Franklin Parker Preserve

Forest Stewardship Plan

Prepared for

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FRANKLIN PARKER PRESERVE
FOREST STEWARDSHIP PLAN

±9,200 Acres (6,863 Woodland Acres and Subject of this Plan)

Various Blocks & Lots: See Appendix
Woodland Township, Burlington County, New Jersey

MANAGEMENT PERIOD: January 1, 2014 thru December 31, 2023
Plan Date: January 1, 2014
LDE File No. F-1633

Prepared by

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PLEDGE: As a forest landowner, I believe the right to own land also carries the responsibility for stewardship of the natural resources in my care. I have read the attached ten-year Forest Stewardship Plan and agree to implement it to the best of my ability.

STATEMENT: All forestry activities will be consistent with the guidelines provided in the NJ Forestry Wetlands Best Management Practices Manual developed by NJDEP and dated October 1995.

_____ _____
DATE LANDOWNER

_____ _____
DATE PLAN PREPARER

_____ _____
DATE STATE FORESTER REPRESENTATIVE

Note 1: Woodland boundaries in the vicinity of proposed forest management activities will be marked with paint as needed.
Note 2: All management activities will be initiated with assistance from a professional forester.

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- Forest Stand Map

I. GENERAL DESCRIPTION

This forestland is situated in Woodland Township, Burlington County, New Jersey, in the Pinelands National Reserve, in close proximity to the village of Chatsworth. The property is intersected by County Route 563, County Route 532, and several other minor roadways. Since it was formerly a large agricultural land holding, it is mapped, in the Pinelands Comprehensive Management Plan, within the Special Agricultural Production Area, and thus, it is central to and surrounded by the Preservation Area. The approximately 6,863 acres of woodlands are the subject of this Forest Stewardship Plan. It also surrounds approximately 1500 acres of land that is being restored from former agricultural wetlands (cranberry bogs and associated reservoirs) to more natural wetlands.

There is an additional 2,436 acres of additional land that has been disturbed by prior agricultural uses, as well as some natural bogs and wetlands that are not formerly designated for management activity within the context of this Forest Stewardship Plan. The total land base is 9, 299. Of the 2,436 acres outside of the plan, approximately 1,500 acres is being restored from former agricultural lands (cranberry bogs and reservoirs) to more natural wetland systems.

New Jersey Conservation Foundation (NJCF) purchased this land on Dec 31, 2003, to restore the former agricultural wetlands to a more natural state and to conserve its biodiversity, natural resources, and rare flora and fauna. NJCF also plans to restore natural processes, to the extent practical, by implementing forestry and prescribed burning practices that mimic a more natural disturbance regime. The restoration of the agricultural wetlands to a more natural wetland condition, virtually completed in 2012, is not discussed in this plan, but it compliments this plan.

This forestland is a complex mix of both upland and wetland native forest types. Most of the native Pinelands forest types found in the Pinelands National Reserve is present here. The restored agricultural wetlands associated with this forest have a long history of disturbance in the form of blueberry and cranberry cultivation, which began in the late 1800s.

This forestland also has a long history of disturbance from both wildfire events and the harvesting of various forest products. However, there has been little harvesting or cutting of the forest on most areas over the last 50 to 70 years. For the most part, the forest continues to recover from these past disturbances. A rich diversity of species composition has regenerated and recaptured this landscape. The rich diversity of wildlife and plant species found in this forest is a clear indication of forest recovery.

However, most of these forest types are dependent upon a relationship with fire, and they need fire in varying intensities and frequencies. The exclusion of fire over the past 30 to 60 years in most of these areas is having adverse effects on the forest's ecological integrity, heterogeneity, and biodiversity.

In most cases, the forest stands are simply overstocked. This dense condition creates competition among all the plants and places stress on the trees, resulting in slow tree growth. It also shades out open habitats, which would otherwise provide more biodiversity. Most importantly, especially from a human safety perspective, it poses conditions for catastrophic wildfires. Active forest management can address these issues.

This plan recommends forest management that attempts to emulate natural processes. It proposes to manage the forest to optimize ecological systems and services, while including consideration of the economic costs to achieve that objective. It aims to protect the forest types of the Franklin Parker Preserve, so the public can enjoy them for generations to come. Consistent with that goal, it aims to perpetuate conditions for the numerous plants and animals that are dependent upon these forests. It also allows land managers the flexibility to make changes were needed.

Access to the forestland is readily available from existing forest roads as well as improved county roads. Opening of new roads is not needed and indeed, discouraged in this plan. The topography is nearly level except for a few drop offs to drainages associated with the woodland.

The Franklin Parker Preserve supports forest types typical for this area of Burlington County, New Jersey. Although significant areas of the forest are young, overstocked stands having regenerated from stand replacement fires and/or timber extraction in the last century, there are significant patches or single trees of much older age classes scattered about the forest. Many trees exceed 100 years of age and are only now beginning to demonstrate some older growth characteristics and attributes.

Forest Stewardship Objectives

1. Protect and enhance the ecological integrity of the forest.

2. Implement silvicultural prescriptions that perpetuate, enhance, and restore as many Pine Barrens forest types and plant and animal communities as practical.

3. To the extent necessary to subsidize unfunded project costs, generate revenue through the sale of forest products and support markets for locally grown, renewable forest products.

4. Use silvicultural activities in order to reduce the risk of uncontrolled wildfire and prepare the landscape for the return of ecologically based prescribed fire.

5. Insure all forest management activities are compatible with outdoor recreational use and aesthetic qualities of the Franklin Parker Preserve.

6. Provide a model for ecosystem restoration of natural disturbance regimes in Pine Barrens forests.

Soils Description

Information about these soils and their relationship to woodland management in this area of Woodland Township, as well as soil maps are included in the Appendix.

Soils will not be disturbed beyond a minimal depth resulting from tree harvesting or burning activities. The surface soil and leaf litter layer will be disturbed with a scarification from harvesting and if burning occurs that is hot enough.

II. FOREST OVERVIEW

The Franklin Parker Preserve is a large tract of land that includes +9,200 acres of natural forests, a segment of the Wading River, various stream corridors, reservoirs, and open wetlands, restored wetlands in former agricultural areas, maintained upland meadows, and shrublands. It contains passive use nature trails and several nature observation platforms. There are areas of roadway networks, a former airstrip, agricultural outbuildings, small sand, clay, and gravel excavation sites, and several partially re-vegetated dump sites consisting of non-hazardous agricultural and construction debris. This Forest Stewardship Plan covers 6,863 acres of the wooded areas of this land. The preserve is surrounded by large contiguous areas of mostly state forestland, except for large cranberry farms and pine plantations to the south, the village of Chatsworth in its center, and the network of county highways and other roads. This preserve is only one small piece of a very large, mostly contiguous forestland landscape within the heart of the Preservation Area of the New Jersey Pinelands.

This forest provides significant water resources to this region of the Pinelands National Reserve. The quality of the man-made Chatsworth Lake and drainage of the Wading River and 14 tributaries found on the Franklin Parker Preserve are dependent upon a healthy forest cover.

The land has a long history of wildfire events, with the last being in the mid 1950's. Wildfire has long been excluded from these forest stands, though some limited prescribed burning for fuel reduction has been conducted on small areas. This lack of fire has allowed for a buildup of forest fuels and fuel structure. In most cases, forest fuel ladders exist with heavy forest fuels from the ground to the crowns of the trees. As forest fuel loads continue to accumulate, the risk of wildfire increases. The present condition of these forest stands presents a growing risk for crown fires that have:

- faster spread rates and a greater difficulty of control,
- more frequent spotting over longer distances,
- increased radiant heating, making structures more difficult to defend,
- longer flame lengths, dictating larger safety zones, and
- ecological impacts that include changes to forest character that are potentially long lasting.

The diversity of forest structure in this forest is very high. Forest stands range from dense overstocked stands to more open stands with minimal tree cover and stocking. This diversity of forest cover is what supports the wide range of wildlife and plant species that are found living in this forest. The diversity of forest structure is directly related to the mosaic of upland to wetland soil types supporting the forest, as well as human disturbances and fire over the past centuries.

Cultural Resources

Implementation of this forest stewardship plan does not require any significant soil disturbances from forestry activities such as forest road openings or heavy ground preparation. Negative impacts to any potential cultural resources will not occur as a result of following the forest management activity schedules outlined in this forest stewardship plan.

Aesthetics

New Jersey Conservation Foundation believes an aesthetically pleasing Pine Barrens forest is one that includes characteristic Pine Barrens habitat types, with varying age-class structure and successional stages for each type, as well as the ability of the landscape to experience a natural fire regime to the extent practical.

This plan has been designed to sustain healthy native forest stands that represent a variety of ages and successional conditions, in order to support the widest possible variety of plant and animal species, especially characteristic Pine Barrens species. Prescribed fire and forest thinning will open up some sections to allow for early successional species and more depth perception. In other sections the goal is to maintain the scenic beauty of larger trees and older forests. These aesthetic characteristics will be considered in all phases of this proposed forest management activity.

Recreational Aspects

Recreational use is a primary consideration in this forest stewardship plan. The preserve is open for walking, hiking, bicycling, horseback riding, wildlife viewing, educational programs, scientific research, fishing, and white-tailed deer hunting. Outdoor recreations helps people to understand the importance of protecting forests and ecosystems and inspires them to not only support the protection of this forest, but also forests found around the globe. The New Jersey Conservation Foundation is committed to providing recreational opportunities at the Franklin Parker Preserve, but protection of the ecological integrity of this special forest is always the priority.

Planning Aspects

For the sake of efficient forest management planning and implementation, the forest has been mapped into six separate areas. (See the Appendix.)

Nonnative Invasive Plant Species Issues

In characteristic Pine Barrens areas, where soils and water remain extremely low in both nutrients and pH levels, invasive species are virtually non-existent, and the introduction of propagules of invasive species, especially seeds, is normally not a problem. However, in any area where the soil or water has become degraded, especially by elevated pH, invasive species do get a foothold, both in uplands and in wetlands. Such conditions do exist at scattered locations on the Franklin Parker Preserve. For this reason, all vehicles and equipment used in silviculture activities proposed for FPP will be thoroughly washed off-site before entering any area of activity.

Additionally, when projects in the Pine Barrens include revegetation, sometimes soil amendments, such as lime and fertilizers, are recommended, and these amendments increase the likelihood of creating suitable conditions for the establishment of non-native and invasive species. However, this plan does not call for plantings or revegetation of any kind.

On upland areas at FPP, degraded areas are found primarily along roadsides. Evidently, some of the dirt, sand, and gravel roads have been surfaced with materials that are foreign to the Pine Barrens, and many of the paved roads have foreign soil and gravel in the underlayment and shoulder material. These foreign materials are frequently higher in both nutrient and pH, thus providing suitable conditions for invasive and other non-native plant species. Chinese Bush-clover (*Lespedeza cuneata*) is the most troublesome species along roadsides. African Love-grass (*Eragrostis curvula*) is also present along roadsides, probably restricted to sites where it was planted years ago. It may be spreading, but there has been no monitoring to determine this. Washing of vehicles and equipment should help to prevent new introductions of these and other potential invasives.

Degraded upland areas also include the immediate vicinity of the two garages, any staging areas, all farm refuse dumps, and areas around the pump houses. No silvicultural activities are planned for any of these sites, and silvicultural activities are not expected to have an effect on these areas, so long as vehicles and equipment are thoroughly washed before coming in contact with these areas.

The cranberry dikes (the upper portions of which function as upland habitat) also support a few non-native species, though it is not yet clear whether these are behaving as invasives. The non-natives most often encountered on these sites are *Teesdalia nudicaulis*, *Spergula morrisonii*, and *Rumex acetosella*. Their presence is possibly due to introductions of foreign material on the surface, the purpose of which would have been to stabilize the roads. The slightly degraded soil conditions are also possibly due to the fact that lower strata soils have been excavated and brought to the surface to construct the dikes, and some lower strata soils may be of a higher pH. Silvicultural activities are not expected to have an effect on these areas, so long as vehicles and equipment are thoroughly washed before using these dike roads.

Degraded wetlands at FPP are small in area, but NJCF's goal is to eradicate any invasive species in these trouble spots as quickly as possible. Again, the presence of invasive and otherwise non-native plant species indicates that pH of the water and wetland soil has been elevated, sometimes with a concurrent elevation of nutrients. Degraded wetland areas at FPP include some of wet road shoulders, due to the same factors discussed above, and some limited areas in and around impoundments and other man-made structures.

The primary invasive species occurring in such degraded areas at FPP is *Phragmites australis*. As with the upland areas, silvicultural activities are not expected to aggravate this situation, so long as vehicles and equipment are thoroughly washed before coming into contact with these areas.

Threatened and Endangered Species

Note: the following was prepared by the New Jersey Conservation Foundation staff

The Franklin Parker Preserve is home to a wide variety of rare, threatened, and endangered species of plants and animals. Since New Jersey Conservation Foundation acquired the property late in 2003, they have conducted extensive surveys for rare plants and animals. They have recorded numerous locations for rare plants and animals, and they have cooperated with the New Jersey Endangered and Non-Game Species Program and researchers from Drexel University on radio-telemetry studies of the Northern Pine Snake and Timber Rattlesnake.

Virtually the entire Franklin Parker Preserve is utilized as critical habitat by at least a few rare, threatened, or endangered wildlife species:

- At least nine Barred Owl nesting territories have been located, although they are not all occupied every year. Every nest occurs in mature forested swamp, either Atlantic White Cedar or a mixed swamp forest of Cedar, Pitch Pine, and Red Maple. No mechanized forestry is proposed in any of these nesting habitats. Some hand-thinning of very dense, stagnant, thin-diameter stands of Atlantic White Cedar are proposed, but this will only serve to allow better access into these stands for foraging Barred Owls.

- Similarly, Pine Barrens treefrogs have been recorded calling in at least 12 distinct breeding locations within the extensive wetlands on the preserve, and they have expanded into at least 2 newly created wetland areas associated with the USDA-NRCS Wetland Reserve Program project. No forestry activity proposed in this plan will occur within any of the sites where Pine Barrens treefrogs have been detected since the spring of 2004. However, one forestry activity is proposed an area that is suitable for Pine Barrens Treefrogs. This is the proposed Atlantic White Cedar restoration area located south of the confluence of the Tibbs Branch and the Reeds Branch, on the un-named tributary that flows westward into the Tibbs Branch from an abandoned blueberry field. Atlantic White Cedar restoration in this abandoned blueberry, red maple, and pitch pine early successional area will either be neutral or enhance the likelihood for colonization by Pine Barrens treefrogs.

- One Bald Eagle nest has been active since at least 2007, but in winter numerous Bald Eagles utilize all the reservoirs, open wetlands, and the forests that fringe these wetlands, as roosting and foraging habitat. No forestry activity will take place within 1000 feet of this or any future Bald Eagle nest. Currently, the only proposals in this plan for forestry activity in a habitats between 1000 and 3000 feet of this Bald Eagle nest will be conducted between Sept 15 and December 15. These 2 proposals are limited to non-mechanized, hand-thinning of dense, thin-diameter Atlantic White Cedar as described above for Barred Owl, or hand-thinning and prescribed burning in a Pitch Pine/tree-sized Oak upland stand, in order to perpetuate an open-canopy, tall oak forest to attract Red-Headed Woodpecker, which currently visits FPP but does not nest. If additional Bald Eagle nests are established on or near the Franklin Parker Preserve, we will curtail any other forestry proposal in this plan to conform to the Sept 15 to Dec 15 time window, a 1000 foot absolute buffer and a 1000-3000 foot non-mechanized, hand-treatment buffer.

- Northern Pine Snake, Timber Rattlesnake, and Corn Snake records, whether live encounters, records of roadkill on highways 563, 562, and 72, detailed radio-telemetry data, or data from previous studies and ENSP records, indicate that the entire preserve is utilized by this suite of threatened and endangered species.
    - For Northern Pine Snake, winter hibernacula can occur anywhere in upland soils on the preserve, whether in open, sunny habitats or in dense, closed-canopy forest. Most winter hibernacula are undetectable without radio-telemetry, especially those which contain neonates or one or few adults. In 2012, 8 neonate (first winter) pine snakes were radio-tracked to winter hibernacula, and each individual neonate hibernated in isolation. Northern pine snakes forage and have also been recorded mating and utilizing shallow summer dens throughout both wetland and upland habitat. Only one life-history activity, nesting, is limited to open, sunny, uplands, and some of those openings are as small as 150 square feet. Without radio telemetry, it is impossible to detect most Northern Pine Snakes, regardless of season. Northern Pine Snakes are most vulnerable to mechanized forestry activity on warm summer days, when they are often immobile and undetectable, hidden at or close to the soil surface, resting in deep shade or in logs to avoid excess heat. NJCF will avoid mechanized forestry in close proximity to all recorded hibernacula and nesting sites, and avoid mechanized forestry in open and semi-open areas that can be identified as highly suitable, potential hibernacula. However, it is impossible to avoid the many undetectable winter hibernacula that occur throughout the closed-canopy forest. Fortunately, at the micro-habitat scale, the entrances found via radio-telemetry for these hibernacula always rely on a former mammal den, stump-hole, or root channel, and highly fossorial Northern Pine Snakes (and Corn Snakes) have no trouble re-emerging from deep underground even if the exit hole has been disturbed at the soil surface. Corn Snakes have a very limited areal distribution at Franklin Parker Preserve, but their vulnerability to mechanized forestry, like Pine Snakes, is least when they are in their winter dens. Therefore,

NJCF will only conduct mechanized forestry activity between November 15 and March 15, when Pine and Corn Snakes are either deep within their hibernacula, or possibly active due to a warm day, but always very close to the their winter hibernacula entrance.

- Timber Rattlesnakes have been tracked using radio-telemetry at every opportunity since 2005 at the Franklin Parker Preserve. One major winter hibernacula complex has been detailed via tracking snakes to the winter dens, and two others can be inferred from having observed rattlesnakes in close proximity to forested wetlands containing suitable winter den sites, within a few days of either spring emergence from or fall retreat into the hibernaculum. Timber rattlesnakes that utilize the Franklin Parker Preserve habitats for summer foraging and mating have also been observed; some have been radio tracked. Many females that use critical gestation (birthing) sites on the Franklin Parker Preserve have also been radio-tracked. Males have been radio-tracked up to 8 miles from their mid-summer locations on the Franklin Parker Preserve to winter hibernacula elsewhere in the Pinelands Preservation Area. Female Timber Rattlesnakes have been radio-tracked up to 4 miles from their gestation (birthing) sites to their winter hibernacula, and there is strong circumstantial evidence that at least one neonate Timber Rattlesnake followed its mother 4 miles to a winter hibernaculum. The conclusion is that Timber Rattlesnakes have been observed (or can be inferred) to utilize use every sector of the Franklin Parker Preserve for winter dens, summer foraging, mating, and gestation. The only time to safely conduct mechanized forestry on any upland site within the Franklin Parker Preserve is when Timber Rattlesnakes are in winter hibernation in wetland swamps. During the active season, Timber Rattlesnakes are at the surface. They generally do not reveal their presence, remaining completely silent and immobile, and their camouflage makes them virtually invisible. It would be virtually impossible to detect a timber rattlesnake and avoid possible harm to an individual, during a mechanized forestry operation in an upland at the Franklin Parker Preserve between May 1 and October 15. Between October 15 and May 1, all Timber Rattlesnakes that have been radio-tracked are always closely associated with their wetland forest winter hibernacula. Therefore, if all mechanized forestry at the Franklin Parker Preserve occurs in uplands during the herein proposed safe dates for Northern Pine and Corn snakes of Nov 15 to April 15, no harm can come to Timber Rattlesnakes.
- Regarding virtually all species of snakes, both rare and common, NJCF has recorded numerous incidences of roadkill on the paved roads in the Chatsworth area. Timber Rattlesnake, Northern Pine, King, Scarlet, Hognose, and Rough Green Snake all have recorded as roadkill. NJCF proposes to create additional safe basking sites, and gestation and/or nesting sites, at isolated locations away from any roadways.

Rare Plant Protection

The goal of this Forest Stewardship Plan is conservation of characteristic Pine Barrens ecological communities and the individual elements within those communities. Even so, NJCF recognizes that any management of natural communities is liable to have unforeseen negative temporary and/or local impacts to individual plants and plant populations. For that reason, NJCF is committed to thoroughly documenting and protecting all known populations of rare plants on the Preserve.

Beyond that, NJCF is committed to protecting areas of special habitats, even though such sites may not have documented populations of rarities. Such areas consist of habitats known to be particularly suitable for a great many different kinds of rare species—in particular, damp or intermittently wet, open areas in early stages of succession. Any such habitats will be guarded from incidental degradations by excluding them from use as staging and vehicular parking areas.

In addition to the specific notes, below, all rare plant populations will be additionally protected by restricting the forestry activities to the dormant season.

Three main sources of information on rare plants at FPP are available, and the summaries, below, are arranged accordingly:

I. The New Jersey Natural Heritage Program (NJNHP) reports that were provided to NJCF in connection with the preparation of this Plan (appended).
II. A 2006 report furnished to NJCF produced by Kerry Barringer and Gerry Moore, sponsored by the Brooklyn Botanic Garden (appended).
III. Recent field observations by local botanists and NJCF staff members.

Ranks and statuses are in accordance with the current (September, 2013) NJNHP document at: www.nj.gov/dep/parksandforests/natural/heritage/njplantlist.pdf, except for taxa with state conservation ranks of S4, in which case the conservation ranks are in accordance with the NatureServe website: www.natureserve.org/explorer/. Taxa ranked S4, below, are not considered "Species of Concern" by NJNHP, but are specifically listed for protection in the New Jersey Pinelands Comprehensive Management Plan (CMP). The Barringer and Moore report was based on the 2005 conservation ranks.

I. Plants Listed by the NJ Natural Heritage Program as Occurring Within or Near the Franklin E. Parker Preserve

The order of presentation of the plants below is based on the relative prevalence of occurrence of the plants with respect to the six sections of the Plan, as represented by the NJNHP reports.

1. Curly-grass Fern—*Schizaea pusilla* Pursh—is listed as occurring in the vicinity of each of the six sections of the proposed Forest Stewardship Plan for the Franklin Parker Preserve: Arpins, Chatsworth & Apple Pie Hill, Goodwater Run, Jake's Spung, Oak Meadows, and Woodland Lake.

This is a characteristic Pine Barrens plant, and arguably the most famous rarity of the Pine Barrens. The conservation ranks are S3 and G3G4. It is also specifically listed for protection in the CMP.

This is a fern in the family Schizaeaceae. The habitat is early successional wetland sites, evidently always in association with Atlantic White Cedar (*Chamaecyparis thyoides* (L.) BSP), on moist, open, sandy spots in old "turf cuts," on stream and river banks, on hummocks in Atlantic White Cedar swamps, and in similar conditions within steam and river-side savannas.

Barringer & Moore (p. 8) report four historical collections from the Chatsworth area, but no extant populations at FPP. A very small population has since been reported in the Jake's Spung section of this Plan by local amateur botanists (Mark Szutarski, pers. com.) [redacted] and confirmed by NJCF staff (personal observation). This is the only population of which we are aware on the property. No forestry work is planned in that area.

No forestry work is planned in any areas that include known populations of Curly-grass Fern. All work proposed in Atlantic White Cedar stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

2. False Asphodel—*Tofieldia racemosa* (Walt.) BSP—is also listed as occurring in the vicinity of each of the six sections of the proposed plan: Arpins, Chatsworth & Apple Pie Hill, Goodwater Run, Jake's Spung, Oak Meadows, and Woodland Lake.

The name "*Tofieldia racemosa*" has been routinely applied to the plants in the Pine Barrens of New Jersey, but recent research indicates that these plants, which are restricted to a small area within the central Pine Barrens in Burlington County, are unique, distinct from *Tofieldia racemosa*, and intermediate, in some respects, between *Tofieldia racemosa* and *Tofieldia glutinosa*. (See the Flora of North America treatment, where the plants have been segregated into the genus *Triantha*).

In any case, this is a characteristic Pine Barrens plant, our plants are state-listed Endangered, with conservation ranks of S1 and G5, and they are specifically listed for protection in the CMP.

This is a perennial herb in the family Liliaceae. The habitat is early successional wetland sites, along stream and river banks, in savannas, in openings in Atlantic White Cedar swamps, and similar situations.

Barringer and Moore (p. 12) report multiple historical records for the area, as well as a single extant population in the Jake's Spung section of this Plan [redacted]

[redacted]. There is another smaller station [redacted] (Mark Szutarski, pers. com., and personal observation). Both stations are being monitored by NJCF staff, and have been included in the research that is currently being conducted by Sasha Eisenman, PhD., as he investigates the status of this apparently unique population in Burlington County. No forestry work is planned in these areas.

No forestry work is planned in any areas that include known populations of False Asphodel. All work proposed in Atlantic White Cedar stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

3. Bog Asphodel—*Narthecium americanum* Ker-Gawl.—is listed as occurring in the vicinity of five sections of the proposed plan: Arpins, Chatsworth & Apple Pie Hill, Goodwater Run, Jake's Spung, and Oak Meadows.

A characteristic Pine Barrens plant, Bog Asphodel is state-listed Endangered, with conservation ranks of S2 and G2. It is specifically listed for protection in the CMP, and, until recently, it was listed as a Candidate for federal protection. Though populations were formerly found in several other states, the only currently known populations are in the Pine Barrens of New Jersey.

This is a perennial herb in the family Liliaceae. The habitat is early successional wetlands, along stream and river banks, in savannas, in openings in Atlantic White Cedar swamps, and similar situations.

At FPP there are several known populations on small savanna-like openings along the Wading River and along one tributary. Barringer and Moore (p. 6) report two populations in the Jake's Spung section of this Plan, [redacted]. Both populations are being monitored as part of an NJCF vegetation monitoring program. No forestry work is planned in these areas.

No forestry work is planned in any areas that include known populations of Bog Asphodel. All work proposed in Atlantic White Cedar stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

4. Long's Woolgrass—*Scirpus longii* Fern.—is listed as occurring in the vicinity of four sections of the proposed plan: Arpins, Goodwater Run, Jake's Spung, and Oak Meadows.

A characteristic Pine Barrens plant, it is state-listed Endangered, with conservation ranks of S2 and G2G3. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Cyperaceae. The habitat is damp to wet open sandy barrens and depressions.

Barringer and Moore (p. 9) report that a population was documented by Witmer Stone [redacted] in 1909. We are not aware of any extant populations, but the plant is extremely cryptic, rarely blossoming except following a fire, or, perhaps, other disturbances that mimic some of the effects of fire. Thus, contrary to the Barringer and Moore report, we believe suitable habitat does indeed exist for the plant on the Preserve. The current state of plant community succession makes it nearly impossible to ascertain whether or not there may be an extant population at the aforementioned site. As a major goal of this Plan is to create conditions that will make it safer to re-introduce prescribed fire to the landscape, the measures of the Plan should optimize the chances of rediscovering this rare plant on the Preserve.

No forestry work is planned in any areas that include known populations of Long's Wool-grass. All work proposed in habitats suitable for Long's Wool-grass stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

5. Silvery Aster—*Symphyotrichum concolor* (L.) Nesom = *Aster concolor* L.—is listed as occurring in the vicinity of four sections of the proposed plan: Chatsworth & Apple Pie Hill, Jake's Spung, Oak Meadows, and Woodland Lake.

The conservation ranks are S2 and G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Asteraceae. The habitat is early successional uplands, in dry, sandy, barren open woods.

Barringer and Moore (p. 4) report a population in the Jake's Spung section of this Plan [redacted]. No forestry work is planned in this area. Mark Szutarski reports a population in the Chatsworth & Apple Pie Hill section of this Plan [redacted]. No forestry work is planned in that vicinity.

No forestry work is planned in any areas that include known populations of Silvery Aster. All work proposed in Pine/Oak upland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed during the appropriate season (fall—early winter) to ensure that such areas do not have populations of this plant.

6. Pine Barrens Gentian—*Gentiana autumnalis* L.—is listed as occurring in the vicinity of four sections of the proposed plan: Goodwater Run, Jake's Spung, Oak Meadows, and Woodland Lake.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G3. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Gentianaceae. The habitat is early successional, in damp to intermittently damp, open areas, roadsides, pitch pine lowlands, and stream banks.

Two populations are being monitored at FPP, both of them on the shoulders of dike roads. The one, in the Jake's Spung section of this Plan, [redacted] was also reported by Barringer and Moore (p. 5), and is the subject of a current study by PhD candidate Ryan Rebozo. The other, in the Oak Meadows section of this Plan [redacted] is being monitored casually by NJCF staff. A third population occurs in the Woodland Lakes section of this Plan on Cedar Road, on a narrow road shoulder [redacted]. No forestry work is planned in any of these areas.

No forestry work is planned in any areas that include known populations of Pine Barrens Gentian. All work proposed in Pitch Pine Lowland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed in the appropriate season (late summer—late fall) to ensure that such areas do not have suitable habitat for this plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

7. New Jersey Rush—*Juncus caesariensis* Coville—is listed as occurring in the vicinity of four sections of the proposed plan: Chatsworth & Apple Pie Hill, Goodwater Run, Jake's Spung, and Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S2 and G2G3, and it is state-listed Endangered. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Juncaceae. The habitat is open wetland areas with sphagnum, streamside savannas, Atlantic White Cedar swamps, and similar situations.

Barringer and Moore (p. 6) report populations occurring "Along the W. Branch [of the Wading River] in scattered localities. And in roadside ditches along Rt. 563 [redacted]." The plant is not uncommon on hummocks surrounded by open water and deep muck in the areas described above (personal observation). No forestry work is planned in any of these areas.

No forestry work is planned in any areas that include known populations of New Jersey Rush. All work proposed in Atlantic White Cedar stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

8. Hairy Primrose-willow—*Ludwigia hirtella* Raf.— is listed as occurring in the vicinity of four sections of the proposed plan: Arpins, Goodwater Run, Jake's Spung, and Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S2 and G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Onagraceae. The habitat is early successional wetlands, damp, open barrens, Pitch Pine Lowlands, boggy areas, streamside savannas.

We are not aware of any extant populations of this plant at FPP.

No forestry work is planned in any areas that include known populations of Hairy Primrose-willow. All work proposed in Pitch Pine Lowland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

9. Red Milkweed—*Asclepias rubra* L.—is listed as occurring in the vicinity of three sections of the proposed plan: Chatsworth & Apple Pie Hill, Jake's Spung, and Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S2 and G4G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Asclepiadaceae or, in accordance with more modern taxonomy, now treated as a subfamily in the Apocynaceae. The habitat is early successional wetlands, in open boggy areas, Atlantic White Cedar swamp openings, savannas, and similar situations.

Barringer and Moore (p. 3) reported that "only historical records" exist for this plant at FPP, but a population in the Jake's Spung section of this Plan has been seen and photographed recently [redacted] (John & Rosanne Bornholdt, pers. com.; personal observation). No forestry work is planned in this area.

No forestry work is planned in any areas that include known populations of Red Milkweed. All work proposed in Atlantic White Cedar stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

10. Wand-like Goldenrod—*Solidago stricta* Aiton—is listed as occurring in the vicinity of three sections of the proposed plan: Chatsworth & Apple Pie Hill, Jake's Spung, and Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Asteraceae. The habitat is early successional wetlands, in damp, sandy pineland areas and roadsides.

Barringer and Moore's report (p. 11) indicates that Wand-like Goldenrod occurs at two sites, both on road shoulders along Hwy. 563. [redacted]

[redacted] No forestry work is planned in either of these areas.

No forestry work is planned in any areas that include known populations of Wand-like Goldenrod. All work proposed in Pitch Pine Lowland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed to ensure that such areas do not have suitable habitat for this plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

11. Fringed Yellow-eyed-grass—*Xyris fimbriata* Elliott—is listed as occurring in the vicinity of three sections of the proposed plan: Arpins, Goodwater Run, and Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S1 and G5, and it is state-listed Endangered.

This is a perennial herb in the family Xyridaceae. The habitat is early successional wetlands, in open Pine Barren bogs and swamps.

Barringer and Moore (p. 13) cite a 1905 specimen of Fringed Yellow-eyed-grass "from along the Shoal Branch," but no extant occurrences. We are unaware of any extant populations.

No forestry work is planned in any areas that include known populations of Fringed Yellow-eyed-grass. All work proposed in Atlantic White Cedar stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

12. Pine Barrens Reedgrass—*Calamovilfa brevipilis* (Torr.) Scribn.—is listed as occurring in the vicinity of two sections of the proposed plan: Arpins and Chatsworth & Apple Pie Hill.

It is a characteristic Pine Barrens plant. The conservation ranks are S4 and G4. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Poaceae. The habitat is damp, open, sandy barrens, especially Pitch Pine Lowlands, road shoulders, along power line rights-of-way, and similar situations. The plant is often persistent but nearly undetectable in late successional Pitch Pine Lowlands, where individuals may merely put up a leaf or two each season (Ted Gordon, pers. com., personal observation).

As indicated by Barringer and Moore (p. 4), populations of Pine Barrens Reedgrass are scattered throughout the Preserve. Most of the known sites are along roadsides, but there are undoubtedly cryptic populations that are virtually undetectable within the extensive Pitch Pine Lowland areas.

Forestry work is planned in areas that include known populations of Pine Barrens Reed-grass, but no soil disturbance is anticipated that might adversely impact any of the populations. All work proposed in Pitch Pine Lowland stands is designed to decrease the density of the stands,

which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed to ensure that such areas do not have suitable habitat for this plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

13. Chaffseed—*Schwalbea americana* L.—is listed as occurring in the vicinity of two sections of the proposed plan: Jake's Spung and Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S1 and G2G3, and it is state-listed Endangered. It is also federally-listed Endangered. It is specifically listed for protection in the CMP. In New Jersey, a single natural population of Chaffseed remains extant from populations that numbered over a dozen historically. This is the only natural population remaining extant in the entire northeast. According to the US Fish and Wildlife Service, the plant has been eliminated from two-thirds of the states where it was once reported.

This is a perennial herb in the family Scrophulariaceae. The habitat is early successional wetlands, in moist, open, sandy pinelands.

Barringer and Moore (p. 9) report [redacted]" Beginning in 2005, NJCF has participated in a program aimed at reintroducing Chaffseed to this general area. Two populations were established, one in the Jake's Spung section of this Plan, [redacted], and the other, in the Chatsworth & Apple Pie Hill section of this Plan [redacted]. No forestry work is planned in either of these areas.

No forestry work is planned in any areas that include known populations of Chaffseed. All work proposed in Pitch Pine Lowland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

14. Pine Barrens Bellwort—*Uvularia puberula* Michx. var. *nitida* (Britton) Fernald—is listed as occurring in the vicinity of two sections of the proposed plan: Jake's Spung and Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S2 and G5T3?, and it is state-listed Endangered.

This is a perennial herb in the family Liliaceae. The habitat is early successional wetlands, and on damp to intermittently dry soil of wetland edges, often in thickets.

A small population of Pine Barrens Bellwort was discovered in the Jake's Spung section of this Plan alongside a recreational trail in 2011 [redacted] (Mark

Szutarski, pers. com; personal observation). Forestry work is planned in this area (Project H), but the site will be cordoned off to guard against any possible damage to the population there.

All work proposed in potential habitat for the plant is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

15. Sickle-leaf Golden-aster—*Pityopsis falcata* (Pursh) Nutt. = *Chrysopsis falcata* (Pursh) Elliott— is listed as occurring in the vicinity of one section of the proposed plan: Chatsworth & Apple Pie Hill.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G3G4. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Asteraceae. The habitat is early successional uplands, dry, open sand, sandy roadsides, and sand mining areas.

We are unaware of any extant populations of this plant at FPP.

No forestry work is planned in any areas that include known populations of Sickle-leaf Golden-aster. All proposed staging areas will be thoroughly surveyed in the appropriate season (fall—early winter) to ensure that such areas do not have populations of this plant. All work proposed in Pine/Oak upland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

16. Broom Crowberry—*Corema conradii* (Torr.) Torr. ex Loudon— is listed as occurring in the vicinity of one section of the proposed plan: Chatsworth & Apple Pie Hill.

It is a characteristic Pine Barrens plant. The conservation ranks are S1 and G4, and it is state-listed Endangered. It is specifically listed for protection in the CMP.

This is a perennial shrub in the family Empetraceae. The habitat is dry sandy soil, in Pitch Pine communities, especially in the Dwarf Forests of the Pinelands.

There is a small, evidently isolated population [redacted], on Woodland Twp. property. Another population has been reported [redacted] on state forest property (anonymous report). We are unaware of any populations at FPP.

No forestry work is planned in any areas that include known populations of Broom Crowberry. All work proposed in Pine/Oak upland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed to ensure that such areas do not have populations of this plant. The habit and distinctive evergreen foliage makes identification possible in any season.

17. Pine Barrens Rattlesnake-root—*Prenanthes autumnalis* Walter—is listed as occurring in the vicinity of one section of the proposed plan: Oak Meadows.

It is a characteristic Pine Barrens plant. The conservation ranks are S2 and G4G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Asteraceae. The habitat is early successional wetlands, moist, open, sandy areas, roadsides, Pitch Pine Lowlands.

Barringer and Moore (p. 7) report only two historical records, dated 1897 and 1932, the locations given as "Chatsworth" and "2 mi N of Speedwell" respectively. We are not aware of any extant populations.

No forestry work is planned in any areas that include known populations of Pine Barrens Rattlesnake-root. All work proposed in Pitch Pine Lowland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed to ensure that such areas do not have suitable habitat for this plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

18. Slender Nut-rush—*Scleria minor* W. Stone—is listed as occurring in the vicinity of one section of the proposed plan: Chatsworth & Apple Pie Hill. We are aware of a population in the Jake's Spung section.

It is a characteristic Pine Barrens plant. The conservation ranks are S4 and G4. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Cyperaceae The habitat is early successional wetlands, damp, open, sandy or peaty soil.

Barringer and Moore (p. 10) report two historic records ([redacted]) and two fairly recent ones (1976), but the geographical information is too vague to be of much help. Evidently, they were unable to relocate any of the populations during their surveys. We are not aware of a population in the Chatsworth & Apple Pie Hill section. There is a small population in the Jake's Spung section of this Plan in a clear area [redacted] (personal observation). Forestry work is proposed for this area (Project K), but this opening surrounded by Pitch Pine Lowland forest will be off limits to any forestry work or vehicular traffic whatsoever.

No forestry work is planned in any areas that include known populations of Slender Nut-rush. All work proposed in wetland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

19. Purple Bladderwort—*Utricularia purpurea* Walter—is listed as occurring in the vicinity of one section of the proposed plan: Arpins.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Lentibulariaceae. The habitat is aquatic, or on mud in impoundments, ponds, or slack water areas of rivers and streams.

Fred Akers reported a population in the Arpins section of this Plan [redacted]. Vegetative material is not uncommon in appropriate habitats (personal observations), and is easily recognizable, due to the whorled branches. Flowering may be dependent on higher than normal water temperatures (Ted Gordon, pers. com.).

No forestry work is planned in any areas that include known populations of Purple Bladderwort. None of the proposed forestry activities will have an impact on aquatic habitats that may support this plant.

II. Additional Rare Plants Listed by Barringer and Moore as Occurring Within or Near the Franklin E. Parker Preserve. These are listed alphabetically by scientific name.

1. Curtis' Three-awn Grass—*Aristida dichotoma* Michx. var. *curtissii* A. Gray—is reported by Barringer and Moore (p. 3) to occur on "Bog dikes and edges of sandy roads in commercial bogs, especially in the N end of the DeMarco Cranberry Meadow." It may occur in each of the six sections of this Plan.

The conservation ranks are S2 and G5T5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is an annual herb in the family Poaceae. The habitat is early successional uplands, on open, dry ground, especially roadsides.

The plant is rather frequent on service and dike road shoulders within the Preserve (personal observation).

No forestry work is planned in any areas that include known populations of Curtis' Three-awn Grass. All work proposed in Pine/Oak upland stands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed in the appropriate season (fall—early winter) to ensure that such areas do not have populations of this plant.

2. Wand-like Three-awn Grass—*Aristida virgata* Trin. = *Aristida purpurascens* Poir. var. *virgata* (Trin.) Allred—is reported by Barringer and Moore (p. 3) to occur in exactly the same way as the above plant. (Evidently, an error of some sort found its way into the report, as the habitat for this plant (typically damp ground) is quite different from that of Curtis' Three-awn Grass (typically dry ground.) The sites specified are in the Jake's Spung section of this Plan.

