



ENVIRONMENTAL  
TECHNOLOGY  
INC.

Environmental Consultants



## ***ENVIRONMENTAL IMPACT STATEMENT***

LAWRENCE FARM ESTATES  
MAJOR SUBDIVISION  
EXMOOR DRIVE AND SUTTON PLACE  
BLOCK 147; LOTS 42.06, 42.07, 42.08, 42.12, 42.13 & 42.16  
TOWNSHIP OF MENDHAM  
MORRIS COUNTY, NEW JERSEY

PREPARED FOR:

**LAWRENCE FARMLAND, LLC**

PREPARED BY

**ENVIRONMENTAL TECHNOLOGY INC.**

A handwritten signature in blue ink, reading 'David C. Krueger', is written over a horizontal line.

David C. Krueger, Pres.

September 6, 2022

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## **I. INTRODUCTION**

The applicant(s), Lawrence Farm Land, LLC, has proposed a major subdivision know as Lawrence Farm Estates, on a 60.398 acre parcel in the Township of Mendham, Morris County, New Jersey. An insignificant portion of the site lies within Bernardsville Borough, Somerset County. The site, which is to be subdivided, is identified as Lots 42.06, 42.07, 42.08, 42.12, 42.13 and 42.16 on Sheet 33 of the Mendham Township Tax Map (Figure 3 – Appendix A). A small portion of existing Lot 42.16 is also in Bernardsville Borough (Block 8, Lot 2). The site is located in the southeastern portion of Mendham Township, just south of Washington Corner. Mendham Township is located in the southern portion of Morris County. The property is irregular in shape, and has frontage along Exmoor Drive and Sutton Place and Lot 42.06 also has frontage on Corey Lane. (Figure 2-Appendix A).

This Environmental Impact Statement reflects existing and proposed site conditions; provides an environmental assessment of the project; and discusses potential adverse impacts and mitigating measures to protect or offset such impacts. This report should be reviewed in conjunction with the Subdivision Plans submitted by Yannaccone, Villa & Aldrich, LLC. This report has been prepared in accordance with the provisions of Chapter XVII of the Land Use Ordinance of the Township of Mendham.

## II. INVENTORY OF EXISTING ENVIRONMENTAL CONDITIONS

### *1. Land Use*

The site is currently developed with the paved roadways and stormwater management components. The existing lots consist of a combination of upland hayfields/maintained lawn areas, forested uplands, and wetlands. Lots 42.06, 42.07 and 42.08 are mostly wooded and contain wetlands in the northern section. An unnamed tributary to the Passaic River flows along the north/northwest boundary of these lots in an east/northeasterly direction. Lot 42.12 contains hayfields/maintained lawn in the northwest third of the lot with the remainder forested uplands. Lot 42.13 is mostly an upland oak grove with meadow grass and Lot 42.16 consists of hayfields. The surrounding land use consists of residential properties and undeveloped wooded areas.

### *2. Air Quality*

According to the 2020 Air Quality Report prepared by the NJDEP Bureau of Air Monitoring, which is the most recent complete report available, the State of New Jersey has been monitoring air quality since 1965. During that time pollution levels have improved significantly as a result of state, regional and national air pollution reduction efforts.

In 2020, the Bureau of Air Monitoring maintained 31 Ambient Air Monitoring Sites in New Jersey. These monitoring sites are designed to fulfill the following monitoring objectives for federal and state regulated pollutants: to measure maximum pollutant concentrations, to assess population exposure, to determine the impact of major pollution sources, to measure background levels, to determine the extent of regional pollutant transport, and to measure secondary impacts in rural areas.

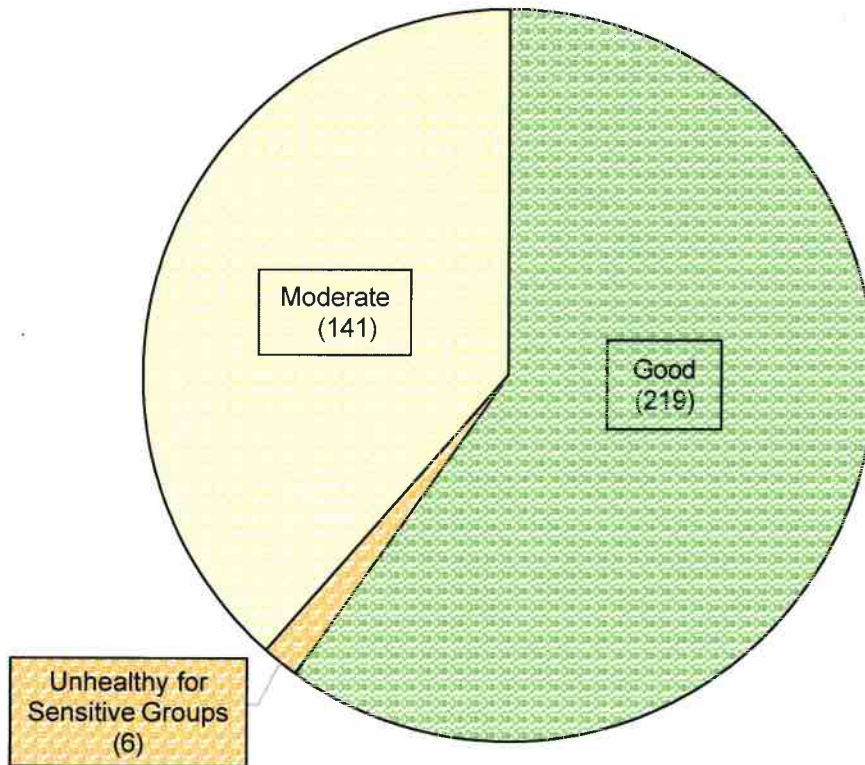
The Air Quality Index (AQI) is a national air quality rating system based on the National Ambient Air Quality Standards (NAAQS). Generally, an index value of 100 is equal to the primary, or health based, NAAQS for each pollutant. This allows for a direct comparison of each of the pollutants used in the AQI (carbon monoxide, nitrogen dioxide, particulate matter, ozone,

and sulfur dioxide). The AQI rating for a reporting region is equal to the highest rating recorded for any pollutant within that region. For purposes of reporting the AQI, the state is divided into 9 regions. The Township of Mendham is located in the Suburban Reporting Region (Region 3), the closest monitoring station in the region is in Chester.

A summary of the AQI ratings for New Jersey in 2020 is presented in Figure 1 below. In 2020 there were 219 “Good” days, 182 were “Moderate”, 26 were rated “Unhealthy for Sensitive Groups”, 2 were considered “Unhealthy”, and 0 were rated “Very Unhealthy”. This indicates that air quality in New Jersey is considered good or moderate most of the time, but that pollution is still bad enough to adversely affect some people on about one day in thirteen.

**FIGURE 1- Air Quality Summary by Days for New Jersey**

Source: NJDEP 2016 Air Quality Report. NJDEP Bureau of Air Monitoring.



The primary source of air pollution in the project area is motor vehicle emissions from the local streets and highways. Air quality of the project site and surrounding area is considered good to moderate according to the NJDEP standards.

**3. Geology**

Various rock types representing several geologic periods crop out in Morris County. The oldest of these are the Precambrian crystalline rocks exposed in the northwestern two-thirds of the county, in the New England province, which includes Mendham Township. Associated with the Precambrian rocks are long narrow belts of Paleozoic sedimentary rocks-shales, sandstones, and limestones. Crystalline rocks of the Precambrian age are mainly granitoid gneisses and pegmatites but include also schists, crystalline limestone or marble, magnetite, and a few small quartz veins. The general character of topography and soil of this formation is high ridges with plateau-like summits and steep slopes, and thick stony soils in areas not covered by glacial drift.

According to the geologic map of Mendham Township, the site lies within the Hornblende-Granite and Gneiss geologic formation. This formation has an approximate dry year yield of 170,000 gallons per day per square mile. The recommended sustainable development intensity in this formation is 2.5 acres per household using current models, and 5.5 acres per household using the nitrate dilution model.

