoA		
Othello-Fallsington complex	2			OvA		
Pepperbox-Rockawalkin complex	3				PrA, PrB	
Pone mucky loam	2		PmA			
Pone mucky sandy loam	2		PnA			
Puckum mucky peat	5	Pk	Pk	Pk	Pk	Pk
Purnell peat	5					Pu
Queponco loam	3			QbB		
Queponco silt loam	3			QeA, QeB		
Quindocqua silt loam	1			QuA		
Rockawalkin loamy sand	3	RkA			RkA, RkB	
Rockawalkin-Urban land complex	3				RnA, RnB	
Rosedale loamy sand	4	RoA, RoB			RoA	RoA, RoB
Runclint loamy sand	4				RuA, RuB	RuA, RuB
Runclint sand	4		RsA, RsB	RsB	RsA, RsB	
Runclint-Cedartown complex	4			RwB, RwC	RwA, RwB	
Runclint-Evesboro complex	4			RxB		
Runclint-Urban land complex	4				RzA, RzB	
Sassafras loam	3		SnA			
Sassafras sandy loam	3	SaA, SaB				SaA, SaB, SaC
Sunken mucky silt loam	5		SuA	SuA	SuA	SuA
Tangier mucky peat	5			Ta		
Transquaking and Mispillion soils	5	TP		TP	TP	TP
Udorthents	4	Ubb, Uff, UoB	UzB	Ubb, Ufb, Uff, UgB, UoB, UwB	Ubb, Ufb, UoB	UzB
Unicorn-Sassafras complex	3					
Urban Land	-	Up			Up	UpB
Urban Land-Acquango complex	-					UcB
Urban Land-Askecksy complex	-					UmA
Urban Land-Brockatonorton complex	-					UnA
Urban Land-Evesboro complex	-				UrB	
Urban Land-Fort Mott complex	-				UsB	
Urban Land-Rockawalkin complex	-				UtB	
Urban Land-Runcline complex	-				UuB	
Urban Land-Udorthents complex	-				UwB	UwB
Water	-	W	W	W	W	W
Woodstown loam	3	WoA, WoB	WoA	WoA		
Woodstown sandy loam	3	WdA, WdB	WdA, WdB	WdA, WdB	WdA	WdA, WdB
Woodstown-Glassboro complex	3			WpA		
Zekiah sandy loam	5	Za	Za			Za
Zekiah silt loam	5				Zk	Zk

CHESAPEAKE FOREST/POCOMOKE STATE FOREST: SOIL MANAGEMENT GROUPS

This is a forest management grouping designed specifically for the Chesapeake Forest and Pocomoke State Forest Sustainable Forest Management Plans, based on the soil series descriptions contained in the six county surveys.

Management Group 1 – Poorly and very poorly drained medium textured soils with heavy subsoils.

Soils:	Annessex-Manokin complex	Elkton sandy loam
	Askecksy loamy sand	Elkton silt loam
	Corsica mucky loam	Othello and Kentuck soils
	Corsica mucky loam, Carolina Bay	Othello silt loam
	Crosiadore silt loam	Othello silt loam, loamy substratum
	Elkton loam	Quindocqua silt loam
	Elkton mucky silt loam	

Description: These are poor and very poorly drained, medium textured soils that have a fine-textured subsoil. They are generally found in broad upland flats, depressions, and swales. Slopes are 0 to 2%. Ponding may occur after heavy rains, and high water table may limit access from December through May. These soils may have seasonal limitations for wetness, but the firm subsoils may allow mechanical operations, particularly with low-impact equipment, that allows them to be managed with intensive forestry methods.

Management Group 2 – Poorly and very poorly drained loam and sandy loam soils with sandy and medium textured subsoils.