The conservation ranks are S2 and G5T4T5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is a perennial herb in the family Poaceae. The habitat is early successional wetlands, on open, damp ground, on roadsides and similar situations.

Barringer and Moore report populations in the Jake's Spung section of this Plan [redacted]. These are within the cranberry bog restoration area, and not within any forest areas. We have not confirmed these occurrences, and, although the Preserve has suitable habitat for the plant, it is easily confused with *Aristida longespica* Poir., therefore the report remains suspect.

No forestry activities are planned in any areas that include known populations of Wand-like Three-awn Grass. All work proposed in Pitch Pine Lowlands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

3. Spreading Pogonia—*Cleistes divaricata* (L.) Ames—is reported by Barringer and Moore (p. 5) on the basis of a "single historical record" from 1897, the location given merely as "Chatsworth," thus we do not have sufficient information to assign it to any particular section of the Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S1 and G4. It is state-listed Endangered and is specifically listed for protection in the CMP.

This is a perennial herb in the family Orchidaceae. The habitat is swamps, river banks, often in relatively dry zones, and within dense growth of shrubs and other vegetation.

The survey work done up to now has not confirmed any occurrence of this plant, and the lack of specificity concerning the location of the historical record gives no clue as to exactly where one might search. It is also the case that populations of this plant often tend to be represented, at least in our area, by single plants, so, unfortunately, the 1897 herbarium specimen may be all that's left of that population.

No forestry activities are planned in any areas that include known populations of Spreading Pogonia. All work proposed in Atlantic White Cedar Swamps and Pitch Pine Lowlands is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

4. Canby's Lobelia—*Lobelia canbyi* A. Gray—is reported by Barringer and Moore (p. 6) on the basis of three specimens, only one of which is accompanied by specific information as to location: [redacted] This would place it the Jake's Spung and/or Oak Meadows section of this Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G4. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Campanulaceae. The habitat is early successional wetlands, in open areas, like stream and riverbanks and savannas, and similar situations.

The area referred to above [redacted], is visited rather frequently by amateur and professional botanists, but we are not aware of any reports of this plant.

No forestry activities are planned in any areas that include known populations of Canby's Lobelia. All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

5. Carolina Clubmoss—*Lycopodiella caroliniana* R.E. Andrus var. *caroliniana*—is reported by Barringer and Moore (p. 17) on the basis of historical records in the Chatsworth and Speedwell area., both from 1907. The locations given are too vague to allow placing the sites within any particular section of this Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G5T4. It is not listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is a perennial herb in the family Lycopodiaceae. The habitat is early successional wetlands, in savannas, within openings in swamps, along riverbanks, and similar situations.

We are unaware of any extant populations on the Preserve.

No forestry activities are planned in any areas that include known populations of Carolina Clubmoss. All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

6. Crested Yellow Orchid—*Platanthera cristata* (Michx.) Lindl.—is reported by Barringer and Moore (p. 7) at two separate sites, one in the Jake's Spung section and the other in the Chatsworth Lake and Apple Pie Hill section of this Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Orchidaceae. The habitat is early successional wetlands, in savannas, within openings in swamps, along riverbanks, and similar situations.

The Jake's Spung site [redacted]. The other site [redacted]. No forestry work is proposed in either area.

No forestry activities are planned in any areas that include known populations of Crested Yellow Orchid. All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

7. Large-head Beaked-rush—*Rhynchospora cephalantha* A. Gray—is reported by Barringer and Moore (p. 8) as occurring in the Chatsworth Lake & Apple Pie Hill section of this Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Cyperaceae. The habitat is early successional wetlands, especially in wet savannas and similar situations.

Barringer and Moore reports the site as "an open, wet, disturbed site [redacted]. No forestry work is planned in that area.

No forestry activities are planned in any areas that include known populations of Large-head Beaked-rush. All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

8. Few-flower Beaked-rush—*Rhynchospora oligantha* A. Gray—reported by Barringer and Moore (p. 8) to occur in the general vicinity of the Preserve, on the basis of multiple historical records. It has since been confirmed at one location in the Jake's Spung section of the Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S2 and G4. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is a perennial herb in the family Cyperaceae. The habitat is early successional wetlands, especially open boggy areas, savannas, and similar situations.

There is a population [redacted] (Mike Baker, pers. com.; personal observation), in a small savanna-like area, on hummocks between deep muck and open water, and it is likely to occur in similar situations along the Wading River. No forestry activities are planned in this or any similar areas.

No forestry activities are planned in any areas that include known populations of Few-flower Beaked-rush.

9. Pale Beaked-rush—*Rhynchospora pallida* M.A. Curtis—is reported by Barringer and Moore (p. 8) on the basis of two historical specimens, the first of which could refer to a site in the Chatsworth Lake & Apple Pie Hill section of this Plan. The second could refer to a site in either the Jake's Spung or the Oak Meadows section. A third site has recently been documented within the Oak Meadows section.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G3. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state and global ranks.

This is a perennial herb in the family Cyperaceae. The habitat is early successional wetlands, especially open boggy areas, pitch pine lowlands, transitional areas.

The sites listed by Barringer and Moore [redacted]. The location for the 1932 site is too vague to be of much help in locating a current population. The location for the 1907 site [redacted] is in the Jake's Spung section of this Plan. There appears to be suitable habitat for the plant in that general area, but we are not aware of any plants. In any case, no forestry work is proposed for that area.

We are aware of a population in the Oak Meadows section of this Plan [redacted] (personal observation). Forestry work is planned for this area (Project K), but this opening surrounded by Pitch Pine Lowland forest will be off limits to any forestry work or vehicular traffic whatsoever.

All work proposed in Pitch Pine Lowlands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

10. Muehlenberg's Nutrush—*Scleria muehlenbergii* Steudel.

Reticulated Nut-Rush—*Scleria reticularis* Michx.—is reported by Barringer and Moore (p. 10) on the basis of a citation of Witmer Stone, but this requires clarification. They indicate that Stone reported a population in Chatsworth, but, "No corresponding voucher has been found." They

mark a population that presumably discovered in Figure 5 that would be in the Jake's Spung section of this Plan.

The name "*Scleria reticularis* Michx." has been applied, in the past (e.g., Gleason & Cronquist, 1991) to a complex currently widely recognized as containing at least two taxa: *Scleria reticularis* Michx. and *Scleria muhlenbergii* Steudel (see Flora of North America). This "lumping" of the two taxa was adopted in the Pinelands Comprehensive Management Plan. *Scleria muhlenbergii* has several synonyms, including *Scleria reticularis* Michx. var. *pubescens* Britton and (in what was a nomenclatural innovation of Witmer Stone's) *Scleria reticularis* Michx. var. *torreyana* Walper (see Moore, 2002).

Stone recognized and listed both taxa (p. 283), using the names "*Scleria reticularis* Michx." and "*Scleria reticularis torreyana* (Walp.)." He indicated that *Scleria reticularis* had been documented only in Cape May County. He indicated that "*Scleria reticularis torreyana*" (again, a synonym for the currently accepted name *Scleria muehlenbergii* Steudel) occurred widely in the Pine Barrens, with sites including Speedwell and Chatsworth.

The plant we would expect to encounter in the Parker Preserve, then, is best referred to as *Scleria muehlenbergii* Steudel (Muehlenberg's Nutrush).

It is a characteristic Pine Barrens plant. The conservation ranks are S4 and G5. It is specifically listed for protection in the CMP, assuming the authors used of the name *Scleria reticularis* in the broad sense (Ted Gordon, pers. com.).

This is an annual or perennial herb in the family Cyperaceae. The habitat is early successional wetlands on open sandy or peaty ground.

The one site shown by Barringer and Moore is on a road shoulder [redacted] where no forestry activities are planned. We are unaware of any other populations.

No forestry activities are planned in any areas that include known populations of Muehlenberg's Nutrush. All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

11. Laurel-leaf Greenbrier—*Smilax laurifolia* L.—is known from multiple locations at FPP in the Jake's Spung and Goodwater sections of the Plan (personal observation, Barringer and Moore, p. 16).

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is a perennial woody vine in the family Smilacaceae. The habitat is "low, wet ground of woods, especially in cedar swamps" (Hough).

Most of the known sites for this plant are along the west side of the Wading River, in Atlantic White Cedar Stands. Barringer and Moore also mention [redacted] No forestry work is proposed for any of those locations.

No forestry activities are planned in any areas that include known populations of Laurel-leaf Greenbrier. Known sites will be marked and avoided. All work proposed in Atlantic White Cedar Swamps will be preceded by a thorough survey for this plant. It can be identified at any season due to its distinctive stems and distinctively shaped evergreen leaves.

12. Elliott's Goldenrod—*Solidago elliottii* Torr. & A. Gray—is reported by Barringer and Moore p.11) [redacted]. This would place it in the Woodland Lakes section of this Plan.

The conservation ranks are S3 and G5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it, due to its state conservation rank.

This is a perennial herb in the family Asteraceae. The habitat is early successional wetlands on open sandy or peaty ground.

No forestry work is proposed in any of the abandoned bogs in that area.

No forestry activities are planned in any areas that include known populations of Elliott's Goldenrod. All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant. As the habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

13. Bog Goldenrod—*Solidago uliginosa* Nutt. var. *uliginosa*—is reported by Barringer and Moore (p. 11) in the Jake's Spung section of this Plan.

The conservation ranks are S3 and G4G5T4T5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it, due to its state conservation rank.

This is a perennial herb in the family Asteraceae. The habitat is "bogs and swamps."

Barringer and Moore's site is a roadside ditch [redacted]. No forestry activities are proposed for that site.

No forestry activities are planned in any areas that include known populations of Bog Goldenrod. All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

14. Carolina Peat Moss—*Sphagnum carolinianum* Andrus—is reported by Barringer and Moore (p. 11) on the basis of a single collection from 1985 in the Jake's Spung section of this Plan.

The conservation ranks are S2 and G3. According to NatureServe it has been documented, in New Jersey, only in Burlington County. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it, due to its state and global conservation ranks.

This is a nonvascular plant, a moss, in the family Sphagnaceae. The habitat is given as "riverside savanna" in the Barringer and Moore report. It is given as "margins of roadside ditches, wet depressions in pine woods" at the NatureServe site.

Barringer and Moore's site [redacted]. No forestry activities are proposed for that site.

No forestry activities are planned in any areas that include known populations of Carolina Peat Moss.

15. Largeleaf Peat Moss—*Sphagnum macrophyllum* Brid.—is reported by Barringer and Moore (p. 11) in the Goodwater section of this Plan.

The conservation ranks are S2 and G3G5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it, due to its state and global conservation ranks.

This is a nonvascular plant, a moss, in the family Sphagnaceae. The habitat is given as "submerged in acidic, still or slow-moving, shallow water" in the Barringer and Moore report.

No forestry activities are proposed for the Goodwater section at this time.

No forestry activities are planned in any areas that include known populations of Largeleaf Peat Moss.

16. Pickering's Morning-glory—*Stylisma pickeringii* (Torr. ex M.A. Curtis) A. Gray var. *pickeringii* = *Breweria pickeringii* (Torr. ex M.A. Curtis) var. *caesariensis* Fernald & B.G. Schub.—is reported by Barringer and Moore (p. 11) on the basis of a citation from Witmer Stone, which is too vague to allow indicating which section of the Plan it may occur in.

It is a characteristic Pine Barrens plant. The conservation ranks are S1 and G4T3. It is state-listed Endangered and is specifically listed for protection in the CMP.

This is a perennial herb in the family Convolvulaceae. The habitat is early successional dry upland sites, in Pitch Pine communities.

Witmer Stone indicates that his citation of "Chatsworth" is based on a specimen collected by Benjamin Heritage. We are not aware of any more specific location information for the

population from which Mr. Heritage took his specimen. Contrary to the statement in the Barringer and Moore report, suitable habitat does indeed exist for this plant within the Preserve, but rather intensive field work over the course of several years has not turned up any populations.

No forestry activities are planned in any areas that include known populations of Pickering's Morning-glory. All work proposed in upland Pitch Pine forests is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed to ensure that such areas do not have populations of this plant. Although the ideal time to survey for this plant would be during its flowering period, the long prostrate stems are distinctive even in the winter.

17. Pencil-flower—*Stylosanthes biflora* (L.) Britton, Sterns & Poggenb.—is reported by Barringer and Moore (p. 12) in the Jake's Spung section of this Plan.

The conservation ranks are S3 and G5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is a perennial herb in the family Fabaceae. The habitat is early successional dry upland sites.

The population referred to by Barringer and Moore [redacted]. This is the only population we are aware of. The area is not within or adjacent to any proposed forestry activities. It is mowed annually, in the dormant season, in order to maintain the early successional community.

No forestry activities are planned in any areas that include known populations of Pencil-flower. All work proposed in Pitch Pine uplands is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas will be thoroughly surveyed to ensure that such areas do not have populations of this plant.

18. Large Swollen Bladderwort—*Utricularia inflata* Walter—is reported by Barringer and Moore (p. 13) as occurring in the Goodwater section of the Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S3 and G5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is a perennial herb in the family Lentibulariaceae. The habitat is aquatic situations, usually in still water of ponds, lake, and impoundments.

The site [redacted] was reported by Fred Akers, and there is a robust population both there at other scattered locations (personal observation). No forestry work is planned for the Goodwater section.

No forestry activities are planned in any areas that include known populations of Large Swollen Bladderwort. There is no prospect of the proposed work introducing adverse impacts to the aquatic communities of FPP.

III. Additional Rare Plants Observed on the Property

1. Little Ladies'-tresses—*Spiranthes tuberosa* Raf.—is known to occur in the Jake's Spung section of the Plan.

The conservation ranks are S3 and G5. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Orchidaceae. The habitat is early successional upland sites, especially open areas on roadsides and edges of woods.

A population of at least 20 plants [redacted] (personal observation). No forestry work is proposed for this location.

No forestry activities are planned in any areas that include known populations of Little Ladies'-tresses. All work proposed in upland Pitch Pine forests is designed to decrease the density of the stands, which may enhance or create habitat for the plant. All proposed staging areas with appropriate habitat for this plant will be thoroughly surveyed to ensure that such areas do not have populations.

2. Barratt's Sedge—*Carex barrattii* Schwein. & Torr.—is known from several locations at FPP, and is likely to be found in any of the six project sections of this Plan.

It is a characteristic Pine Barrens plant. The conservation ranks are S4 and G4. It is specifically listed for protection in the CMP.

This is a perennial herb in the family Cyperaceae. The habitat is wetlands, in early to moderately late successional situations. The plants may be persistent in later successional situations but difficult to detect, as they may fail to flower and merely put up a few leaves (Ted Gordon, pers. com.).

Barratt's Sedge is known to occur in roadside ditches at various locations along Rt. 532 and Rt. 563 in the vicinity of Chatsworth. It can be expected wherever the road crosses wetlands. No forestry work is planned in any of the sections of this Plan that would affect these roadside populations.

There is a small population in the Chatsworth & Apple Pie Hill section of this Plan (personal observation) [redacted]. Forestry work is proposed for this area (Project D-2) but the population will be cordoned off to protect it from the activities.

There is a small population in the Oak Meadows section of this Plan, [redacted] (personal observation). Forestry work is planned for this area (project K), but this opening surrounded by Pitch Pine Lowland forest will be off limits to any forestry work or vehicular traffic whatsoever.

All work proposed in Pitch Pine Lowlands and Atlantic White Cedar Swamps is designed to decrease the density of the stands, which may enhance or create habitat for the plant.

3. Carolina Nut-rush—*Scleria pauciflora* Muhl. ex Willd. var. *caroliniana* (Willd.) Alph. Wood—is known to occur in the Jake's Spung section of the Plan.

The conservation ranks are S2 and G5T4T5. It is not specifically listed for protection in the CMP, but NJCF is committed to protecting it due to its state conservation rank.

This is a perennial herb in the family Cyperaceae. The habitat is "Dry to mostly wet pinelands, savannas, mesic woods, meadows, bogs, and prairies" –Flora of North America.

The only known population is [redacted] (Mark Szutarski, pers. com.; personal observation), in a dry open area that is mowed annually in the dormant season. No forestry activities are planned for that particular area, and the area will be cordoned off to prevent it being used as a staging or parking area.

No forestry activities are planned in any areas that include known populations of Carolina Nut-rush. As the wetland habitat for this plant is also suitable for a number of other Pine Barrens rarities, any areas with suitable habitat will be automatically disqualified as staging areas.

IV. Notes

Ten plants are listed by Barringer and Moore on the basis of historical occurrences in the general area, in the section "Additional Rare Plants that may be found on the Preserve" (p. 17-18).

One of these, Purple Bladderwort—*Utricularia purpurea*—has indeed been documented on the Preserve, and is treated, above.

Humped Bladderwort—*Utricularia gibba*—is reported by Barringer and Moore on the basis of a citation of Witmer Stone, indicating that there were specimens collected from Chatsworth and Speedwell, however, the citation is erroneous. Stone's locations for this plant (p. 692) do not include either Chatsworth or Speedwell. Although there are records of the plant occurring in the Pine Barrens, we are not aware of any populations at or near FPP.

The rest of the plants listed in that section of the Barringer and Moore report remain as possible but, as of yet, undocumented on the Preserve.

Rare Plants Reported On or Near FPP

The "NHP" column indicates plants listed in the report that was furnished to NJCF by the NJ Natural Heritage Program. The column labeled "B&M" indicates plants Barringer and Moore treated in their report. The "Confirmed" column indicates those plants confirmed at FPP by the NJCF staff. "Page" refers to the page number in this document.

	Plant	NHP	B&M	Confirmed	Page
1	*Aristida dichotoma* Michx. var. *curtissii* A. Gray		✓	✓	11
2	*Aristida virgata* Trin. = *Aristida purpurascens* Poir. var. *virgata* (Trin.) Allred		✓		12
3	*Asclepias rubra* L.	✓	✓	✓	6
4	*Calamovilfa brevipilis* (Torr.) Scribn.	✓	✓	✓	7
5	*Carex barrattii* Schwein. & Torr.			✓	20
6	*Cleistes divaricata* (L.) Ames		✓		12
7	*Corema conradii* (Torr.) Torr. ex Loudon	✓			9
8	*Gentiana autumnalis* L.	✓	✓	✓	4
9	*Juncus caesariensis* Coville	✓	✓	✓	5
10	*Lobelia canbyi* A. Gray		✓		13
11	*Ludwigia hirtella* Raf.	✓			5
12	*Lycopodiella caroliniana* Andrus var. *caroliniana*		✓		13
13	*Narthecium americanum* Ker-Gawl.	✓	✓	✓	3
14	*Platanthera cristata* (Michx.) Lindl.		✓		14
15	*Pityopsis falcata* (Pursh) Nutt. = *Chrysopsis falcata* (Pursh) Elliott	✓			9
16	*Prenanthes autumnalis* Walter	✓	✓		10
17	*Rhynchospora cephalantha* A. Gray		✓		14
18	*Rhynchospora oligantha* A. Gray		✓	✓	14
19	*Rhynchospora pallida* M.A. Curtis		✓	✓	15
20	*Schizaea pusilla* Pursh	✓	✓	✓	2
21	*Schwalbea americana* L.	✓	✓	✓	8
22	*Scirpus longii* Fern.	✓	✓		3
23	*Scleria minor* W. Stone	✓		✓	10
24	*Scleria muehlenbergii* Steudel		✓		15
25	*Scleria pauciflora* Muhl. ex Willd.			✓	21
26	*Smilax laurifolia* L.		✓	✓	16
27	*Solidago elliottii* Torr. & A. Gray		✓		17
28	*Solidago stricta* Aiton	✓	✓	✓	6
29	*Solidago uliginosa* Nutt. var. *uliginosa*		✓		17
30	*Sphagnum carolinianum*		✓		14
31	*Sphagnum macrophyllum*		✓		14
32	*Spiranthes tuberosa* Raf.			✓	20
33	*Stylisma pickeringii* (Torr. ex M.A. Curtis) A. Gray var. *pickeringii*		✓		18
34	*Stylosanthes biflora* (L.) Britton, Sterns & Poggenb.		✓	✓	19
35	*Symphyotrichum concolor* (L.) Nesom = *Aster concolor* L.	✓	✓	✓	4
36	*Tofieldia racemosa* (Walt.) BSP	✓	✓	✓	2
37	*Utricularia inflata* Walter		✓	✓	19
38	*Utricularia purpurea* Walter	✓	✓	✓	11
39	*Uvularia puberula* Michx. *var. nitida* (Britton) Fernald	✓		✓	8
40	*Xyris fimbriata* Elliott	✓	✓		7

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III. THE FOREST MANAGEMENT APPROACH

Application of the Suggested Approach

The practice of silviculture involves both art and science. The science is based on a thorough understanding of supporting disciplines and research, while the art comes from the forester's experience regarding which practices most effectively meet the stated objectives.

This plan suggests a silvicultural approach that embraces the complexity of the Pinelands ecosystem and works with the complexity—a more sophisticated approach than has been practiced here to date.

Prescribed Fire (Rxb)

Prescribed fire is fire set under specific environmental condition, which allows the fire to be confined to a predetermined area and produce the fire line intensity and rate of spread required to achieve planned resource management objectives. Prescribed burns will no doubt continue to shape these forest types, but their use is limited at times, due to annual weather conditions, physical characteristics of the land, and human infrastructure.

Limitations of Rxb

1. Increasingly, fires are raising concerns regarding air quality and global climate change.
2. Fire cannot be used safely where forest stands are dangerously overgrown due to fire exclusion for many decades.
3. Fire may present significant risks to public health and safety.
4. Prescribed fires must be set under specific weather conditions.
5. Prescribed fires are limited due to insurance liability.

Prescribed Fire In This Plan

In spite of these limitations, prescribed burning remains an essential tool to manage these forest systems. A primary objective of this forest plan is to create conditions that will allow the owner to return fire to this forest in a manner that insures protection of public health and safety, while, at the same time, sustaining the forest ecosystem. The long-term goal is to make prescribed fire the primary management tool when practical.

To move towards a forest with fire-safe conditions, the silviculture prescriptions intend to manage three types of forest fire fuels: surface fuel, ladder fuels, and crown fuels. Surface fuels include dead and down debris sitting on the forest floor. Ladder fuels are tall shrubs and small trees that connect the surface fuels to the crowns of larger trees. Crown fuels are those in the overstory.

In order of priority, management prescriptions will focus on surface fuel, ladder fuel and the crown fuel. Reducing these fuels will limit the potential intensity of fires, provide a higher chance of controlling wildfires, and allow more of the forest to survive when it does burn.

The extent of fire suppression in the past makes it necessary to engage in more mechanical removal of material than would typically be needed. After mitigation of the fire hazard threat through mechanical treatments and prescribed burning, periodical maintenance thinning or additional prescribed fire may be needed to maintain the individual stands.

Regardless of the proposed management approach, this forest will experience fire at one time or another. The fire objective of this plan is try to maximize a forest condition where surface fire behavior is reduced and/or ladder fuels are removed such that torching potential is reduced; and as a third priority, crown density is reduced.

Anticipated Benefits of Rxb and Mechanical Management

1. Reduced long term risks of loss of life, property, and biodiversity.
2. Fuel conditions that may allow growing season burns and/or prescribed stand replacement crown fires.
3. Reduced long term impacts on global climate change by eliminating greenhouse gas emissions from uncontrolled wildfires.
4. Enhanced ecological integrity.

Silvicultural Mechanical Treatments

Mechanical treatments aim to manage the structure of the forest by means of cutting and removing vegetation.

Mechanical tree harvesting and brush cutting are essential management techniques in this plan. Today's harvesting and cutting technology includes techniques that are light on the land and precise. Used in concert with wildlife habitat conservation strategies and water quality BMP's, mechanical treatments can produce the desired forest conditions while making it possible to make productive use of forest resources.

Forestry Economics

Any forest stewardship plan must have a feasible method to pay for the expense of implementing it. Estimates of mechanical treatments range between $1,000 - $3,000 per acre, and estimates of prescribed burning range between $10 - $100 per acre. Though forest markets are very limited in this region of New Jersey at this time, selling or utilizing biomass resulting from the treatments can, at times, help cover these costs.

Local Utilization of the wood products can provide additional benefits, as well:

1. Create jobs and economic opportunities;
2. Produce needed renewable forest products locally;
3. Provide renewable energy sources;
4. Provide potential carbon sequestration;
5. Save global forests;
6. Reduce transportation and shipping impacts on climate change.

Although the ecological approach prescribed in this plan has as its primary objective the overall health of the ecosystem, there are substantial economic benefits that will result from this approach to forest management:

1. Liabilities and costs associated with wildfires decreases.
2. Eco tourism increases.
3. Long term timber asset value increases.

Tree Harvesting Issues

A critical component of implementing the approach suggested in this plan is low-impact logging practices that consider the overall goals and multiple objectives for this land and forest.

Sustaining the native, high-quality groundcover, overstory, and regeneration patches retained during treatments is critical. All site contractors should be trained by

foresters and biologists to provide general knowledge of the overall land management objectives and philosophy, as well as conservation values that may require special consideration during treatment operations.

Markets for the low-grade material to be removed will limit opportunities to locate qualified logging operators. The more complex nature of this type of logging and treatments proposed in this plan will require the owners to consider quality of logging when assessing job bids. That is evaluating any bidder's experience and request landowner references.

1. Tree harvesting will be planned in detail. Prior to harvesting, a conference between the harvester and the land manager will be held. All details will be discussed, and the owner will reserve the right to cease operations if conditions are deemed unsuitable.

2. Log decks will be located adjacent to existing roads and will be 1 to 2 acres in size. These areas will replicate the typical, historical small disturbance patches and will be allowed to regenerate back to native Pinelands early succession vegetation. Because openings will mimic natural forest openings that, due to fire suppression, have become scarce, contractors must be aware that target wildlife, such as the Northern pine snake, may be drawn to the openings. They will not be permanent staging areas.

3. Care will be given to avoid skinning retained trees during felling and dragging, and selected areas will be protected from disturbance. Protected snags will be marked and retained.

IV. THE SILVICULTURAL APPROACH AND PHILOSOPHY

- The foundation of the silvicultural approach developed for this plan is a strong land ethic and conservation-based perspective on management and stewardship of this land.
- This plan incorporates time as an ecological factor and recognizes the time scales at which the Pinelands forests operate. It takes a patient approach in achieving objectives through active management over long periods of time.
- Rather than thinking in terms of rotations of set length, this forest is viewed as a perpetual entity that is never terminated.
- This plan seeks to maintain this forest ecosystem in its entirety, including all species and communities, as well as ecological processes and interactions.
- An overarching goal is to balance a range of values from the land. This plan does not seek to maximize any one amenity, recognizing the inherent tradeoffs in managing for multiple objectives.
- This plan recognizes species and communities that are rare or declining and does prioritize their stewardship. This facilitates conservation of rare elements while pursuing other land management objectives.
- This plan is not based on a "preservationist" approach. It utilizes the resources and derives some economic return, although that is not the primary management objective.

V. FOREST TYPE DESCRIPTION and MANAGEMENT RECOMMENDATIONS

NOTE: Activity schedules are dependent upon economics, weather, and regulatory process and will vary over the life of this plan. Pine prescription schedules are highly dependent upon pine market opportunities.

Stand 1 - Pitch Pine Scrub Oak (PPSO) Breakdown of Acres

Note: See forest stand map in appendix for details

Section	Acres
Woodland Lake	120
Chatsworth Apple Pie	1,210
Jake's Spung	1,180
Oak Meadow	261
Arpins	354
Goodwater Run	105
TOTAL	**3,230**

This stand can be found in a mosaic scattered throughout the Franklin Parker Preserve (FPP) in a diverse pattern. As with most forest stands in this area of Burlington County, the fire history is diverse. The stand is primarily made up of pitch pine (*Pinus rigida*) as the dominant overstory tree with some unique inclusions that have short leaf pine (*Pinus echinata*) as a codominant or dominant species. In areas of long term fire exclusion, tree oaks such as post oak (*Quercus stellata*) or tree forms of black jack oak (Quercus marilandica) can be found in the midstory. Where found, the oak component has been significantly impacted by gypsy moth in recent years with significant mortality present in some groups.

Most groups within this stand have a scattered, mature overstory in the 80 to 100 year age class growing in association with younger groups in the 40 to 50 year age class. However, there are also significant groups that have regenerated since the last major wildfire in the 1950's and have regenerated into an overstocked, even-aged groups, forming dense stands.

Again, the understory is a mosaic of areas of dense scrub oak (*Quercus ilicifolia*), huckleberry (Gaylussacia spp.), and other shrubs typical for this forest type. A mosaic midstory of post oak, white oak (Quercus alba) and black jack oak can be found in some sections while other groups have a uniform understory of scrub oak. Tree regeneration is limited at this time and is not an immediate issue.

There is a great diversity in tree form and condition. In less stocked areas, there are trees with wide crowns and significant branching on the bole of the tree; while in more densely-stocked groups, trees exhibit less branching and smaller crowns. This diverse tree form and structure will be sustained in the proposed management protocols. This will enhance the ecological quality of the pine in stands, which is the goal, as opposed to enhancing economic utility, which would remove many of the branching trees.

The initial focus on limited areas in the first ten year management period will be to begin to address the issue of fire exclusion and overstocking of the stand in given areas or groups.

Forest stand improvement is the primary objective at this time. Although a few areas have experienced fire, most areas remain at high risk for uncontrolled wildfire. Additionally, the overstocked nature of most groups is having a negative impact on the ability of both understory and overstory plants to regenerate. The resulting densification of the forest from the lack of fire has begun to stress the stands.

Another concern, in addition to wildfire is that the overstocking conditions have placed many of the unique older trees at risk of being lost to a variety of pests and/or pathogens. For example, the susceptibility to southern pine bark beetle (SPBB) must be considered. At present, SPBB have been limited to Atlantic County; however, changing weather patterns may allow for their continued spread northward. These stands need to be monitored annually for any occurrences of SPBB.

The management proposed for this initial ten-year period is an attempt to allow land managers to begin to address major concerns and issues, while sustaining the FPP for generations to come. The activities and actions planned may require change as land managers begin to work with the land to achieve their objectives. Some changes may require future plan amendments while others may not. The activities planned have been proposed in the context of the entire landscape and need to be viewed in that fashion to fully understand them.

Stand One Management Recommendations: Pitch Pine Scrub Oak (PPSO)

Forest stand improvement in the form of variable density thinning is the objective for 1,491 acres of this stand type on a wide range of groups across the stands and sections over the ten years of this management plan. Treatment schedule can be viewed in the activity schedule compilation.

This thinning work is intended to emulate some forest structure that this stand type would exhibit if fire were still playing a role in the stand's development. This work will allow the PPSO stands to continue to grow to a much older age class and allow for the regeneration sustainability of the diverse, native understory. Tree regeneration is not an objective at this time.

This proposed thinning is intended to protect the critically important, ecological components of this stand. The thinning will vary across the stands depending upon what is in a given area. The intent is to have the forest stand intact after tree removal. There is no goal to liquidate areas of any stand and regenerate it.

Trees to be removed will be overcrowded, suppressed and some defective trees. However, a component of dead and defective trees will be retained as part of the composition of each PPSO stand. These types of forest structures are critical to the overall biological diversity of the forest.

This thinning intensity will vary greatly across this PPSO stand type. In areas of mature pine, the mature overstory will be largely kept intact. Additionally, scattered groups of younger trees will be retained to enhance the uneven age structure of this stand type. In areas of unique stands of shortleaf pine, the shortleaf pine will be retained and allowed to grow to a much older age class.

In areas of dense overstocked, even-aged groups, the stand will be thinned by 50 percent to enhance the growing conditions for the residual stand and insure sunlight on the forest floor to encourage the natural regeneration of understory shrubs and herbaceous plants. It is anticipated a portion of the woody understory will be mechanically broken off at ground level and allowed to naturally resprout or regenerate as it would after a fire event. The objective of the thinning is to restore the forest for more natural structure that is found when these stands grow with periodic fire.

In addition to the variable density thinning and retention, fire (in the form of prescribed fire) will become an essential management tool. Once given areas are thinned, it will be several years before fire will carry across the areas effectively. These interim years will be providing excellent open habitat now lacking in much of the forest. Fine forest fuels made up of pine needles, leaves and shrub growth will quickly allow fire to carry across the site.

The use of prescribed fire in the thinned zones may allow for the return of more prescribed fire in unthinned areas safely. These areas can begin to be managed in some fashion with prescribed fire alone, with little concern for these burns getting out of prescription. The thinning protocol may allow land managers more opportunities for managing burns with a greater diversity of intensity or frequency depending upon what their management objectives may be for a given area and/or species of plants and/or animals. That objective is not available to them at this time.

Specific Objectives

It is critical to restore open canopy structure and the native shrub stratum to meet the stated goals of the plan. The proposed thinning and burning will insure (over time) that the pine canopy will not close. The canopy closure will average 40 percent, but will range from 10 to 70 percent across the stand on the landscape. This thinning will thus be variable with a variable retention of the overstory to maximize habitat suitability for species that require the open/burned pine-shrub oak, shrub habitat. To the extent practical, standing dead trees will be retained and/or created at a rate of 9 to 13 snags per acre.

Subset: There are inclusions of areas in this stand with significant tree oak species of black jack and post oak. These oak are mature and in tree form. In some areas these tree species are as high as 25 percent of the midstory cover. These areas will be thinned at the specified rate; however, retention will include 5 to 10 percent cover in the largest specimens of oak that are producing acorns for mast. Additionally, dead oaks will be retained to the extent practical. Most of the smaller oak tree specimens will be cut off at the surface. The intent for the entire stand is to maintain the mosaic of areas dominated by the shrub oak cover with these slightly more open areas that contain the pine-oak-shrub oak cover.

Stand One: Proposed Management Treatment for PPSO Forest Type		
Section	Acres to be Thinned	Cordage for Removal
Woodland Lake	58	290
Arpins	200	1,000
Chatsworth Apple Pie	533	2,665
Goodwater Run	0	0
Jake's Spung	572	2,860
Oak Meadows	128	640
TOTAL	**1,491**	**7,455**

Note: Specific locations and schedules can be viewed in the ten-year compilation schedule, as well as the individual forest stand maps in the appendix. In this variable density thinning, it is anticipated the average volume of wood to be removed per acre will be +/- 5 cords.

Stand Projection

Over the next ten to forty years with the reintroduction of fire, this stand will be managed as a typical native pitch pine scrub oak stand found in this area of Burlington County.

Stand 2 – Pitch Pine Lowland (PPlo) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	Acres
Woodland Lake	268
Chatsworth Apple Pie	830
Jake's Spung	460
Oak Meadow	235
Arpins	22
Goodwater Run	115
TOTAL	**1,930**

This forest type is supported by the wetter soil types and typically found on the lower areas of the forest associated with wetland drainages, seeps or pans. Pitch pine is the dominant tree with some encroachment of red maple (*Acer rubrum*) and black gum (*Nyssa sylvatica*) due to the lack of fire. There are also several very scattered inclusions where the pitch pine is growing in association with Atlantic white cedar (*Chamaecyparis thyoides*). These areas are typically wetter in that the soil surface is closer to the water table and in some cases, at the soil surface. These pitch pine lowland forest types are found throughout the Franklin Parker Preserve forest.

The understory is a rich mix of heavy shrub cover with areas of highbush blueberry (*Vaccinium frondosa*), sweet pepperbush (*Clethra alnifolia*), fetterbush (*Eubotrys racemosa*), sheep laurel (*Kalmia angustifolia*), swamp azalea (*Rhododendron viscosum*), wintergreen (*Gaultheria procumbens*), and leatherleaf (*Chamaedaphne calyculata*) to mention a few. Herbaceous plants such as bracken fern (*Pteridium aquilinum*) are present but limited in most areas due to dense canopy closures. Greenbrier (*Smilax rotundifolia*) has begun to invade some areas, again, because of the lack of fire.

As would be expected after many decades of fire suppression, tree regeneration is all but absent from these stands at this time. The average age class for these overstocked stands is 40 to 60 years with a few older and younger groups present. Most all of these stands likely regenerated as a result of severe stand replacement fires in the 1950's, except for the older age class groups. Today, the general condition of the trees is moderate, with stagnated growth and vigor. Crown closure remains close to 100 percent in most groups. The present condition and structure of these stands is in large part a result of the complete lack of fires and lack of fire in varying frequency and intensity. In most cases, it would be difficult to begin to manage these groups with prescribed fire because of the difficulty of keeping any planned fire in prescription.

Planned thinning in the adjacent upland pitch pine stands, as well as some limited 60 percent thinning in some areas of the pitch pine lowland type will allow for fire to be reintroduced in some areas during this forest management period. This initial ten year management period will provide opportunities to return fire on a limited basis and to better understand the results of fire intensity and frequency use.

One of the primary objectives for some areas of the PPlo type is to begin to open the canopy and understory to more natural conditions that will encourage the regeneration of a wide range of herbaceous plant species. This in turn will also restore and enhance habitat for a wide range of wildlife species. This more open natural PPlo type is now lacking in the Franklin Parker Preserve.

The planned burning will also allow the overall fire plan for the Franklin Parker Preserve to be more effective in terms of being effective to reduce fuel loads which will enhance and/or restore the ecological integrity of these important stands.

This prescription is not intended to encourage tree regeneration at this time. The ability to return fire to the treated areas will determine future tree regeneration needs. This prescription will also allow for the establishment of a more diverse age class structure.

Some areas will be allowed to grow to much older age classes; while those interior areas that may receive hotter intensity prescribe fires may actually establish some stand replacement type structure that would be expected to regenerate back to pitch pine lowland.

Areas to be Treated: The objective for treated areas will be to restore a more open variable dense canopy of 10 to 70 percent with an average of 40 percent on these limited areas. Of course the return of fire will be critical as well. This burning and thinning will restore habitat heterogeneity that will also benefit species found in adjacent maturing forests. (See chart following this page.)

Pitch Pine lowland Subset: Dense, overstocked or "dog-haired" stands. These stands are within the pitch pine lowland component and typical smaller trees growing in extremely overstocked conditions found in patches throughout this stand compartments.

Stand Two: Proposed Management Treatment for PPlo Forest Type		
Section	Acres to be Thinned	Cordage for Removal Maximum
Woodland Lake	63	378
Arpins	0	0
Chatsworth Apple Pie	233	1,398
Goodwater Run	0	0
Jake's Spung	121	726
Oak Meadows	37	222
TOTAL	**376**	2,724
Note: These stands will have an average of 3 to 6 cords of wood per acre removed note to exceed 6 cords per acre.		

Stand 3 – Atlantic white-cedar (CED) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	**Acres**
Woodland Lake	151
Chatsworth Apple Pie	45
Jake's Spung	50
Oak Meadow	225
Arpins	13
Goodwater Run	14
TOTAL	**498**

This forest type is located along the major streams and drainages throughout the Franklin Parker Preserve. Atlantic white cedar dominates the overstory with the canopy being almost 100 percent closed. Red maple, black gum, and pitch pine occur but are a very minor component. The overstory is taller sometimes reaching 60 feet. Cedar stands are very dense with densities ranging from mainly between 1,000 and 3,000 stems per acre.

The canopy consists of 90 - 100 percent Atlantic white cedar. Occasionally, pitch pine will be present in the overstory and red maple and black gum forming a sub-canopy rarely reaching 40 feet. The canopy is very closed with closure being between 80 - 100 percent with some more open patches scattered throughout areas reaching 70 percent closure. The cedars average 6 - 10 inch dbh with heights mainly between 50 and 60 feet tall. There are older, larger groups as well.

The midstory or shrub layer consists of highbush blueberry, sweet pepperbush, and in some areas, mountain laurel. The remaining midstory consists of red maple, black gum, sweetbay magnolia, swamp azalea, dangleberry, and inkberry. Due to the closed nature of the canopy, the midstory tends to be sparse except along the edges where the midstory is 50 - 60 percent closed. The understory is also sparse not only because of the

closed canopy but also due to the stands growing in the flowing waters of the stream. Where there is ground to grow, the understory is composed of mostly sphagnum moss, pitcher plants, and at times, skunk cabbage. There is little regeneration currently occurring in this stand as would be expected.

There is diversity in size and age class structure across the Franklin Parker Preserve (FPP) at this time. The cedar resources on the FPP forest are significant and crucial to sustaining the overall ecological integrity of the forest.

There is a wide range of conditions in these stands. Most stands likely experienced some level of disturbance in the earlier part of the 20th century while some stands were regenerated by harvesting later in the 20th century.