According to the Mendham Township Master Plan, Depth to Bedrock Map, depth to bedrock in the area of the property is 6' - 10' deep.

Below is Table 1 which lists information regarding bedrock geology.

**Table 1**

<u>Bedrock Geology</u>		
<u>Formation</u>	<u>Area</u>	<u>Ground Water Potential/Availability</u>
		<u>Dry Year</u>
Hornblende-Granite and Gneiss	Entire Site	170,000 (GPD/Sq.MI)

#### **4. Soils**

Soils maps were reviewed as prepared by the Natural Resource Conservation Service, NJDEP and the United States Department of Agriculture as available through SSURGO (Soil Survey Geographic Database). The site is occupied by seven (7) soil types, none of which are classified as hydric according to the NRCS List of Hydric Soils for Morris County (Figure 4-Appendix A and Appendix B). However, the Califon soil does contain hydric inclusions. This mapping is available for download on the NJDEP GIS site. The following soil types are identified on the site:

##### **Califon loam, 0 to 8 percent slopes, very stony (CakBb)**

This soil type is identified as occupying the northern portion of the site within the wetlands and stream corridor of Indian Grove Brook and the adjacent uplands.

This soils type makes up around 85 percent of the mapping unit, with equal inclusions of Gladstone, Cokesbury, very stony and Annandale, very stony present. Slopes are 0 to 8 percent. This soil is on flats in the piedmont. The parent material consists of till derived from gneiss and/or colluvium derived from gneiss. Depth to a root restrictive fragipan layer is 20 to 30 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low to moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded and it is not ponded. The depth to water table is 6 to 30 inches and the depth re is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Non-irrigated land capability classification is 6s. This soil does not meet hydric criteria.

##### **Gladstone gravelly loam, 3 to 8 percent slopes (GkaoB)**

This soil type is identified as occupying uplands in the northern and central portions of the site..

The Gladstone component makes up 85 percent of the map unit. Slopes are 3 to 8 percent. This component is on foot hills in the piedmont. The parent material consists of loamy colluvium



derived from granite and gneiss and/or loamy residuum weathered from granite and gneiss.

Depth to a root restrictive layer, bedrock, lithic, is 60 to 80 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

**Gladstone gravelly loam, 8 to 15 percent slopes (GkaoC)**

This soil type is identified as occupying uplands in the northern and southwestern portions of the site.

The Gladstone component makes up 85 percent of the map unit. Slopes are 8 to 15 percent. This component is on hillsides in the piedmont. The parent material consists of loamy colluvium derived from granite and gneiss and/or loamy residuum weathered from granite and gneiss. Depth to a root restrictive layer, bedrock, lithic, is 65 to 67 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 80 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

**Gladstone gravelly loam, 15 to 25 percent slopes (GkaoD)**

This soil type is identified as occupying uplands in the northern and southern portions of the site in mostly uplands and some wetlands (the wetland areas are an inclusion).

The Gladstone component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hillsides in the piedmont. The parent material consists of loamy colluvium derived from granite and gneiss and/or loamy residuum weathered from granite and gneiss. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high to high. Available water to a depth of

60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded and is not ponded. There is no zone of water saturation within a depth of 80 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

**Parker gravelly sandy loam, 3 to 15 percent slopes (PaoC)**

This soil type occupies uplands in the southern portion of the site.

The Parker component makes up 85 percent of the map unit. Slopes are 3 to 15 percent. This component is on knobs on mountains. The parent material consists of residuum weathered from granite and gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded and is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

**Parker very gravelly sandy loam, 15 to 25 percent slopes (PapD)**

This soil type occupies a very small area of uplands in the northeastern portion of the site.

The Parker component makes up 90 percent of the map unit. Slopes are 15 to 25 percent. This component is on knobs on mountains. The parent material consists of residuum weathered from granite and gneiss. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded and is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

**Parker-Gladstone complex, 0 to 15 percent slopes, extremely stony (PauCc)**

This soil type occupies a large area of uplands with some wetlands in the northern section of the site. The wetland areas represent an inclusion of a hydric soil.

The Parker, extremely stony component makes up 55 percent of the map unit. Slopes are 0 to 15 percent. This component is on hills on piedmonts. The parent material consists of residuum weathered from granite and gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

***5. Topography***

The topography of the site is best described as moderately sloping with some steeper areas. The site slopes generally north and south from Exmoor Drive. Slopes are generally in the 0-15% range, while some steeper slopes >15% occur throughout. There are a few small areas with slopes greater than 25% as shown on the Subdivision Plans. The highest elevation is in the south-central section at approximately 692 feet NAVD 88, while the lowest elevation is in the northern corner where the stream leaves the site at approximately 498 feet NAVD 88.

***6. Surface Hydrology and Water Quality***

The site drains to the north and to the south. The northern portion is drained by an unnamed tributary to the Passaic River. The southern portion drains off-site and eventually into Indian Grove Brook which is also a tributary to the Passaic River.

Surface water quality for the project was assessed relative to the standards published in the NJDEP publication *Surface Water Quality Standards*, which are part of the New Jersey Administrative Code found at N.J.A.C. 7:9B. The last published standards are from April, 2020.

The Passaic River tributaries and Indian Grove Brook are classified in the NJDEP Surface Water Quality Standards, (N.J.A.C.7:9B), as FW-2, Trout Production, Category One.

Trout Production waters are those designated suitable for use by trout for spawning or nursery purposes during their first summer. Category One waters are those designated for purposes of implementing the antidegradation policies set forth at N.J.A.C.7:9B, for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources.

According to the NJDEP's *Ambient Biomonitoring Network (AMNET)* publication, the AMNET program of the NJDEP, Bureau of Freshwater and Biological Monitoring (BFBM), is designed to establish a biological database for use in gauging stream quality throughout the state. This database, in turn, can be an invaluable aid to New Jersey's water quality and watershed planning and management efforts. The BFBM currently conducts monitoring of freshwater rivers and streams in New Jersey.

NJDEP's AMNET monitoring program focuses on populations of macroinvertebrates (benthic communities) present in freshwaters. These biotic communities, which are mainly stationary and cost effective to monitor, integrate the effects of changes in water quality into their life cycle, providing effective indicators of change over time. Results are given in the form of biological and habitat scores. These scores are then used to generalize a rating which indicates the health of the stream. AMNET has a monitoring station for the Passaic River located along Tempe Wick Road, east of the site, designated as AN0213. This station is approximately 0.5 miles from the site boundary and about 4,000 linear feet downstream. The monitoring station appears to be just downstream of Leddell's Pond. This monitoring station provides data from 1999, 2003 and 2008. Resulting scores and ratings are given in Table 2.

**Table 2. AMNET Results**

AN0213	Impairment Score	Impairment Rating	Habitat Score	Habitat Rating
1999	24	Non-impaired	145	Sub-optimal
2003	24	Non-impaired	175	Optimal
2008*	26.32(HGMI)	Fair	136	Sub-optimal

\*reflects new index rating

Scores correspond to ratings for the 1993 and 1998 data as follows:

<u>Score</u>	<u>NJ Impairment Rating</u>	<u>Score</u>	<u>Habitat Rating</u>
24 - 30	Non-Impaired	160 - 200	Optimal
9 - 21	Moderately Impaired	110 - 159	Sub-optimal
0 - 6	Severely Impaired	60 - 109	Marginal
		<60	Poor

Historically, the New Jersey Impairment Score (NJIS), based on family level taxonomy, was used for the entire state to make assessments at three levels of impairment; non-impaired, moderately impaired, and severely impaired. New indices were developed, based on genus level taxonomy and grouped into three distinct geographical regions: high gradient (above the Fall Line), low gradient (Coastal Plain excluding the Pinelands), and Pinelands (the boundary of the Pinelands National Reserve plus a 5-km buffer). These new indices are called High Gradient Macroinvertebrate Index (HGMI), Coastal Plain Macroinvertebrate Index (CPMI), and the Pinelands Macroinvertebrate Index (PMI). These new indices replace the NJIS and offer a greater level of resolution using four levels of assessment; excellent, good, fair, and poor.