Soils:	Berryland mucky loamy sand	Klej-Galloway complex
	Corsica and Fallsington soils	Klej-Hammonton complex
	Fallsington loam and sandy loam	Lenni loam and sandy loam
	Fallsington-Glassboro complex	Mullica-Berryland complex
	Glassboro loam	Othello-Fallsington complex
	Hurlock loamy sand and sandy loam	Pone mucky loam and mucky sandy loam
	Klej loamy sand	

Description: Medium and sandy-textured, poorly and very poorly drained soils on upland flats. Small areas in depressions will pond in very wet periods. Many of these soils lack firm subsoils, and when saturated may be very subject to soil rutting by equipment. This leads to shorter-season access, which may limit their use. With appropriate seasonal scheduling, these soils are suited for intensive forest management.

Management Group 3 – Well drained and moderately well drained sandy and loamy soils that formed in sandy materials and have sandy loam to silty or sandy clay subsoils.

Soils:	Downer loamy sand and sandy loam	Matapeake fine sandy loam and silt loam
	Fort Mott loamy sand	Mattapex fine sandy loam and silt loam
	Hambrook loam and sandy loam	Nassawango fine sandy loam and silt loam
	Hambrook-Sassafras complex	Pepperbox-Rockawalkin complex
	Hammonton loamy sand and sandy loam	Queponco loam and silt loam
	Hammonton-Glassboro complex	Rockawalkin loamy sand
	Ingleside loamy sand and sandy loam	Sassafras sandy loam
	Ingleside-Runclint complex	Woodstown sandy loam
	Keyport fine sandy loam and silt loam	Woodstown-Glassboro complex
	Manokin silt loam	

Description: Well drained soils that are generally better-suited to pine than to hardwoods. These may occur on slopes of 0 to 10 percent. On the steeper slopes erosion potential needs to be addressed. Rutting and soil damage by machine operations

are minor problems and most sites will have good access and operability most of the year. These are the best suited soils for intensive forest management.

Management Group 4 – Deep, sandy soils that are well to excessively well drained.

Soils:	Cedartown loamy sand	Rosedale loamy sand
	Evesboro loamy sand and sand	Runclint loamy sand and sand
	Evesboro-Galestown complex	Runclint-Cedartown complex
	Galestown loamy sand	Runclint-Evesboro complex
	Galestown and Rosedale soils	Udorthents

Description: These sandy soils have few operating limitations due to soil wetness, and can provide sites for mechanical activities during wet seasons. Productivity is low, and some sites may be occupied by Virginia or shortleaf pine. Some may occur in a landscape pattern of sand ridges interspersed with low wet soils or Delmarva Bays, and provide an important habitat type, particularly for herbivores and invertebrates. Some may have slopes of up to 10-15%, which may limit management. Udorthents are soils that have been mechanically altered and may occur mainly as borrow pits, landfills, or other re-worked areas. Intensive forest management is probably limited on many of these soils.

Management Group 5 – Low-elevation, poorly and very poorly drained soils that formed in organic materials. They may lie in flood plains, freshwater wetlands, or areas that can be affected by tidal flooding.

Soils:	Chicone mucky silt loam	Nanticoke and Mannington soils
	Honga peat	Nanticoke silt loam
	Johnston loam	Puckum mucky peat
	Kentuck mucky silt loam	Sunken mucky silt loam
	Kentuck silt loam	Tangier mucky peat
	Longmarsh and Indiantown soils	Transquaking and Mispillion soils
	Manahawkin muck	Zekiah sandy loam and silt loam

Description: These poorly drained soils occupy flood plains and both fresh and brackish marshes. Some lie at elevations where flooding by salt water during high tides or storms is a possibility and trees may be affected by salt spray. The sites are marginal in terms of timber or pulpwood productivity, and access is often very restricted. Many of these areas will be riparian forests and other water-related areas that should be managed primarily for water quality and wildlife purposes.

Other types without Management Groups – Other map units that are too small, are comprised of minor soil types, or are not suitable for forest management.

Soils:	Beaches	Urban Land
	Miscellaneous water	Water

APPENDIX B AUDIT SUMMARIES 2020/21

The 2020 Certification Audit was not held at its annually scheduled date in April 2020 due to COVID-19, and was rescheduled for July 2020. The 2021 audit is scheduled for July 2021.

Full reports and summaries of the 2020 and all past Forest Certification Audits can be found here:

<http://dnr.maryland.gov/forests/Pages/forestcert.aspx>

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