This plan recommends the protection of all cedar stands. These stands are intact with minor disturbances from windthrow or hardwood encroachment. There has been some recent mortality due to beaver flooding and this activity needs to be monitored. With the focus of management in the pine forest types, management recommendations are minimal for this important forest type.

A primary concern is a potential loss of many of these cedar groups or stands as a result of catastrophic, uncontrolled wildfires. That issue is a primary objective in the overall plan, thus management of fire does allow for the consideration of the cedar resource protection from loss of wildfire events.

Furthermore, there is ongoing cedar restoration on prior converted agricultural areas. That restoration effort is not part of this plan but will compliment this plan's objectives for white cedar resources over time.

Active Management: White Cedar

Within the Woodland Lake section, hand thinning is planned for 30 acres of young, overstocked cedar. This group is extremely overstocked and has begun to go through the natural stem exclusion phase of growth. The proposed thinning will only remove 15 percent of the trees and only in the suppressed size class.

The plan is to remove +/- 350 stems per acre. No brush cutting will occur. The stems will be removed for cedar pole products to help pay for the cost of thinning. The purpose of the thinning is to reduce the overcrowded conditions, expedite the growth of larger trees, enhance the overall growth and vigor of the stand, and enhance habitat flying space for species such as barred owls.

The cedar resource needs to be monitored to evaluate any change in status but basically allowed to grow. The proposed limited thinning will produce 7,700 poles over ten years.

In Project J within Oak Meadows section, a maple weeding on 85 acres is proposed. This is a cedar stand that has significant encroachment by red maple in terms of the maple tree crowns suppressing viable seed trees and groups of maturing cedar. This work will be simply weeding by girdling or slashing the maple that is impacting the cedar's ability to grow to an older age class. No harvest or wood removed is planned. As much as 35% of the dominant or co-dominant maple will be girdled or slashed in the J patch project over this management period. All work will be done by hand.

Stand Three: Proposed Management Treatment for CED Forest Type (younger cedar) **Note: Only in Woodland Lake Section**		
Section	Acres to be Thinned	Cordage for Removal
Woodland Lake	30	±7,700 poles
Arpins	0	0
Chatsworth Apple Pie	0	0
Goodwater Run	0	0
Jake's Spung	0	0
Oak Meadows	85	0
TOTAL	115	±7,700 poles

Stand 4 – Maple (MAP) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	Acres
Woodland Lake	35
Chatsworth Apple Pie	0
Jake's Spung	0
Oak Meadow	26
Arpins	51
Goodwater Run	0
TOTAL	**112**

There are several stands of red maple, dominated hardwood wetland stands found on drainages across this forest. Red maple is the dominate tree growing in association with black gum in areas. These stands typically have closed canopies and average in age in the 60 to 80 year age class with a few younger and older groups. The understory is a diverse mix of greenbrier, sweet pepperbush and highbush blueberry shrub layers, to name a few.

These stands continue to mature and are doing well. As would be expected, tree regeneration is not an issue at this stage. These stands have regenerated as a result of the typical past disturbance regimes in this area of Burlington County. These stands and groups provide critically important habitat to a wide range of species such as barred owl. These stands will simply be conserved to allow them to grow to an older age class.

Stand Projection

These stands will continue to mature into typical, lowland hardwood maple stands over the next ten to forty years.

Management Recommendations: Maple

No management, conservation only

Stand Four Proposed Management Treatment for MAP Forest Type		
Section	Acres to be Thinned	Cordage for Removal
Woodland Lake	0	0
Arpins	0	0
Chatsworth Apple Pie	0	0
Goodwater Run	0	0
Jake's Spung	0	0
Oak Meadows	0	0
TOTAL	**0**	**0**

Stand 5 – Pine/Maple/Cedar (PMC) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	Acres
Woodland Lake	85
Chatsworth Apple Pie	148
Jake's Spung	74
Oak Meadow	157
Arpins	64
Goodwater Run	41
TOTAL	**569**

This forest type is located along streams and drainages and some isolated poorly drained depressions. Pitch pine and red maple dominate the overstory, but white cedar is a component in some areas. Black gum also dominates in some areas. The midstory is also denser than in pitch pine lowlands or in pure cedar groups.

The proportion of the canopy components is highly variable throughout this stand with areas where pitch pine is more prevalent than the hardwoods and vice versa. One constant is that the cedar is consistently the lesser component. The canopy is very closed with closure being between 70 - 90 percent with some more open patches scattered throughout the stand reaching 60 percent closure. The pines and cedars are 6 - 10 inch dbh with heights mainly between 30 and 50 feet tall. The maples, some cedar, and gums are 2 - 8 inches in dbh with heights mainly between 20 and 30 feet with a few that reach 40 feet tall. Many of the trees in this stand are in the 50 to 60 year range with the older trees found throughout the stand. However, there are several patches of older age class trees in the 80 to 120 year old class with trees in the 18 to 24 inch diameter class.

The midstory or shrub layer is dominated by highbush blueberry, sweet pepperbush, inkberry, and in some areas mountain laurel (*Kalmia latifolia*) and greenbrir. The remaining midstory consists of pitch pine regeneration, red maple regeneration, swamp azalea, dangleberry (Gaylussacia frondosa), and inkberry. The midstory is 80 - 90 percent closed. The understory is patchy in most places due to flowing and standing water. There are slight hummocks present in some areas. The remainder of the ground cover is composed of mosses, greenbrier, grasses, ferns, and sheep laurel. There is little regeneration currently occurring in this stand.

These groups have regenerated as a result of a wide range of past disturbances from fire and/or unmanaged harvesting. Many of these stands are associated with typical pitch pine lowland forest types. Many of the sites were either once cedar stands or pitch pine stands, but it appears a cedar seed source was in the area immediately adjacent to these groups during past disturbances over the last century or so.

This stand is extremely variable and scattered across the forest in varying sizes and locations. The diversity of this stand adds greatly to the richness of the forest.

Long term cedar should be favored as a component of this stand. In a few areas, the cedar is being lost to competition from the pine or hardwood. Without active management, the competitive nature of these species will likely favor the pine and maple over time.

Initially, over this first ten-year management period no commercial level stand thinning is recommended. However, it is proposed to complete some forest stand improvement work that will be done by hand.

This forest stand improvement work will focus on the release of groups of healthy viable white cedar that remain at risk to dropping out of the stand by competition. There are many groups of younger cedar trees that will benefit from having hardwood and/or pine slashed or girdled around them. This work will result in the creation of snags and/or down and dead wood while releasing the cedar groups to improved growing conditions.

This will insure the cedar component will be retained into older growth stages as well. Additionally, this work may also help reduce risks of losing the cedar component to fire events over time.

This work will be done randomly around the stand groups and periodically throughout the management period. The focus will be on the younger groups in the trees of 4 to 8 inches in diameter class. No wood will be removed from the treated areas and as much as 10 to 20 acres could be worked on annually.

Stand Five Proposed Management Treatment for PMC Forest Type		
Section	Acres Hand Thinned	Cordage for Removal
Woodland Lake	*	0
Arpins	*	0
Chatsworth Apple Pie	*	0
Goodwater Run	*	0
Jake's Spung	*	0
Oak Meadows	*	0
TOTAL	*To be averaged to no more than 20 acres annually in random across the stands.	**0**

Stand 6 – Open Pitch Pine (Ppop) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	Acres
Woodland Lake	0
Chatsworth Apple Pie	349
Jake's Spung	0
Oak Meadow	59
Arpins	0
Goodwater Run	0
TOTAL	408

This stand, although fire excluded, still retains a more open canopy structure and has been delineated out of the other pitch pine forest types. The overstory pine is predominantly pitch pine; however a few areas retain shortleaf pine as a dominant. These stands provide critically important forest structure and need to be retained, restored or enhanced in terms of the open structure. Two critical issues are the return of fire and the avoidance of encouraging pine regeneration. The understory species are as described from the other upland pine stands, but there are areas up to 15 percent of open, sandy areas with no vegetation cover.

These stands may be considered pitch-pine shrub oak barrens mixed with pine-oak-shrub oak woodlands. There is a real mosaic pattern to these stands. We do not consider these stands as under stocked pine stands; however stocking levels would change up or down over time naturally. Species composition is similar to the pitch pine shrub oak stand except the percentage of canopy cover and ground cover is much lower – as low as 30 to 40 percent in some areas.

Presently, these areas are beginning to experience an increase in densification in the crown structure and ground cover – thus losing the open vegetative structure required by animal and plant species found in these open forest types. Return of fire to these stands has now become critical to begin to set back some of the suppressed, defective pine and oak saplings or regeneration.

In areas designated for thinning, thinning will be minimal in the overstory. Canopy cover will be retained in the variable density of 10 to 70 percent. Many areas are now at 40 to 70 percent and closing.

As important as the restoring of the open canopy, is the setting back of the encroaching tree midstory and understory. During tree thinning, as much as 70 percent of the smaller understory tree species and shrub oak will be cut back at ground level. Natural sprouting will be allowed to occur post treatment. However, future open stand structure will be highly dependent upon the return of fire in 3 to 7 year intervals.

Adjacent thinning in the more dense pine stands will allow for safer and more efficient use of prescribed fire in areas of this stand that are treated as well as untreated open pine groups or stands. Fire alone can be an effective tool in maintaining these critically important open pine forest types. Fire will also be critical to avoid encouraging and to discourage pine regeneration. With minimal management, these stands can provide critically important, natural fire breaks that will assist in burning adjacent stands that are more difficult to burn safely.

Management Recommendation: Open Pitch Pine

The proposed management here will be a combination of both hand cutting and slashing, mechanical thinning, and removal of trees. In many areas where openings are succeeding the tree cover, trees will simply be slashed and allowed to burn in the planned fire treatments.

The mechanical thinning will occur to remove +/- 2 cords of wood, per acre on average, in the planned treatment areas. Prior to mechanical thinning, more open existing areas will be flagged to exclude entry by any machinery. This will be done in a mosaic pattern throughout the planned management units. Once the hand thinning and mechanical thinning is completed, any planned burning will likely require strip ignition by foot to burn areas than individually will carry fire.

Stand Six Proposed Management Treatment for Ppop Forest Type		
Section	Acres to be Thinned	Cordage for Removal
Woodland Lake	0	0
Arpins	0	0
Chatsworth Apple Pie	61	61
Goodwater Run	0	0
Jake's Spung	0	0
Oak Meadows	0	0
TOTAL	**61**	61

Stand 7 – Scrub Oak Pitch Pine (SOPP) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	Acres
Woodland Lake	0
Chatsworth Apple Pie	0
Jake's Spung	54
Oak Meadow	0
Arpins	0
Goodwater Run	0
TOTAL	54

This stand really is an inclusion of 54 acres within stand one; except in these areas, the overstory pine is more open and scrub oak dominates the ground cover. These areas likely have a history of fire or disturbance that has allowed the shrub layer to dominate.

The pine overstory is scattered with mature trees in the 70 plus age class, as well as a few trees much older. There are also a few scattered groups of younger age class pitch pine. The understory is dominated with shrub oak and some limited pine regeneration at this time.

A few areas are included in this thinning work planned for stand one; however, very minimal pine removed or removal of the minor tree oak component will occur. No more than 2 cords of mixed wood will be removed from the 44 acres designated to be thinned of the total 54 acres in Project H of the Jake's Spung section. The trees removed in stand one will require scarification in this stand with objective of setting back some of the pine regeneration and allowing the scrub oak to sprout regenerate similar to a top burn fire.

Stand Projection

Over the next ten to forty years, this stand will be managed as a patch of very open pine forest type with a scrub oak understory typical of some burned areas in this area of Burlington County.

Stand Seven Proposed Management Treatment for SOPP Forest Type		
Section	Acres to be Thinned	Cordage for Removal
Woodland Lake	0	0
Arpins	0	0
Chatsworth Apple Pie	0	0
Goodwater Run	0	0
Jake's Spung	44	88
Oak Meadows	0	0
TOTAL	44	88

Stand 8 – Pitch Pine/Oak (PPO) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	Acres
Woodland Lake	0
Chatsworth Apple Pie	0
Jake's Spung	0
Oak Meadow	71
Arpins	0
Goodwater Run	0
TOTAL	71

This is an upland pitch pine/oak stand of 71 acres found in the Oak Meadows section of the forest. This stand is unique that it is the only stand within the entire forest that has a significant co-dominant or dominated oak component. The species composition is a mix of scarlet oak, white oak, chestnut oak growing in association with pitch pine and an occasional short leaf pine. The stand is fully stocked and typical for this area of Burlington County.

The overstory is in the 60 to 70 year age class with scattered, older and younger trees. Most trees remain of only pulpwood or fuelwood quality at this time. The oak component has some limited mortality as a result of recent gypsy moth infestations. The understory is a mix of patches of scrub oak and huckleberry with very limited tree regeneration at this time. The stand provides some diversity of structure with the tree oaks present.

This stand will be included in the overall prescribe burn program at some point in time. However, 23 acres in a patch associated with Project L will receive a light stand improvement thinning of 2 to 4 cords of mixed wood per acre from the designated areas. This work will again be a variable density thinning to add some overall horizontal structure diversity to the oak patch, as well as enhance conditions for understory regeneration. This application will occur once over this management period. On the 23

acres, no more than 46 cords of mixed wood will be harvested over this management period.

Stand Projection

This stand will remain a pine/oak – oak pine stand over the next ten to 40 years barring more gypsy moth or southern pine beetle events.

Stand Eight Proposed Management Treatment for SOPP Forest Type		
Section	Acres to be Thinned	Cordage for Removal
Woodland Lake	0	0
Arpins	0	0
Chatsworth Apple Pie	0	0
Goodwater Run	0	0
Jake's Spung	0	0
Oak Meadows	23	92
TOTAL	23	92

Abandoned Blueberry Fields (BB) Breakdown of Acres **Note: See forest stand map in appendix for details**	
Section	Acres
Woodland Lake	25
Chatsworth Apple Pie	120
Jake's Spung	68
Oak Meadow	58
Arpins	0
Goodwater Run	5
TOTAL	276

These areas are typically wetter areas that have been cleared, ditched and cultivated for blueberry production over the last century. Today, these areas are a diverse mix of stages of tree regeneration primarily of red maple and/or pitch pine and very little white cedar. There is a significant highbush blueberry shrub layer, as well as significant greenbrier. There have been some beginning efforts to cut back the tree growth with plans to burn to set back plant succession and allow many of the areas to be retained in herbaceous plant cover.

The hydrology has changed over the years, as the cranberry bogs were expanded by the previous owner; so many areas have become much drier and do not support healthy blueberry production. The goal is to return fire to these areas to maintain them as grassland/shrubland.

Stock Stand Tables

Following this page.

F-1633: PPSO: Pitch pine-Scrub oak **3,221 Acres**

Volume estimations and stock tables.

Pitch Pine

	Per Acre			3,221-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	267.4	23.3	2.01	861,256	6,482.80
6	159.6	31.3	4.82	514,020	15,523.45
8	59.2	20.7	3.54	190,707	11,405.93
10	30.6	16.7	3.12	98,429	10,057.25
12	15.3	12.0	2.14	49,215	6,902.87
14	3.7	4.0	0.80	12,053	2.586.66
Total	535.8	108.0	16.43	1,725,680	52,958.96

Stand Summary

	Per Acre			3,221-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Pitch Pine	16.43	535.8	108.0	52,921	1,725,812
Total	16.43	535.8	108.0	52,921	1,725,812

F-1633: PPlo: Pitch pine lowland **1,930 Acres**

Volume estimations and stock tables.

Pitch Pine

	Per Acre			1,930-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	229.2	20.0	1.77	442,336	3,422.30
6	133.7	26.2	3.99	258,029	7,696.28
8	68.0	23.7	4.12	131,318	7960.60
10	13.8	7.5	1.33	26,540	2,561.48
12	6.4	5.0	0.99	12,287	1,914.52
14	5.8	6.2	1.18	11,284	2,283.55
16	1.8	2.5	0.45	3,456	878.06
18	0.7	1.3	0.24	1,365	464.15
Total	459.4	92.4	14.07	886,615	27,180.94

Hardwood

	Per Acre			1,930-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	71.6	6.3	0.53	138,230	1,031.89
6	6.4	1.2	0.19	12,287	357.12
8	10.7	3.8	0.59	20,734	1,129.14
10	2.3	1.3	0.19	4,423	369.97
Total	91.0	12.6	1.50	175,674	2,888.12

Stand Summary

	Per Acre			1,930-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Pitch Pine	14.07	459.4	92.4	27,155	886,642
Hardwood	1.50	91.0	12.6	2,895	175,630
Total	15.57	550.4	105.0	30,050	1,062,272

F-1633: CED: Atlantic White Cedar **498 Acres**

Volume estimations and stock tables.

Atlantic White Cedar

	Per Acre			498-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	649.4	56.7	4.85	323,386	2,414.08
6	424.4	83.3	14.60	211,364	7,270.91
8	143.2	50.0	9.20	71,335	4,580.87
10	42.8	23.3	4.90	21,305	2,440.22
12	17.0	13.3	2.74	8,455	1,364.69
14	15.6	16.7	3.35	7,764	1,666.35
16	11.9	16.7	3.75	5,945	1,867.97
18	3.8	6.7	1.47	1,879	734.26
20	4.6	10.0	2.18	2,283	1,084.25
22	2.5	6.7	1.43	1,258	712.78
Total	1315.2	283.4	48.47	654,974	24,136.38

Stand Summary

	Per Acre			498-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Atlantic White Cedar	48.47	1315.2	283.4	24,138	654,970
Total	48.47	1315.2	283.4	24,138	654,970

F-1633: MAP: Maple Swamp **112 Acres**

Volume estimations and stock tables.

Red Maple

	Per Acre			112-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	343.8	30.0	2.94	38,504	329.30
8	128.9	45.0	7.44	14,439	833.27
12	12.7	10.0	1.77	1,426	198.25
16	3.6	5.0	0.84	401	93.87
20	2.3	5.0	0.80	257	89.66
24	1.6	5.0	0.77	178	86.41
Total	492.9	100.0	14.56	55,205	1,630.76

Atlantic White Cedar

	Per Acre			112-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
8	14.3	5.0	1.06	1,604	118.68
12	6.4	5.0	1.17	713	131.07
16	3.6	5.0	1.13	401	126.03
20	2.3	5.0	1.09	257	121.92
24	4.8	15.0	3.18	535	356.20
Total	31.4	35.0	7.63	3,510	853.90

Pitch Pine

	Per Acre			112-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
12	6.4	5.0	1.03	713	115.09
16	3.6	5.0	0.98	401	109.95
Total	10.0	10.0	2.01	1,114	225.04

Stand Summary

	Per Acre			498-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Red Maple	14.56	492.9	100.0	1,631	55,205
Atlantic White Cedar	7.63	31.4	35.0	855	3,517
Pitch Pine	2.01	10.0	10.0	225	1,120
Total	24.20	534.3	145.0	2,710	59,842

F-1633: PMC: Pine, Maple, Cedar **569 Acres**

Volume estimations and stock tables.

Pitch Pine

	Per Acre			569-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
6	59.4	11.7	2.04	33,810	1,163.05
8	76.4	26.7	4.91	43,470	2,791.45
10	30.6	16.7	3.50	17,388	1,991.52
12	14.9	11.7	2.40	8,452	1,364.35
14	3.1	3.3	0.67	1,774	380.79
Total	184.4	70.1	13.52	104,894	7,961.16

Red Maple

	Per Acre			569-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	191.0	16.7	1.84	108,674	1,047.62
6	59.4	11.7	2.04	33,810	1,163.05
8	23.9	8.3	1.53	13,584	872.33
10	3.1	1.7	0.30	1,739	172.29
12	2.1	1.7	0.30	1,207	167.86
Total	279.5	40.1	6.01	159,014	3,423.15

Atlantic White Cedar

	Per Acre			569-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
6	8.5	1.7	0.34	4,830	191.92
8	4.8	1.7	0.35	2,717	200.98
10	3.1	1.7	0.35	1,739	199.15
12	4.2	3.3	0.69	2,415	389.81
14	4.7	5.0	1.00	2,661	571.18
Total	25.3	13.4	2.73	14,362	1,553.04

Stand Summary

	Per Acre			153.8-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Pitch Pine	13.52	184.4	70.1	7,693	104,924
Red Maple	6.01	279.5	40.1	3,420	159,036
Atlantic White Cedar	2.73	25.3	13.4	1,553	14,396
Total	2.73	489.2	123.6	12,666	278,355

F-1633: PPop: Pitch Pine open **408 Acres**

Volume estimations and stock tables.

Pitch Pine

	Per Acre			408-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	203.7	17.8	1.52	83,119	620.49
6	90.5	17.8	2.63	36,942	1,073.72
8	44.6	15.6	2.43	18,182	990.16
10	20.4	11.1	1.70	8,312	695.22
12	7.1	5.6	0.82	2,886	336.57
14	1.0	1.1	0.16	424	65.05
16	0.8	1.1	0.15	325	62.97
Total	368.1	70.1	9.41	150,190	3,844.18

Oak

	Per Acre			408-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	89.1	7.8	0.67	36,365	271.46
Total	89.1	7.8	0.67	36,365	271.46

Stand Summary

	Per Acre			408-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Pitch Pine	9.41	368.1	70.1	3,839	150,185
Oak	0.67	89.1	7.8	273	36,353
Total	10.08	457.2	77.9	4113	186,538

F-1643: SOPP: Scrub Oak-Pitch Pine **54 Acres**

Volume estimations and stock tables.

Pitch Pine

	Per Acre			54-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	128.9	11.3	1.24	6,962	67.11
6	70.0	13.8	2.41	3,782	130.09
8	43.0	15.0	2.76	2,321	149.02
10	11.5	6.3	1.14	619	61.32
12	1.6	1.2	0.22	86	11.95
14	3.5	3.8	0.65	189	34.86
16	2.7	3.8	0.63	145	33.94
Total	261.2	55.2	9.05	14,104	488.29

Stand Summary

	Per Acre			54-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Pitch Pine	9.05	261.2	55.2	489	14,105
Total	9.05	261.2	55.2	489	14,105

F-1643: PPO:Pitch Pine-Tree Oak **71.00 Acres**

Volume estimations and stock tables.

Pitch Pine

	Per Acre			71.00-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	71.6	6.3	0.69	5,085	49.02
6	38.2	7.5	1.31	2,712	93.30
8	57.3	20.0	3.68	4,068	261.24
10	29.8	16.3	2.95	2,115	209.61
12	17.5	13.8	2.43	1,243	172.80
14	3.5	3.8	0.65	249	45.83
16	0.9	1.3	0.21	64	14.88
18	0.7	1.3	0.20	50	14.52
Total	219.5	70.3	12.12	15,586	861.20

Oak

	Per Acre			71.00-Acre stand	
DBH	**Trees**	**Basal Area**	**Cords**	**Trees**	**Cords**
4	100.3	8.8	0.75	7,119	53.14
6	57.3	11.3	1.67	4,068	118.24
8	28.6	10.0	1.56	2,034	110.77
10	2.3	1.3	0.19	163	13.61
12	1.6	1.2	0.19	113	13.18
Total	190.1	32.6	4.36	13,497	308.94

Stand Summary

	Per Acre			71.00-Acre stand	
Species	**Cords**	**Trees**	**Basal Area**	**Cords**	**Trees**
Pitch Pine	12.12	219.5	70.3	861	15,585
Oak	4.36	190.1	32.6	310	13,497
Total	16.48	409.6	102.9	1,170	29,082

VI. WETLAND ISSUES

Forest management activities are provided conditional, permitted uses in regulated and floodplain areas which are extensive on the Franklin Parker Preserve Forest. Activities in these areas will follow the forestry provision of both wetland and floodplain regulations as part of this plan.

1. No change in ground topography will occur.

2. No change in surface or groundwater hydrology will occur.

3. No new forest roads are planned in these areas.

4. The activities are part of a forest management plan (FMP) approved by the state forester ***prior*** to their occurrence.

5. The activities are conducted in compliance with and consistent with the approved FMP.

6. The FMP is designed and activities included are conducted in accordance with the NJDEP, Division of Parks and Forestry, State Forest Service, *New Jersey Forestry and Wetlands Best Management Practices* Manual, dated October 1995.

7. The plan identifies and addresses any threatened or endangered species or their habitat found on site by minimizing any adverse impacts.

8. The plan does not allow a change in use to horticulture, agriculture or other development activities.

Failure to meet the above provisions and conditions when conducting these forest management activities means that the forestry activities are not exempt from the FWPA or the HWPPA and that a permit must be obtained from NJDEP prior to undertaking any forestry management activities. If a permit is not obtained, the work is a violation of the FWPA and possibly the HWPPA and may result in enforcement action pursuant to N.J.A.C. 7:7A-16.

VII. TEN YEAR ACTIVITY COMPILATION

Note: Forest treatment schedules for all sections ultimately will be controlled by the availability of wood fiber markets. Seasonal scheduling is as outlined by NJCF staff in terms of protecting threatened and/or endangered species.

Chatsworth Lake/Apple Pie Hill Section Thinning Activity Acreage Breakdown and Volumes				
Years 1 thru 5			**Chatsworth Lake/Apple Pie Hill**	
Project C	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
C	1	PPSO-4	24	120
C	1	PPSO-5	87	435
C	1	PPSO-6	40	200
C	2	PPlo-3	17	85
Total Acreage & Cordage Years 1 thru 5			**168 Acre Thinning**	**840 Cords Harvested**
Note 1: Scheduling of projects C, D1 & D2 will be completely done in the first 5 years of this management period dependent upon availability of pine markets.				

Chatsworth Lake/Apple Pie Hill Section Acreage Breakdown and Volumes				
Years 1 thru 5			**Chatsworth Lake/Apple Pie Hill**	
Project D-1	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
D-1	2	PPSO-7	22	110
D-1	2	PPlo-4	54	324
Total Acreage & Cordage Years 1 thru 5			**76 Acre Thinning**	**434 Cords Harvested**
Note: Scheduling of projects C, D1 & D2 will be completely done in the first 5 years of this management period dependent upon pine markets.				

Chatsworth Lake/Apple Pie Hill Section Acreage Breakdown and Volumes				
Years 1 thru 5			**Chatsworth Lake/Apple Pie Hill**	
Project D-2	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
D-2	1	PPSO-8	12	60
D-2	1	PPSO-9	39	465
D-2	1	PPSO-10	3	15
D-2	1	PPSO-11	13	65
D-2	2	PPlo-5	104	624
D-2	2	PPlo-6	6	36
Total Acreage & Cordage Years 1 thru 5			**177 Acre Thinning**	**1,265 Cords Harvested**
Note: Scheduling of projects C, D1 & D2 will be completely done in the first 5 years of this management period dependent upon pine markets.				

Chatsworth Lake/Apple Pie Hill Section Project Acreage Breakdown and Volumes				
Years 3 thru 8			**Chatsworth & Apple Pie**	
Project E	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
E	1	PPSO-23	19	95
E	1	PPSO-16	52	260
E	6	PPop-8	23	46
E	6	PPop-11	26	52
Total Acreage & Cordage Years 3 thru 8			**120 Acre Thinning**	**453 Cords Harvested**

Chatsworth Lake/Apple Pie Hill *Acreage Breakdown and Volumes*				
Years 4 thru 10			***Chatsworth Lake/Apple Pie Hill***	
Project F	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
F	6	PPop-1	91	182
F	6	PPop-2	4	8
F	6	PPop-3	8	16
F	1	PPSO-21	155	775
F	1	PPSO-24	127	635
F	1	PPSO-25	5	25
Total Acreage & Cordage Years 6 thru 10			**390 Acres Thinned**	**1,641 Cords Harvested**

Arpins Section Acreage Breakdown and Volumes				
Years 1 thru 5			**Arpins**	
Project M	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
M	1	PPSO-1	200	1,000
Total Acreage & Cordage Years 1 thru 5			**200 Acres Thinned**	**1,000 Cords Harvested**

Oak Meadows Section Acreage Breakdown and Volumes				
Years 1 thru 10			**Oak Meadows**	
Project J	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
J	3	CED-1	85	0
J	4	MAP-3	2	0
Total Acreage & Cordage Years 1 thru 10			**87 Acres Thinned**	**No Wood Harvested**

Oak Meadows Section Acreage Breakdown and Volumes				
Years 3 thru 7			**Oak Meadows**	
Project K	*Stand*	*Forest Type*	*Acreage*	*Cord Volume*
K	1	PPSO-3	128	640
K	2	PPlo-4	9	54
K	2	PPlo-7	4	24
K	2	PPlo-8	2	12
Total Acreage & Cordage Years 3 thru 7			**143 Acres Thinned**	**730 Cords Harvested**

Oak Meadows Section Acreage Breakdown and Volumes				
Years 1 - 10			**Oak Meadows**	
Project L	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
L	8	PPO-1	16	64
L	8	PPO-2	7	28
L	2	PPlo-9	22	132
Total Acreage & Cordage Years 1 thru 10			**45 Acres Thinned**	**224 Total Cords**

Jake's Spung Section Acreage Breakdown and Volumes				
Years 2 thru 8			**Jake's Spung**	
Project H	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
H	1	PPSO-11	257	1,285
H	7	SOPP-1	32	128
H	7	SOPP-2	5	20
H	7	SOPP-3	3	12
H	7	SOPP-4	3	12
H	7	SOPP-5	1	4
H	2	PPlo - 14	26	156
Total Acreage & Cordage Years 2 thru 8			**327 Acres Thinned**	**1,617 Cords Harvested**

Jake's Spung Section Acreage Breakdown and Volumes				
Years 4 thru 7			**Jake's Spung**	
Project G	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
G	1	PPSO-1	223	1,115
G	2	PPlo-6	24	144
G	2	PPlo-10	16	96
G		PPlo-11	27	162
Total Acreage & Cordage Years 4 thru 7			**290 Acres Thinned**	**1,517 Cords Harvested**

Jake's Spung Section Acreage Breakdown and Volumes				
Years 4 - 7			**Jake's Spung**	
Project I	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
I	1	PPSO-1	92	460
I	2	PPlo-2	8	48
I	2	PPlo-5	14	84
I	2	PPlo-6	1	6
I	2	PPlo-7	5	30
Total Acreage & Cordage Years 4 - 7			**120 Acres Thinned**	**628 Cords Harvested**

Woodland Lake Section Acreage Breakdown and Volumes				
Years 1 thru 10			**Woodland Lake**	
Project A	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
A	1	PPSO-2	8	40
A	1	PPSO-5	8	40
A	2	PPlo-1	14	84
A	3	CED-1	4 x poles	1,024 poles
Total Acreage & Cordage Years 1 thru 10			**34 Acres Thinned**	**164 Cords Harvested plus poles**

Woodland Lake Section Acreage Breakdown and Volumes				
Years 1 thru 10			**Woodland Lake**	
Project A-1	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
A-1	1	PPSO-8	20	100
A-1	2	PPlo-8	20	120
Total Acreage & Cordage Years 1 thru 10			**40 Acres Thinned**	**220 Cords Harvested**

Woodland Lake Section Acreage Breakdown and Volumes				
Years 1 thru 10			**Woodland Lake**	
Project A-2	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
A-2	3	CED-2	15	3,840 poles
Total Acreage & Cordage Years 1 thru 10			**15 Acres Thinned**	**3,840 Poles Harvested**

Woodland Lake Section Acreage Breakdown and Volumes				
Years 1 thru 10			**Woodland Lake**	
Project A-3	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
A-3	3	CED-2	11	2,816 poles
Total Acreage & Cordage Years 1 thru 10			**11 Acres Thinned**	**2,816 Poles Harvested**

Woodland Lake Section Acreage Breakdown and Volumes				
Years 1 thru 10			**Woodland Lake**	
Project B	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
B	1	PPSO-17	22	110
B	2	PPlo-10	10	60
Total Acreage & Cordage Years 1 thru 10			**32 Acres Thinned**	**170 Cords Harvested**

Woodland Lake Section Acreage Breakdown and Volumes				
Years 1 thru 10			**Woodland Lake**	
Project B-2	***Stand***	***Forest Type***	***Acreage***	***Cord Volume***
B-2	6	PPlo-10	19	114
Total Acreage & Cordage Years 1 thru 10			**19 Acres Thinned**	**114 Cords Harvested**

APPENDIX

Soils Information

For All Sections:

- Block & Lot Designation
- Tax Maps
- Pinelands Review Letter
- Natural Heritage Database Review Letter
- Location Map
- Quadrangle Map
- County Soils Map
- Forest Stand Map

Map Unit Text

Burlington County, New Jersey

Map unit: AtsA - Atsion sand, 0 to 2 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Atsion series consists of deep, poorly drained soils on uplands. They formed in coastal plain sediments. Typically these soils have a dark gray sand surface layer over 10 inches of light gray sand. The subsoil from 18 to 24 inches is very dark brown sand and from 24 to 36 inches is very dark gray sand. The substratum from 36 to 60 inches is brown loose sand. Slopes range from 0 to 2 percent.

Map unit: DocB - Downer loamy sand, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Downer series consists of very deep well drained soils on uplands. They formed in acid moderately coarse textured coastal plain sediments. Typically these soils have a dark grayish brown loamy sand surface layer 18 inches thick. The subsoil from 18 to 30 inches is yellowish brown sandy loam. The substratum from 30 to 40 inches is loose loamy sand. Below 40 inches, the range includes stratified layers of gravel to sandy clay loam. Slopes range from 0 to 30 percent.

Map unit: KefB - Keyport loamy sand, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Keyport series consists of very deep, moderately well drained soils on uplands. They formed in northern coastal plain sediments. Typically these soils have a dark brown silt loam surface layer 10 inches thick. The subsoil layers from 10 to 44 inches are yellowish brown and dark yellowish brown silty clay loam. The upper substratum from 44 to 60 inches is dark gray silty clay loam and the lower substratum from 60 to 72 inches is dark gray stratified clay to loamy sand. Slopes range from 0 to 25 percent.

Map unit: LakB - Lakehurst sand, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Map unit: LakfB - Lakehurst sand, thick surface, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Map Unit Text

Burlington County, New Jersey

Map unit: LakhB - Lakehurst sand, loamy substratum, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Map unit: LanB - Lakehurst-Lakewood sands, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Text kind/Category: Nontechnical description/SOI-5

The Lakehurst series consists of deep, moderately well or somewhat poorly drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a dark gray sand surface 3 inches thick and a light gray sand layer from 3 to 15 inches. The subsoil between 15 to 18 inches is dark brown loamy sand. The lower part of the subsoil from 18 to 36 inches is yellowish brown sand. The substratum from 36 to 60 inches is pale brown loose sand. Slopes range from 0 to 5 percent.

Map unit: LasB - Lakewood sand, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakewood series consists of deep, excessively drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a black loose sand surface layer 1 inch thick and a light brownish gray loose sand layer from 1 to 10 inches. The subsoil between 10 and 14 inches is yellowish brown loose sand. The lower part of the subsoil is yellowish brown loose sand. The substratum from 36 to 60 inches is brownish yellow loose sand. Slopes range from 0 to 25 percent.

Map unit: LasC - Lakewood sand, 5 to 10 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakewood series consists of deep, excessively drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a black loose sand surface layer 1 inch thick and a light brownish gray loose sand layer from 1 to 10 inches. The subsoil between 10 and 14 inches is yellowish brown loose sand. The lower part of the subsoil is yellowish brown loose sand. The substratum from 36 to 60 inches is brownish yellow loose sand. Slopes range from 0 to 25 percent.

Map Unit Text

Burlington County, New Jersey

Map unit: LasD - Lakewood sand, 10 to 15 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakewood series consists of deep, excessively drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a black loose sand surface layer 1 inch thick and a light brownish gray loose sand layer from 1 to 10 inches. The subsoil between 10 and 14 inches is yellowish brown loose sand. The lower part of the subsoil is yellowish brown loose sand. The substratum from 36 to 60 inches is brownish yellow loose sand. Slopes range from 0 to 25 percent.

Map unit: LashB - Lakewood sand, loamy substratum, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Lakewood series consists of deep, excessively drained soils on uplands. They formed in acid sandy coastal plain sediments. Typically in woodland areas these soils have a black loose sand surface layer 1 inch thick and a light brownish gray loose sand layer from 1 to 10 inches. The subsoil between 10 and 14 inches is yellowish brown loose sand. The lower part of the subsoil is yellowish brown loose sand. The substratum from 36 to 60 inches is brownish yellow loose sand. Slopes range from 0 to 25 percent.

Map unit: MakAt - Manahawkin muck, 0 to 2 percent slopes, frequently flooded

Text kind/Category: Nontechnical description/SOI-5

The Manahawkin series consists of very deep, very poorly drained soils formed in organic deposits, over sand and gravel. Typically, they have a black surface and subsurface layer of highly decomposed organic material, 39 inches thick. The substratum to a depth of 60 inches is gray sand. Manahawkin soils are in low positions in back swamps, lake basins, and along fresh water channels as they open to tide water. Slopes range from 0 to 1 percent.

Map unit: WobhB - Woodmansie sand, loamy substratum, 0 to 5 percent slopes

Text kind/Category: Nontechnical description/SOI-5

The Woodmansie series consists of deep, well drained soils on uplands. They formed in coastal plain sediments. Typically these soils in a wooded area have a dark gray sand surface layer 2 inches thick. From 2 to 8 inches is gray sand and from 8 to 17 inches is light yellowish brown sand. The subsoil between 17 to 30 inches is yellowish brown sandy loam. The substratum from 30 to 60 inches is stratified yellow sand and reddish yellow sandy loam. Slopes range from 0 to 10 percent.

Map Unit Text

This report provides a means for the customer to print out text notes that are stored in the underlying soil survey database for the selected map units. The notes presented are developed for each map unit as a whole. When the report is initiated, the customer is presented with a choice list of type(s) of text notes stored. The customer must select one type at a time for the report to finish.