Scores correspond to ratings for the 2008 data as follows:

<u>Score</u>	<u>Assessment Rating</u>	<u>Score</u>	<u>Habitat Rating</u>
≥63	Excellent	160 - 200	Optimal
<63-42	Good	110 - 159	Sub-optimal
<42-21	Fair	60 - 109	Marginal
<21	Poor	<60	Poor

***Attributes:***

*Excellent - Minimal changes in structure of biological community and minimal changes in ecosystem function. Virtually all native taxa are maintained with some changes to biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability.*

*Good - Some evident changes in structure of the biotic community and minimal changes in ecosystem function. Some changes in structure due to loss of some rare native taxa; shifts in relative abundance of taxa but sensitive-ubiquitous taxa are common and abundant; ecosystem functions are fully maintained.*

According to the BFBM Fish IBI Report, Benthic macroinvertebrate assemblages are generally reflective of short-term and local impairment. In order to assess environmental conditions on a larger spatial and temporal scale, the BFBM began to supplement benthic macroinvertebrate monitoring with an index of biotic integrity (IBI) during the summer of 2000. An IBI is an index that measures the health of a stream based on multiple attributes of the resident fish assemblage. Each site sampled is scored based on its deviation from reference conditions (i.e. what would be found in an unimpacted stream) and classified as poor, fair, good or excellent.

According to this same report, the data helps to measure water quality use attainment and the Department's success in attaining the Clean Water Act goal of "fishable" waters as elaborated in the Department's integrated 305(b) and 303(d) Integrated Assessment Report. The current IBI measures the following metrics:

1. total number of fish species
2. number of benthic insectivorous species
3. number of trout and/or sunfish species
4. number of intolerant species
5. proportion of individuals as white suckers
6. proportion of individuals as generalists

7. proportion of individuals as insectivorous cyprinids
8. proportion of individuals as trout or proportion of individuals as piscivores (top carnivores)-excluding American Eel
9. number of individuals in the sample
10. proportion individuals with disease or anomalies (excluding blackspot disease)

According to the *2016 and 2018 Fish IBI Data Summary*, FIBI Site 095a-R4, the Passaic River located in the Scherman-Hoffman Wildlife Sanctuary in Harding Township, has an IBI rating of Good based on ratings of Excellent, Good, Fair and Poor.

### ***7. Water Supply***

In 1993 the Mendham Township Environmental Commission began Phase I of a study of groundwater resources in the Township. In response to the conclusions of this study, a Phase II study was prepared, recommending changes for the management of land use in the Township. The purpose of Phase I of the Critical Water Resources Study was to examine the quality and quantity of groundwater available in the Township. The study identified those areas which are currently or potentially subject to inadequate quantity or quality of groundwater supply. The Phase II study developed land use policies for the Township that are consistent with the available groundwater resources identified in the previous study. The project site is identified as being within the Critical Development Intensity Area, according to the Critical Area Map of Mendham Township.

Areas designated as Critical Areas on the Critical Areas Map of the Critical Water Resources Study are those tracts of land potentially available for development with lot areas less than that specified for its respective geologic formation and not serviced by public water utility. These areas should be considered for remedial attention and special treatment. According to this

study, the objective of the remedial measures employed in the “critical areas” should be the prevention of development which relies on on-site wells at intensities in excess of that sustainable within its geologic region wherever feasible. Regulatory measures proposed by this study attempt to accomplish this objective by subjecting lands located in these critical areas to either 1) an appropriate lot area of not less than five (5) acres; or 2) the installation of an approved connection to one of the available sources of public water supply.

**Table 3. Well Data for Parcels within 500 Feet of Subject Property in Mendham Twp.\***

Lot/Well#	Depth (Feet)	Yield (gpm)	Date	Quality
Block 147				
5-16, 32, 38 41, 42.03, 42.15, 43				
33	305	30	11/15/1994	Satisfactory
34	273	10	1/22/1991	Satisfactory
40	300	20	9/28/1976	Satisfactory
44	500/150	10/10	10/20/1990/7/24/1990	No Data
45	298	8	5/24/1979	No Data
Block 146				
19**	300	18	06/15/2017	No Data
20	240		Abandoned 03/05/1999	No Data
21	185	60	03/09/1999	Satisfactory

\*Blank row means no well data available

\*\*Irrigation Well



**Table 3. Well Data for Parcels within 500 Feet of Subject Property  
in Mendham Twp.\* (Cont.)**

1) No known contamination of existing wells was identified. Two wells (Block 146, Lots 33 & 34) were out of acceptable range for the Langelier Index. This index is an approximate measure of the saturation degree of calcium carbonate (CaCo<sub>3</sub>) in water. This can create corrosion of piping but is not in itself a pollutant. Treatments are available and may have been instituted in these cases.

2) There were notes regarding a potential oil tank leak and high coliform level on Lot 44 and a new well was drilled.

**8. Vegetation**

Vegetation communities have been identified in the field and located on the environmental constraints map found in Appendix B. The seven types identified are: hayfield/maintained lawn (HF/G), Oak Grove (OG), upland forest (UF) and wetland forest (WF).

The hayfield/maintained lawn areas are a combination of areas cut for hay and areas maintained as lawn. .

The upland forest is typical of the wooded uplands and contains a variety of species including, but not limited to: chestnut oak (*Quercus prinus*), American beech (*Fagus grandifolia*), red oak (*Quercus rubra*), white oak (*Quercus alba*), tulip-tree (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), sassafras (*Sassafras albidum*), American hornbeam (*Carpinus caroliniana*), shagbark hickory (*Carya ovata*), hop hornbeam (*Ostrya virginiana*, FACU-), basswood (*Tilia americana*, FACU), black oak (*Quercus velutina*, NL), white ash (*Fraxinus americana*, FACU), Japanese barberry (*Berberis thunbergii*) witch hazel (*Hamamelis virginiana*) and grape (*Vitis sp.*)

The wetland forest is dominated by yellow birch (*Betula alleghaniensis*), American beech, red maple (*Acer rubrum*), black birch (*Betula lenta*), tulip-tree, American hornbeam, American

elm (*Ulmus americana*), slippery elm (*Ulmus rubra*), black gum (*Nyssa sylvatica*), white and green ash (*Fraxinus americana/pennsylvanicum*), spicebush (*Lindera benzoin*), Japanese barberry, swamp azalea (*Rhododendron viscosum*), highbush blueberry (*Vaccinium corymbosum*), soft rush (*Juncus effusus*), sedges (*Carex spp*) Japanese stilt grass (*Microstegium vimineum*), monkey flower (*Mimulus ringens*), grasses (*Panicum and Poa spp.*) and skunk cabbage (*Symplocarpus foetidus*).

The oak grove is a small area that contains only oaks with little understory or groundcover. It contains mostly black oak, chestnut oak and some tulip-trees.

## 9. Wildlife

An inventory of existing avian, terrestrial and aquatic fauna was prepared from a variety of sources. These included actual sightings of species; observation of sign (tracks, markings, scat, calls, bones), existing literature, and available food sources.

The wildlife species found or anticipated to occupy the project area and general vicinity were determined based on the aforementioned sources, as well as an analysis of the interrelationships between the vegetative communities present and their ability to support various fauna. The various species present provide food as well as cover for several wildlife species throughout the year. The fruits, seeds, leaves, twigs, bark, stems and roots all furnish food to different kinds of animals.

Various trees on-site provide a suitable habitat and source of food for both local and transient species. The fruit; buds; twigs and foliage are used by upland gamebirds; songbirds; fur and game mammals; and small mammals. The trees also provide nesting habitat for the american robin (*Turdus migratorius*), black-capped chickadee (*Parus atricapillus*), brown thrasher (*Toxostoma rufum*), house finch (*Carpodacus mexicanus*), mockingbird (*Mimus polyglottos*), northern cardinal (*Cardinalis cardinalis*), rufous-sided towhee (*Pipilo erythrophthalmus*) and wood thrush (*Hyclocichla mustelina*).