Forestland Productivity

Burlington County, New Jersey

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			Cu ft/ac	
AtsA:				
Atsion	Blackgum	---	---	Pitch pine, Red maple, Sweetgum
	Pitch pine	65	75	
	Red maple	---	---	
Berryland, occasionally flooded	Blackgum	---	---	Atlantic white cedar, Pitch pine, Red maple
	Pitch pine	60	0	
	Red maple	---	---	
Lakehurst	Chestnut oak	---	---	Eastern white pine, Pitch pine, Scarlet oak, Shortleaf pine
	Pitch pine	60	0	
	Post oak	---	---	
	Scarlet oak	---	---	
DocB:				
Downer	Black oak	70	52	Black oak, Eastern white pine, Shortleaf pine, White oak
	Pitch pine	---	---	
	Scarlet oak	70	52	
	White oak	70	52	
Atsion	Blackgum	---	---	Pitch pine, Red maple, Sweetgum
	Pitch pine	65	---	
	Red maple	---	---	
Evesboro	Chestnut oak	70	57	Pitch pine, Shortleaf pine, Virginia pine, White oak
	Pitch pine	60	---	
	Post oak	---	---	
	White oak	70	57	
Hammonton	Black oak	80	57	Eastern white pine, Shortleaf pine, White oak, Yellow-poplar
	Pitch pine	80	114	
	Red maple	---	---	
	White oak	80	57	
	Yellow-poplar	---	---	
Mullica, rarely flooded	Blackgum	---	---	Atlantic white cedar, Red maple, Sweetgum, Yellow-poplar
	Pitch pine	---	---	
	Red maple	---	---	
	Sweetgum	90	100	
FmgAt:				
Fluvaquents, sandy, frequently flooded	Pin oak	---	0	Pin oak, Sweetgum
	Red maple	---	0	
	Sweetgum	---	0	

Forestland Productivity

Burlington County, New Jersey

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			Cu ft/ac	
KefB:				
Keyport	American beech	80	57	Loblolly pine, Northern red oak, Yellow-poplar
	Loblolly pine	65	86	
	Northern red oak	80	57	
	Yellow-poplar	90	86	
LakB:				
Lakehurst	Chestnut oak	---	---	Eastern white pine, Pitch pine, Scarlet oak, Shortleaf pine
	Pitch pine	60	---	
	Post oak	---	---	
	Scarlet oak	---	---	
Atsion, rarely flooded	Blackgum	---	---	Pitch pine, Red maple, Sweetgum, Yellow-poplar
	Pitch pine	65	---	
	Red maple	---	---	
Berryland, rarely flooded	Blackgum	---	---	Atlantic white cedar, Pitch pine, Red maple
	Pitch pine	60	---	
	Red maple	---	---	
Quakerbridge	Chestnut oak	---	---	Pitch pine, Scarlet oak, Shortleaf pine
	Pitch pine	60	---	
	Post oak	---	---	
	Scarlet oak	---	---	
LakfB:				
Lakehurst, thick surface	Pitch pine	60	0	Virginia pine
Atsion	Pitch pine	65	0	---
LakhB:				
Lakehurst, loamy substratum	Pitch pine	60	0	Virginia pine
Atsion	Pitch pine	65	0	---
LanB:				
Lakehurst	Pitch pine	60	0	Virginia pine
Lakewood	Pitch pine	50	0	Pitch pine, Shortleaf pine
	Shortleaf pine	50	72	
	Virginia pine	60	86	

Forestland Productivity

Burlington County, New Jersey

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			Cu ft/ac	
LasB:				
Lakewood	Chestnut oak	---	---	Pitch pine, Shortleaf pine
	Pitch pine	60	---	
	Post oak	---	---	
	Scarlet oak	---	---	
Atsion, rarely flooded	Blackgum	---	---	Pitch pine, Red maple, Sweetgum, Yellow-poplar
	Pitch pine	65	---	
	Red maple	---	---	
Lakehurst	Chestnut oak	---	---	Eastern white pine, Pitch pine, Scarlet oak, Shortleaf pine
	Pitch pine	60	---	
	Post oak	---	---	
	Scarlet oak	---	---	
Quakerbridge	Chestnut oak	---	---	Pitch pine, Scarlet oak, Shortleaf pine
	Pitch pine	60	---	
	Post oak	---	---	
	Scarlet oak	---	---	
LasC:				
Lakewood	Pitch pine	50	0	Pitch pine, Shortleaf pine
	Shortleaf pine	50	72	
	Virginia pine	60	86	
LasD:				
Lakewood	Pitch pine	50	0	Pitch pine, Shortleaf pine
	Shortleaf pine	50	72	
	Virginia pine	60	86	
LashB:				
Lakewood, loamy substratum	Pitch pine	50	0	Pitch pine, Shortleaf pine
	Shortleaf pine	50	72	
	Virginia pine	60	86	
MakAt:				
Manahawkin, frequently flooded	Atlantic white cedar	50	92	Atlantic white cedar, Red maple
	Red maple	75	43	
Atsion	Blackgum	---	---	Pitch pine, Red maple, Sweetgum
	Pitch pine	65	---	
	Red maple	---	---	

Forestland Productivity

Burlington County, New Jersey

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			Cu ft/ac	
MakAt:				
Berryland, occasionally flooded	Blackgum	---	---	Atlantic white cedar, Pitch pine, Red maple
	Pitch pine	60	---	
	Red maple	---	---	
Mullica, rarely flooded	Blackgum	---	---	Atlantic white cedar, Red maple, Sweetgum, Yellow-poplar
	Pitch pine	---	---	
	Red maple	---	---	
	Sweetgum	90	100	
WobhB:				
Woodmansie, loamy substratum	Pitch pine	60	0	Pitch pine

Chatsworth Apple Pie Section

Franklin Parker Preserve: Chatsworth Apple Pie Section

Township	Block	Lot
Woodland	701	54, 57, 58.01 & 60
Tabernacle	2201	5
Woodland	2331	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2332	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2333	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2334	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2335	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2336	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2337	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2338	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2339	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2340	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2341	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2342	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2343	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2344	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22

Woodland	2345	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2346	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2347	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2348	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2349	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2350	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2351	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2352	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2353	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2354	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2355	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2356	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2357	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2358	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2359	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2360	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2361	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22

Woodland	2362	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2363	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2364	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2365	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	2701	3
Woodland	2703	2
Woodland	2704	1, 2, 4, 5, 6, 7.02, 7.03, 7.04, 7.05, 8.9, 10.01, 11, 12, 13, 14, 15, 16, 17, 19 & 25
Woodland	2801	1
Woodland	2802	1, 2, 3, 4, 5, 5.04 & 5.05
Woodland	2901	1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32 & 34
Woodland	2902	1, 2, 3, 5, 6, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 24, 25, 26, 29, 30, 32, 33 & 34
Woodland	2903	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32 & 34
Woodland	2904	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 17, 18, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 & 34
Woodland	2905	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 & 34
Woodland	2906	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 33 & 34
Woodland	2907	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 & 37

Woodland	2908	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30 & 31
Woodland	2909	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16, 18, 19, 20, 21, 22, 23, 24, 25 & 27
Woodland	2910	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 & 23
Woodland	2911	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, 17, 18 & 19
Woodland	2912	1, 4, 5, 6, 7, 8, 9, 10, 11, 12 & 15
Woodland	2913	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 & 23
Woodland	2914	1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 & 17
Woodland	2915	1, 2, 3, 4, 7, 8, 9, 10, 13, 14 & 15
Woodland	2916	3, 5, 6 & 8
Woodland	2917	1, 2, 3, 4 & 5
Woodland	2918	1
Woodland	3001	1, 2, 3, 4.02, 5, 6, 7, 8, 9, 10, 11, 12.01, 12.02, 12.03, 12.04, 13, 15, 16, 17, 18, 19, 20.03, 20.04, 21.03, 21.04, 23.01, 23.04, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 & 34
Woodland	3002	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 14.01, 14.02, 15.01, 15.02, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 & 34
Woodland	3003	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 & 28
Woodland	3101	1, 2, 3, 4C, 4D, 5, 6, 7, 8, 9, 10, 11, 12C, 12D, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32 & 33
Woodland	3102	1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 29 & 30

Woodland	3103	1
Woodland	3201	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 & 24
Woodland	3202	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Woodland	3203	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 & 28
Woodland	3301	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 & 28
Woodland	3302	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 & 26
Woodland	3303	1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 10, 11, 12, 13, 14 & 15
Woodland	3401	1 - 12
Woodland	3402	1 - 12
Woodland	3403	1 - 12
Woodland	3404	1
Woodland	3501	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 28, 30 & 32
Woodland	3502	1 - 33
Woodland	3503	1 - 34
Woodland	3504	1 - 36
Woodland	3505	1 - 38
Woodland	3506	1 - 39
Woodland	3507	1 - 40
Woodland	3508	1 - 42
Woodland	3509	1 - 48
Woodland	3510	1 - 48

Woodland	3511	1 - 48
Woodland	3512	1 - 48
Woodland	3513	1 - 48
Woodland	3514	1 - 48
Woodland	3515	1 - 48
Woodland	3516	1 - 48
Woodland	3517	1 - 28
Woodland	3518	1 - 6

State of New Jersey
THE PINELANDS COMMISSION
PO Box 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

General Information: Info@njpines.state.nj.us
Application Specific Information: AppInfo@njpines.state.nj.us

Chris Christie
Governor

Kim Guadagno
Lt. Governor

Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

June 26, 2013

Russell Juelg
New Jersey Conservation Foundation
Franklin Parker Preserve Office
79 Grassy Lake Road
Shamong, NJ 08088

Re: Application # 1983-4193.016
Block 2201, Lot 5
Tabernacle Township
Block 701, Lots 54, 57 & 58.01
Block 2331, Lots 1 - 22
Block 2332, Lots 1 - 22
Block 2333, Lots 1 - 22
Block 2342, Lots 1 - 22
Block 2343, Lots 1 - 22
Block 2344, Lots 1 - 22
Block 2345, Lots 1 - 22
Block 2346, Lots 1 - 22
Block 2347, Lots 1 - 22
Block 2356, Lots 1 - 22
Block 2357, Lots 1 - 22
Block 2358, Lots 1 - 22
Block 2359, Lots 1 - 22
Block 2360, Lots 1 - 22
Block 2361, Lots 1 - 22
Block 2362, Lots 1 - 22
Block 2363, Lots 1 - 22
Block 2364, Lots 1 - 22
Block 2365, Lots 1 - 22
Block 2701, Lot 3
Block 2703, Lot 2
Block 2704, Lots 1 - 2, 4 - 6,
7.02 - 7.05, 9, 10.01 - 11.04, 12 - 17, 19,
& 25
Block 2801, Lot 1
Block 2802, Lots 1 - 5, & 5.04 - 5.05
Block 2901, Lots 1, 3, 5 - 14, 16 - 19,
21 - 30, 32 & 34

1983 4193.016

Block 2902, Lots 1 - 3, 5 - 6, 9 - 11,
14 - 21, 24 - 26, 29 - 30, & 33 - 34
Block 2903, Lots 1, 3 - 32 & 34
Block 2904, Lots 1 - 13, 17 - 18,
& 22 - 34
Block 2905, Lots 1 - 34
Block 2906, Lots 1 - 8, 10 - 28, & 30 - 34
Block 2907, Lots 1 - 7, & 9 - 34
Block 2908, Lots 1 - 10, 12 - 20,
& 22 - 31
Block 2909, Lots 1, 3 - 10, 12, 18 - 25 & 27
Block 2910, Lots 1 - 23
Block 2911, Lots 1 - 8, & 12 - 19
Block 2912, Lots 1, 4 - 12 & 15
Block 2913, Lots 1 - 23
Block 2914, Lots 1, & 4 - 17
Block 2915, Lots 1 - 4, 7 - 10, & 13 - 15
Block 2916, Lots 3, 5 - 6 & 8
Block 2917, Lots 1 - 5
Block 2918, Lot 1
Block 3001, Lots 1 - 3, 5 - 11, 15 - 16, 19,
24, & 25 - 34
Block 3002, Lots 1 - 12, 16 - 22,
& 24 - 34
Block 3003, Lots 1, 1A - 1D, & 2 - 28
Block 3101, Lots 1 - 2, 7 - 9, 11,
12C - 12D, 13 - 14, 17, 20, 23 - 25, 27, 29,
31 & 33
Block 3102, Lots 5 - 7, 9, 14 - 17, 20,
22 - 23, & 25 - 26
Block 3103, Lot 1
Block 3201, Lots 1 - 24
Block 3202, Lots 1 - 22
Block 3203, Lots 1 - 28
Block 3301, Lots 1 - 28
Block 3302, Lots 1 - 26
Block 3303, Lots 1 - 15
Block 3401, Lots 1 - 12
Block 3402, Lots 1 - 12
Block 3403, Lots 1 - 12
Block 3404, Lot 1
Block 3501, Lots 1 - 16, 18, 20, 24, 26, 28,
30 & 32
Block 3502, Lots 1 - 33
Block 3503, Lots 1 - 34
Block 3504, Lots 1 - 36
Block 3505, Lots 1 - 38
Block 3506, Lots 1 - 39
Block 3507, Lots 1 - 40

Block 3508, Lots 1 - 42
Block 3509, Lots 1 - 48
Block 3510, Lots 1 - 48
Block 3511, Lots 1 - 48
Block 3512, Lots 1 - 48
Block 3513, Lots 1 - 48
Block 3514, Lots 1 - 48
Block 3515, Lots 1 - 48
Block 3516, Lots 1 - 48
Chatsworth Apple Pie Section Franklin Parker Preserve
Woodland Township

Dear Mr. Juleg:

Thank you for your May 16, 2013 email concerning threatened and endangered species and the development of a Forest Stewardship Management Plan for the above referenced parcel.

Your email did not provide any information regarding soil disturbance required for the proposed forestry, or any information about the proposed forestry plan.

We have reviewed our records, along with the Natural Heritage Database report dated May 9, 2013, for threatened/endangered species on and in the immediate vicinity of the above referenced parcel. Based on review of these records, any submitted forestry plan for the subject parcel should address how the proposed forestry activities are consistent with the protection of Bobcat, Barred owl, Timber rattlesnake, Northern pine snake, Corn snake, Pine Barrens treefrog, Red milkweed, New Jersey rush, Silvery aster, Bog asphodel, Pine Barren gentian, Pine Barren reedgrass, Silvery aster, Sickle-leaved golden aster, Curly grass fern, and False asphodel, Wand-like goldenrod, Slender nutrush, Broom crowberry.

Because of the confirmed threatened and endangered species sitings on the parcel, prior to developing your Forest Stewardship Management Plan, you may wish to provide our office with a brief description of the type of forestry activities which you anticipate proposing on the parcels, including the general location of the proposed activities, the type of harvesting proposed and the methods of harvesting from each area. Additionally, you may want to provide the results of any threatened and endangered species studies that New Jersey Conservation Foundation has conducted. This information will enable us to determine what level of information will be required to address threatened and endangered species. For example, the level of information necessary to address threatened and endangered species would be different if it is proposed to clear cut large stands as opposed to selective thinning for firewood cordage.

I hope this information will be helpful as you devise your stewardship plan. If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Jean Montgomerie
Environmental Specialist

JM/KY
c: Bob Williams, Land Dimensions Engineering

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
State Forestry Services
Mail Code 501-04
ONLM -Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. #609-984-1339
Fax. #609-984-1427

BOB MARTIN
Commissioner

May 9, 2013

G. Russell Juelg
New Jersey Conservation Foundation
170 Longview Road
Far Hills, NJ 07931

Re: Franklin Parker Preserve Forest Stewardship Plan - Chatsworth Lake and Apple Pie Hill Sections

Dear Mr. Juelg:

Thank you for your data request regarding rare species information for the above referenced project site in Woodland and Tabernacle Townships, Burlington County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the vicinity of the site.

A list of rare plant species and ecological communities that have been documented from Burlington County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive NJ-GeoWeb website at the following URL, http://www.state.nj.us/dep/gis/geowebsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 13-3907475-3240

Table 1: On Site Data Request Search Results (7 Possible Reports)

Rare Plants/Ecological Communities Possibly On Site:	Yes
Rare Plants/Ecological Communities On Site/Immediate Vicinity:	Yes
Natural Heritage Priority Sites On Site:	No
Landscape 3.1 Species Based Patches On Site:	Yes
Landscape 3.1 Vernal Pool Habitat On Site:	Yes
Landscape 3.1 Stream/Mussel Habitat On Site:	No
Other Animals Tracked by ENSP On Site:	Yes

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Black-throated Green Warbler	Dendroica virens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Dotted Skipper	Hesperia attalus slossonae	Nectaring	2	NA	Special Concern	G3G4T3	S3
	Georgia Satyr	Neonympha helicta	Casual Flyby	2	NA	Special Concern	G3G4	S3
	Pine Barrens Bluet	Enallagma recurvatum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Occupied Habitat	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Occupied Habitat	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1226
Potential vernal habitat area	1212
Potential vernal habitat area	1178
Potential vernal habitat area	1171

Total number of records: 4

Other Animal Species
On the Project Site Based on
Additional Species Tracked by
Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2

Total number of records: 1

Table 2: Vicinity Data Request Search Results (6 possible reports)

Rare Plants/Ecological Communities within the Vicinity:	Yes
Natural Heritage Priority Sites within the Vicinity:	No
Landscape 3.1 Species Based Patches within the Vicinity:	Yes
Landscape 3.1 Vernal Pool Habitat within the Vicinity:	Yes
Landscape 3.1 Stream/Mussel Habitat within the Vicnity:	No
Other Animals Tracked by ENSP within the Vicnity:	Yes

Scientific Name	Common Name	Federal Protection	State Protection	Regional Status	Grank	Srank	Identified	Last Observed	Location
Pinus rigida saturated woodland alliance	Pitch Pine Lowlands (Undifferentiated)				G3	S3	Y - Yes	2003-??-??	From 0.25 to 5.0 miles east of Chatsworth, in scattered patches of lowland with less than 1 km separation, surrounding Risley Branch and Shoal Branch.

Total number of records: 2

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Black-throated Green Warbler	Dendroica virens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Wood Thrush	Hylocichla	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Dotted Skipper	Hesperia attalus slossonae	Nectaring	2	NA	Special Concern	G3G4T3	S3
	Georgia Satyr	Neonympha helicta	Casual Flyby	2	NA	Special Concern	G3G4	S3
	Pine Barrens Bluet	Enallagma recurvatum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Occupied Habitat	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Territorial Display	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Occupied Habitat	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

Vernal Pool Habitat
In the Immediate Vicinity of Project Site
Based on Search of
Landscape Project 3.1

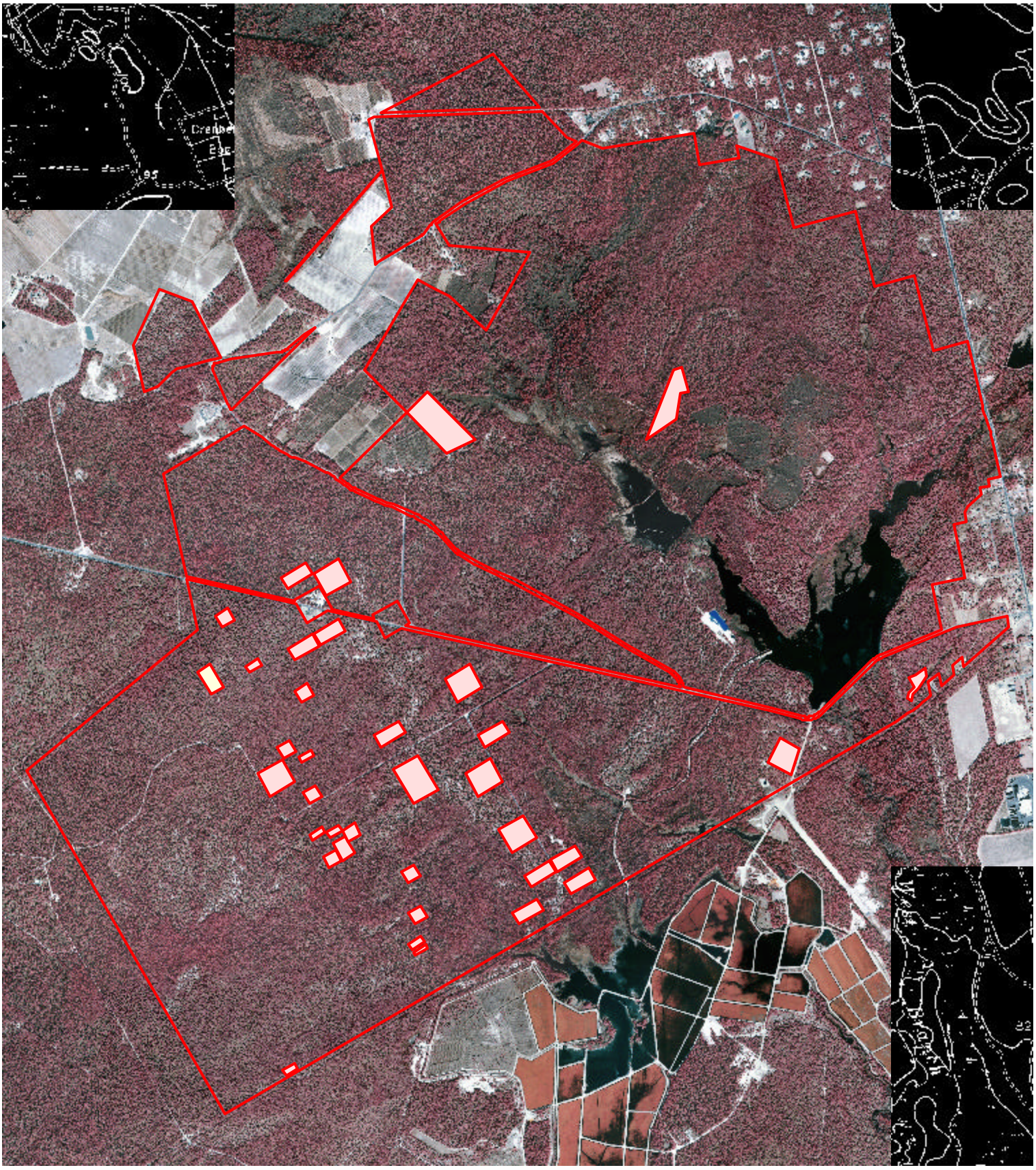
Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1171
Potential vernal habitat area	1172
Potential vernal habitat area	1178
Potential vernal habitat area	1209
Potential vernal habitat area	1212
Potential vernal habitat area	1226

Total number of records: 6

Other Animal Species
In the Immediate Vicinity of the Project Site Based on
Additional Species Tracked by
Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2

Total number of records: 1



VARIOUS BLOCKS AND LOTS
WOODLAND & TABERNACLE TOWNSHIPS
BRULINGTON COUNTY, NJ

LOCATION MAP

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

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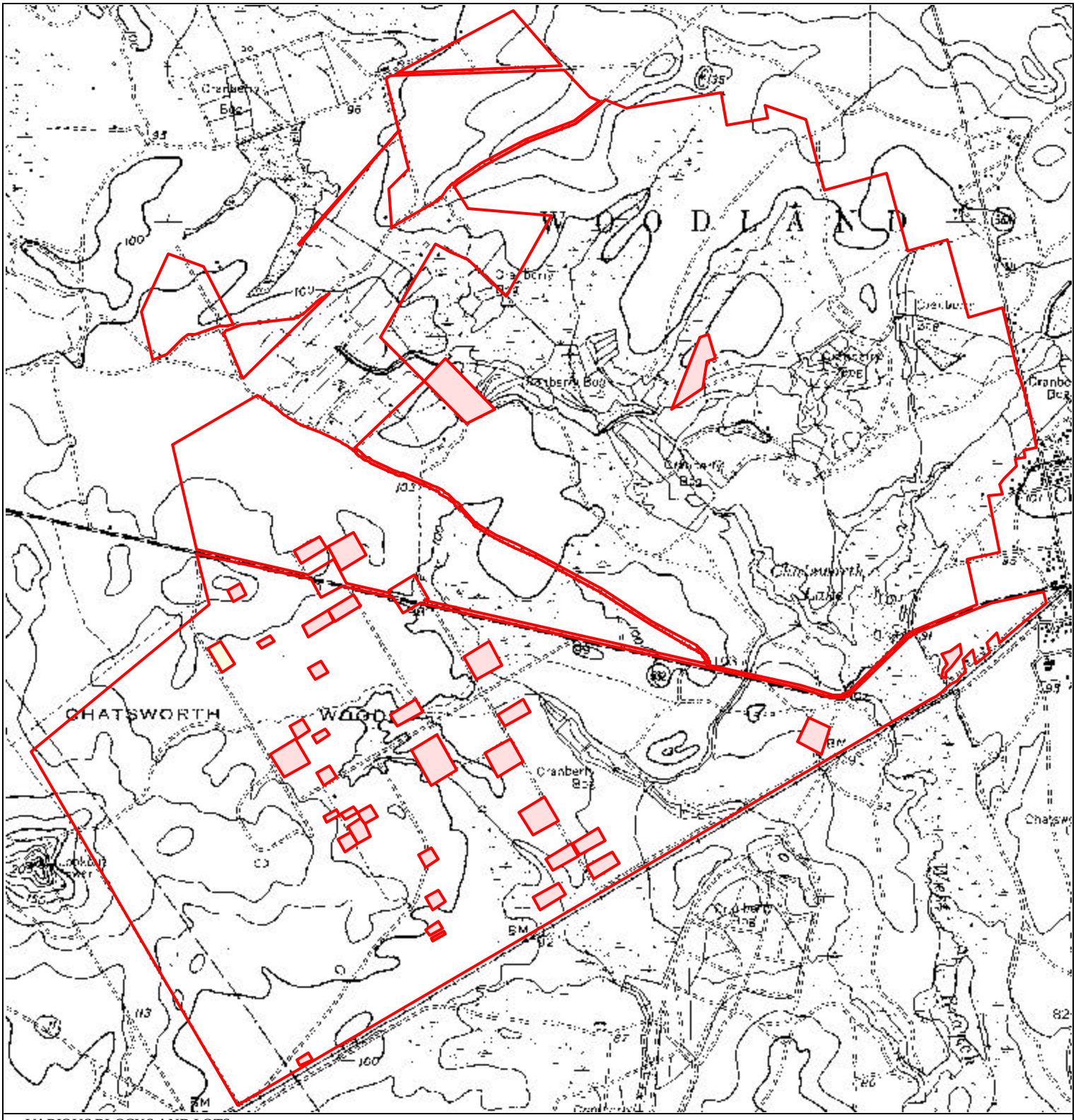
CHATSWORTH LAKE & APPLE PIE HILL SECTIONS

F1633



VARIOUS BLOCKS AND LOTS
WOODLAND & TABERNACLE TOWNSHIP
BRULINGTON COUNTY, NJ

CHATSWORTH NJ USGS QUAD MAP

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING

PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

EASTING: 475,000
NORTHING: 360,000

CHATSWORTH LAKE & APPLE PIE HILL SECTIONS

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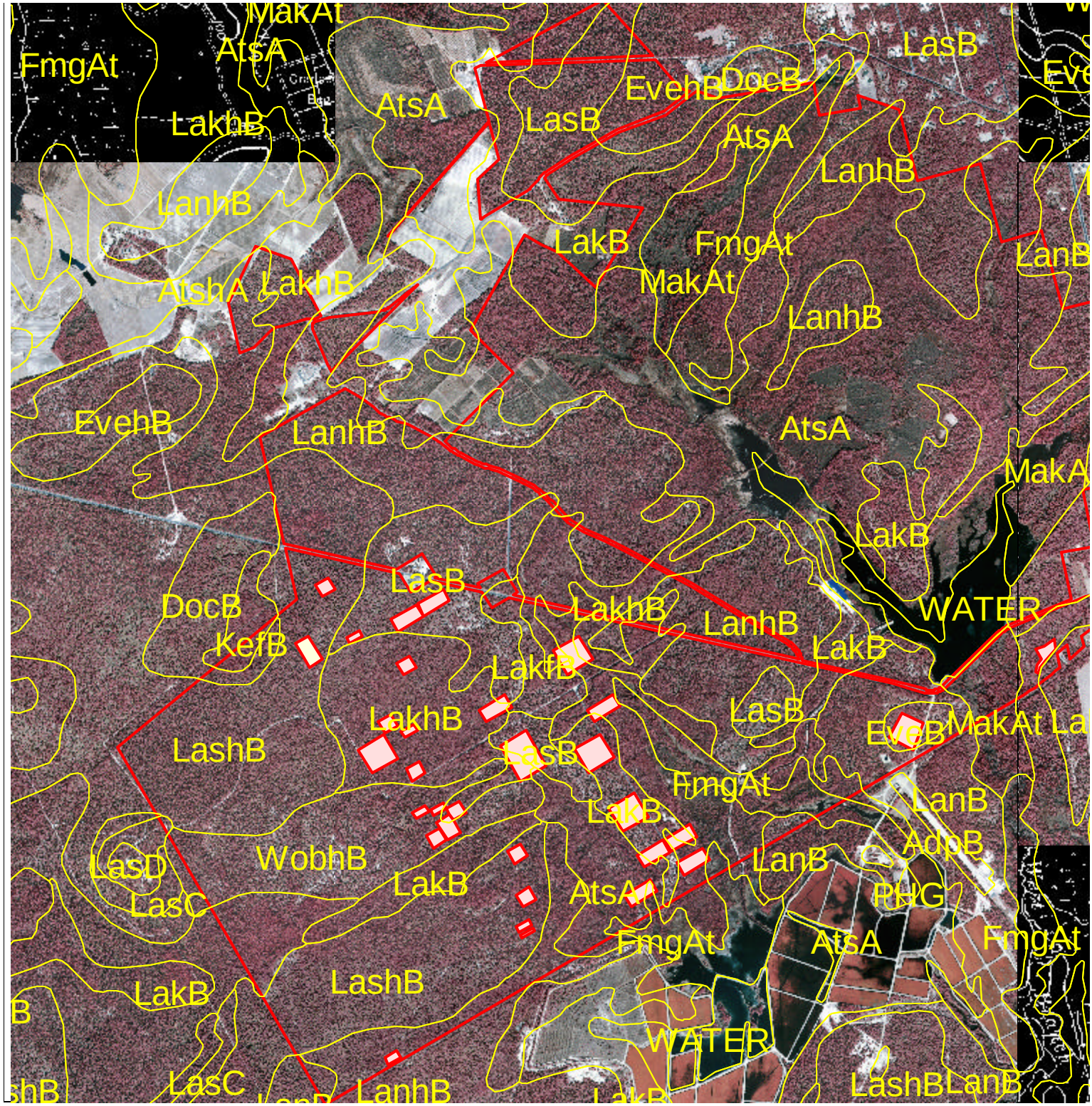
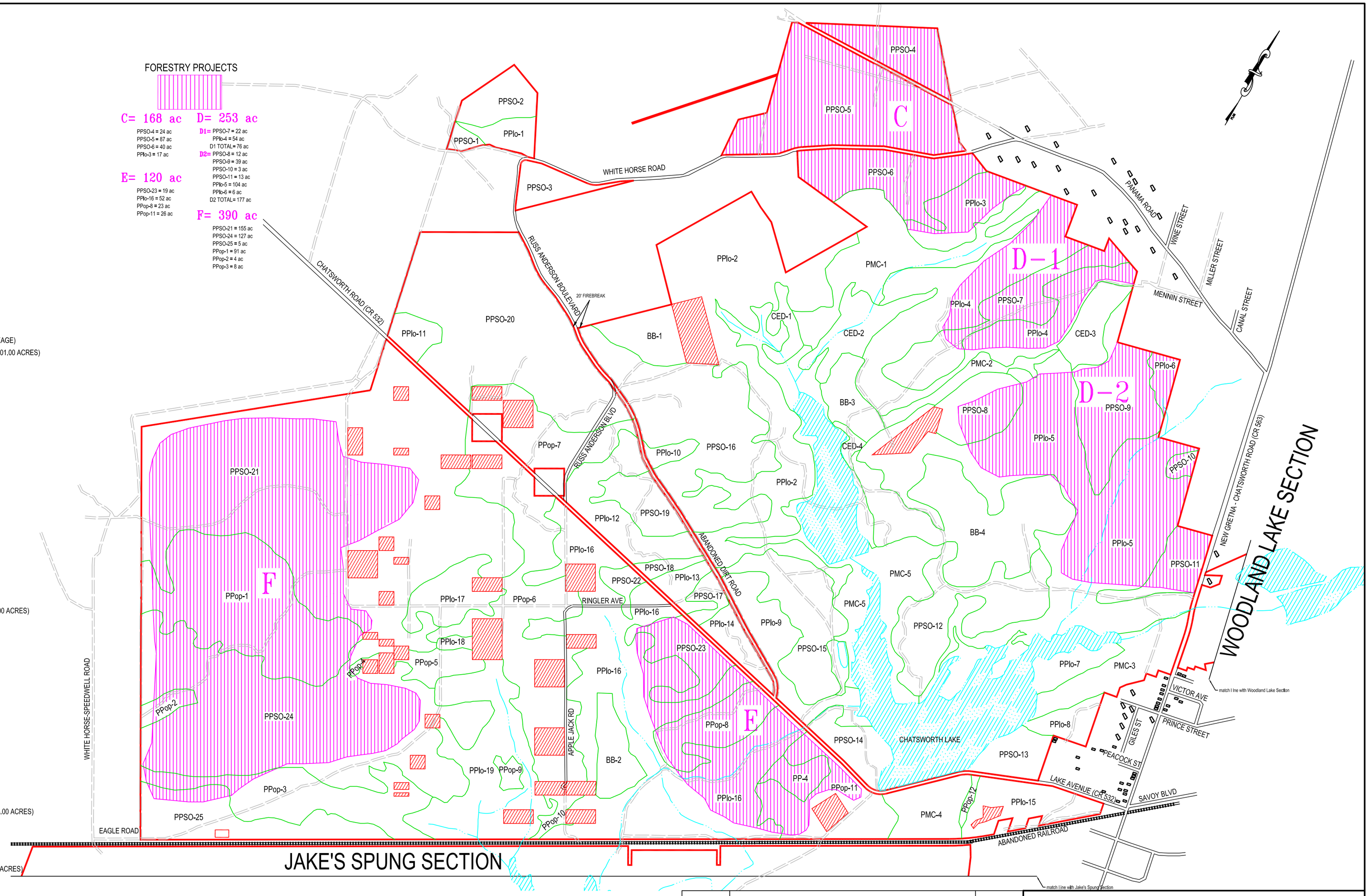

MakAt
FmgAt
AtsA
LakhB
AtsA
LasB
EvehB
DocB
LasB
AtsA
LanhB
LanhB
LakB
FmgAt
AtshA
LakhB
MakAt
LanhB
EvehB
LanhB
AtsA
MakA
LakB
LasB
DocB
LakhB
LanhB
WATER
KefB
LakB
LakfB
LakhB
LasB
LashB
LasB
EvehB
MakAt
FmgAt
LanB
LakB
AdpB
LasD
WobhB
LakB
LanB
AtsA
PHG
LasC
FmgAt
AtsA
FmgAt
LakB
LashB
WATER
LasC
LanhB
LashB
LanB



STAND NO. LABEL — STAND DESCRIPTION (ACREAGE)

1. PPSO — PITCH PINE/SCRUB OAK (1,201.00 ACRES)
   - 1 = 3.00 ACRES
   - 2 = 15.00 ACRES
   - 3 = 12.00 ACRES
   - 4 = 24.00 ACRES
   - 5 = 87.00 ACRES
   - 6 = 40.00 ACRES
   - 7 = 35.00 ACRES
   - 8 = 22.00 ACRES
   - 9 = 43.00 ACRES
   - 10 = 3.00 ACRES
   - 11 = 17.00 ACRES
   - 12 = 48.00 ACRES
   - 13 = 14.00 ACRES
   - 14 = 16.00 ACRES
   - 15 = 40.00 ACRES
   - 16 = 88.00 ACRES
   - 17 = 6.00 ACRES
   - 18 = 4.00 ACRES
   - 19 = 16.00 ACRES
   - 20 = 128.00 ACRES
   - 21 = 297.00 ACRES
   - 22 = 5.00 ACRES
   - 23 = 21.00 ACRES
   - 24 = 179.00 ACRES
   - 25 = 38.00 ACRES
   - TOTAL:1201.00 ACRES
2. PPIo — PITCH PINE LOWLAND (830.00 ACRES)
   - 1 = 9.00 ACRES
   - 2 = 124.00 ACRES
   - 3 = 23.00 ACRES
   - 4 = 104.00 ACRES
   - 5 = 180.00 ACRES
   - 6 = 6.00 ACRES
   - 7 = 11.00 ACRES
   - 8 = 10.00 ACRES
   - 9 = 28.00 ACRES
   - 10 = 4.00 ACRES
   - 11 = 8.00 ACRES
   - 12 = 31.00 ACRES
   - 13 = 8.00 ACRES
   - 14 = 11.00 ACRES
   - 15 = 23.00 ACRES
   - 16 = 167.00 ACRES
   - 17 = 19.00 ACRES
   - 18 = 2.00 ACRES
   - 19 = 62.00 ACRES
   - TOTAL: 830.00 ACRES
3. CED — ATLANTIC WHITE CEDAR (45.00 ACRES)
   - 1 = 7.00 ACRES
   - 2 = 20.00 ACRES
   - 3 = 15.00 ACRES
   - 4 = 3.00 ACRES
   - TOTAL: 45.00 ACRES
5. PMC — PINE/MAPLE/CEDAR (148.00 ACRES)
   - 1 = 50.00 ACRES
   - 2 = 10.00 ACRES
   - 3 = 28.00 ACRES
   - 4 = 20.00 ACRES
   - 5 = 40.00 ACRES
   - TOTAL: 148.00 ACRES
6. PPop — OPEN PITCH PINE (349.00 ACRES)
   - 1 = 94.00 ACRES
   - 2 = 6.00 ACRES
   - 3 = 48.00 ACRES
   - 4 = 1.00 ACRES
   - 5 = 10.00 ACRES
   - 6 = 85.00 ACRES
   - 7 = 27.00 ACRES
   - 8 = 25.00 ACRES
   - 9 = 3.00 ACRES
   - 10 = 4.00 ACRES
   - 11 = 44.00 ACRES
   - 12 = 2.00 ACRES
   - TOTAL: 349.00 ACRES

LABEL	OTHER LAND USES	ACREAGE
BB	ABANDONED BLUEBERRY FIELDS (120.00 ACRES)	
	1 =	16.00 ACRES
	2 =	16.00 ACRES
	3 =	15.00 ACRES
	4 =	73.00 ACRES
	TOTAL:	120.00 ACRES

TOTAL ACREAGE OF WOODLANDS = 2,573.00 ACRES
TOTAL ACREAGE OF AGRICULTURE (BB FIELDS) = 120.00 ACRES
TOTAL ACREAGE OF LAKES = 157.00 ACRES
TOTAL ACREAGE OF PROPERTY = 2,850.00 ACRES

OWNER:
NEW JERSEY CONSERVATION FOUNDATION
170 LONGVIEW ROAD
FAR HILLS, NJ 07931

0 1000
1000 500 2000
GRAPHIC SCALE

FOREST MANAGEMENT AND STEWARDSHIP PLAN

NOTE: THIS PLAN IS TO BE USED FOR FOREST MANAGEMENT PURPOSES ONLY AND NOT FOR LAND SURVEY

CHATSWORTH LAKE & APPLE PIE HILL
TRACTS 13-19

SITUATE
WOODLAND & TABERNACLE TOWNSHIPS
BURLINGTON COUNTY, NEW JERSEY

DATE: MARCH, 2010 SCALE: 1"=1000'

PREPARED BY:
LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
STATE OF NEW JERSEY CERTIFICATE OF AUTHORIZATION NO. GA 276703
6 EAST HIGH STREET
GLASSBORO, NEW JERSEY 08028
(856) 307-7800
FAX (856) 307-7805

F-1633

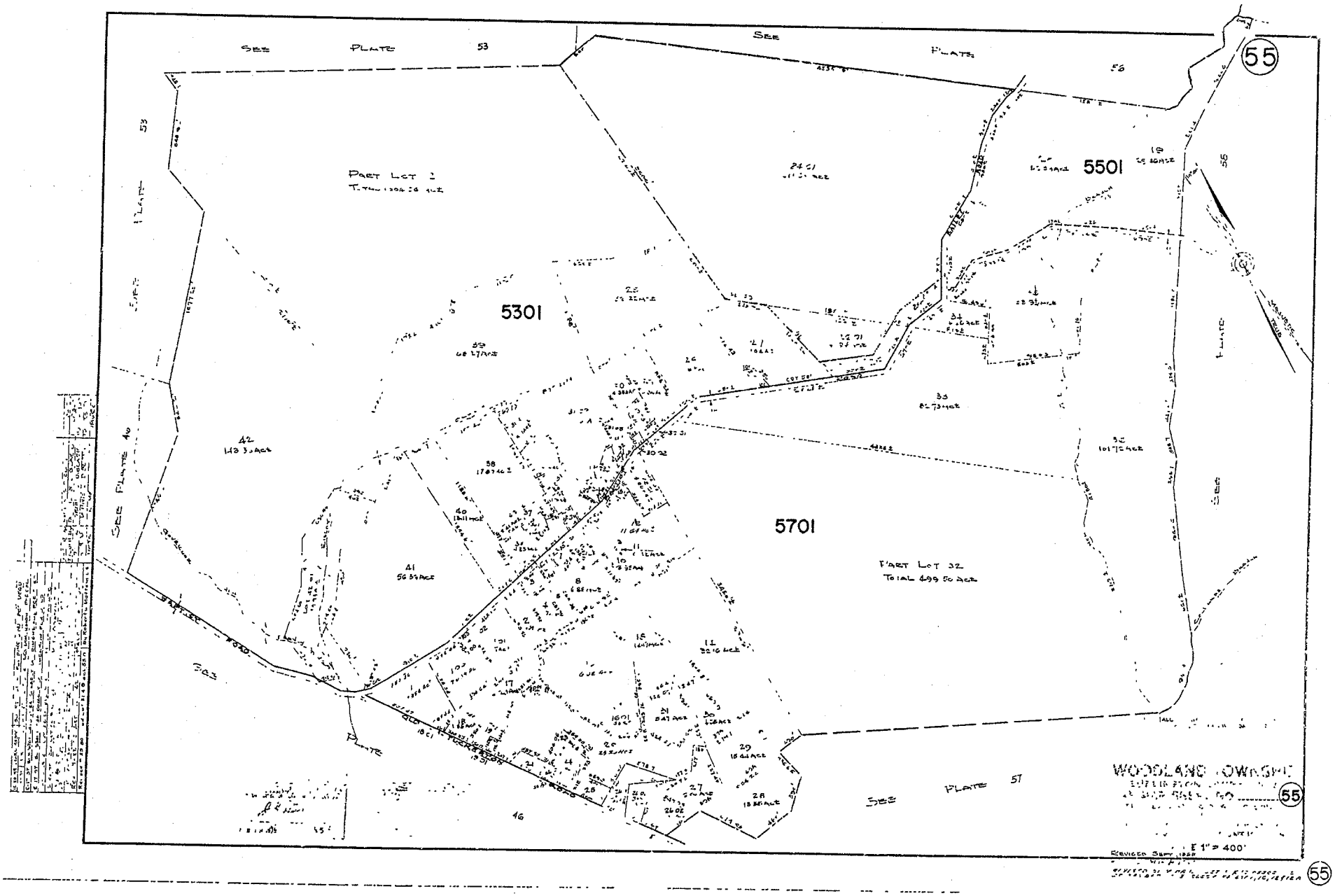
ROBERT R. WILLIAMS
REGISTERED PROFESSIONAL FORESTER, RFP NO. 341
CERTIFIED ENVIRONMENTAL PROFESSIONAL, CERT. NO. 2761
PROFESSIONAL WETLAND SCIENTIST, CERT. NO. 510