Other species which are likely present or observed on-site include mammals such as: white tail deer, opossum (*Didelphis marsupialis*), starnose mole (*Condylura cristata*), eastern mole

(*Scalopus aquaticus*), woodchuck (*Marmota monax*), eastern mole (*Scalopus aquaticus*), eastern cottontail (*Sylvilagus floridanus*), mice (*Peromyscus spp.*) and striped skunk (*Mephitis mephitis*).

Other bird species observed or which may utilize the site at various times of the year include, but are not limited to: red-tailed hawk (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*), belted kingfisher (*Megaceryle alcyon*), dark-eyed junco (*Junco hyemalis*), common grackle (*Quiscalus quiscula*), starling (*Sturnus vulgaris*), blue jay (*Cyanocitta cristata*), tufted titmouse (*Parus bicolor*) and mourning dove (*Zenaida macroura*).

Forested areas and wetland areas on-site provide a suitable habitat and source of food for both local and transient species. The presence of the on-site tributaries provides vertebrate and invertebrate life that is attractive to birds. Habitat for small amphibians and reptiles in the wetland areas along the streams may support a variety of snakes, frogs, toads and turtles.

Habitat for Federal and State endangered or threatened plant and animal species has been defined to include habitat for Federal and State endangered or threatened plant and animal species identified pursuant to the Federal Endangered Species Act of 1973, the New Jersey Endangered and Nongame Species Conservation Act, and the New Jersey Endangered Species List Act.

The Federal definition of endangered species is any species which is in danger of extinction throughout all or a significant portion of its range. The State definition is any species or subspecies of wildlife whose prospects of survival or recruitment are in jeopardy or are likely within the foreseeable future to become so due to any of the following factors:

1. the destruction, drastic modification, or severe curtailment of its habitat;
2. its over-utilization for scientific, commercial or sporting purposes;
3. the effect on it of disease, pollution, or predation;
4. other natural or manmade factors affecting its prospects of survival or recruitment within the State, or
5. any combination of the foregoing factors.

Threatened species means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

No threatened and/or endangered species were observed during site investigations. NJDEP's Natural Heritage Program responded to the request for documentation of rare, threatened, or endangered species on or near the subject property in a letter dated June 30, 2020 (See Appendix D). The letter indicates documented habitat for the following species on-site: Indiana Bat, Federal and State Endangered (*Myotis sodalis*), Northern Myotis Federal and State Endangered (*Myotis septentrionalis*) and wood turtle (*Glyptemys insculpta*). It should be noted that a habitat identified as documented for a specific threatened/endangered species does not mean that the particular site is suitable for the species identified.

#### Indiana Bat

The Indian Bat (*Myotis sodalis*) is both state and federally endangered. They occupy limited habitats in New Jersey generally within 25 miles of the hibernaculum in Rockaway Township. Female maternity colonies are established within wetlands and flood plains since these locations provide the typical roosting trees and their main diet, insects. The site is not in close proximity to the Rockaway hibernaculum, however the wooded nature of the site provides potential habitat for this species in the northern section along the unnamed tributary to the Passaic River. Therefore it is anticipated that habitat for this species is possibly present during roosting season (April to October).

#### Northern Myotis

The northern myotis can be found from the boreal forests of northwestern North America (Alberta, Canada, and surrounding territories), east to Newfoundland, and south through most of eastern North America, including the central and south-central U.S. states.

These bats inhabit dense forests, roosting by day beneath the loose bark of trees or in tree crevices. They are more solitary than other myotids and often roost alone but will form maternity colonies consisting of mothers and their young. Little is currently known about their feeding habits,

but northern long-eared bats have been seen foraging for insects among trees and above ridge lines, along forest edges, and occasionally over water bodies.

The site would appear to contain suitable habitat for this species.

### Wood Turtle

Wood turtle (*Clemmys insculpta*) require both aquatic and terrestrial habitat. They are primarily aquatic in the fall, winter, and early spring, and terrestrial from late spring to early autumn (Burt and Collins, no date; Ernst, 1986; Farrell and Zappolorti, 1979; Zappolorti et al., 1984). In New Jersey, wood turtles are primarily terrestrial from mid-May to October (Farrell and Zappolorti, 1979; Zappolorti et al., 1984).

In general, wood turtles use streams and rivers for breeding and hibernating. Breeding occurs underwater, often in slow meandering streams with sandy bottoms and shoals in either the spring or fall (Fisher, 1945; Swanson, 1952; Ernst and Barbour, 1972; Harding and Bloomer, 1979; Zappolorti and Farrell, 1980; Farrell and Graham, 1991). For this purpose, they have been found to use the bottoms of free-flowing streams, which are 40-92 inches deep and which never freeze completely. Brumating turtles were buried to depths of 7 to 13 inches in soft substrate, or wedged under overhanging banks (Ernst, 1986). They have also been reported to use muskrat (*Ondatra zibethicus*) burrows for hibernation (Carr, 1952; Zappolorti et al, 1984; S. Sweet, pers. Comm. In Farrell and Graham, 1991).

In addition, wood turtles use wetlands and uplands adjacent to their breeding and hibernating streams and rivers to a variable degree. For example, they have been found to use wooded and marsh borders of streams (Carroll and Ehrenfeld, 1978); lowland, mid-successional forested areas dominated by oaks (*Quercus* spp.), black birch (*Betula lenta*), and red maple (*Acer rubrum*) (Stang, 1983); alder (*Alnus* spp.) thickets and mixed forests characterized by white and red pine (*Pinus strobus*, *P. resinosa*), poplar (*Populus* spp.), white birch (*Betula papyrifera*), red maple, and red oak (*Quercus rubra*), grassy openings, upland pine plantations, deciduous forest, and lowland conifers (Quinn and Tate, 1991).

In New Jersey, wood turtles wetland and terrestrial habitat has been found to be associated with floodplain areas a majority of the time, followed by upslope stream corridors and upland areas (Stein, pers. comm.). They may also bask in multi-flora (*Rosa multiflora*) thickets (Zappolorti, pers. comm.).

Wood turtle home range and movement data is highly variable. Several studies have determined that most non-aquatic wood turtle activities occur within 98 to 130 feet of the home stream (Brewster and Brewster, 1991; Quinn and Tate, 1991). Others have reported wood turtles moving upland as far as 340 to 1312 feet (Ernst, 1986). In New Jersey, they have been documented to move between 3,000 and 5,280 feet from their breeding grounds (Zappolorti, 1984).

In New Jersey, wood turtles have been observed from March to December. Most captures have occurred in April through May and October, with 60% occurring between 11:00 a.m. and 1:00 p.m. (Farrell and Zappolorti, 1979). In early June, female wood turtles are often observed in cultivated gardens and farm fields where they deposit their eggs (R. Stein, pers. comm.; Kaufmann, 1992), and hatchlings have been found near such nest sites in September (R. Stein, pers. comm.).

The New Jersey Department of Environmental Protection (NJDEP) considers all wetlands, including those associated with side tributaries of streams, within a one mile radius of a sighting as being a "documented" habitat. For multiple records, the NJDEP establishes an "area of documentation" along the wetland/stream corridor complex between the first and last records and also one mile past the first and last records (NJDEP, 1994).

Due to the wood turtles' highly variable habitat uses, it is difficult to qualify particular characteristics which define a suitable habitat. In field evaluation, characteristics which affect the suitability of a particular habitat include:

- Streams or rivers featuring flowing water of varying depths, undercut banks, muskrat burrows, fish populations, and evidence of good water quality. Potential barriers to wood turtle movement (e.g. road crossings, lakes) along a particular stream corridor also affect habitat suitability;
- Favored adjacent upland/wetland habitats are characterized by mosaics of forest, field, shrubs, and agricultural lands, though wood turtles also occur in more monotypic areas.