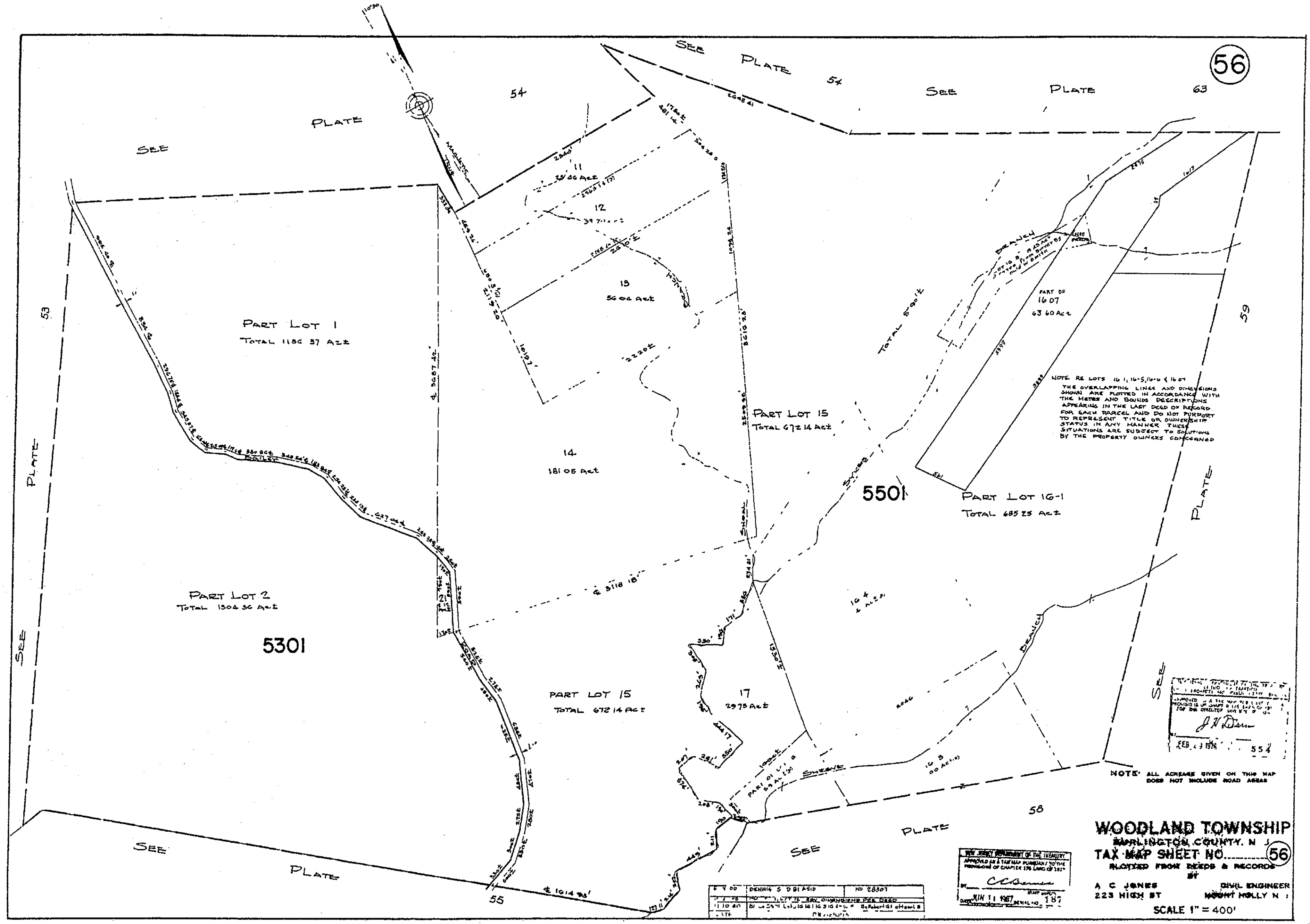
DATE

Arpins Section

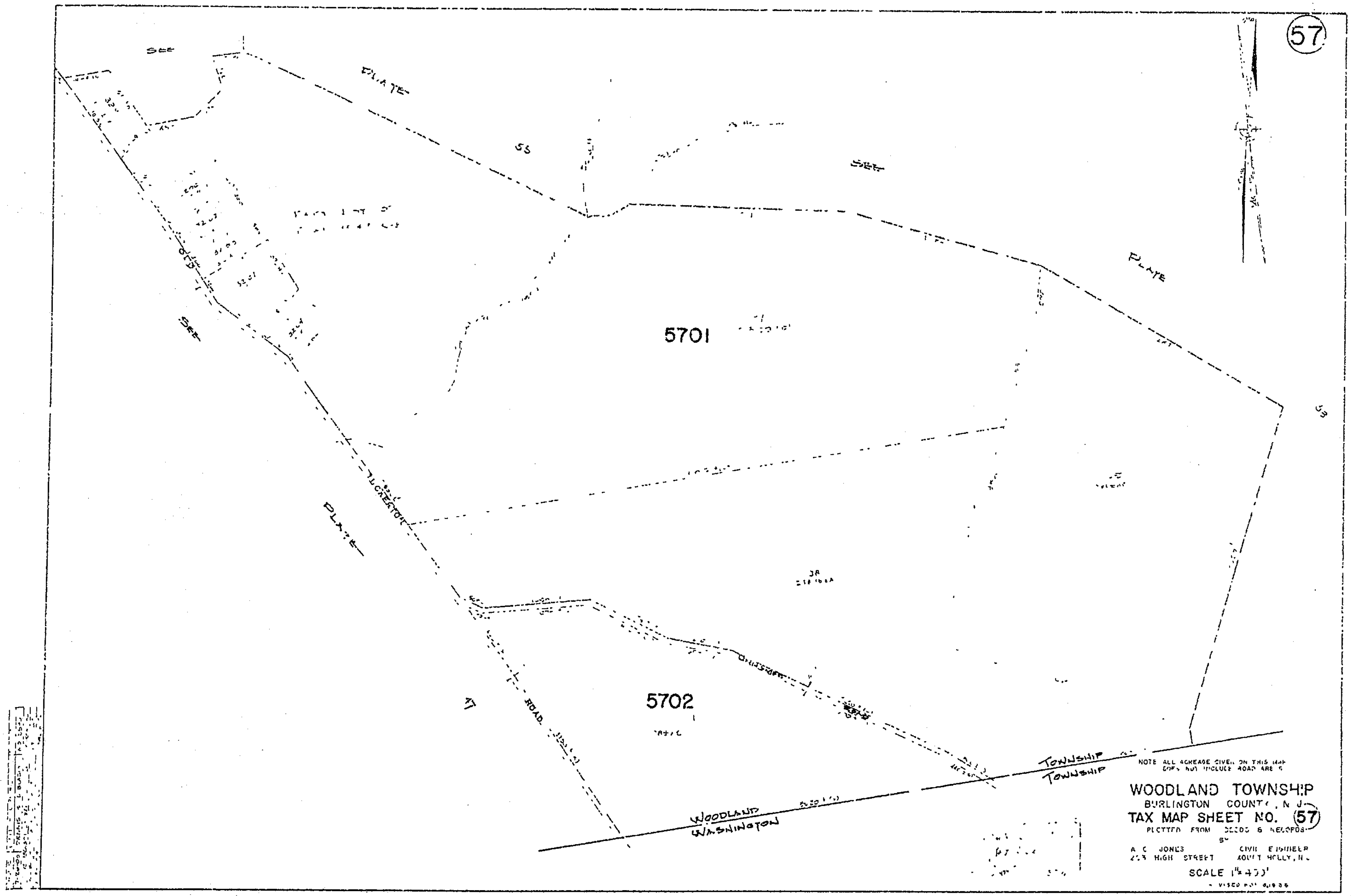
Franklin Parker Preserve: Arpins Section

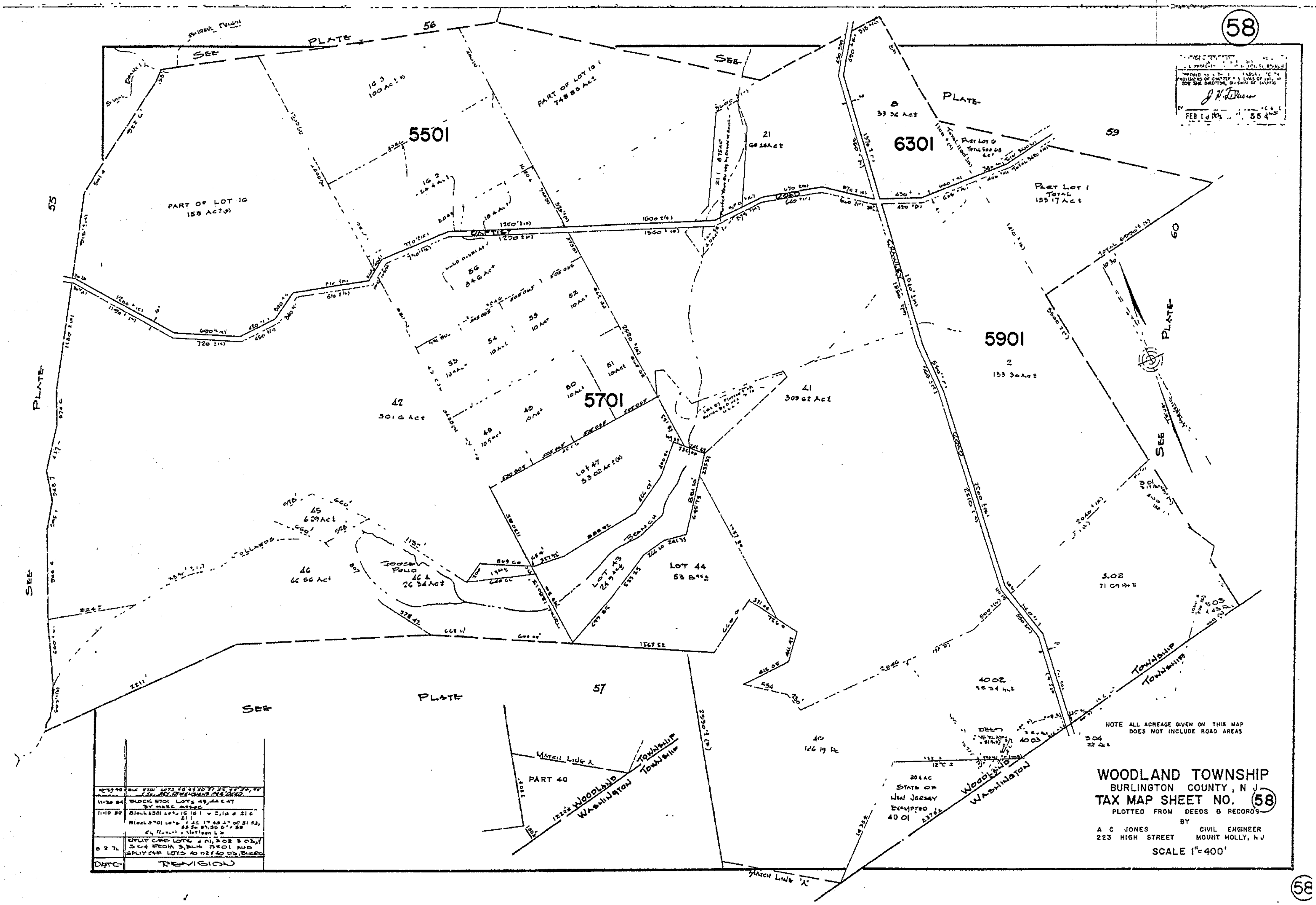
Township	Block	Lot
Woodland	5301	24, 24.01, 26 & 26.01
Woodland	5501	17, 19 & 20
Woodland	5701	32, 33, 34, 35 & 36


SEE PLATE 53
SEE PLATE 56
55
PART LOT 1
5501
5301
5701
PART LOT 32
Total 499.50 Acre
SEE PLATE 46
SEE PLATE 57
WOODLAND TOWNSHIP
REVISED SEPT. 1958
1" = 400'
55


56
SEE PLATE 54
SEE PLATE 63
SEE PLATE 53
SEE PLATE 55
SEE PLATE 58
SEE PLATE 59
PART LOT 1
TOTAL 1186 57 Ac±
PART LOT 2
TOTAL 1304 36 Ac±
5301
14
181 05 Ac±
13
56 04 Ac±
11
12
PART LOT 15
TOTAL 672 14 Ac±
17
29 75 Ac±
5501
TOTAL 590 1/±
PART LOT 16-1
TOTAL 685 25 Ac±
PART OF 16 07
63 60 Ac±
BRANCH
NOTE RE LOTS 16 1, 16-5, 16-6 & 16 07
THE OVERLAPPING LINES AND DIMENSIONS SHOWN ARE PLOTTED IN ACCORDANCE WITH THE METES AND BOUNDS DESCRIPTIONS APPEARING IN THE LAST DEED OF RECORD FOR EACH PARCEL AND DO NOT PURPORT TO REPRESENT TITLE OR OWNERSHIP STATUS IN ANY MANNER. THESE SITUATIONS ARE SUBJECT TO SOLUTIONS BY THE PROPERTY OWNERS CONCERNED
NOTE: ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
WOODLAND TOWNSHIP
BURLINGTON COUNTY, N J
TAX MAP SHEET NO. 56
PLOTTED FROM DEEDS & RECORDS BY
A C JONES CIVIL ENGINEER
223 HIGH ST MOUNT HOLLY N J
SCALE 1" = 400'
JUN 11 1987
FEB 3 1976 554
DENNIS S DI BIASIO
NO 28307

56


57
SEE PLATE 55
SEE PLATE 53
SEE PLATE 47
OLD TUCKERTON ROAD
5701
5702
WOODLAND
WASHINGTON
TOWNSHIP
TOWNSHIP
NOTE: ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
WOODLAND TOWNSHIP
BURLINGTON COUNTY, N.J.
TAX MAP SHEET NO. 57
PLOTTED FROM DEEDS & RECORDS
BY
A. C. JONES CIVIL ENGINEER
253 HIGH STREET MOUNT HOLLY, N.J.
SCALE 1"=400'


58
WOODLAND TOWNSHIP
BURLINGTON COUNTY, N J
TAX MAP SHEET NO. 58
PLOTTED FROM DEEDS & RECORDS
BY
A C JONES CIVIL ENGINEER
223 HIGH STREET MOUNT HOLLY, N J
SCALE 1"=400'
NOTE ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
DATE
REVISION
SEE PLATE 56
SEE PLATE 55
SEE PLATE 57
SEE PLATE 59
SEE PLATE 60
5501
5701
5901
6301
PART OF LOT 16
158 Ac
16 3
100 Ac
PART OF LOT 10 1
74 80 Ac
42
301 6 Act
46
66 66 Act
45
6 29 Act
LOT 44
53 84c
LOT 47
53 02 Ac
41
309 62 Act
2
153 30 Act
8
33 34 Act
21
PART LOT 1
TOTAL
155 17 Act
3.02
71 09
4002
40
126 19 Ac
STATE OF NEW JERSEY
EXEMPTED
4001
PART 40
MATCH LINE A
WOODLAND TOWNSHIP
WASHINGTON TOWNSHIP
58

State of New Jersey
THE PINELANDS COMMISSION
PO Box 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

General Information: Info@njpines.state.nj.us
Application Specific Information: AppInfo@njpines.state.nj.us

Chris Christie
Governor

Kim Guadagno
Lt. Governor

Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

June 19, 2013

Russell Juelg
New Jersey Conservation Foundation
FPP Office
79 Grassy Lake Road
Shamong, NJ 08088

Re: Application # 1983-4193.011
Block 5301, Lots 24 - 24.01, & 26 - 26.01
Block 5501, Lots 17, & 19 - 20
Block 5701, Lots 32 - 36
Arpins Section Franklin Parker Preserve
Woodland Township

Dear Mr. Juelg:

Thank you for your May 16, 2013 email concerning threatened and endangered species and the development of a Forest Stewardship Management Plan for the above referenced parcel.

Your email did not provide any information regarding soil disturbance required for the proposed forestry, or any information about the proposed forestry plan.

We have reviewed our records, along with the Natural Heritage Database report dated May 9, 2013, for threatened/endangered species on and in the immediate vicinity of the above referenced parcel. Based on review of these records, any submitted forestry plan for the subject parcel should address how the proposed forestry activities are consistent with the protection of Bobcat, Bald eagle (nesting and wintering), Barred owl, Timber rattlesnake, Northern pine snake, Corn snake, Pine Barrens treefrog, Purple bladderwort, Hairy Primrose-willow, Fringed Yellow-eyed grass, Bog asphodel, Long's woolgrass, Curly grass fern, Pine Barrens reedgrass, and False asphodel.

Because of the confirmed threatened and endangered species sitings on the parcel, prior to developing your Forest Stewardship Management Plan, you may wish to provide our office with a brief description of the type of forestry activities which you anticipate proposing on the parcels, including the general location of the proposed activities, the type of harvesting proposed and the methods of harvesting from each area. Additionally, you may want to provide the results of any threatened and endangered species studies that New Jersey Conservation Foundation has conducted. This information will enable us to determine what level of information will be required to address threatened and endangered species. For example, the level of information necessary to address threatened and endangered species would be different if it is proposed to clear cut large stands as opposed to selective thinning for firewood cordage.

I hope this information will be helpful as you devise your stewardship plan. If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Jean Montgomerie
Environmental Specialist

JM/KY
c: Bob Williams, Land Dimensions Engineering

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
State Forestry Services
Mail Code 501-04
ONLM -Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. #609-984-1339
Fax. #609-984-1427

BOB MARTIN
Commissioner

May 9, 2013

G. Russell Juelg
New Jersey Conservation Foundation
170 Longview Road
Far Hills, NJ 07931

Re: Franklin Parker Preserve Forest Stewardship Plan - Arpins Section

Dear Mr. Juelg:

Thank you for your data request regarding rare species information for the above referenced project site in Woodland Township, Burlington County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the vicinity of the site.

A list of rare plant species and ecological communities that have been documented from Burlington County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive NJ-GeoWeb website at the following URL, http://www.state.nj.us/dep/gis/geowebsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 13-3907475-3265

Table 1: On Site Data Request Search Results (7 Possible Reports)

Rare Plants/Ecological Communities Possibly On Site:	Yes
Rare Plants/Ecological Communities On Site/Immediate Vicinity:	Yes
Natural Heritage Priority Sites On Site:	Yes
Landscape 3.1 Species Based Patches On Site:	Yes
Landscape 3.1 Vernal Pool Habitat On Site:	Yes
Landscape 3.1 Stream/Mussel Habitat On Site:	No
Other Animals Tracked by ENSP On Site:	Yes

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Non-breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Wintering	3	NA	State Threatened	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Allegheny River Cruiser	Macromia alleghaniensis	Exuviae Sighting	2	NA	Special Concern	G4	S3
	Allegheny River Cruiser	Macromia alleghaniensis	Territorial Display	2	NA	Special Concern	G4	S3
	Arogos Skipper	Atrytone arogos arogos	Breeding/Courtship	4	NA	State Endangered	G3T1T2	S1
	Arogos Skipper	Atrytone arogos arogos	Casual Flyby	4	NA	State Endangered	G3T1T2	S1
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Georgia Satyr	Neonympha helicta	Breeding/Courtship	2	NA	Special Concern	G3G4	S3
	Georgia Satyr	Neonympha helicta	Casual Flyby	2	NA	Special Concern	G3G4	S3
	Hessel's Hairstreak	Callophrys hesseli	Nectaring	2	NA	Special Concern	G3G4	S3
	Pine Barrens Bluet	Enallagma recurvatum	Occupied Habitat	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Occupied Habitat	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1164

Total number of records: 1

Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Agrotis buchholzi	Buchholz's Dart Moth			G2	S2
Agrotis buchholzi	Buchholz's Dart Moth			G2	S2
Total number of records: 2					
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Total number of records: 1					

Table 2: Vicinity Data Request Search Results (6 possible reports)

Rare Plants/Ecological Communities within the Vicinity:	Yes
Natural Heritage Priority Sites within the Vicinity:	Yes
Landscape 3.1 Species Based Patches within the Vicinity:	Yes
Landscape 3.1 Vernal Pool Habitat within the Vicinity:	Yes
Landscape 3.1 Stream/Mussel Habitat within the Vicnity:	No
Other Animals Tracked by ENSP within the Vicnity:	Yes

Scientific Name	Common Name	Federal Protection	State Protection	Regional Status	Grank	Srank	Identified	Last Observed	Location
Pinus rigida-(p. echinata)-quercus spp./quercus (marilandica, ilicifolia) woodland	Pine-oak-shrub Oak Woodland (Pow)				G3	S3	Y - Yes	2003-??-??	A 723 acre patch within West Plains Fireshed located immediately southeast of Shoal Branch, on both the north and south sides of Chatsworth Road. The centroid is about 3.5 mi. southeast of Chastworth.

Total number of records: 3

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Non-breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
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	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
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Insecta								
	Allegheny River Cruiser	Macromia alleghaniensis	Exuviae Sighting	2	NA	Special Concern	G4	S3
	Allegheny River Cruiser	Macromia alleghaniensis	Territorial Display	2	NA	Special Concern	G4	S3
	Arogos Skipper	Atrytone arogos arogos	Breeding/Courtship	4	NA	State Endangered	G3T1T2	S1
	Arogos Skipper	Atrytone arogos arogos	Casual Flyby	4	NA	State Endangered	G3T1T2	S1
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	Georgia Satyr	Neonympha helicta	Casual Flyby	2	NA	Special Concern	G3G4	S3
	Hessel's Hairstreak	Callophrys hesseli	Nectaring	2	NA	Special Concern	G3G4	S3
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	Scarlet Bluet	Enallagma pictum	Occupied Habitat	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

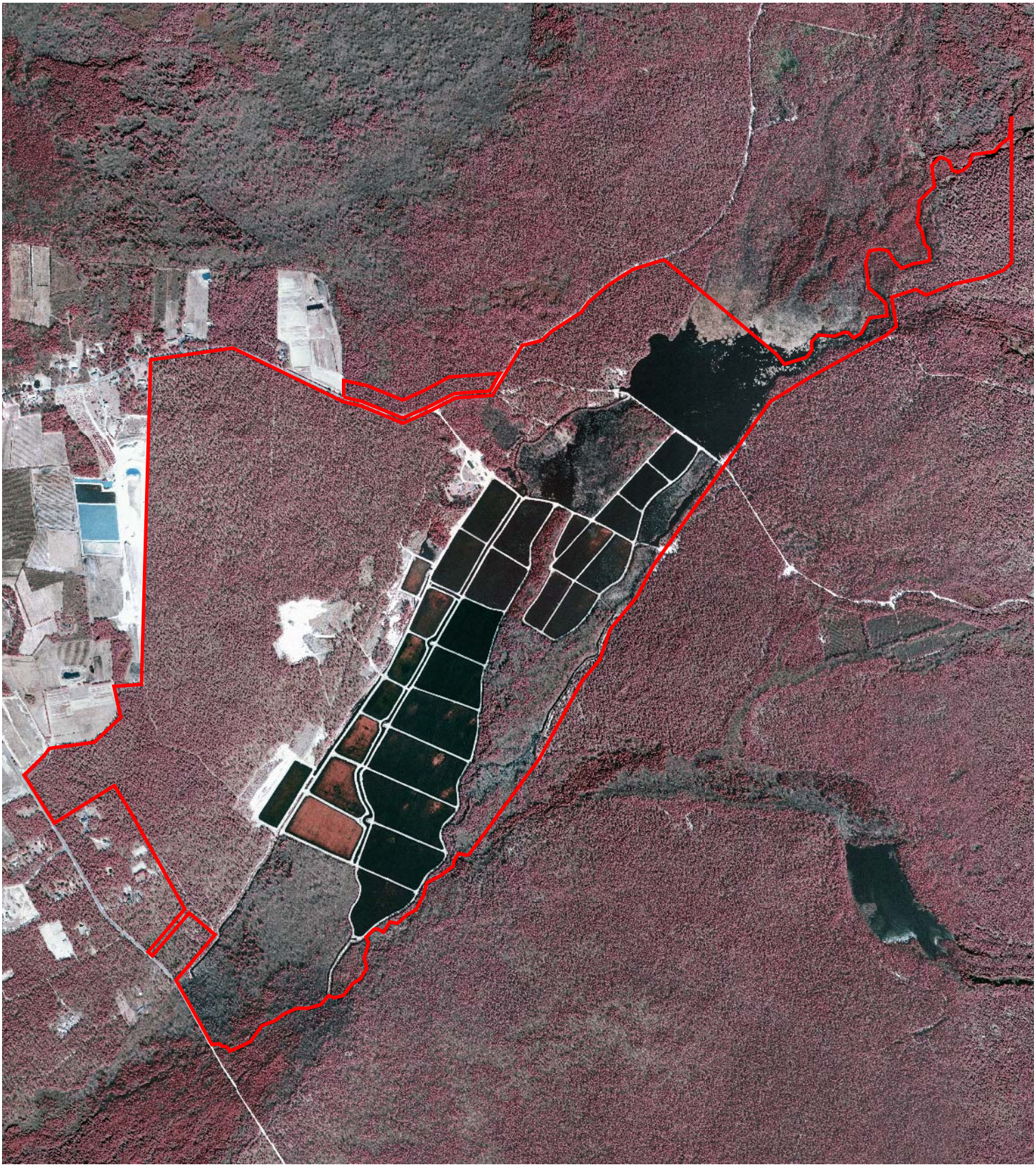
Vernal Pool Habitat
In the Immediate Vicinity of Project Site
Based on Search of
Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1164

Total number of records: 1

Other Animal Species
In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Agrotis buchholzi	Buchholz's Dart Moth			G2	S2
Agrotis buchholzi	Buchholz's Dart Moth			G2	S2
Total number of records: 2					
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Total number of records: 1					



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

LOCATION MAP

SCALE: 1"=1400'

LAND DIMENSIONS ENGINEERING

PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

ARPINS SECTION

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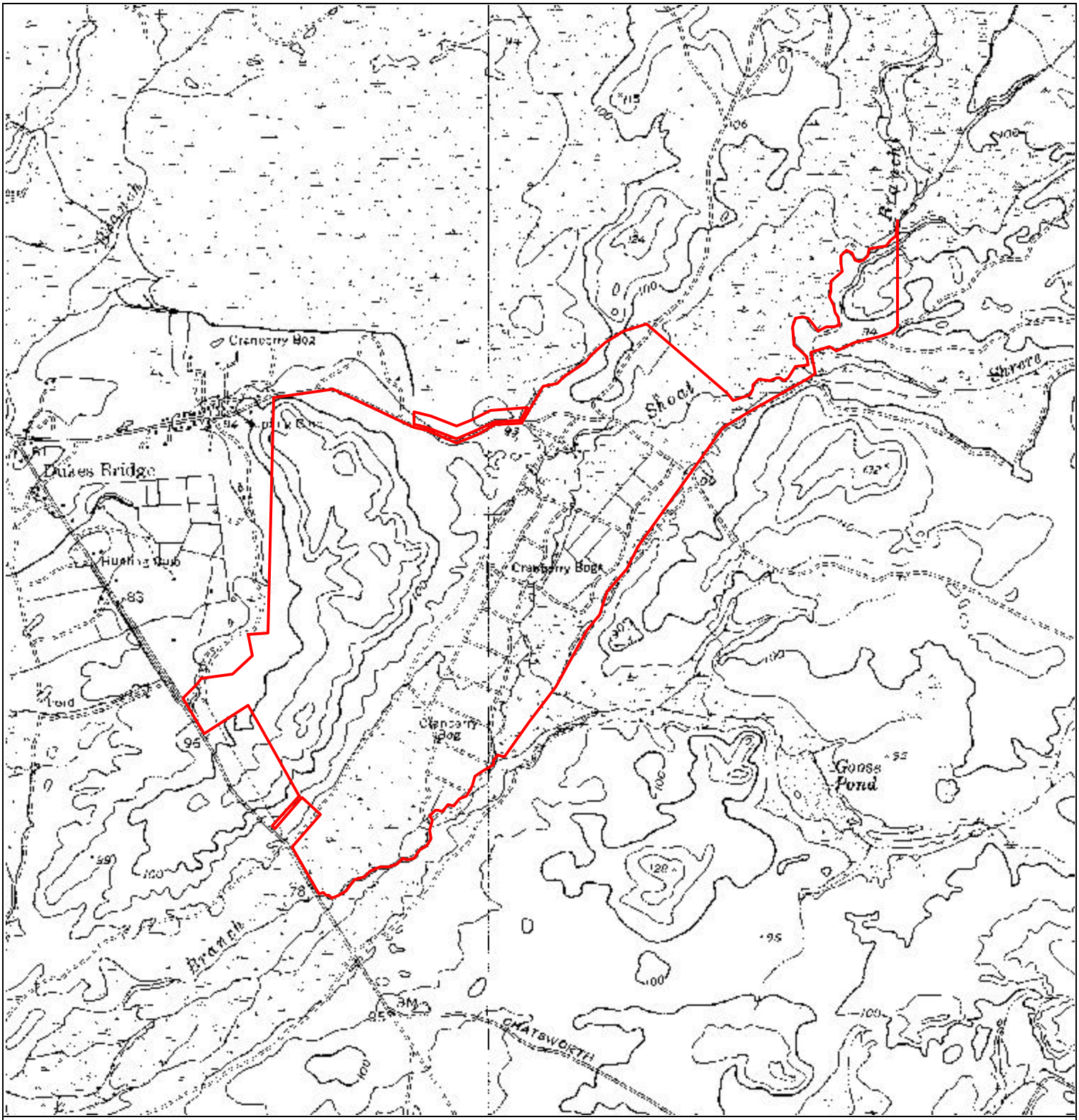
F1633



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

CHATSWORTH & WOODMANSIE NJ USGS QUAD MAPS

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING

PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

EASTING: 490,000
NORTHING: 350,000

ARPINS SECTION

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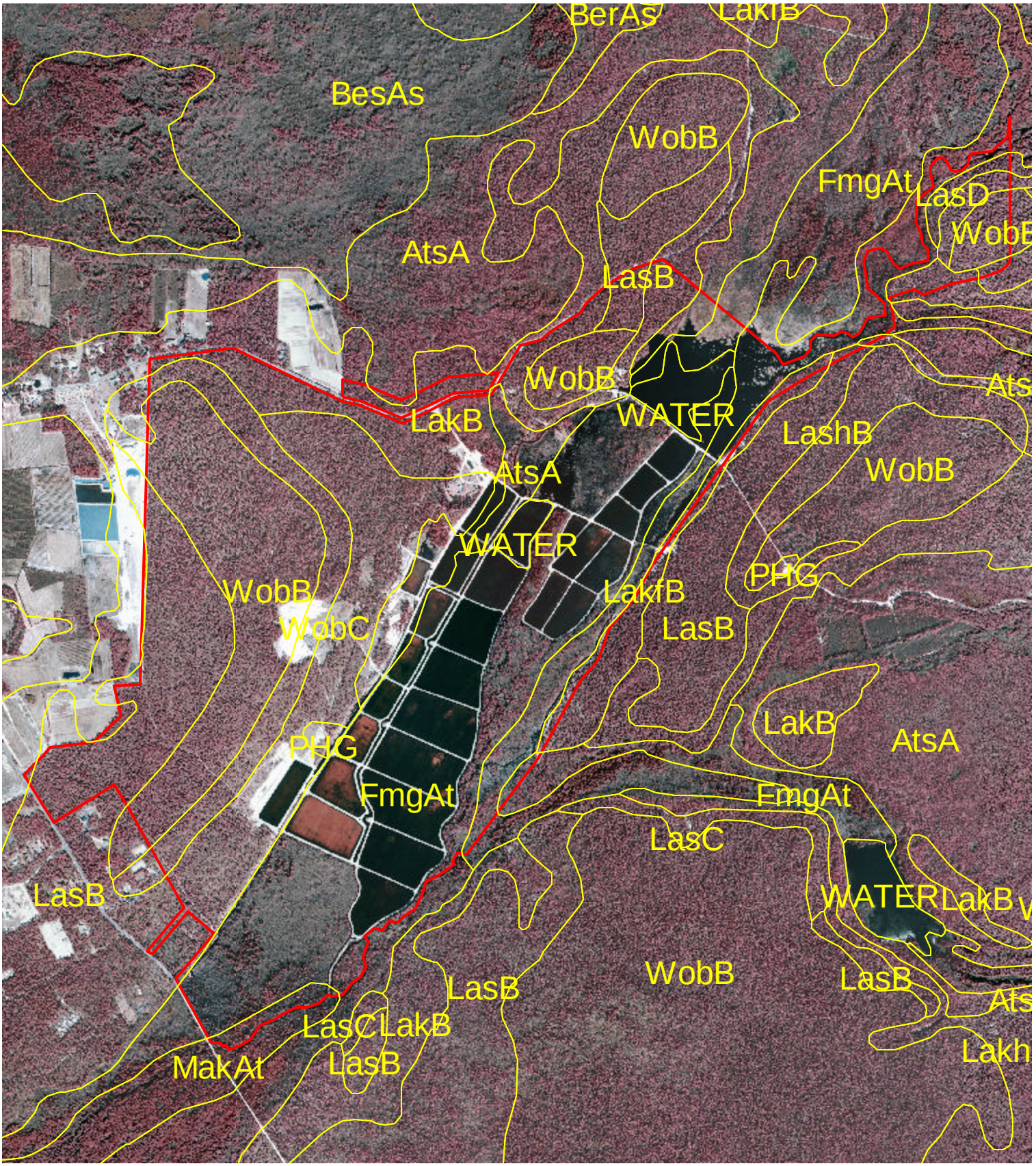
F1633



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

BURLINGTON COUNTY SOIL SURVEY MAP

SCALE: 1"=1400'

LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

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ARPINS SECTION

F1633

FOREST MANAGEMENT AND STEWARDSHIP PLAN

NOTE: THIS PLAN IS TO BE USED FOR FOREST MANAGEMENT PURPOSES ONLY AND NOT FOR LAND SURVEY

GRAPHIC SCALE 1000 0 500 1000 2000

FOREST RUN

FORESTRY PROJECTS

M= 200 ac

M= PPSO-1 = 200 ac

LABEL	OTHER LAND USES	ACREAGE
DIS	DISTURBED	48.00 ACRES
	1 = 31.00 ACRES	
	2 = 11.00 ACRES	
	3 = 1.00 ACRES	
	4 = 5.00 ACRES	
	TOTAL: 48.00 ACRES	
MAR	MARSH	13.00 ACRES
	1 = 5.00 ACRES	
	2 = 4.00 ACRES	
	3 = 4.00 ACRES	
	TOTAL: 13.00 ACRES	
BOG	BOGS/RESERVOIRS	235.00 ACRES

STAND	LABEL	WOODLAND STAND DESCRIPTION	ACREAGE
1.	PPSO	PITCH PINE/SCRUB OAK	354.00 ACRES
		1 = 291.00 ACRES	
		2 = 40.00 ACRES	
		3 = 23.00 ACRES	
		TOTAL: 354.00 ACRES	
2.	PPlo	PITCH PINE lowland	22.00 ACRES
		1 = 11.00 ACRES	
		2 = 7.00 ACRES	
		3 = 4.00 ACRES	
		TOTAL: 22.00 ACRES	
3.	CED	ATLANTIC WHITE CEDAR	13.00 ACRES
		1 = 8.00 ACRES	
		2 = 5.00 ACRES	
		TOTAL: 13.00 ACRES	
4.	MAP	MAPLE SWAMP	51.00 ACRES
		1 = 48.00 ACRES	
		2 = 3.00 ACRES	
		TOTAL: 51.00 ACRES	
5.	PMC	PITCH PINE/MAPLE/CEDAR	64.00 ACRES
		1 = 3.00 ACRES	
		2 = 37.00 ACRES	
		3 = 13.00 ACRES	
		4 = 11.00 ACRES	
		TOTAL: 64.00 ACRES	

TOTAL ACREAGE OF WOODLANDS = 504.00 ACRES
TOTAL ACREAGE OF BOGS,RESERVOIRS, MARSH = 248.00 ACRES
TOTAL DISTURBED/AGRICULTURAL AREA = 48.00 ACRES
TOTAL ACREAGE OF PROPERTY = 800.00 ACRES

OWNER:
NEW JERSEY CONSERVATION FOUNDATION
170 LONGVIEW ROAD
FAR HILLS. NJ 07931

JONES ROAD or OLD TUCKERTON ROAD

BAPTIST ROAD

WOODLAND

FIELDS

RESIDENTIAL

BOGS

FIELDS

FIELDS

FIELDS

match line with Oak Meadows Section

FIELDS

FIELDS

M1

PPSO-1

20' FIREBREAK

PPlo-2

PPlo-1

MAP-2

PPSO-2

ARPINS FOREST EDGE ROAD

DIS-2

DIS-3

DIS-1

DIS-1

RESERVOIR

MARSH-3

PMC-3

RESERVOIR

CED-2

SHOAL BRANCH

PMC-4

SYKES BRANCH

PPSO-3

BOGS

PPlo-3

LAURIES ROAD

LONGVIEW ROAD

BOGS

PMC-2

MARSH-2

SHREVE BRANCH

WOODLAND

WOODED RESIDENTIAL

MAP-1

BRANCH

CED-1

MARSH-1

DIS-4

WOODLAND

PMC-1

ROBERT R. WILLIAMS
NEW JERSEY PROFESSIONAL PLANNER, RPP NO. 341 DATE
CERTIFIED ENVIRONMENTAL PROFESSIONAL, CEP NO. 2761
PROFESSIONAL WETLAND SCIENTIST, CERT. NO. 510

LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
STATE OF NEW JERSEY CERTIFICATE OF AUTHORIZATION NO. GA 276703
6 EAST HIGH STREET
GLASSBORO, NEW JERSEY 08028
(856) 307-7200
FAX (856) 307-7205

PREPARED BY:
DATE: MARCH, 2010
SCALE: 1"=1,000'

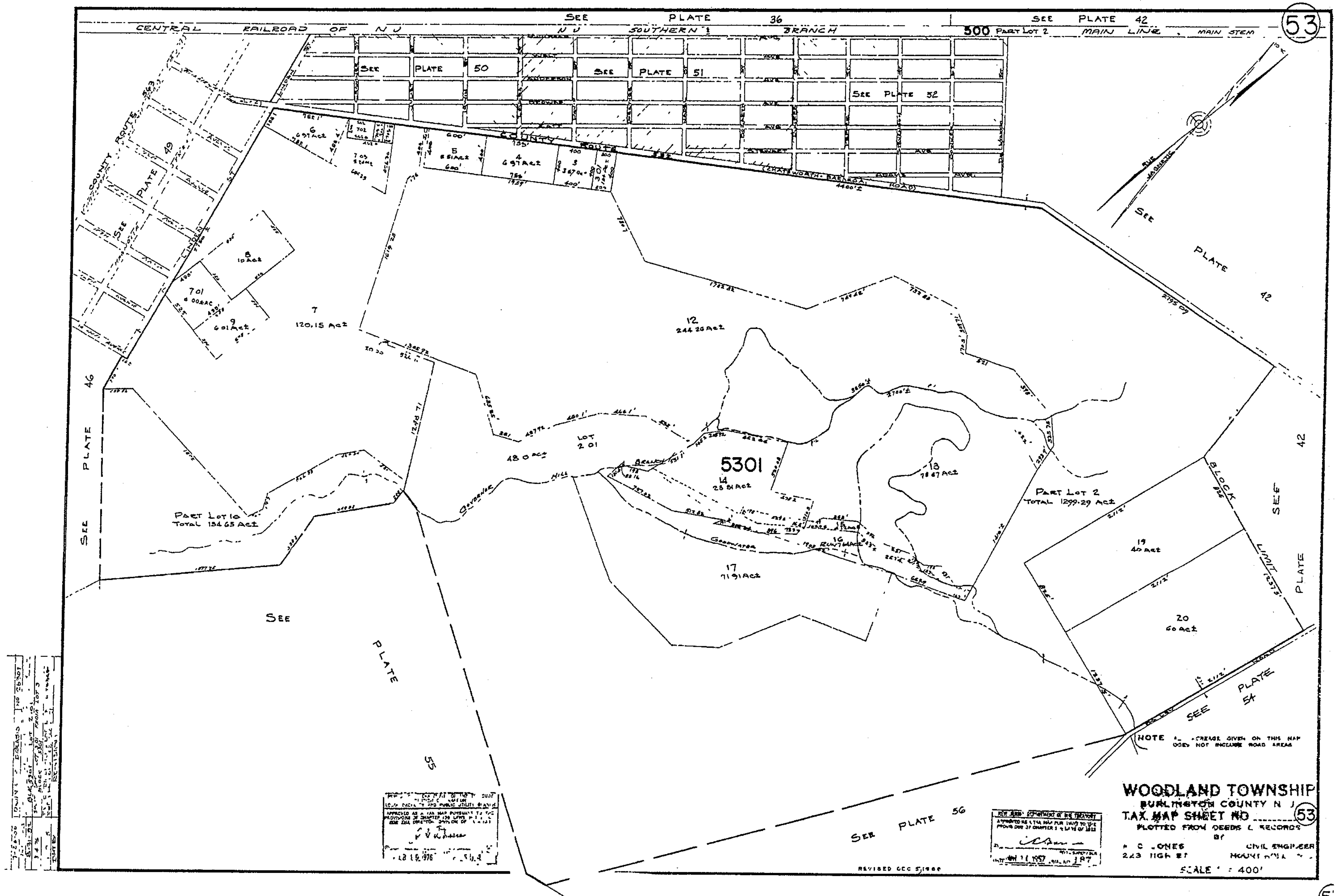
ARPINS SECTION
TRACTS 7 & 8
SITUATE
WOODLAND TOWNSHIP
BURLINGTON COUNTY, NEW JERSEY

F-1633

Good Water Run Section

Franklin Parker Preserve: Good Water Run Section

Township	Block	Lot
Woodland	5301	2.01, 7, 8, 9, 12, 13, 14, 15, 16, 19 & 20


53
SEE PLATE 36
SEE PLATE 42
CENTRAL RAILROAD OF N J
N J SOUTHERN BRANCH
500 PART LOT 2
MAIN LINE
MAIN STEM
SEE PLATE 50
SEE PLATE 51
SEE PLATE 52
COUNTY ROUTE 532
(CHATSWORTH - BARNEGAT ROAD)
COUNTY ROUTE 563
SEE PLATE 49
SEE PLATE 46
SEE PLATE 42
SEE PLATE 54
SEE PLATE 55
SEE PLATE 56
BLOCK LIMIT
5301
6 6.97 Ac±
5 5.5 Ac±
4 6.97 Ac±
3 3.67 Ac±
7 120.15 Ac±
8 10 Ac±
701 6.00 Ac
9 6.01 Ac±
12 244.29 Ac±
LOT 201 48.0 Ac±
14 28.81 Ac±
13 78.67 Ac±
17 71.91 Ac±
PART LOT 2 TOTAL 1299.29 Ac±
19 40 Ac±
20 60 Ac±
PART LOT 10 TOTAL 134.65 Ac±
NOTE ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
WOODLAND TOWNSHIP
BURLINGTON COUNTY N J
TAX MAP SHEET NO 53
PLOTTED FROM DEEDS & RECORDS
SCALE 1" = 400'
REVISED DEC 5 1966
5

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

Chris Christie
Governor

Kim Guadagno
Lt. Governor

General Information: Info@njpines.state.nj.us
Application Specific Information: AppInfo@njpines.state.nj.us

Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

June 19, 2013

Russell Juelg
New Jersey Conservation Foundation
FPP Office
79 Grassy Lake Road
Shamong, NJ 08088

Re: Application # 1983-4193.012
Block 5301, Lots 2.01, 7 - 9, 12 - 16,
& 19 - 20
Good Water Run Section Franklin Parker Preserve
Woodland Township

Dear Mr. Juelg:

Thank you for your May 16, 2013 email concerning threatened and endangered species and the development of a Forest Stewardship Management Plan for the above referenced parcel.

Your email did not provide any information regarding soil disturbance required for the proposed forestry, or any information about the proposed forestry plan.

We have reviewed our records, along with the Natural Heritage Database report dated May 9, 2013, for threatened/endangered species on and in the immediate vicinity of the above referenced parcel. Based on review of these records, any submitted forestry plan for the subject parcel should address how the proposed forestry activities are consistent with the protection of Bobcat, Bald eagle (nesting), Barred owl, Timber rattlesnake, Northern pine snake, Corn snake, Pine Barrens treefrog, Pine Barren gentian, Hairy Primrose-willow, Fringed Yellow-eyed grass, Bog asphodel, New Jersey rush, Long's woolgrass, Curly grass fern, and False asphodel.

Because of the confirmed threatened and endangered species sitings on the parcel, prior to developing your Forest Stewardship Management Plan, you may wish to provide our office with a brief description of the type of forestry activities which you anticipate proposing on the parcels, including the general location of the proposed activities, the type of harvesting proposed and the methods of harvesting from each area. Additionally, you may want to provide the results of any threatened and endangered species studies that New Jersey Conservation Foundation has conducted. This information will enable us to determine what level of information will be required to address threatened and endangered species. For example, the level of information necessary to address threatened and endangered species would be different if it is proposed to clear cut large stands as opposed to selective thinning for firewood cordage.

I hope this information will be helpful as you devise your stewardship plan. If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Jean Montgomerie
Environmental Specialist

JM/KY
c: Bob Williams, Land Dimensions Engineering

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
State Forestry Services
Mail Code 501-04
ONLM -Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. #609-984-1339
Fax. #609-984-1427

BOB MARTIN
Commissioner

May 9, 2013

G. Russell Juelg
New Jersey Conservation Foundation
170 Longview Road
Far Hills, NJ 07931

Re: Franklin Parker Preserve Forest Stewardship Plan - Goodwater Run Section

Dear Mr. Juelg:

Thank you for your data request regarding rare species information for the above referenced project site in Woodland Township, Burlington County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the vicinity of the site.

A list of rare plant species and ecological communities that have been documented from Burlington County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

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PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 13-3907475-3261

Table 1: On Site Data Request Search Results (7 Possible Reports)

Rare Plants/Ecological Communities Possibly On Site:	Yes
Rare Plants/Ecological Communities On Site/Immediate Vicinity:	Yes
Natural Heritage Priority Sites On Site:	Yes
Landscape 3.1 Species Based Patches On Site:	Yes
Landscape 3.1 Vernal Pool Habitat On Site:	Yes
Landscape 3.1 Stream/Mussel Habitat On Site:	No
Other Animals Tracked by ENSP On Site:	Yes

Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database

Scientific Name	Common Name	Federal Protection	State Protection	Regional Status	Grank	Srank	Identified	Last Observed	Location
Terrestrial Community - Other Classification									
Pinus rigida / Quercus (marilandica, ilicifolia) / Pyxidanthera barbulata Woodland	New Jersey Pitch Pine / Scrub Oak Barren			HL	G2	S2	Y - Yes	2003-??-??	Several patches (with less than 1 km separation between adjacent patches) are located within West Plains Fireshed between the villages of Chatsworth, Woodmansie, Cedar Bridge, Warren Grove and Sim Place. West Plains Fireshed is roughly bound on the north by Old Halfway Road and claybelt, on the south and east by Oswego River, and on the west by West Branch Wading River, but straddling Shoal Branch.
Pinus rigida saturated woodland alliance	Pitch Pine Lowlands (Undifferentiated)				G3	S3	Y - Yes	2003-??-??	From 0.25 to 5.0 miles east of Chatsworth, in scattered patches of lowland with less than 1 km separation, surrounding Risley Branch and Shoal Branch.

Total number of records: 2

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Non-breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Allegheny River Cruiser	Macromia alleghaniensis	Exuviae Sighting	2	NA	Special Concern	G4	S3
	Allegheny River Cruiser	Macromia alleghaniensis	Territorial Display	2	NA	Special Concern	G4	S3
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1202

Total number of records: 1

Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Agrotis buchholzi	Buchholz's Dart Moth			G2	S2
Total number of records: 1					
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Total number of records: 2					

Table 2: Vicinity Data Request Search Results (6 possible reports)

Rare Plants/Ecological Communities within the Vicinity:	Yes
Natural Heritage Priority Sites within the Vicinity:	Yes
Landscape 3.1 Species Based Patches within the Vicinity:	Yes
Landscape 3.1 Vernal Pool Habitat within the Vicinity:	Yes
Landscape 3.1 Stream/Mussel Habitat within the Vicnity:	No
Other Animals Tracked by ENSP within the Vicnity:	Yes

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Non-breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Wintering	3	NA	State Threatened	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Black-throated Green Warbler	Dendroica virens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Broad-winged Hawk	Buteo platypterus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Wood Thrush	Hylocichla	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Allegheny River Cruiser	Macromia alleghaniensis	Exuviae Sighting	2	NA	Special Concern	G4	S3
	Allegheny River Cruiser	Macromia alleghaniensis	Territorial Display	2	NA	Special Concern	G4	S3
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Dotted Skipper	Hesperia attalus slossonae	Nectaring	2	NA	Special Concern	G3G4T3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

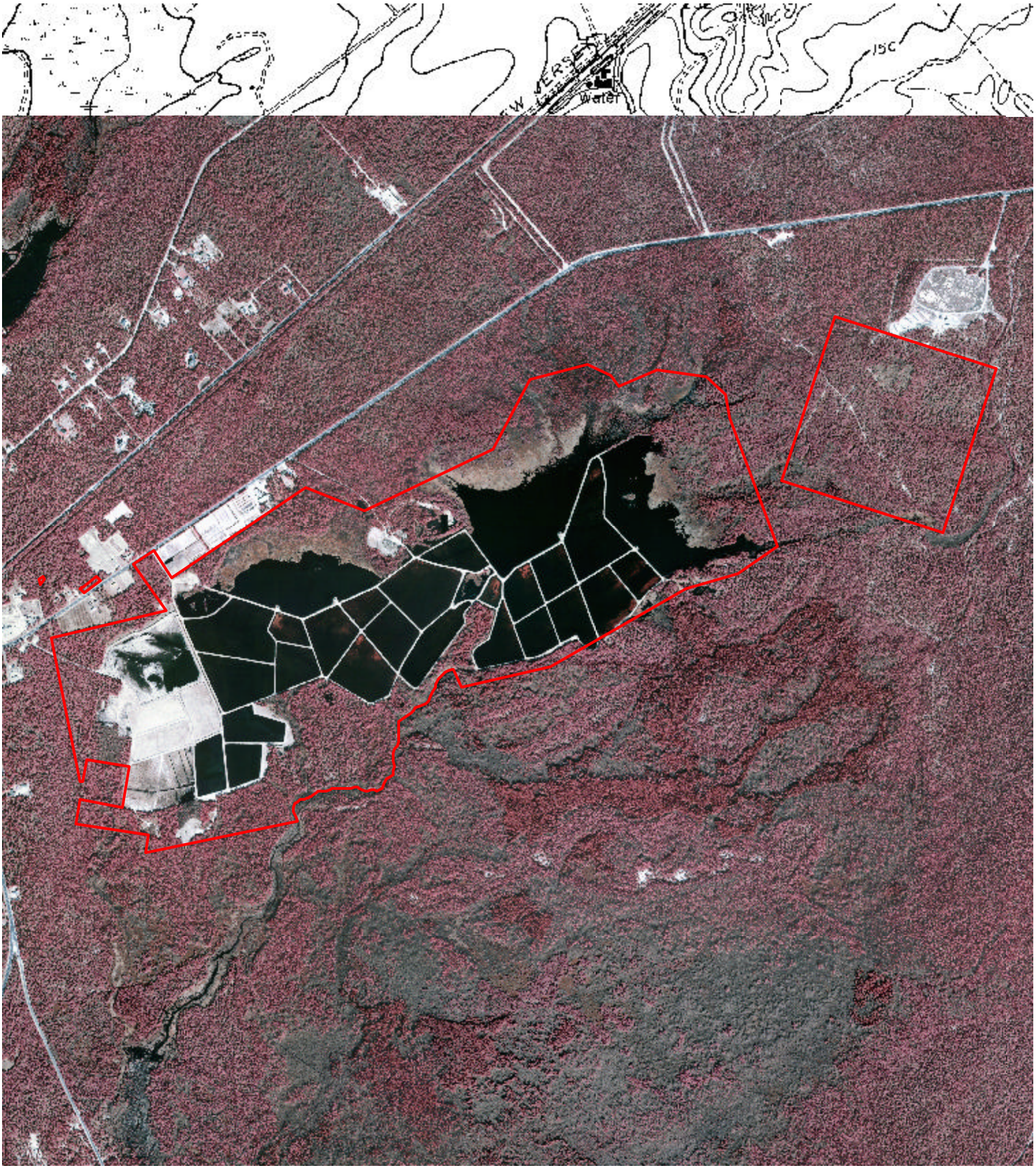
Vernal Pool Habitat
In the Immediate Vicinity of Project Site
Based on Search of
Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Vernal habitat area	1210
Potential vernal habitat area	1202

Total number of records: 2

Other Animal Species
In the Immediate Vicinity of the Project Site Based on
Additional Species Tracked by
Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Agrotis buchholzi	Buchholz's Dart Moth			G2	S2
Agrotis buchholzi	Buchholz's Dart Moth			G2	S2
Total number of records: 2					
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Total number of records: 3					



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

LOCATION MAP

SCALE: 1"=1,600'

LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

GOODWATER RUN SECTION

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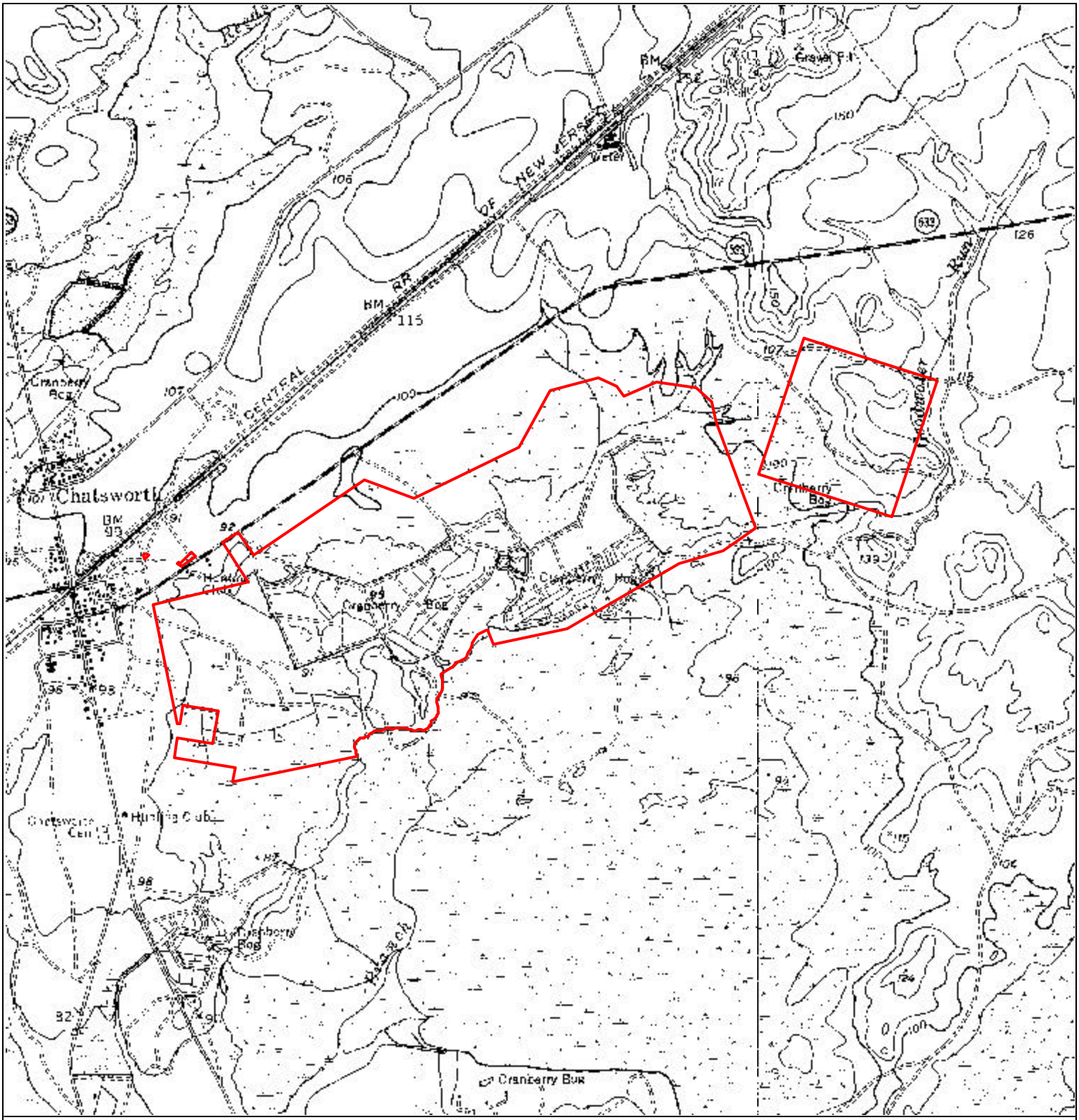
F1633



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

CHATSWORTH & WOODMANSIE NJ USGS QUAD MAPS

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING

PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

EASTING: 490,000
NORTHING: 360,000

GOODWATER RUN SECTION

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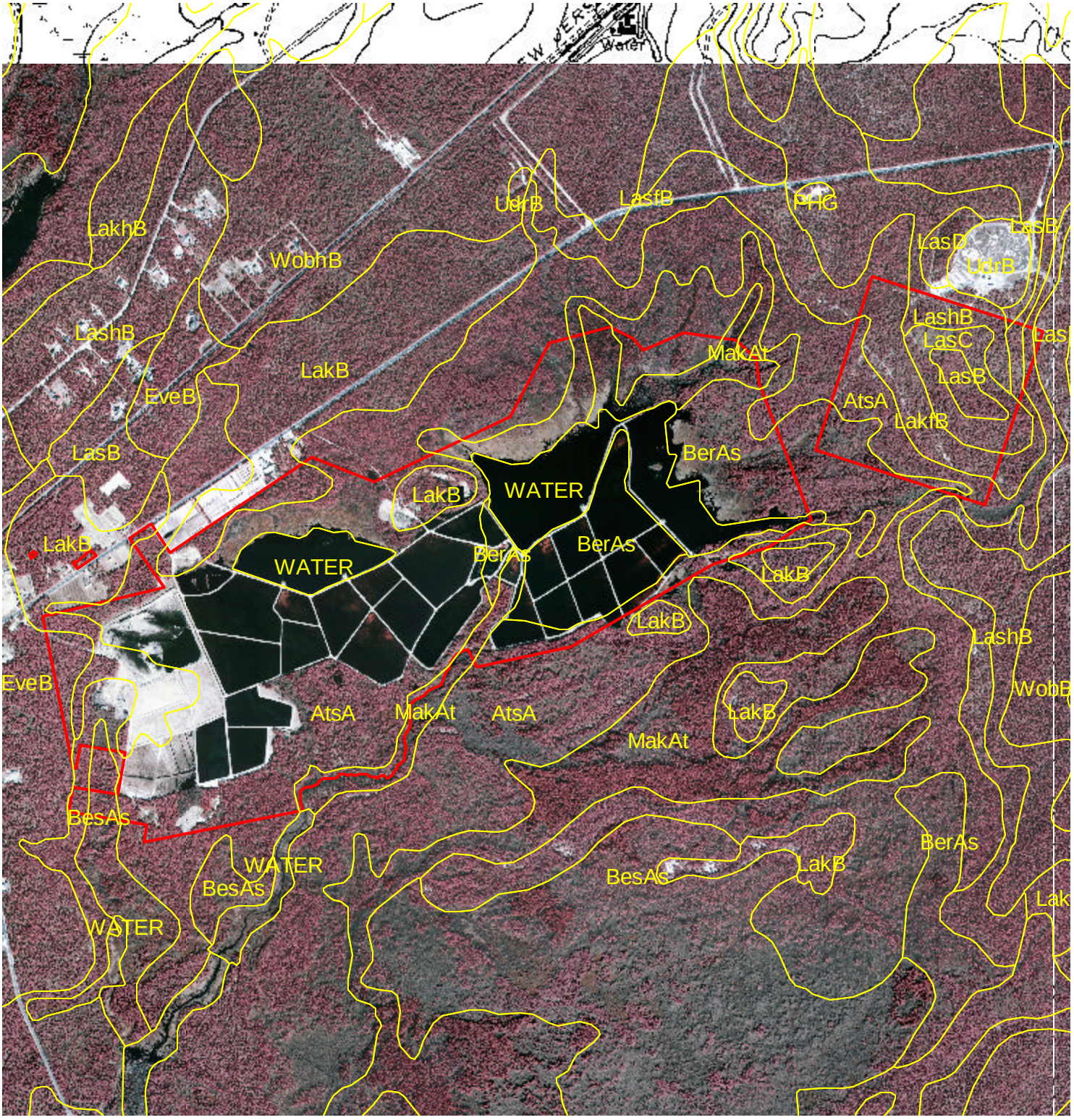

VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

BURLINGTON COUNTY SOIL MAP

SCALE: 1"=1,600'

LAND DIMENSIONS ENGINEERING

PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

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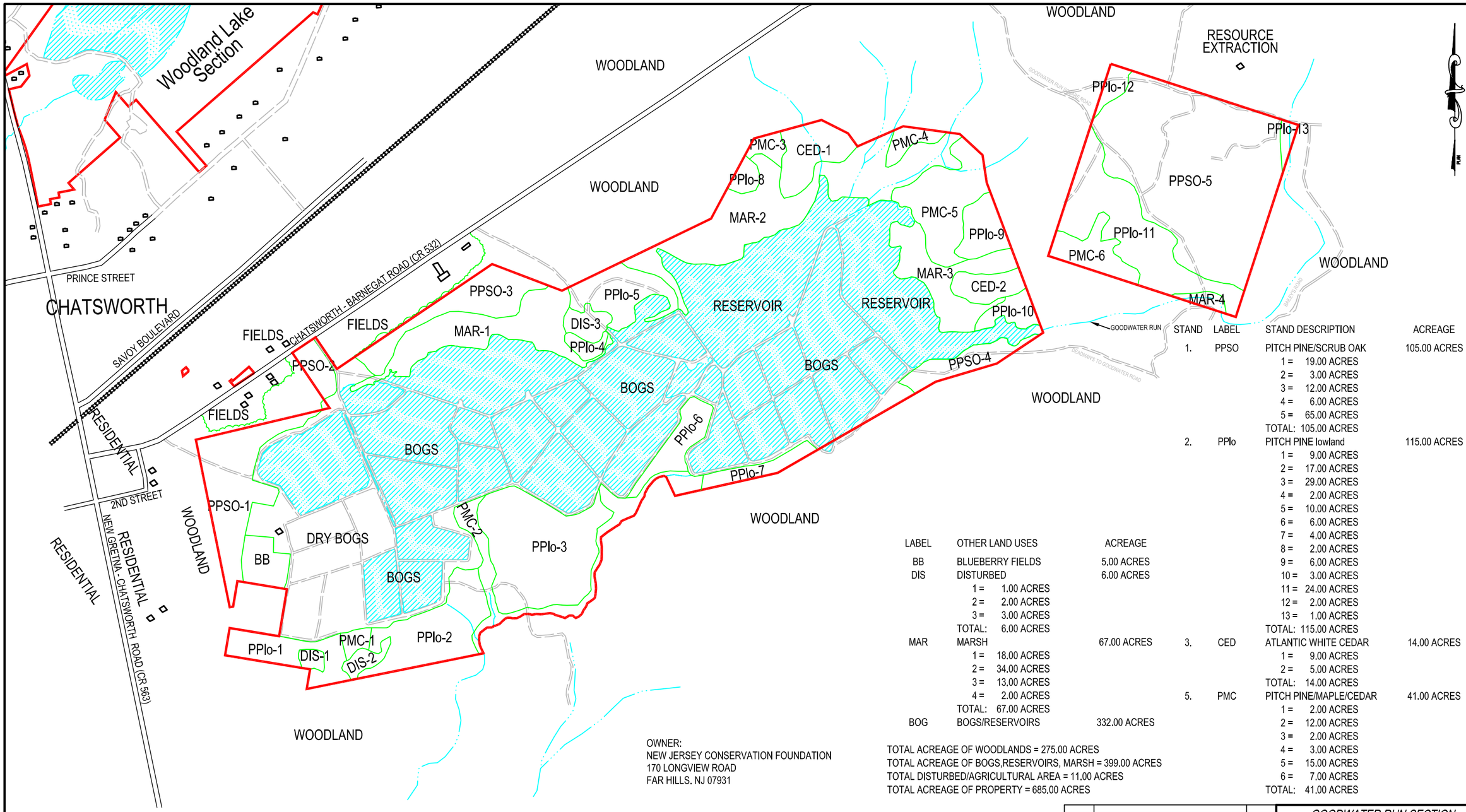
GOODWATER RUN SECTION

F1633



OWNER:
NEW JERSEY CONSERVATION FOUNDATION
170 LONGVIEW ROAD
FAR HILLS. NJ 07931

FOREST MANAGEMENT AND STEWARDSHIP PLAN

NOTE: THIS PLAN IS TO BE USED FOR FOREST MANAGEMENT PURPOSES ONLY AND NOT FOR LAND SURVEY

STAND	LABEL	STAND DESCRIPTION	ACREAGE
1.	PPSO	PITCH PINE/SCRUB OAK	105.00 ACRES
		1 = 19.00 ACRES	
		2 = 3.00 ACRES	
		3 = 12.00 ACRES	
		4 = 6.00 ACRES	
		5 = 65.00 ACRES	
		TOTAL: 105.00 ACRES	
2.	PPIo	PITCH PINE lowland	115.00 ACRES
		1 = 9.00 ACRES	
		2 = 17.00 ACRES	
		3 = 29.00 ACRES	
		4 = 2.00 ACRES	
		5 = 10.00 ACRES	
		6 = 6.00 ACRES	
		7 = 4.00 ACRES	
		8 = 2.00 ACRES	
		9 = 6.00 ACRES	
		10 = 3.00 ACRES	
		11 = 24.00 ACRES	
		12 = 2.00 ACRES	
		13 = 1.00 ACRES	
		TOTAL: 115.00 ACRES	
3.	CED	ATLANTIC WHITE CEDAR	14.00 ACRES
		1 = 9.00 ACRES	
		2 = 5.00 ACRES	
		TOTAL: 14.00 ACRES	
5.	PMC	PITCH PINE/MAPLE/CEDAR	41.00 ACRES
		1 = 2.00 ACRES	
		2 = 12.00 ACRES	
		3 = 2.00 ACRES	
		4 = 3.00 ACRES	
		5 = 15.00 ACRES	
		6 = 7.00 ACRES	
		TOTAL: 41.00 ACRES	

LABEL	OTHER LAND USES	ACREAGE
BB	BLUEBERRY FIELDS	5.00 ACRES
DIS	DISTURBED	6.00 ACRES
	1 = 1.00 ACRES	
	2 = 2.00 ACRES	
	3 = 3.00 ACRES	
	TOTAL: 6.00 ACRES	
MAR	MARSH	67.00 ACRES
	1 = 18.00 ACRES	
	2 = 34.00 ACRES	
	3 = 13.00 ACRES	
	4 = 2.00 ACRES	
	TOTAL: 67.00 ACRES	
BOG	BOGS/RESERVOIRS	332.00 ACRES

TOTAL ACREAGE OF WOODLANDS = 275.00 ACRES
TOTAL ACREAGE OF BOGS,RESERVOIRS, MARSH = 399.00 ACRES
TOTAL DISTURBED/AGRICULTURAL AREA = 11.00 ACRES
TOTAL ACREAGE OF PROPERTY = 685.00 ACRES

GOODWATER RUN SECTION
TRACTS 3 THRU 6
SITUATE
WOODLAND TOWNSHIP
BURLINGTON COUNTY, NEW JERSEY
DATE: MARCH, 2010 *SCALE: 1"=1,000'*

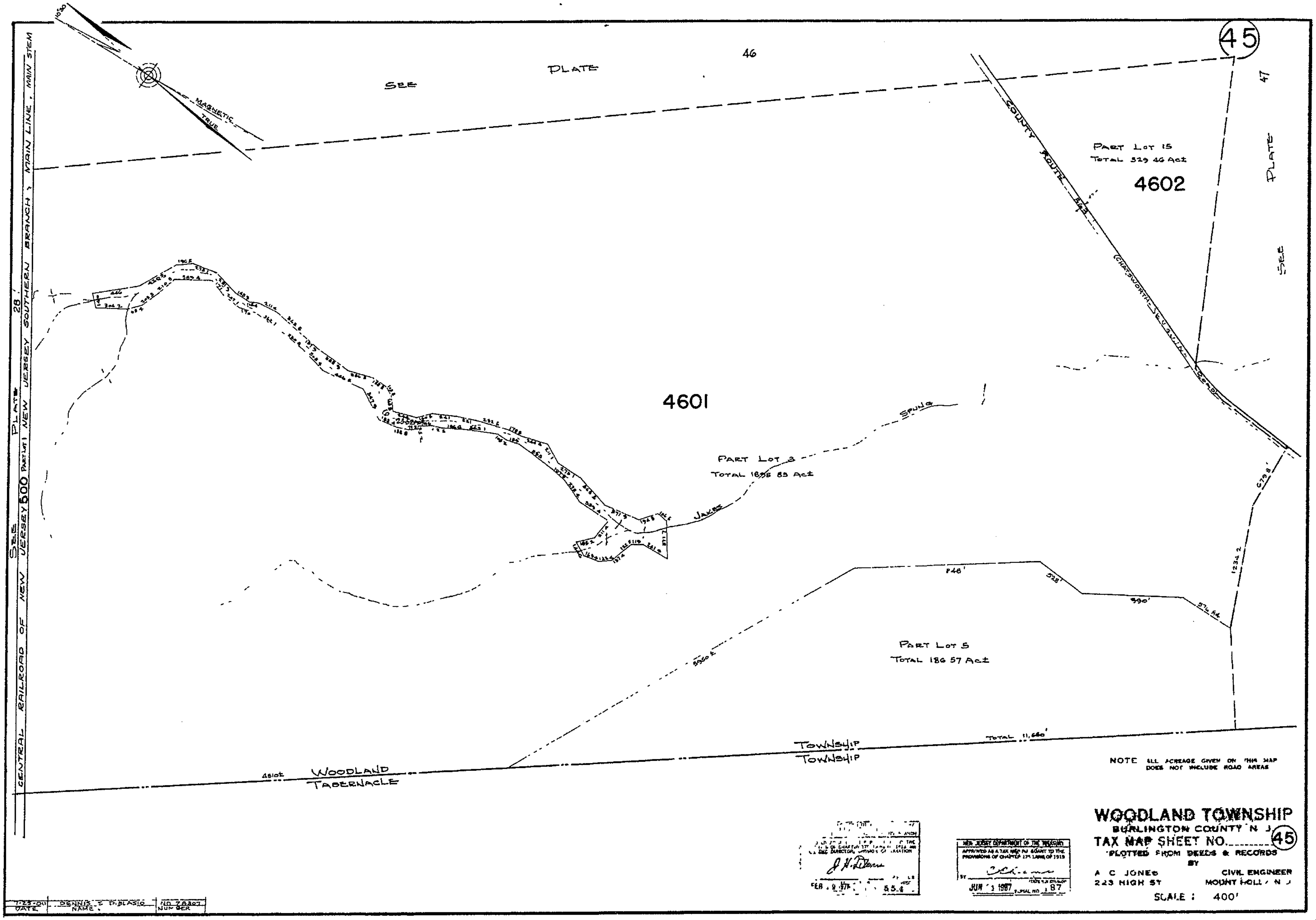
PREPARED BY:
LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
STATE OF NEW JERSEY CERTIFICATE OF AUTHORIZATION NO. GA 278703
6 EAST HIGH STREET
GLASSBORO, NEW JERSEY 08028
(856) 307-7800
FAX (856) 307-7805
F-1633

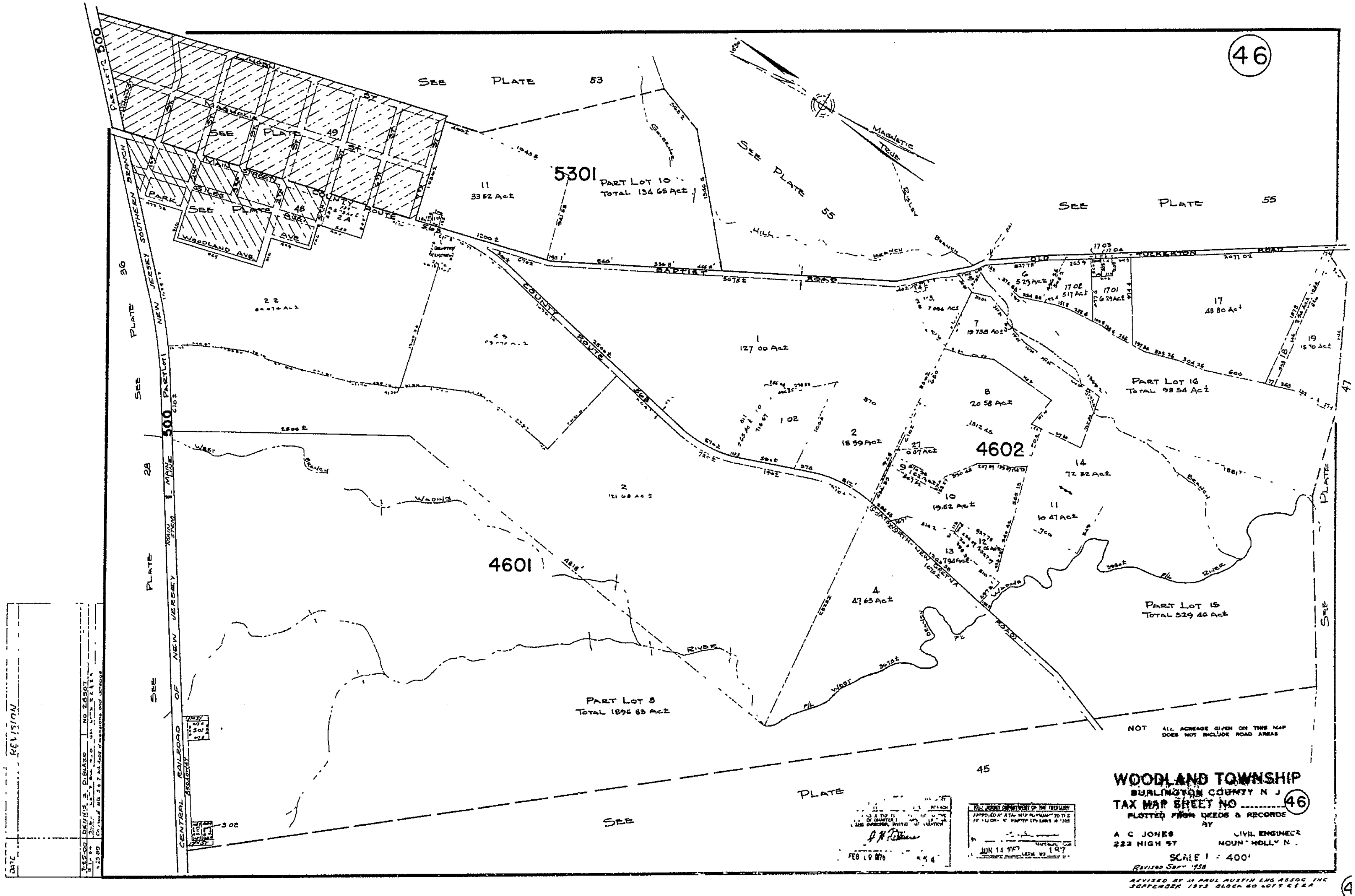
ROBERT R. WILLIAMS DATE
REGISTERED PROFESSIONAL FORESTER, RFP NO. 341
CERTIFIED ENVIRONMENTAL PROFESSIONAL, CERT. NO. 2761
PROFESSIONAL WETLAND SCIENTIST, CERT. NO. 510

Oak Meadows Section

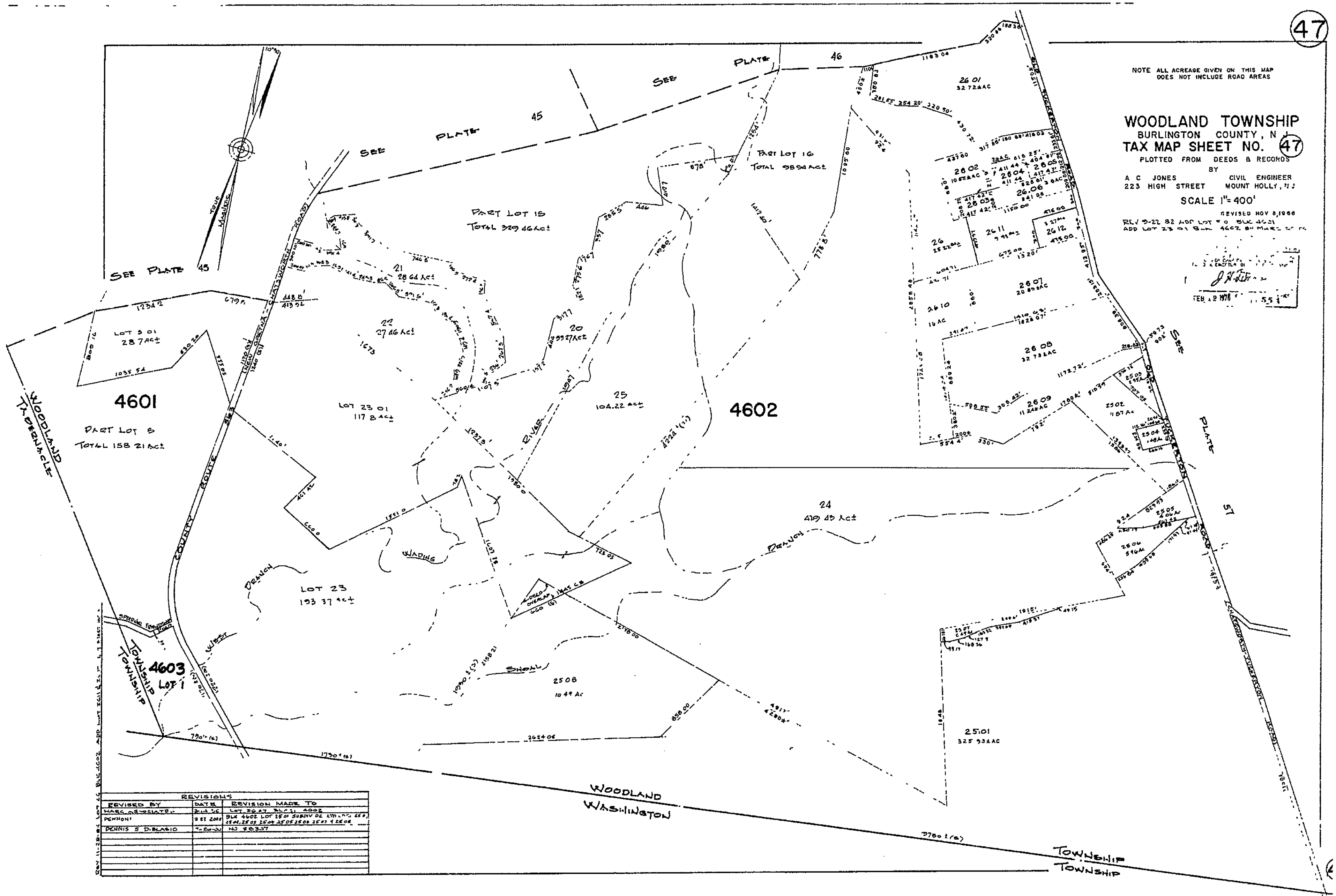
Franklin Parker Preserve: Oak Meadows Section

Township	Block	Lot
Woodland	4602	1, 5, 9, 10, 14, 15, 16, 17, 17.02, 18, 19, 20, 21, 22, 23.01, 24, 25, 25.02, 25.03, 25.05
Woodland	5301	42.01


SEE PLATE 46
45
47
SEE PLATE
CENTRAL RAILROAD OF NEW JERSEY 500 PART LOT 1 NEW JERSEY SOUTHERN BRANCH, MAIN LINE, MAIN STEM
SEE PLATE 28
MAGNETIC
TRUE
COUNTY ROUTE
CHATSWORTH - SPEEDWELL ROAD
PART LOT 15
TOTAL 329 46 Ac±
4602
4601
PART LOT 3
TOTAL 1898 83 Ac±
JAKES
SPUNG
PART LOT 5
TOTAL 186 57 Ac±
WOODLAND
TABERNACLE
TOWNSHIP
TOWNSHIP
TOTAL 11,660'
NOTE ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
WOODLAND TOWNSHIP
BURLINGTON COUNTY N J
TAX MAP SHEET NO. 45
PLOTTED FROM DEEDS & RECORDS
BY
A C JONES CIVIL ENGINEER
223 HIGH ST MOUNT HOLLY, N J
SCALE : 400'
NEW JERSEY DEPARTMENT OF THE TREASURY
APPROVED AS A TAX MAP IN ACCORDANCE TO THE PROVISIONS OF CHAPTER 171 LAWS OF 1913
JUN 3 1987
FEB 9 1976
7-23-01
DATE
DENNIS S DIBLASIO
NAME
NO 78807
NUMBER



46
SEE PLATE 53
SEE PLATE 55
SEE PLATE 55
SEE PLATE 49
SEE PLATE 48
SEE PLATE 36
SEE PLATE 28
SEE PLATE 45
SEE PLATE 47
5301
PART LOT 10
TOTAL 134 65 Act
11
33 52 Act
4601
PART LOT 3
TOTAL 1896 88 Act
4602
PART LOT 15
TOTAL 329 46 Act
PART LOT 16
TOTAL 98 54 Act
17
48 80 Act
19
1
127 00 Act
2
18 99 Act
8
20 58 Act
4
47 63 Act
10
19.62 Act
14
72 82 Act
11
10 47 Act
7
19 738 Act
CENTRAL RAILROAD OF NEW JERSEY MAIN STEM MAIN LINE
NEW JERSEY SOUTHERN BRANCH
500 PART LOT 1
PART LOT 2 500
COUNTY ROUTE
BAPTIST ROAD
OLD TUCKERTON ROAD
WOODLAND AVE
MAIN STREET
WADING
RIVER
WEST BRANCH
MAGNETIC
TRUE
NOT ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
WOODLAND TOWNSHIP
BURLINGTON COUNTY N J
TAX MAP SHEET NO 46
PLOTTED FROM DEEDS & RECORDS
BY
A C JONES CIVIL ENGINEER
223 HIGH ST MOUNT HOLLY N.
SCALE 1" = 400'
Revised Sept 1958
REVISED BY M PAUL AUSTIN ENG ASSOC INC
SEPTEMBER 1973
DATE
REVISION
DENNIS S. DIBLASIO
NO 26507


47
NOTE ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
WOODLAND TOWNSHIP
BURLINGTON COUNTY, N.J.
TAX MAP SHEET NO. 47
PLOTTED FROM DEEDS & RECORDS
BY
A C JONES CIVIL ENGINEER
223 HIGH STREET MOUNT HOLLY, N.J.
SCALE 1"=400'
REVISED NOV 8,1966
SEE PLATE 45
SEE PLATE 46
SEE PLATE 57
4601
PART LOT 8
TOTAL 158 21 Ac±
LOT 8 01
28 7 Ac±
4602
4603
LOT 1
PART LOT 15
TOTAL 329 46 Ac±
PART LOT 16
TOTAL 98 54 Ac±
LOT 23
193 37 Ac±
LOT 23 01
117 8 Ac±
24
419 45 Ac±
25
104.22 Ac±
25.01
325 93±AC
25 08
10 49 Ac
2601
32 72±AC
2607
20 89±AC
2608
32 73±AC
2609
11 24±AC
2610
16 AC
2611
2612
COUNTY ROUTE 563
NEW GRETNA - CHATSWORTH ROAD
RIVER
WADING
WOODLAND
TABERNACLE
WASHINGTON
TOWNSHIP
REVISIONS
REVISED BY | DATE | REVISION MADE TO
PENNONI
DENNIS S DiBLASIO

State of New Jersey
THE PINELANDS COMMISSION
PO Box 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

Chris Christie
Governor

Kim Guadagno
Lt. Governor

General Information: Info@njpines.state.nj.us
Application Specific Information: AppInfo@njpines.state.nj.us

Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

June 20, 2013

Russell Juelg
New Jersey Conservation Foundation
FPP Office
79 Grassy Lake Road
Shamong, NJ 08088

Re: Application # 1983-4193.015
Block 4602, Lots 1, 5, 9 - 10, 14 - 17, 17.02,
18, 19 - 22, 23.01, 24 - 25,
25.02 - 25.03 & 25.05
Block 5301, Lot 42.01
Oak Meadow Section Franklin Parker Preserve
Woodland Township

Dear Mr. Juleg:

Thank you for your May 16, 2013 email concerning threatened and endangered species and the development of a Forest Stewardship Management Plan for the above referenced parcel.