Thickets of alder, greenbriar (*Smilax* spp.), or multiflora rose adjacent to aquatic habitats are favored basking areas; and

- The availability of food species including invertebrates, tadpoles, earthworms, black and raspberries, violets, fungi, willow (*Salix* spp.) leaves, and carrion (Kaufman, 1986; Farrell and Zappolorti, 1980; Farrell and Graham, 1991).

Wood turtles are extremely mobile. They have been documented to move at least one mile along a stream corridor and to exhibit familiarity with wetlands habitats 1.2 miles from an initial capture point. In addition, wood turtles require additional upland/wetland habitats outside of their aquatic habitats. For this reason, NJDEP has determined that the establishment of an “area of documentation” a minimum of 2 miles along portions of stream corridor/wetland complexes known to feature wood turtles ensures that sufficient aquatic and terrestrial habitat is preserved for this species (NJDEP, 1994).

Due to the wide variety of habitats utilized by wood turtles, their extreme mobility, and the documented sighting of the wood turtle along the Passaic River, it is possible that wood turtles utilize the stream corridor in the northern portion of the site.

## **10. Wetlands**

Wetlands are defined as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.B9b) and (40 CFR 230.3). Wetlands are currently regulated pursuant to Section 404 of the Federal Clean Water Act and the New Jersey Freshwater Wetlands Protection Act.

Forested wetlands are found along the stream corridor in the northern section of the site. Such wetlands have been delineated by the staff of Environmental Technology Inc. and surveyed. A request for a letter of interpretation to verify the limits of wetlands and wetlands transition areas was prepared and submitted to the New Jersey Department of Environmental Protection on August 29, 2022. A copy of the transmittal is included in Appendix C of this report. In addition, a Flood Hazard Verification Request was also submitted to verify the limits of watercourses, riparian zones

and flood hazard areas on the site. It should be noted that the wetlands boundaries on the site were previously approved via a letter of interpretation which have expired (Appendix C). The currently submitted wetlands boundaries are essentially consistent with the previous boundary and are subject to NJDEP review and approval.

In accordance with the New Jersey Freshwater Wetlands Protection Act, and outlined by the New Jersey Department of Environmental Protection (NJDEP), the identification of wetlands is determined by implementing the methodology that is currently accepted by the United States Environmental Protection Agency (USEPA), namely the Federal Manual for Identifying and Delineating Jurisdictional Wetlands dated January 10, 1989. This methodology states that for an area to be considered wetland all three of the following parameters must be present:

1. Hydric Soils
2. A Predominance of Hydrophytic Vegetation
3. Hydrology

The determination of hydric soils in the field is made by the use of a manually operated soil sampler. Then a determination of hydric soils is made by using Munsell Soil Color Charts. Transects are made from the wetlands to uplands to determine the point at which soils no longer were determined to be hydric. Hydric soils are those soils that have a chroma of less than or equal to 1 (when no mottling is present) or a matrix chroma of less than or equal to 2 when mottling is present.

When soils classified as a sand soil are encountered Munsell Soil Color Charts are not used exclusively. In these instances hydric determinations are also made by the presence of one or more of the following conditions: High organic matter content in the surface horizon, the streaking of subsurface horizons by organic matter, or the presence of organic pans.

In situations in which soils exhibit significant coloration due to the nature of the parent material (e.g. red shales) the soils often do not exhibit the characteristic chromas associated with hydric soils. In the above situations the Munsell Soil Color Charts cannot always be used to evaluate the hydric nature of the soil. In these cases their hydric nature according to the Soil



Conservation Service (SCS) and the other criteria carry more weight.

Vegetation is classified according to the Eastern Mountains and Piedmont 2014 Regional Wetland Plant List prepared by the USACOE. The classifications, according to this list are as follows

Obligate (OBL) – Always found in wetlands under natural (not planted) conditions (frequency greater than 99%), but may persist in nonwetlands if planted there by man or in wetlands that have been drained, filled, or otherwise transformed into nonwetlands.

Facultative Wetland (FACW) – Usually found in wetlands (67%-99% frequency), but occasionally found in nonwetlands.

Facultative (FAC) – Sometimes found in wetlands (34%-66% frequency), but also occurs in nonwetlands.

Facultative Upland (FACU) – Seldom found in wetlands (1%-33% frequency) and usually occurs in nonwetlands.

Nonwetland (UPL) – Occurs in wetlands in another region, but not found (<1% frequency) in wetlands in the region specified. If a species does not occur in wetlands in any region, it is not on the list.

A positive (+) or negative (-) symbol is used with the Facultative Indicator categories to more specifically define the regional frequency of occurrence in wetlands. The positive sign indicates a frequency toward the higher end of the category (more frequently found in uplands), and a negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands).

According to the Federal Manual for Identifying and Delineating Jurisdictional Wetlands dated January 10, 1989, an area has hydrophytic vegetation, when under normal circumstances more than 50 percent of the composition of the dominant species from all strata are obligate wetland (OBL), facultative wetland (FACW), and/or facultative (FAC) species. However, when a plant community has less than or equal to 50 percent of the dominant species from all strata represented by OBL, FACW, and/or FAC species, and hydric soils and wetland hydrology are

present, the area also has hydrophytic vegetation. (NOTE: These areas are considered problem area wetlands.)

Hydrology is determined by the evidence of water, either visible or indicators that water was present. This is noted by visible factors such as drift lines, high water marks on trees, sediment deposits including encrusted detritus, displacement of leaf litter as the result of water flowage, and drainage patterns. During the growing season, saturated soil samples and/or the water table is noted as evidence of hydrology when they are encountered within 12 inches of the soil surface.

Seasonal high water table information is used, when available, from the Soil Conservation Service. Recent rainfall and/or other precipitation is also considered when evaluating hydrology.

In situations where the native conditions have been altered such as; cleared lands (e.g. agricultural lands), areas where the original soil has been altered (such as formerly plowed or filled lands), certain criteria are given more weight than others due to the lack of reliability of the affected parameter as an indicator.

### ***11. Light Levels***

Existing light levels at the sight are minimal and limited to adjoining residential development.

### ***12. Noise***

The project site is located in a rural-suburban atmosphere typical of most of Mendham Township. Ambient noise conditions onsite are mostly associated with surrounding residential uses as well as local traffic conditions.

Onsite noise levels were not measured but may be estimated by the use of ambient sound level study charts taken from the *Environmental Impact Assessment* by Larry W. Canter, as shown in Table 4.

**Table 4. Typical Day-Night Noise Levels in Urban Areas in the United States**

<u>Description</u>	<u>Typical Range (dB)</u>	<u>Average (dB)</u>	<u>Avg. Pop. Density people/sq. mile</u>
Quiet suburban residential	48-52	50	630
Normal suburban residential	53-57	55	2,000
Urban residential	58-62	60	6,300
Noisy urban residential	63-67	65	20,000
Very noisy urban residential	68-72	70	63,000

Classification

Minimal Exposure	55 or less
Moderate Exposure	55-65
Significant Exposure	65-75

Source: *Environmental Impact Assessment*. Canter, Larry W.

According to the Mendham Township website, the Township has an area of 17.8 square miles. According to census information, the population of Mendham in 2020 was 4,880, resulting in a population density of approximately 274 persons per square mile. Therefore, the existing conditions of the project site are most similar to quiet suburban residential with noise levels corresponding to approximately 50 dB or below.

### ***13. Historical Sites and Archeological Features***

According to the Mendham Township Master Plan, Historic Preservation Plan, Mendham Township contains a rich historic heritage that is still vivid in the many existing historic sites, buildings, structures, roads and trees located throughout the Township. An unusually large portion of the Township is located within six National and State Registered Historic Districts and within a Multiple Properties Listing. These historic resources taken together are among the defining characteristics of the Township contributing greatly to its sense of place, high quality of life, and exceptional property values.