Your email did not provide any information regarding soil disturbance required for the proposed forestry, or any information about the proposed forestry plan.

We have reviewed our records, along with the Natural Heritage Database report dated May 9, 2013, for threatened/endangered species on and in the immediate vicinity of the above referenced parcel. Based on review of these records, any submitted forestry plan for the subject parcel should address how the proposed forestry activities are consistent with the protection of Bobcat, Bald eagle, Red-headed woodpecker, Barred owl, Timber rattlesnake, Northern pine snake, Corn snake, Pine Barrens treefrog, Red milkweed, New Jersey rush, Bog asphodel, Pine Barren gentian, Pine Barren rattlesnake root, Silvery aster, Curly grass fern, and False asphodel, Wand-like goldenrod, Pine Barren bellwort, Hairy primrose willow, Long's woolgrass, Fringed yellow-eyed grass, Chaffseed.

Because of the confirmed threatened and endangered species sitings on the parcel, prior to developing your Forest Stewardship Management Plan, you may wish to provide our office with a brief description of the type of forestry activities which you anticipate proposing on the parcels, including the general location of the proposed activities, the type of harvesting proposed and the methods of harvesting from each area. Additionally, you may want to provide the results of any threatened and endangered species studies that New Jersey Conservation Foundation has conducted. This information will enable us to determine what level of information will be required to address threatened and endangered species. For

example, the level of information necessary to address threatened and endangered species would be different if it is proposed to clear cut large stands as opposed to selective thinning for firewood cordage.

I hope this information will be helpful as you devise your stewardship plan. If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Jean Montgomerie
Environmental Specialist

JM/KY
c: Bob Williams, Land Dimensions Engineering

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
State Forestry Services
Mail Code 501-04
ONLM -Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. #609-984-1339
Fax. #609-984-1427

BOB MARTIN
Commissioner

May 9, 2013

G. Russell Juelg
New Jersey Conservation Foundation
170 Longview Road
Far Hills, NJ 07931

Re: Franklin Parker Preserve Forest Stewardship Plan - Oak Meadows Section

Dear Mr. Juelg:

Thank you for your data request regarding rare species information for the above referenced project site in Woodland Township, Burlington County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the vicinity of the site.

A list of rare plant species and ecological communities that have been documented from Burlington County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive NJ-GeoWeb website at the following URL, http://www.state.nj.us/dep/gis/geowebsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 13-3907475-3262

Table 1: On Site Data Request Search Results (7 Possible Reports)

Rare Plants/Ecological Communities Possibly On Site:	Yes
Rare Plants/Ecological Communities On Site/Immediate Vicinity:	Yes
Natural Heritage Priority Sites On Site:	Yes
Landscape 3.1 Species Based Patches On Site:	Yes
Landscape 3.1 Vernal Pool Habitat On Site:	Yes
Landscape 3.1 Stream/Mussel Habitat On Site:	No
Other Animals Tracked by ENSP On Site:	Yes

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Non-breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Wintering	3	NA	State Threatened	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Black-throated Green Warbler	Dendroica virens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Broad-winged Hawk	Buteo platypterus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Allegheny River Cruiser	Macromia alleghaniensis	Exuviae Sighting	2	NA	Special Concern	G4	S3
	Allegheny River Cruiser	Macromia alleghaniensis	Territorial Display	2	NA	Special Concern	G4	S3
	Arogos Skipper	Atrytone arogos arogos	Breeding/Courtship	4	NA	State Endangered	G3T1T2	S1
	Arogos Skipper	Atrytone arogos arogos	Casual Flyby	4	NA	State Endangered	G3T1T2	S1
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Dotted Skipper	Hesperia attalus slossonae	Nectaring	2	NA	Special Concern	G3G4T3	S3

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Georgia Satyr	Neonympha helicta	Breeding/Courtship	2	NA	Special Concern	G3G4	S3
	Georgia Satyr	Neonympha helicta	Casual Flyby	2	NA	Special Concern	G3G4	S3
	Hessel's Hairstreak	Callophrys hesseli	Nectaring	2	NA	Special Concern	G3G4	S3
	Pine Barrens Bluet	Enallagma recurvatum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Occupied Habitat	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Occupied Habitat	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1145
Potential vernal habitat area	1117

Total number of records: 2

Other Animal Species
On the Project Site Based on
Additional Species Tracked by
Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2

Total number of records: 1

Table 2: Vicinity Data Request Search Results (6 possible reports)

Rare Plants/Ecological Communities within the Vicinity:	Yes
Natural Heritage Priority Sites within the Vicinity:	Yes
Landscape 3.1 Species Based Patches within the Vicinity:	Yes
Landscape 3.1 Vernal Pool Habitat within the Vicinity:	Yes
Landscape 3.1 Stream/Mussel Habitat within the Vicnity:	No
Other Animals Tracked by ENSP within the Vicnity:	Yes

Scientific Name	Common Name	Federal Protection	State Protection	Regional Status	Grank	Srank	Identified	Last Observed	Location
Pinus rigida-(p. echinata)-quercus spp./quercus (marilandica, ilicifolia) woodland	Pine-oak-shrub Oak Woodland (Pow)				G3	S3	Y - Yes	2003-??-??	A 723 acre patch within West Plains Fireshed located immediately southeast of Shoal Branch, on both the north and south sides of Chatsworth Road. The centroid is about 3.5 mi. southeast of Chastworth.

Total number of records: 4

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Non-breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Wintering	3	NA	State Threatened	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-billed Cuckoo	Coccyzus erythropthalmus	Breeding Sighting	2	NA	Special Concern	G5	S3B

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Black-throated Green Warbler	Dendroica virens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Broad-winged Hawk	Buteo platypterus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Wood Thrush	Hylocichla	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Allegheny River Cruiser	Macromia alleghaniensis	Exuviae Sighting	2	NA	Special Concern	G4	S3
	Allegheny River Cruiser	Macromia alleghaniensis	Territorial Display	2	NA	Special Concern	G4	S3
	Arogos Skipper	Atrytone arogos arogos	Breeding/Courtship	4	NA	State Endangered	G3T1T2	S1
	Arogos Skipper	Atrytone arogos arogos	Casual Flyby	4	NA	State Endangered	G3T1T2	S1
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Dotted Skipper	Hesperia attalus slossonae	Nectaring	2	NA	Special Concern	G3G4T3	S3
	Georgia Satyr	Neonympha helicta	Breeding/Courtship	2	NA	Special Concern	G3G4	S3
	Georgia Satyr	Neonympha helicta	Casual Flyby	2	NA	Special Concern	G3G4	S3

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Hessel's Hairstreak	Callophrys hesseli	Nectaring	2	NA	Special Concern	G3G4	S3
	Pine Barrens Bluet	Enallagma recurvatum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Occupied Habitat	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Occupied Habitat	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

Vernal Pool Habitat
In the Immediate Vicinity of Project Site
Based on Search of
Landscape Project 3.1

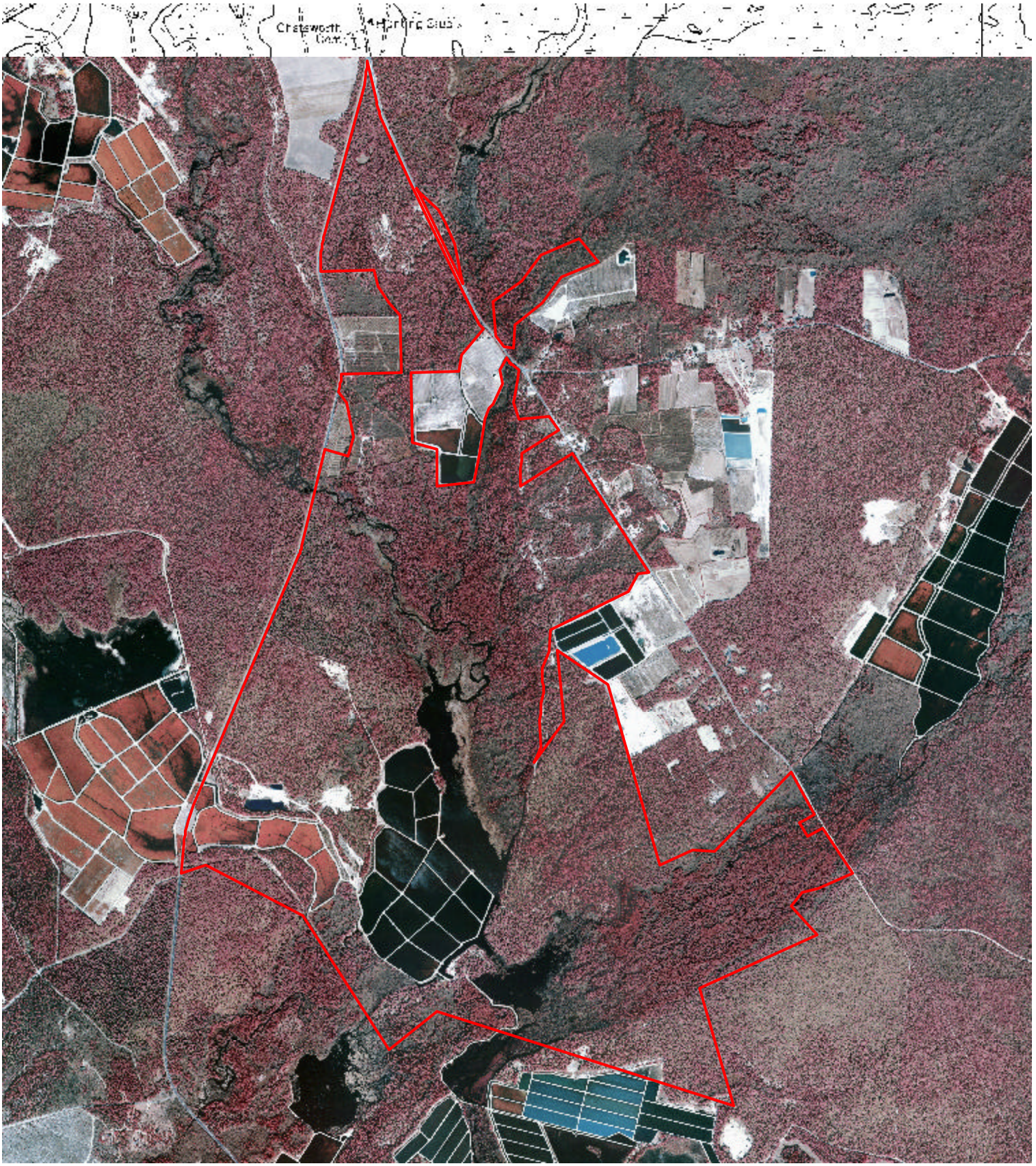
Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1123
Potential vernal habitat area	1145
Potential vernal habitat area	1172

Total number of records: 3

Other Animal Species
In the Immediate Vicinity of the Project Site Based on
Additional Species Tracked by
Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2

Total number of records: 1



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

LOCATION MAP

SCALE: 1"=2,000'

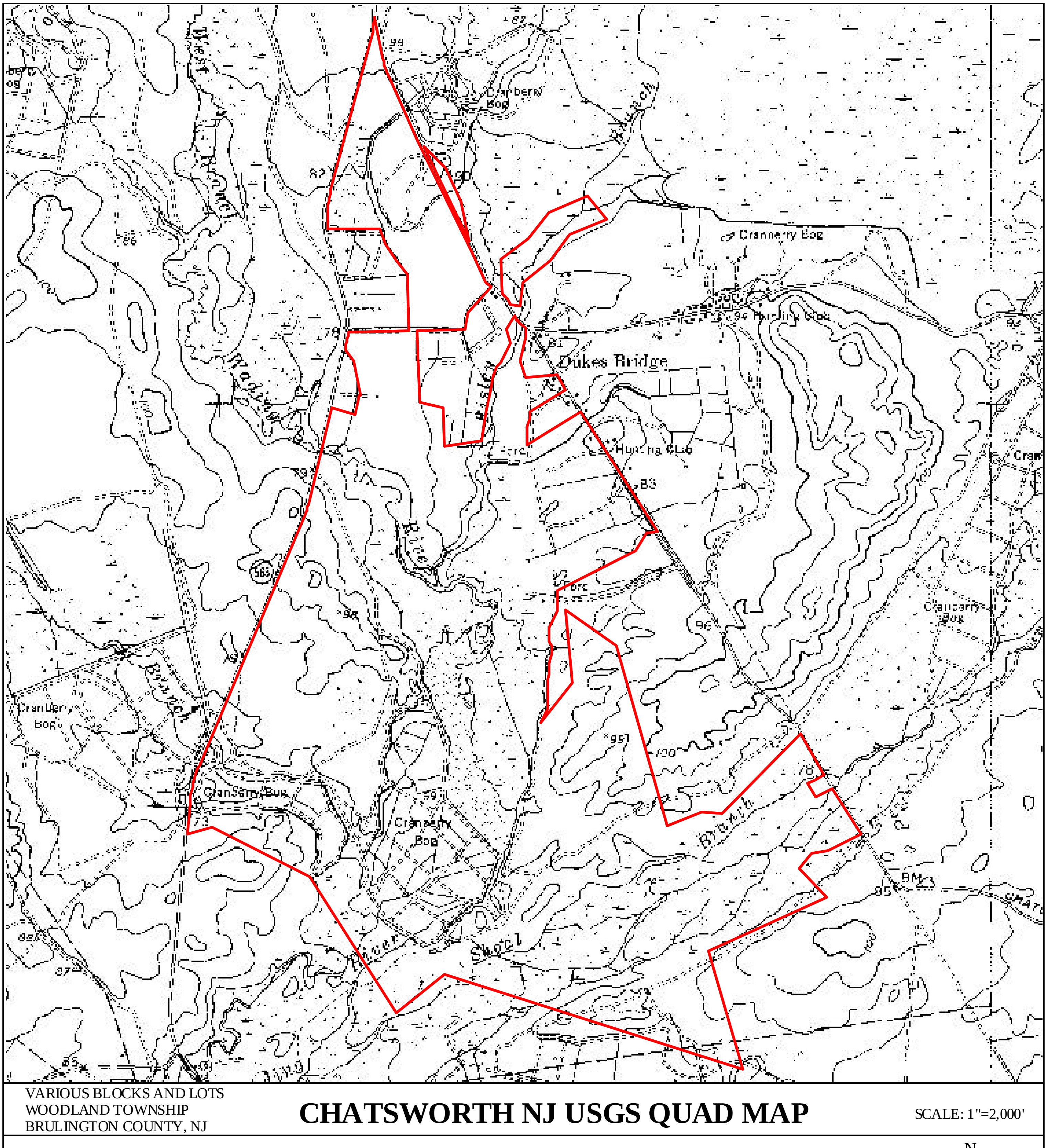
LAND DIMENSIONS ENGINEERING

PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

N
W E
S

OAK MEADOWS SECTION

F1633



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

CHATSWORTH NJ USGS QUAD MAP

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING

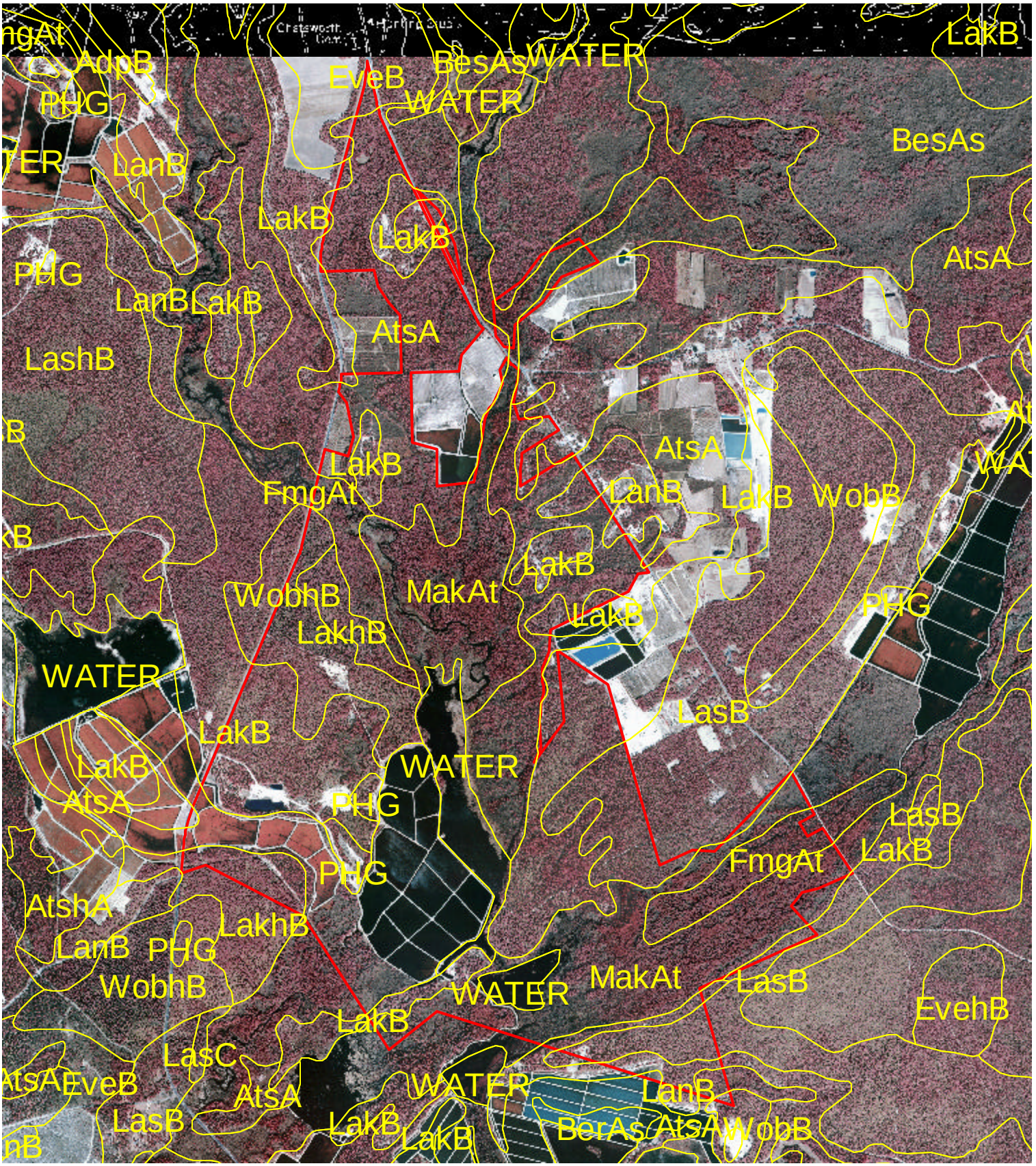
PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

EASTING: 485,000
NORTHING: 345,000

OAK MEADOWS SECTION

N
W E
S

F1633



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

BURLINGTON COUNTY SOIL SURVEY MAP

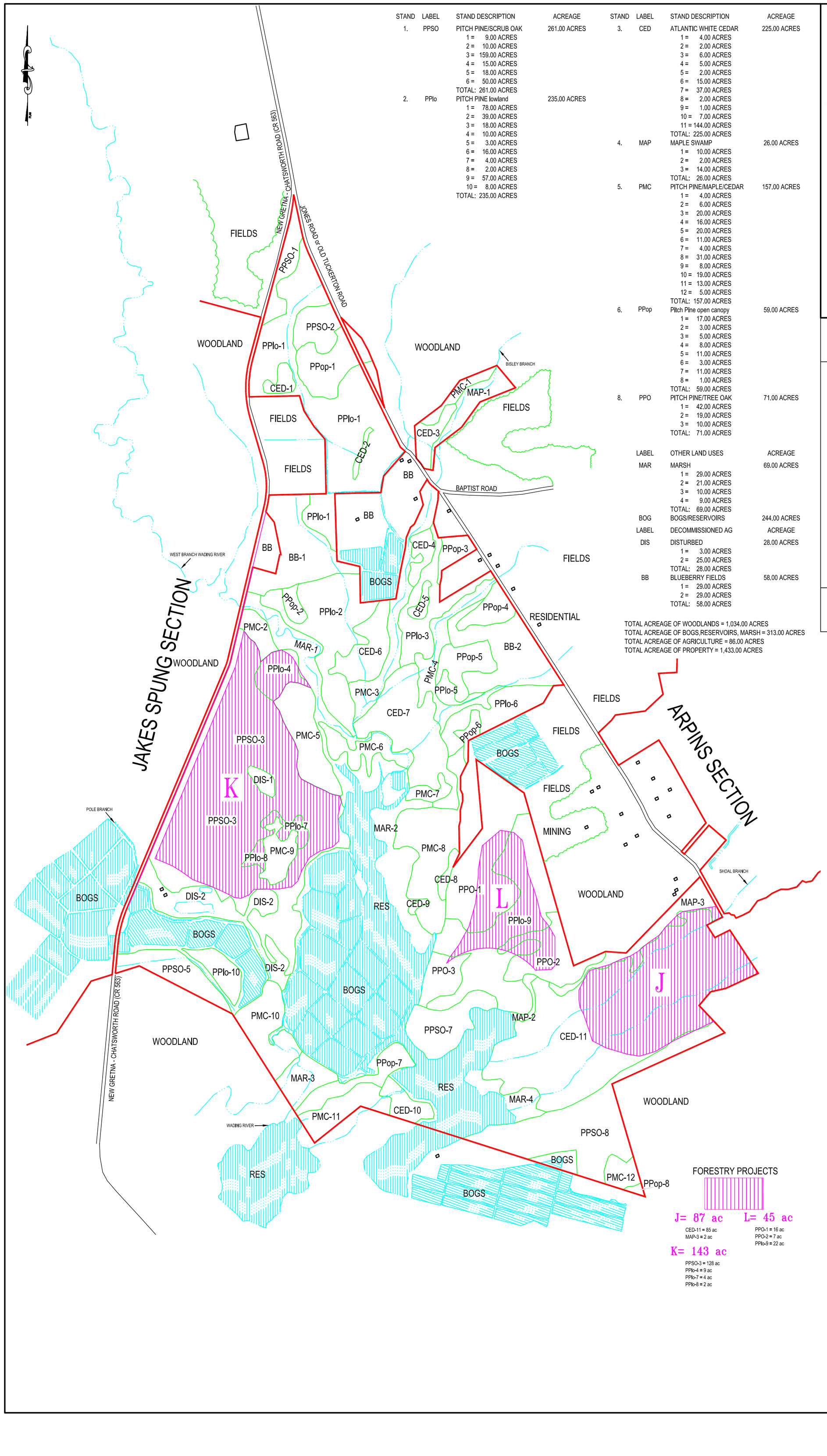
SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

OAK MEADOWS SECTION

N
W E
S

F1633



STAND	LABEL	STAND DESCRIPTION	ACREAGE
1.	PPSO	PITCH PINE/SCRUB OAK	261.00 ACRES
		1 = 9.00 ACRES	
		2 = 10.00 ACRES	
		3 = 159.00 ACRES	
		4 = 15.00 ACRES	
		5 = 18.00 ACRES	
		6 = 50.00 ACRES	
		TOTAL: 261.00 ACRES	
2.	PPIo	PITCH PINE lowland	235.00 ACRES
		1 = 78.00 ACRES	
		2 = 39.00 ACRES	
		3 = 18.00 ACRES	
		4 = 10.00 ACRES	
		5 = 3.00 ACRES	
		6 = 16.00 ACRES	
		7 = 4.00 ACRES	
		8 = 2.00 ACRES	
		9 = 57.00 ACRES	
		10 = 8.00 ACRES	
		TOTAL: 235.00 ACRES	

STAND	LABEL	STAND DESCRIPTION	ACREAGE
3.	CED	ATLANTIC WHITE CEDAR	225.00 ACRES
		1 = 4.00 ACRES	
		2 = 2.00 ACRES	
		3 = 6.00 ACRES	
		4 = 5.00 ACRES	
		5 = 2.00 ACRES	
		6 = 15.00 ACRES	
		7 = 37.00 ACRES	
		8 = 2.00 ACRES	
		9 = 1.00 ACRES	
		10 = 7.00 ACRES	
		11 = 144.00 ACRES	
		TOTAL: 225.00 ACRES	
4.	MAP	MAPLE SWAMP	26.00 ACRES
		1 = 10.00 ACRES	
		2 = 2.00 ACRES	
		3 = 14.00 ACRES	
		TOTAL: 26.00 ACRES	
5.	PMC	PITCH PINE/MAPLE/CEDAR	157.00 ACRES
		1 = 4.00 ACRES	
		2 = 6.00 ACRES	
		3 = 20.00 ACRES	
		4 = 16.00 ACRES	
		5 = 20.00 ACRES	
		6 = 11.00 ACRES	
		7 = 4.00 ACRES	
		8 = 31.00 ACRES	
		9 = 8.00 ACRES	
		10 = 19.00 ACRES	
		11 = 13.00 ACRES	
		12 = 5.00 ACRES	
		TOTAL: 157.00 ACRES	
6.	PPop	Pitch Pine open canopy	59.00 ACRES
		1 = 17.00 ACRES	
		2 = 3.00 ACRES	
		3 = 5.00 ACRES	
		4 = 8.00 ACRES	
		5 = 11.00 ACRES	
		6 = 3.00 ACRES	
		7 = 11.00 ACRES	
		8 = 1.00 ACRES	
		TOTAL: 59.00 ACRES	
8.	PPO	PITCH PINE/TREE OAK	71.00 ACRES
		1 = 42.00 ACRES	
		2 = 19.00 ACRES	
		3 = 10.00 ACRES	
		TOTAL: 71.00 ACRES	

LABEL	OTHER LAND USES	ACREAGE
MAR	MARSH	69.00 ACRES
	1 = 29.00 ACRES	
	2 = 21.00 ACRES	
	3 = 10.00 ACRES	
	4 = 9.00 ACRES	
	TOTAL: 69.00 ACRES	
BOG	BOGS/RESERVOIRS	244.00 ACRES
LABEL	DECOMMISSIONED AG	ACREAGE
DIS	DISTURBED	28.00 ACRES
	1 = 3.00 ACRES	
	2 = 25.00 ACRES	
	TOTAL: 28.00 ACRES	
BB	BLUEBERRY FIELDS	58.00 ACRES
	1 = 29.00 ACRES	
	2 = 29.00 ACRES	
	TOTAL: 58.00 ACRES	

TOTAL ACREAGE OF WOODLANDS = 1,034.00 ACRES
TOTAL ACREAGE OF BOGS,RESERVOIRS, MARSH = 313.00 ACRES
TOTAL ACREAGE OF AGRICULTURE = 86.00 ACRES
TOTAL ACREAGE OF PROPERTY = 1,433.00 ACRES

OWNER:
NEW JERSEY CONSERVATION FOUNDATION
170 LONGVIEW ROAD
FAR HILLS, NJ 07931

FORESTRY PROJECTS

J= 87 ac
CED-11 = 85 ac
MAP-3 = 2 ac

L= 45 ac
PPO-1 = 16 ac
PPO-2 = 7 ac
PPIo-9 = 22 ac

K= 143 ac
PPSO-3 = 128 ac
PPIo-4 = 9 ac
PPIo-7 = 4 ac
PPIo-8 = 2 ac

0 500 1000 2000
GRAPHIC SCALE

FOREST MANAGEMENT AND STEWARDSHIP PLAN
NOTE: THIS PLAN IS TO BE USED FOR FOREST MANAGEMENT PURPOSES ONLY AND NOT FOR LAND SURVEY

OAK MEADOWS SECTION
TRACTS 9 THRU 11

SITUATE
WOODLAND TOWNSHIP
BURLINGTON COUNTY, NEW JERSEY

DATE: MARCH, 2010
SCALE: 1"=1,000'

PREPARED BY:
LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
STATE OF NEW JERSEY CERTIFICATE OF AUTHORIZATION NO. GA 276703
6 EAST HIGH STREET
GLASSBORO, NEW JERSEY 08028
(856) 307-7800
FAX (856) 307-7805

F-1633

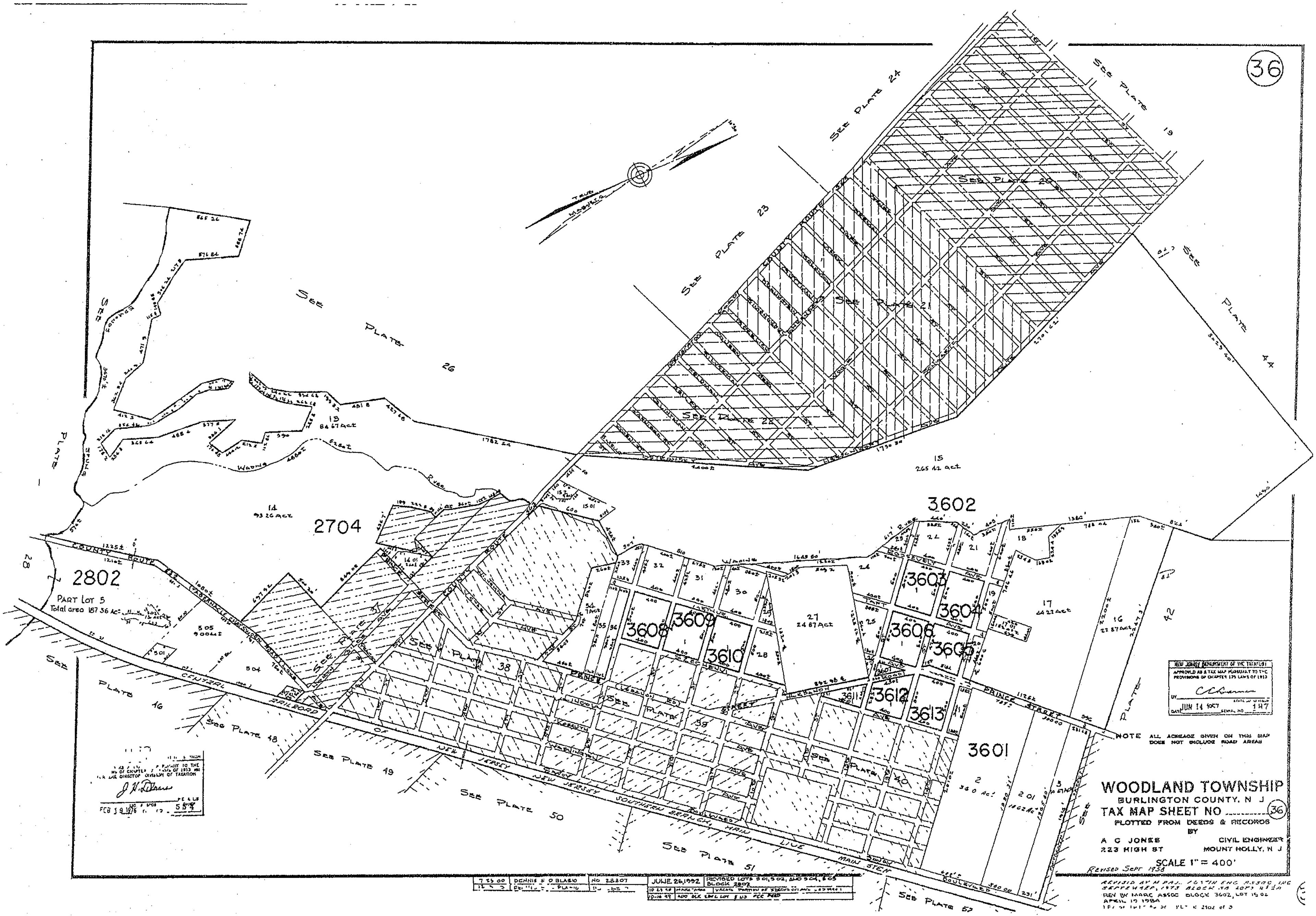
ROBERT R. WILLIAMS
REGISTERED PROFESSIONAL FORESTER, RFP NO. 341
CERTIFIED ENVIRONMENTAL PROFESSIONAL, CERT. NO. 2761
PROFESSIONAL WETLAND SCIENTIST, CERT. NO. 510

DATE

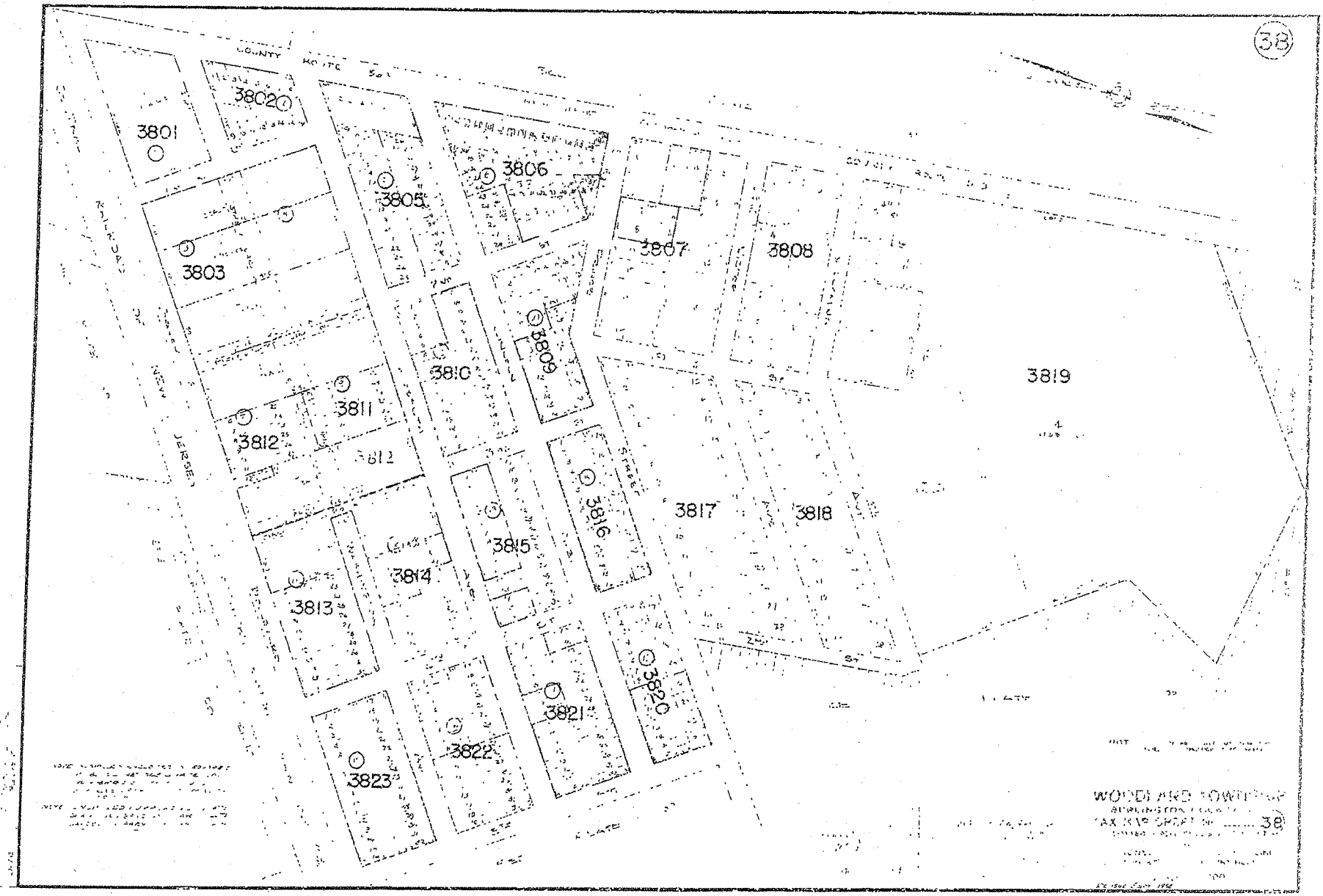
Woodland Section

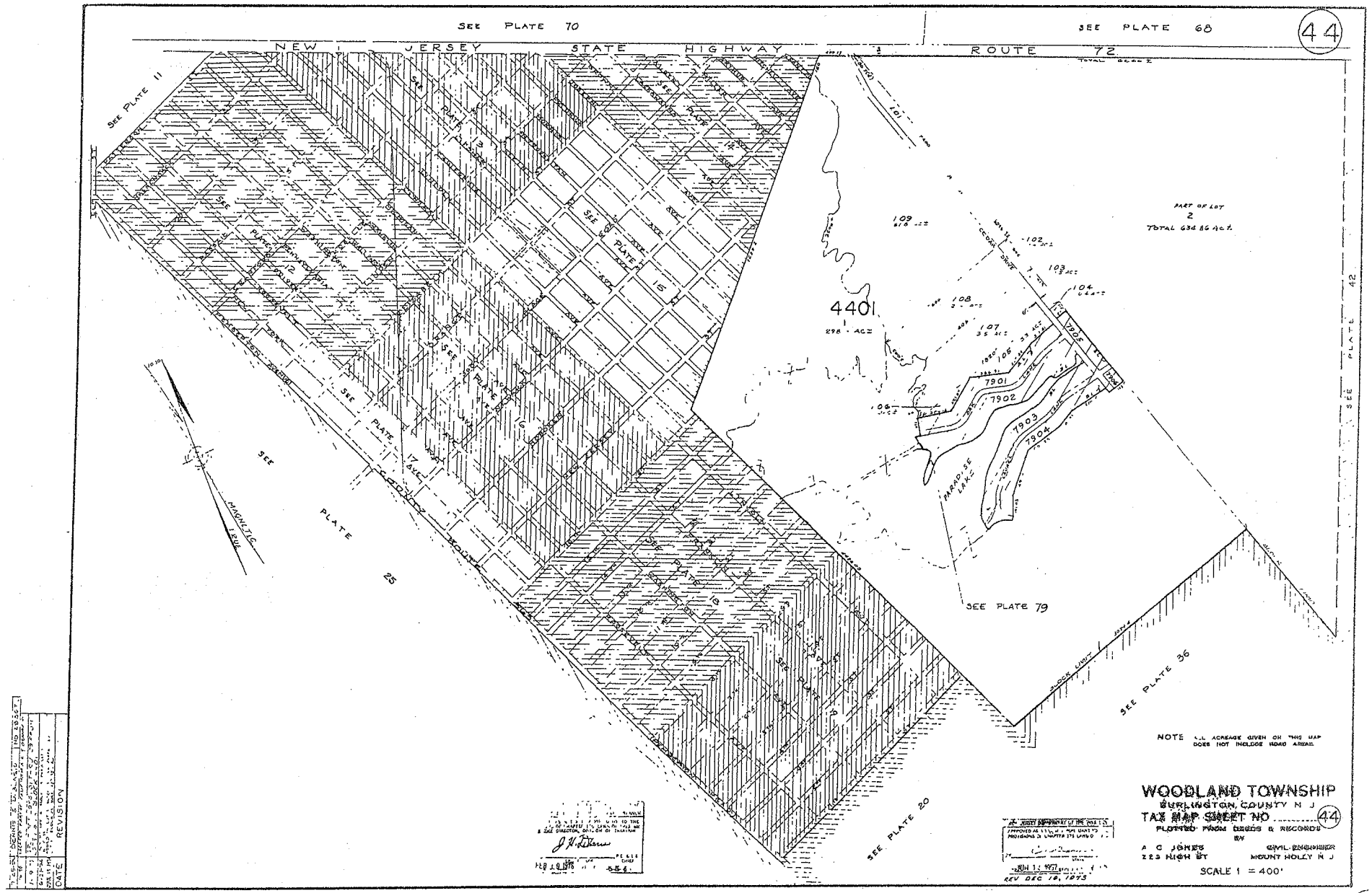
Franklin Parker Preserve: Woodland Section

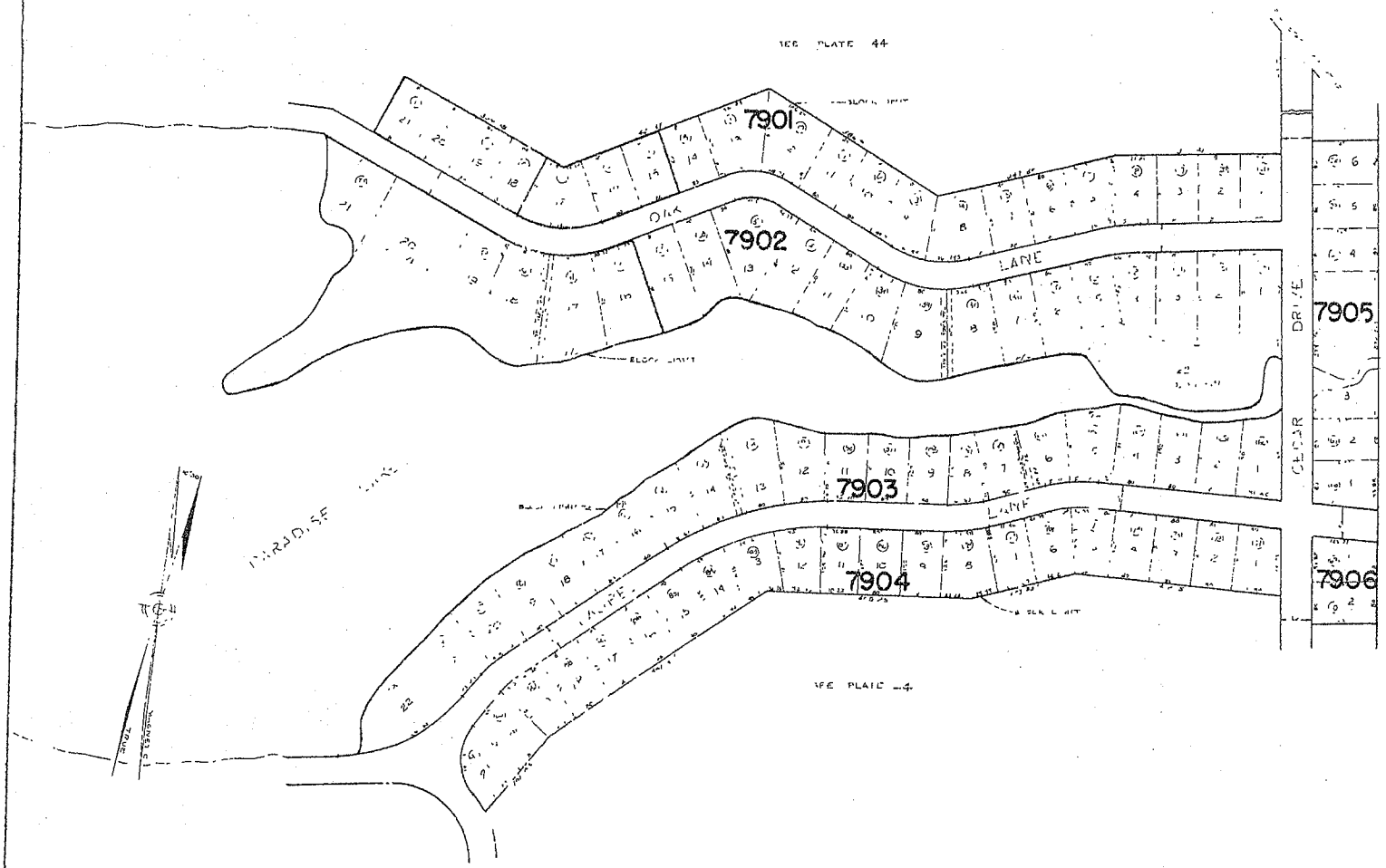
Township	Block	Lot
Woodland	3602	15, 15.01, 17, 17.01, 18 - 24, 27 - 33, 36
Woodland	3603	1
Woodland	3604	1
Woodland	3608	1
Woodland	3609	1
Woodland	3610	
Woodland	3819	4
Woodland	4401	1, 1.01 - 1.09
Woodland	7901	9 - 14, 18 - 21
Woodland	7902	1 - 8, 12 - 14
Woodland	7903	1 - 9, 14, 21 & 22
Woodland	7904	1 - 10, 13, 14, 18, 20 & 21
Woodland	7905	1 - 6
Woodland	7906	1 & 2



36
WOODLAND TOWNSHIP
BURLINGTON COUNTY, N. J
TAX MAP SHEET NO 36
PLOTTED FROM DEEDS & RECORDS
BY
A. C. JONES
CIVIL ENGINEERS
223 HIGH ST
MOUNT HOLLY, N. J
SCALE 1" = 400'
Revised Sept 1938
NOTE ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
2802
PART Lot 5
Total area 187.36 Ac.
2704
3601
3602
3603
3604
3605
3606
3608
3609
3610
3611
3612
3613
SEE PLATE 16
SEE PLATE 18
SEE PLATE 19
SEE PLATE 21
SEE PLATE 22
SEE PLATE 23
SEE PLATE 24
SEE PLATE 26
SEE PLATE 44
SEE PLATE 49
SEE PLATE 50
SEE PLATE 51
SEE PLATE 57
CENTRAL RAILROAD OF NEW JERSEY
NEW JERSEY SOUTHERN BRANCH, MAIN LINE
PRINCE STREET
WADING RIVER
COUNTY ROUTE
TRUE
MAGNETIC
JUNE 26, 1992
DENNIS J. D BLASIO
NO 28307
JUN 14 1957
147
FEB 19 1976
558


38
COUNTY ROUTE 501
3801
3802
3803
3805
3806
3807
3808
3809
3810
3811
3812
3813
3814
3815
3816
3817
3818
3819
3820
3821
3822
3823
RAILROAD
JERSEY
STREET
WOODLAND TOWNSHIP
BURLINGTON COUNTY
TAX MAP SHEET NO. 38
38


SEE PLATE 70
SEE PLATE 68
44
NEW JERSEY STATE HIGHWAY ROUTE 72
SEE PLATE 11
SEE PLATE 42
PART OF LOT 2
TOTAL 634.86 AC±
4401
298 - ACS
7901
7902
7903
7904
PARADISE LAKE
SEE PLATE 79
SEE PLATE 25
SEE PLATE 36
SEE PLATE 20
MAGNETIC ISSUE
NOTE ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS
WOODLAND TOWNSHIP
BURLINGTON COUNTY N J
TAX MAP SHEET NO 44
PLOTTED FROM DEEDS & RECORDS
BY
A C JONES CIVIL ENGINEER
223 HIGH ST MOUNT HOLLY N J
SCALE 1 = 400'
REVISION
DATE
REV DEC 18, 1973



NOTE - ALL ACREAGE GIVEN ON THIS MAP DOES NOT INCLUDE ROAD AREAS

NOTE THE ENCIRCLED NUMBERS ARE LOT DESIGNATIONS ON THE PLAN OF "SECTION 'A', WOODLAND LAKES"

WOODLAND TOWNSHIP

BURLINGTON COUNTY, N J

TAX MAP SHEET NO. 79

PLOTTED FROM DEEDS & RECORDS

BY

C KENNETH ANDERSON P.E & L.S.

TOWNSHIP ENGINEER MT HOLLY, N.J.

SCALE- 1" = 100'

State of New Jersey
THE PINELANDS COMMISSION
PO Box 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

General Information: Info@njpines.state.nj.us
Application Specific Information: AppInfo@njpines.state.nj.us

Chris Christie
Governor

Kim Guadagno
Lt. Governor

Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

June 19, 2013

Russell Juelg
New Jersey Conservation Foundation
FPP Office
79 Grassy Lake Road
Shamong, NJ 08088

Re: Application # 1983-4193.013
Block 3602, Lots 15 - 15.01, 17, 17.01,
18 - 24, 27 - 33 & 36
Block 3603, Lot 1
Block 3604, Lot 1
Block 3608, Lot 1
Block 3609, Lot 1
Block 3819, Lot 4
Block 4401, Lots 1 - 1.08, & 1.09 - 1.10
Block 7901, Lots 9 - 14, & 18 - 21
Block 7902, Lots 1 - 8, & 12 - 14
Block 7903, Lots 1 - 9, 14, & 21 - 22
Block 7904, Lots 1 - 10, 13 - 14, 18,
& 20 - 21
Block 7905, Lots 1 - 6
Block 7906, Lots 1 - 2
Woodland Section Franklin Parker Preserve
Woodland Township

Dear Mr. Juelg:

Thank you for your May 16, 2013 email concerning threatened and endangered species and the development of a Forest Stewardship Management Plan for the above referenced parcel.

Your email did not provide any information regarding soil disturbance required for the proposed forestry, or any information about the proposed forestry plan.

We have reviewed our records, along with the Natural Heritage Database report dated May 9, 2013, for threatened/endangered species on and in the immediate vicinity of the above referenced parcel. Based on review of these records, any submitted forestry plan for the subject parcel should address how the proposed forestry activities are consistent with the protection of Bobcat, Red-headed woodpecker,

Barred owl, Timber rattlesnake, Northern pine snake, Corn snake, Pine Barrens treefrog, Pine Barren gentian, Silvery aster, Curly grass fern, and False asphodel.

Because of the confirmed threatened and endangered species sitings on the parcel, prior to developing your Forest Stewardship Management Plan, you may wish to provide our office with a brief description of the type of forestry activities which you anticipate proposing on the parcels, including the general location of the proposed activities, the type of harvesting proposed and the methods of harvesting from each area. Additionally, you may want to provide the results of any threatened and endangered species studies that New Jersey Conservation Foundation has conducted. This information will enable us to determine what level of information will be required to address threatened and endangered species. For example, the level of information necessary to address threatened and endangered species would be different if it is proposed to clear cut large stands as opposed to selective thinning for firewood cordage.

I hope this information will be helpful as you devise your stewardship plan. If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Jean Montgomerie
Environmental Specialist

JM/KY
c: Bob Williams, Land Dimensions Engineering

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
State Forestry Services
Mail Code 501-04
ONLM -Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. #609-984-1339
Fax. #609-984-1427

BOB MARTIN
Commissioner

May 9, 2013

G. Russell Juelg
New Jersey Conservation Foundation
170 Longview Road
Far Hills, NJ 07931

Re: Franklin Parker Preserve Forest Stewardship Plan - Woodland Lake Section

Dear Mr. Juelg:

Thank you for your data request regarding rare species information for the above referenced project site in Woodland Township, Burlington County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the vicinity of the site.

A list of rare plant species and ecological communities that have been documented from Burlington County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive NJ-GeoWeb website at the following URL, http://www.state.nj.us/dep/gis/geowebsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 13-3907475-3263

Table 1: On Site Data Request Search Results (7 Possible Reports)

Rare Plants/Ecological Communities Possibly On Site:	Yes
Rare Plants/Ecological Communities On Site/Immediate Vicinity:	Yes
Natural Heritage Priority Sites On Site:	No
Landscape 3.1 Species Based Patches On Site:	Yes
Landscape 3.1 Vernal Pool Habitat On Site:	Yes
Landscape 3.1 Stream/Mussel Habitat On Site:	No
Other Animals Tracked by ENSP On Site:	Yes

Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database

Scientific Name	Common Name	Federal Protection	State Protection	Regional Status	Grank	Srank	Identified	Last Observed	Location
Terrestrial Community - Other Classification									
Pinus rigida / Quercus (marilandica, ilicifolia) / Pyxidanthera barbulata Woodland	New Jersey Pitch Pine / Scrub Oak Barren			HL	G2	S2	Y - Yes	2003-??-??	Several patches (with less than 1 km separation between adjacent patches) are located within West Plains Fireshed between the villages of Chatsworth, Woodmansie, Cedar Bridge, Warren Grove and Sim Place. West Plains Fireshed is roughly bound on the north by Old Halfway Road and claybelt, on the south and east by Oswego River, and on the west by West Branch Wading River, but straddling Shoal Branch.
Pinus rigida saturated woodland alliance	Pitch Pine Lowlands (Undifferentiated)				G3	S3	Y - Yes	2002-??-??	From 1-5 miles south of Mount Misery, mostly within Lebanon State Forest in the lowlands surrounding Shinns Branch, Coopers Branch and McDonalds Branch of Bisphams Mill Creek, and South Branch of Mount Misery Brook.
Pinus rigida saturated woodland alliance	Pitch Pine Lowlands (Undifferentiated)				G3	S3	Y - Yes	2003-??-??	From 0.25 to 5.0 miles east of Chatsworth, in scattered patches of lowland with less than 1 km separation, surrounding Risley Branch and Shoal Branch.

Total number of records: 3

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-throated Green Warbler	Dendroica virens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Broad-winged Hawk	Buteo platypterus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Red-headed Woodpecker	Melanerpes erythrocephalus	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Red-headed Woodpecker	Melanerpes erythrocephalus	Breeding Sighting-Confirmed	3	NA	State Threatened	G5	S2B,S2N
	Veery	Catharus fuscescens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Territorial Display	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Vernal habitat area	1297
Potential vernal habitat area	1209

Total number of records: 2

Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Cicindela patruela consentanea	New Jersey Pine Barrens Tiger Beetle			G3T1T3	S2S3
Total number of records: 1					
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Total number of records: 1					

Table 2: Vicinity Data Request Search Results (6 possible reports)

Rare Plants/Ecological Communities within the Vicinity:	Yes
Natural Heritage Priority Sites within the Vicinity:	No
Landscape 3.1 Species Based Patches within the Vicinity:	Yes
Landscape 3.1 Vernal Pool Habitat within the Vicinity:	Yes
Landscape 3.1 Stream/Mussel Habitat within the Vicnity:	No
Other Animals Tracked by ENSP within the Vicnity:	Yes

Scientific Name	Common Name	Federal Protection	State Protection	Regional Status	Grank	Srank	Identified	Last Observed	Location
Pinus rigida saturated woodland alliance	Pitch Pine Lowlands (Undifferentiated)				G3	S3	Y - Yes	2003-??-??	From 0.25 to 5.0 miles east of Chatsworth, in scattered patches of lowland with less than 1 km separation, surrounding Risley Branch and Shoal Branch.

Total number of records: 3

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Barred Owl	Strix varia	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-throated Green Warbler	Dendroica virens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Broad-winged Hawk	Buteo platypterus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Red-headed Woodpecker	Melanerpes erythrocephalus	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Red-headed Woodpecker	Melanerpes erythrocephalus	Breeding Sighting-Confirmed	3	NA	State Threatened	G5	S2B,S2N

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Veery	Catharus fuscescens	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Whip-poor-will	Caprimulgus vociferus	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Wood Thrush	Hylocichla	Breeding Sighting	2	NA	Special Concern	G5	S3B
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B
Insecta								
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Occupied Habitat	2	NA	Special Concern	G3	S3
	Pine Barrens Bluet	Enallagma recurvatum	Territorial Display	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Breeding/Courtship	2	NA	Special Concern	G3	S3
	Scarlet Bluet	Enallagma pictum	Occupied Habitat	2	NA	Special Concern	G3	S3
Mammalia								
	Bobcat	Lynx rufus		4	NA	State Endangered	G5	S1
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection	State Protection	Grank	Srank
	Timber Rattlesnake	Crotalus horridus horridus	Occupied Habitat	4	NA	State Endangered	G4T4	S1

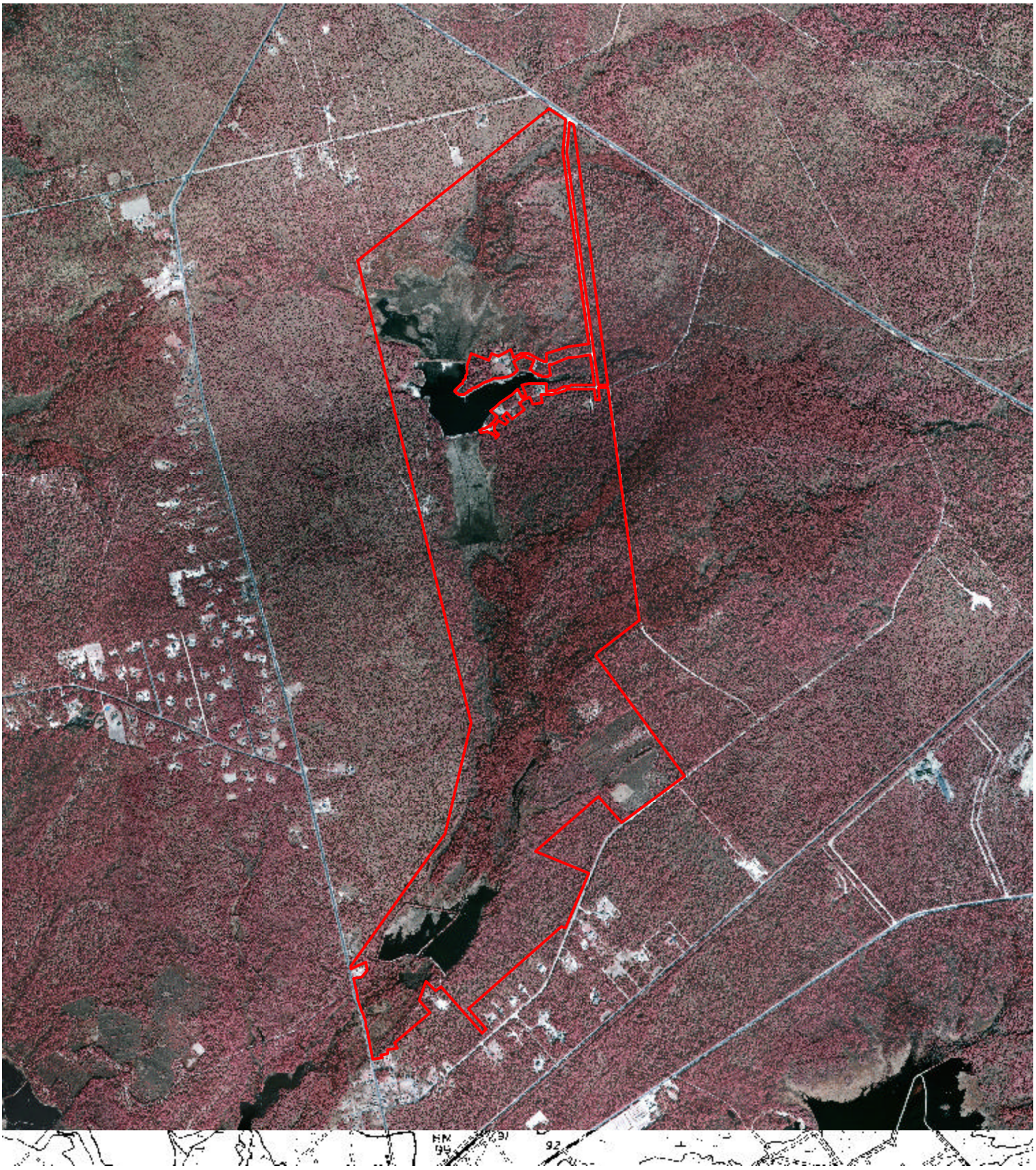
Vernal Pool Habitat
In the Immediate Vicinity of Project Site
Based on Search of
Landscape Project 3.1

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Vernal habitat area	1210
Vernal habitat area	1297
Potential vernal habitat area	1209
Potential vernal habitat area	1212

Total number of records: 4

Other Animal Species
In the Immediate Vicinity of the Project Site Based on
Additional Species Tracked by
Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Cicindela patruela consentanea	New Jersey Pine Barrens Tiger Beetle			G3T1T3	S2S3
Total number of records: 1					
Vertebrate Animals					
Synaptomys cooperi	Southern Bog Lemming			G5	S2
Total number of records: 1					



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

LOCATION MAP

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

WOODLAND LAKE SECTION

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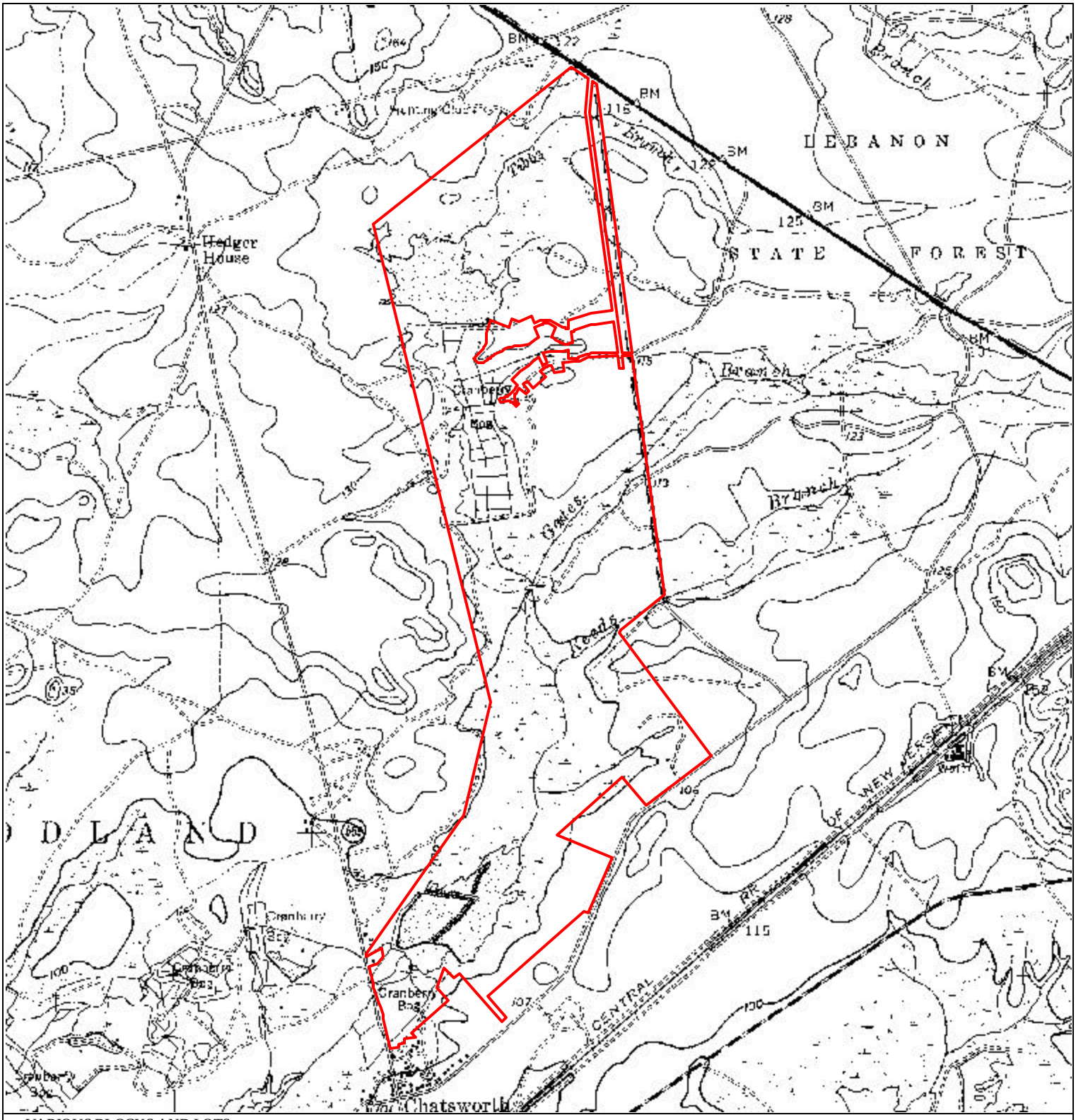
F1633



VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

CHATSWORTH NJ USGS QUAD MAP

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING

PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

EASTING: 484,000
NORTHING: 370,000

WOODLAND LAKE SECTION

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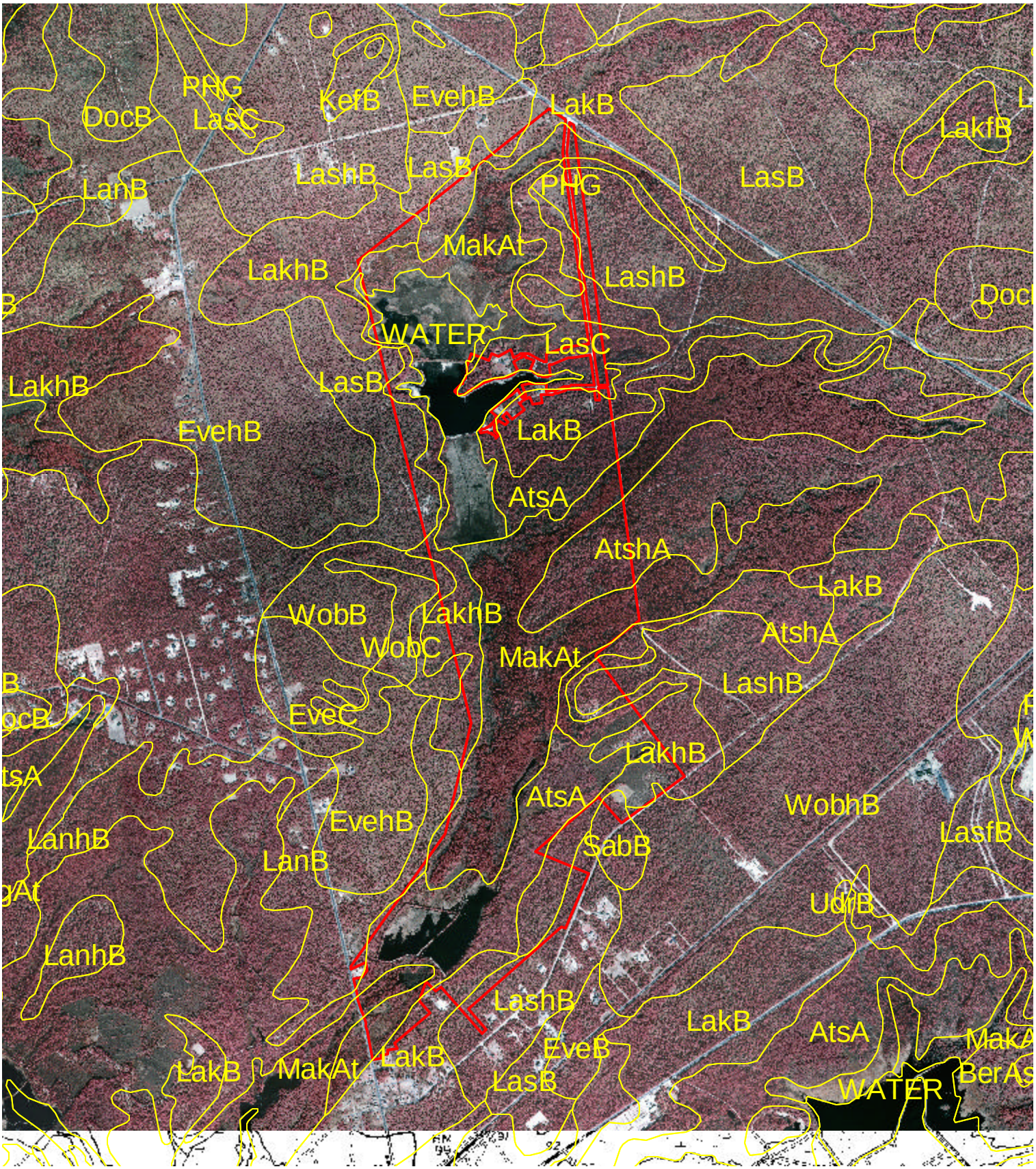

VARIOUS BLOCKS AND LOTS
WOODLAND TOWNSHIP
BRULINGTON COUNTY, NJ

BURLINGTON COUNTY SOILS MAP

SCALE: 1"=2,000'

LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, LAND SURVEYORS,
LANDSCAPE ARCHITECTS, & ENVIRONMENTAL SCIENTISTS
6 EAST HIGH STREET, GLASSBORO, NJ 08028

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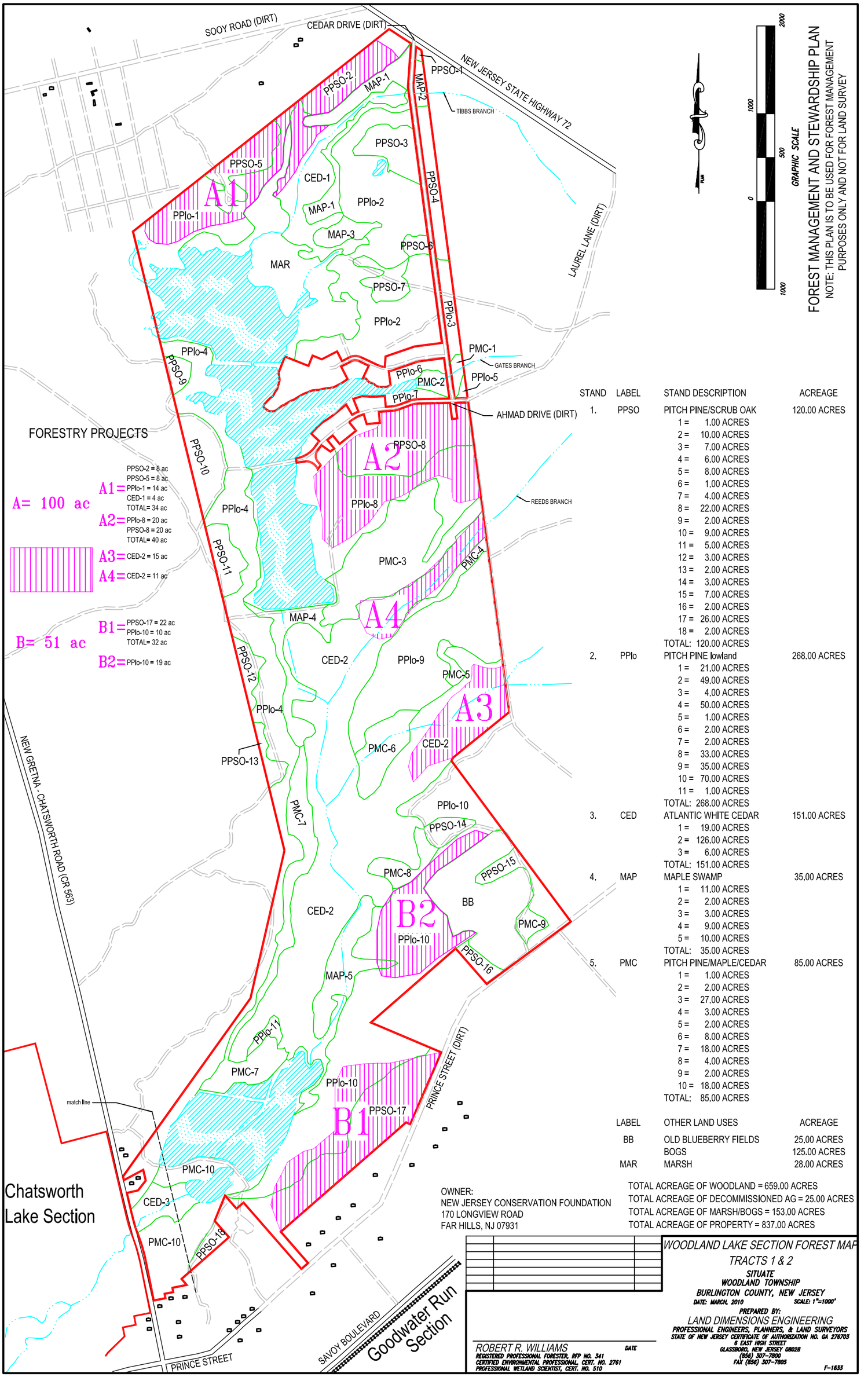
WOODLAND LAKE SECTION

F1633



FOREST MANAGEMENT AND STEWARDSHIP PLAN

NOTE: THIS PLAN IS TO BE USED FOR FOREST MANAGEMENT PURPOSES ONLY AND NOT FOR LAND SURVEY

STAND	LABEL	STAND DESCRIPTION	ACREAGE
1.	PPSO	PITCH PINE/SCRUB OAK	120.00 ACRES
		1 = 1.00 ACRES	
		2 = 10.00 ACRES	
		3 = 7.00 ACRES	
		4 = 6.00 ACRES	
		5 = 8.00 ACRES	
		6 = 1.00 ACRES	
		7 = 4.00 ACRES	
		8 = 22.00 ACRES	
		9 = 2.00 ACRES	
		10 = 9.00 ACRES	
		11 = 5.00 ACRES	
		12 = 3.00 ACRES	
		13 = 2.00 ACRES	
		14 = 3.00 ACRES	
		15 = 7.00 ACRES	
		16 = 2.00 ACRES	
		17 = 26.00 ACRES	
		18 = 2.00 ACRES	
		TOTAL: 120.00 ACRES	
2.	PPIo	PITCH PINE lowland	268.00 ACRES
		1 = 21.00 ACRES	
		2 = 49.00 ACRES	
		3 = 4.00 ACRES	
		4 = 50.00 ACRES	
		5 = 1.00 ACRES	
		6 = 2.00 ACRES	
		7 = 2.00 ACRES	
		8 = 33.00 ACRES	
		9 = 35.00 ACRES	
		10 = 70.00 ACRES	
		11 = 1.00 ACRES	
		TOTAL: 268.00 ACRES	
3.	CED	ATLANTIC WHITE CEDAR	151.00 ACRES
		1 = 19.00 ACRES	
		2 = 126.00 ACRES	
		3 = 6.00 ACRES	
		TOTAL: 151.00 ACRES	
4.	MAP	MAPLE SWAMP	35.00 ACRES
		1 = 11.00 ACRES	
		2 = 2.00 ACRES	
		3 = 3.00 ACRES	
		4 = 9.00 ACRES	
		5 = 10.00 ACRES	
		TOTAL: 35.00 ACRES	
5.	PMC	PITCH PINE/MAPLE/CEDAR	85.00 ACRES
		1 = 1.00 ACRES	
		2 = 2.00 ACRES	
		3 = 27.00 ACRES	
		4 = 3.00 ACRES	
		5 = 2.00 ACRES	
		6 = 8.00 ACRES	
		7 = 18.00 ACRES	
		8 = 4.00 ACRES	
		9 = 2.00 ACRES	
		10 = 18.00 ACRES	
		TOTAL: 85.00 ACRES	

LABEL	OTHER LAND USES	ACREAGE
BB	OLD BLUEBERRY FIELDS	25.00 ACRES
	BOGS	125.00 ACRES
MAR	MARSH	28.00 ACRES

OWNER:
NEW JERSEY CONSERVATION FOUNDATION
170 LONGVIEW ROAD
FAR HILLS, NJ 07931

TOTAL ACREAGE OF WOODLAND = 659.00 ACRES
TOTAL ACREAGE OF DECOMMISSIONED AG = 25.00 ACRES
TOTAL ACREAGE OF MARSH/BOGS = 153.00 ACRES
TOTAL ACREAGE OF PROPERTY = 837.00 ACRES

WOODLAND LAKE SECTION FOREST MAP
TRACTS 1 & 2
SITUATE
WOODLAND TOWNSHIP
BURLINGTON COUNTY, NEW JERSEY
DATE: MARCH, 2010 *SCALE: 1"=1000'*

PREPARED BY:
LAND DIMENSIONS ENGINEERING
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
STATE OF NEW JERSEY CERTIFICATE OF AUTHORIZATION NO. GA 276705
6 EAST HIGH STREET
GLASSBORO, NEW JERSEY 08028
(856) 307-7800
FAX (856) 307-7805
F-1633

ROBERT R. WILLIAMS *DATE*
REGISTERED PROFESSIONAL FORESTER, RFP NO. 341
CERTIFIED ENVIRONMENTAL PROFESSIONAL, CERT. NO. 2761
PROFESSIONAL WETLAND SCIENTIST, CERT. NO. 510