The objective of the Historic Preservation Plan is to preserve historic resources, roads, bridges, buildings, development patterns, artifacts and ancient trees. Maps have been prepared identifying the location of boundaries of historic sites and districts.

There are no historic sites situated on the subject property according to the State Registry of Historic Places or indicated in the Mendham Township Master Plan. According to the Mendham Township Master Plan, Historic Districts Map, the site is not located in a Historic District. No old structures or artifacts were observed or known to exist on the site.

#### ***14. Community Facilities***

Community facilities which support the local area include the Mendham Township Police Department, the Mendham Township Department of Public Works, the Mendham Township Volunteer Fire Department and the Mendham Township First Aid Squad.

Both the fire department and the first aid squad have two stations; one in Brookside and one in Ralston.

The school system consists of an elementary school on West Main Street in Brookside and a middle school on Washington Valley Road in Brookside. Mendham High School is located on Route 24 and is part of the West Morris Regional High School District Board of Education.

### **III. PLAN AND DESCRIPTION OF DEVELOPMENT**

The applicant, Lawrence Farmland, LLC, has proposed a major subdivision on an 60.398 acre parcel in the Township of Mendham, Morris County, New Jersey (see Figure 2-Appendix A). The existing lots all have frontage on improved roadways (Exmoor Drive and Sutton Place) that were part of a previous subdivision. The property is designated as Lots 42.06, 42.07, 42.08, 42.11, 42.13 and 42.16 in Block 147 on the municipal tax maps (See Figure 3 – Appendix A). A small portion of the project site is within Bernardsville Borough and is known as Lot 2 in Block 8. (Due

to the insignificant size and location of this portion, it will not be further addressed or referred to in this report).

The proposed project is the creation of three (3) additional lots from the existing six (6) lots, resulting in a total of nine (9) lots for this subdivision. The roadways have previously been constructed along with a stormwater management system as part of the approval of the previous major subdivision. Additional stormwater management is proposed as part of this major subdivision application.

The site is located in the southeast portion of Mendham Township and has frontage on Exmoor Drive, Sutton Place and Corey Lane.

None of the existing lots are developed and the site is completely undeveloped except for the aforementioned roadways and the previously constructed stormwater management system, which includes detention basins and stormwater piping within the roadway. No modifications to the roadway or existing stormwater management system are proposed. As discussed in the previous sections, the undeveloped portion of the properties consist of hayfields/maintained lawn, upland forest and forested wetlands. There is also an unnamed tributary of the Passaic River, which flows along the northern section of the property.

No portion of any of the planned development is within a wetland, wetland transition area, flood hazard area or riparian zone pursuant to the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A) or the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13).

The site is within the R-5 Single-Family Residential Zone. Minimum lot area in this zone is 5 acres. Surrounding land use consists of single-family residential lots and wooded areas. No variances are required for this subdivision.

Stormwater will be addressed by the construction of a bio-retention basins on each lot which will address water quality and detention to comply with the design standards of the NJDEP Stormwater Management Regulations (N.J.A.C. 7:8).

The proposed project will not require the construction of any new roadways. Each lot will be accessed via an individual driveway. It should be noted that a total of six (6) driveways to

access the existing lots was already accounted for per the existing subdivision, therefore the total of new driveways for this proposed subdivision is three (3).

The proposed subdivision has been designed to conform with the Township Zoning Ordinances and Master Plan requirements as much as possible. Planning to minimize potential environmental damage from this project began at the earliest stages of the design. Various engineering and site planning techniques, as discussed throughout this report, have been utilized to design the subdivision to be compatible with the natural features and environmentally constrained areas on the site. The plans were developed to minimize potential environmental damage.

#### **IV. ASSESSMENT OF THE ANTICIPATED IMPACT OF THE PROJECT**

##### ***1. Land Use***

The proposed subdivision has been designed in accordance with the Township Land Use Ordinance requirements for the R-5 Single Family Residential Zone. The land use of the site will be altered through the implementation of the project. Portions of the land will be converted from undeveloped land to single family residences and associated features. This land use is in conformance with the zoning of the area, and the surrounding land use in this area of the Township. As noted, the major part of the infrastructure is in place and the existing six (6) lots were anticipated to disturb upland areas in order to be developed; therefore the “new” impact is only for the three additional lots.

##### ***2. Air Quality***

The proposed project will have a minor/not measurable impact on the air quality of the site and neighborhood. The largest impact will be experienced during the construction phase of the project. This is a result of the fugitive dust emissions, loss of vegetation and the operation of

diesel-powered equipment. Fugitive dust particles are a result of wind erosion and exposed earth surfaces. Areas of construction will be stabilized by seeding and mulching, and proper revegetation will minimize impacts during development.

After construction is completed the only air quality impacts expected are from normal residential activities which would include such things as heating, cooling, maintenance operations, repairs and vehicular traffic. Of these the largest impact would be from vehicular traffic and heating systems. However, in relation to the surrounding developed nature of the area and small scale of the project, impacts are not expected to be measurable.

The anticipated level of CO<sub>2</sub> and NO<sub>2</sub> from the increase in vehicular traffic will not be detrimental to ambient air quality. The additional traffic volume anticipated, based on the RSIS guidelines is approximately 30.6 vehicles per day (vpd). The current air quality of the area is considered good to moderate and although there are undoubtedly some minor impacts, they are unavoidable and considered acceptable for the type of development proposed, especially when considered on a regional basis.

### ***3. Geology***

Impacts to the existing geologic character of the area should be negligible. It is unlikely that blasting will be required, as underlying bedrock in this area is typically greater than six (6) feet deep, according to the SSURGO data and the New Jersey Geological Survey.

### ***4. Soils***

A number of soil erosion and sedimentation controls will be implemented in accordance with the New Jersey Standards for Soil Erosion and Sediment Control, and will be in place prior to any major disturbance of soils. These practices will remain in place until permanent protection is established. The first is a temporary system to be implemented during construction. Physical components include stabilized construction access, filter fabric inlet protectors on all inlets to the system, silt fencing on the downhill side of disturbed areas and around soil stock piles, temporary

seeding of any disturbed area left exposed for more than 30 days which is not subject to construction traffic, and stabilization measures on all exposed areas. Upon completion, most of these devices will be removed with the exception of those that will become part of the permanent system.

Construction timing will also be used to help control sedimentation. Before major grading is done, the silt fences and drainage facilities will be installed. Permanent stabilization procedures of soils include appropriate grading, seeding and mulching.

### 5. Topography

The proposed plan has been designed to conform to the existing topography as much as possible. The proposed project will be predominately located in slope areas that range from 0 to 15%. However, disturbance is also proposed within the 15-25% and greater than 25% range, however the proposed disturbance does not exceed the percentage limit in the ordinance. Slope disturbances have been calculated and are shown in Table 5. The slope map is included in Appendix A (Environmental Constraints Map).

**Table 5. Slope Disturbance**

<b>Slope Category</b>	<b>Total Area of Regulated Slopes on Site (S.F.)</b>	<b>Max. Allowable Disturbance (S.F.)</b>	<b>Max. Allowable disturbance (%)</b>	<b>Total Proposed Disturbance (S.F.)</b>	<b>Total Proposed Disturbance (%)</b>	<b>Complies (Y/N)</b>
0-10%	1,380,013	No Limit	No Limit	263,833	19	N/A
10-15%	887,112	27,923.56	25	146,726	16.5	Y
15-25%	330,063	7,130.81	15	37,548	11.4	Y
>25%	33,204	480.53	5	657	2	Y

Disturbance to steeper slopes is very limited and the proposed total disturbance within each slope category is well below the threshold limits where applicable. Areas of steep slopes will be stabilized after construction and vegetated. Following an approved sediment erosion and control plan will minimize potential short term and long term impacts resulting from this disturbance.



Overall, the actual S.F. of regulated slopes being disturbed are not excessive and are mostly associated with the areas of the site that are in the slope range of 10-15% slopes, which is the lowest regulated slope range. Proposed disturbance to slopes over 15 percent is limited to 38,205 SF (0.88 acres) which is not excessive.

#### ***6. Surface Hydrology and Water Quality***

There are several factors associated with the development of a site that may affect either surface or groundwater quality. These factors are siltation of surface water bodies or wetlands during site development; introduction of nonpoint source contaminants to the surface water system; and introduction of nonpoint source contaminants to the groundwater.

Potential nonpoint source pollutants to surface water bodies associated with this type of land use typically stem from the roadway and overland runoff. Such runoff may include petrochemicals, salts, and organic compounds including nitrogen and phosphates. Adherence to an approved soil erosion and sediment control plan will help to offset any runoff effects.

Another important consideration is the potential for groundwater contamination from the subsurface sewerage disposal system. It is important that the septic systems be designed in accordance with municipal, county, and state standards to ensure that the effluents are properly treated prior to discharging from the bottom of the system into the subsurface materials.

As previously discussed, all proposed disturbance is well outside of wetlands and wetland transition areas and also outside of the 300 foot riparian zone. Therefore, the water quality of the on-site watercourse is not expected to be measurably impacted by pollutants which may originate as a result of the construction of the project. As discussed, a stormwater management system has been designed to handle both water quality and stormwater runoff for each lot and designed in accordance with the design standards pursuant to the Stormwater Management Rules at N.J.A.C. 7:8.

## ***7. Water Supply***

According to the Mendham Township Environmental Resources Inventory, various aquifers have different well yields depending on characteristics of the aquifers and may range from 1 to 3,000 gallons of water per minute (GPM) within the state of New Jersey. The NJ Geological Survey has assigned a well yield ranking system for the aquifers of the state based on the findings of high capacity wells. The aquifers are ranked from A to E depending on GPM yield. The ranks are as follows: E, less than 25 gpm; D, 25 to 100 gpm; C, greater than 100 gpm to 250 gpm; B, greater than 250 gpm to 500 gpm; and A, greater than 500 gpm. Based on the Township ERI and the New Jersey Geological Survey, the High Capacity Aquifer Rank of the geologic formation of the site is D. Based on well records obtained and provided in the report, actual yields appear to be less than 25 gpm, which is not unusual for Mendham Township. Most of the well records obtained indicated 10GPM or more which is more than adequate for individual wells in this area. Water capacity is expected to be adequate to service the proposed subdivision.

## ***8. Vegetation***

The proposed construction, including the roadway, dwellings septic systems and stormwater management system will occur within hayfields/maintained lawn, the oak grove and forested uplands. Therefore, the removal of trees is unavoidable and must be considered acceptable in this type of development. No unique habitats or species will be impacted. Approximately 2.68 acres of wooded area was planned to be disturbed for construction on the existing six lots. The net increase in woodland disturbance as a result of the three (3) new lots is 2.36 acres. This is a minimal increase and is unavoidable and required in order to develop the property as zoned. It should be noted that the total area of woodland disturbance has been minimized by moving the proposed dwellings closer to the roadway. As discussed, no unique habitats or vegetation communities were observed and the wooded areas are dominated by invasive species, thereby limiting their functional value to some degree.

Vegetation is important for a variety of reasons. It is important in maintaining groundwater recharge as it reduces runoff rates and allows for natural infiltration. Vegetation also acts to reduce erosion, especially on steeper sloping areas. There are also the obvious habitat benefits to wildlife as well as providing screening of the development from an aesthetic standpoint reducing light, wind and to a lesser extent noise.

In accordance with Municipal policies, tree loss will be minimized and wooded areas will be preserved to the greatest extent possible for aesthetic as well as functional (shade, windbreak, natural landscaping) purposes. Significant wooded areas will remain after completion of the project.

### ***9. Wildlife***

The clearing of vegetation for the proposed project will displace terrestrial populations currently inhabiting or using the site on both a temporary and permanent basis. Some wildlife species will be displaced during construction before relocating to remaining vegetation and new habitats. This short term effect will be a decrease in the total number of individuals and species until the new equilibrium is established.

The areas surrounding the development area contain extensive areas of undeveloped woodland, wetlands and stream corridors and will continue to provide habitat for the wildlife species utilizing the site. Although the removal of trees is proposed, it is not expected that this will have any significant impacts on any of the wildlife utilizing the site.

In addition, although the site likely does provide suitable habitat for several threatened/endangered species, these particular species are typically dominating the wetlands and associated transition areas and riparian zones. Since none of these regulated areas are proposed to be disturbed, measurable impacts to any of the noted species are not expected.

### ***10. Wetlands***

As previously stated, wetlands, wetland transition areas and the stream riparian zone are not proposed to be disturbed. In addition, the stormwater management system will ensure that groundwater recharge is provided and that the wetlands will continue to receive both surface water runoff and subsurface runoff and therefore hydrology should not be impacted. In addition, the bioretention basins will ensure that water quality of the surface water runoff and groundwater will be maintained as close to current levels as possible. Therefore, there are not expected to be any measurable impacts to wetlands as a result of the construction of the proposed project.

### ***11. Light Levels***

There will be no use of artificial light other than the normal outside lighting associated with residential dwellings. It is not anticipated that there will be any sky glow or other off-site adverse impacts from any lighting sources proposed for this site.

### ***12. Noise***

Impacts associated with implementation of the project are short term in nature. Short term impacts are associated with normal construction activities. Noise at a construction site varies relative to the particular operation in progress. Operations can be divided into five consecutive phases: ground clearing, including demolition and removal of structures, trees, and rocks; excavation; placing foundations; erection, including framing, the placing of walls, floors, windows, and pipe installation; and finishing, including filling, paving, and cleanup. Table 6 shows typical energy-equivalent noise levels at construction sites. Information is also available on noise levels observed 50 ft. from various types of construction equipment.

These levels range from 72 to 96 dBA for earth moving equipment, from 75 to 88 dBA for materials-handling equipment, and from 68 to 87 dBA for stationary equipment. Impact equipment may generate noise levels up to 115 dBA. These noise levels may be compared to OSHA's noise exposure limits for the work environment (See Table 7).

**Table 6. Typical Ranges of Energy-Equivalent Noise Levels in dBA at Construction Sites**

<u>Phase</u>	<u>Domestic Housing</u>
Ground clearing	83
Excavation	88
Foundations	81
Erection	81
Finishing	88

Source: USEPA, 1972.

**Table 7. OSHA Noise Exposure Limits for the Work Environment**

<u>Noise (dBA)</u>	<u>Permissible exposure (hours and mins.)</u>
85	16 hrs
87	12 hrs 6 min
90	8 hr
93	5 hr 18 min
96	3 hrs 30 min
99	2 hrs 18 min
102	1 hr 30 min
105	1 hr
108	40 min
111	26 min
114	17 min
115	15 min
118	10 min
121	6.6 min
124	4 min
127	3 min
130	1 min

Source: Marsh, 1991.

Although an increase in noise levels is anticipated during construction, these will be short term and intermittent. Construction equipment is required to comply with Federal Noise Control Standards. Noise impacts will be reduced by employing the following noise abatement measures typically used during construction:

1. Proper maintenance of equipment to minimize noise emissions;
2. Use of properly muffled equipment;
3. Efficient air intake silencers;

4. Proper cooling system operations; and
5. Avoiding prolonged idling of equipment.

Construction activity will take place during normal working hours, in accordance with local ordinances. Also, the noise impact of the construction on-site to surrounding areas is lessened due to the distance from the source. Sound levels are inversely proportional to the distance from the source. To quantify, each time the distance from the source doubles, the sound pressure level (SPL) is halved, resulting in a decrease of approximately 6 dBA.

### ***13. Historical Sites and Archeological Features***

There are no historic sites situated on the subject property according to the State Registry of Historic Places or the Mendham Township Master Plan. No significant old structures or artifacts were observed or known to exist on the site. Therefore, there should not be any impacts to any historical or archeological features due to this project.

### ***14. Community Facilities***

Community facilities which will support the development will include the Mendham Township Police Department, the Mendham Township Department of Public Works, the Mendham Township Volunteer Fire Department and the Mendham Township First Aid Squad.

Both the fire department and the first aid squad have two stations; one in Brookside and one in Ralston.

The school system consists of an elementary school on West Main Street in Brookside and a middle school on Washington Valley Road in Brookside. Mendham High School is located on Route 24 and is part of the West Morris Regional High School District Board of Education.

School enrollment in Mendham Township's public schools (elementary and middle) has varied substantially in recent decades. In 1974 it reached a high of 877 students and in 1986 it

reached a low of 377 students. Since the beginning of the 1990's, school enrollment has gradually increased to 762 students in 1999. In 1999 the Mendham Township Board of Education contracted for a demographic study of future enrollment. The study predicted continued increases in school enrollment, projecting enrollment in 2004 to be 932 students. According to various sources, the current enrollment is 745 students, therefore enrollment has decreased.

The proposed project should have little or no impact on the Township's community facilities. Due to the small scope of the project, there should be no need for additional police, fire, first aid or school facilities.

#### ***15. Sewage Disposal Facilities***

A soils investigation has been conducted by Yannaccone, Villa and Aldrich, LLC on the proposed lots to determine the soil suitability for individual on-site septic disposal systems. Based on the soils investigation and testing, it is concluded that the expected quantity of domestic sewage can be safely and efficiently treated and that the resulting effluent can be discharged underground without adverse impacts. The systems will be designed and constructed in accordance with all applicable NJDEP and Local Board of Health regulations. An application for the septic system designs have been provided to the Board of Health.

#### ***16. Solid Waste Disposal***

Solid wastes generated from the project, in the short term, will predominately be construction material. The estimated volume of this waste is 270 (1 - 30 yard per building) cubic yards. During construction, building debris will be retained onsite in roll-off containers for transportation off-site. Excess earth will generally be used onsite for filling around houses, etc.

Only normal household solid waste is expected to be generated from the proposed dwelling in the long run. The development of three (3) additional lots will result in approximately 0.06 tons of bulk waste per week. Of this amount, approximately 40% will be composed of recyclable

materials, with this percentage increasing as more materials are included in the recycling plan. The solid waste disposal and recycling will be by private hauler and in compliance with any recycling ordinances and New Jersey State Law.

***17. Hazardous Waste Disposal***

No hazardous waste is expected to be generated by the proposed residential subdivision.

***18. Traffic (Vehicular and Pedestrian)***

The addition of three (3) new building lots will generate an additional 30.3 trips per day according to the Residential Site Improvement Standards when compared to the anticipated traffic from the existing six (6) lots. This will create relatively minor impacts on the existing traffic patterns on the surrounding roads. In addition, this slight increase in vehicular traffic should not be noticeable. No pedestrian traffic is provided for due to the size and scope of the proposed project.

The trend in New Jersey over the past ten years has been toward a slight increase in the ozone concentration in urbanized areas. Implementing the proposed project will cause a minor increase in the traffic near the site but on a regional basis is not measurable.

***19. Fire Protection***

Fire protection was previously addressed at the time of the existing subdivision that created the lots and roadways. This included the construction of three (3) fire tanks adjacent to the improved roadways. Two of these fire tanks are within the limits of the currently proposed subdivision; one of which is adjacent to existing Lot 42.12 and the other adjacent to the cul-de-sac bulb near existing Lot 42.16. The existing roadways within the proposed subdivision provide adequate access for any fire equipment trucks.

***20. Fiscal Impact and Demography***

The population in Mendham Township experienced an increase of approximately 2% from



2010 to 2021. U.S. Census information lists the population in 2010 as approximately 5,869 and the 2021 estimate as approximately 6,004. The number of households in the Township is 1,969.

The net addition of three (3) single family dwellings will have a minimal effect on municipal services. There should be no need for additional police, fire or emergency services. The new residents should have socio-economic similarity with others already in the neighborhood. The property improvement will provide an increase to the tax ratable base of Mendham Township.

The proposed project subdivision results in the construction of three (3) additional single family residential dwellings when compared to the existing approved subdivision. The proposed homes will be market size and vary depending on the buyer. It is expected that the dwellings will have 4 to 5 bedrooms. The anticipated sales price ranges from \$1,500,000 to \$2,500,000.

The population increase for the project was estimated based on U.S. Census data contained in the Mendham Township Master Plan. Using this data, a household population of 2.56 is estimated. Of this total, 0.915 of school age children are estimated per household. Therefore, the total anticipated increase in population for the project is 7.68 persons, with 2.745 being school age children.

Potential impacts to the school district were evaluated in terms of enrollment and cost to the district. It is anticipated that an increase of 2.745 students will result from implementation of the project. According to the New Jersey Department of Education, School Report Card for the Mendham Township District Schools, the Township incurs a total cost of \$22,101 per pupil. Therefore a total cost of \$66,303 is possible.

The construction of the homes will result in tax revenue for the Township. According to current records, the Township has a tax rate of 2.213. Based on an average sale price of \$1,750,000, taxes per household are anticipated to be \$37,275. Therefore, a total tax revenue generated by the proposed project is anticipated to be approximately \$111,825 annually.

## ***21. Statement of Impact on Resources***

The following is a list of irreversible or irretrievable commitment of resources and unmitigated impacts involved in the proposed project should it be implemented.

- Loss of a certain percentage of vegetation.
- Temporary and permanent disturbance of a certain amount of wildlife habitat.
- Minor soil erosion due to grading activity.
- Minor changes in local topography.
- Temporary normal construction related noise.
- Minor increase in vehicular traffic.

In evaluating the environmental impacts of any proposed project, there are generally certain impacts, which are unavoidable, but which may be expected based on the zoning of the property. Based on the zoning, the only viable alternative in most instances is to attempt to mitigate impacts to the greatest extent possible. When considering the zone, surrounding land use, the low density of the project and the provisions for mitigation discussed above, this project furthers the goals and objectives of the Mendham Township Master Plan and by providing an opportunity for site development as zoned.

## **V. STATEMENT OF ALTERNATIVES**

As in any development proposal, alternatives to the proposed site layout have been investigated, including the location of the lots, number of lots, dwellings, septic areas and stormwater management systems. This project has been designed to be consistent with and comply with the Township of Mendham, specifically the R-5 Single Family Residential Zone. The plan provides the least effect on drainage, environmental resources and ground cover as possible in consideration of the objectives of the Residential District.

Another alternative other than that which has been proposed is the "no build" option of leaving the site in its existing condition. This would provide no new environmental impact as well as provide no new community benefits. The "no build" alternative would deny the owner the right

to utilize the land as zoned. It would ignore the opportunity to provide a quality low density development consistent with the Township Zoning Ordinance.

Other land use alternatives besides residential development (i.e. commercial or industrial use) have not been considered as they are precluded by the Zoning Ordinance and Master Plan for this site and are inconsistent with the existing neighborhood.

## VI. STATEMENT OF PERMITS REQUIRED

The following is a list of licenses, permits, etc. to be obtained by the applicant for the construction of the proposed project.

<u>Approvals</u>	<u>Agency</u>	<u>Status</u>
Major Subdivision Approval	Mendham Twp. Planning Board	Pending
Major Subdivision Approval	Morris County Planning Board	Pending
Soil Logs & Septic Tests Subdivision Suitability	Mendham Twp. Health Dept.	Approved
Septic Design Approvals	Mendham Twp. Health Dept.	Future
Soil Erosion & Sediment Control Plan Certification	Morris Co. SCS	Pending
Construction Permit	Mendham Twp.	Future
Certificate of Occupancy	Mendham Twp.	Future

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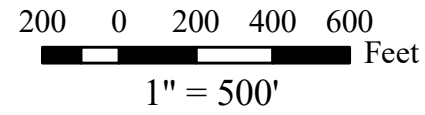
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**APPENDIX A**  
**SITE FIGURES 2-5**

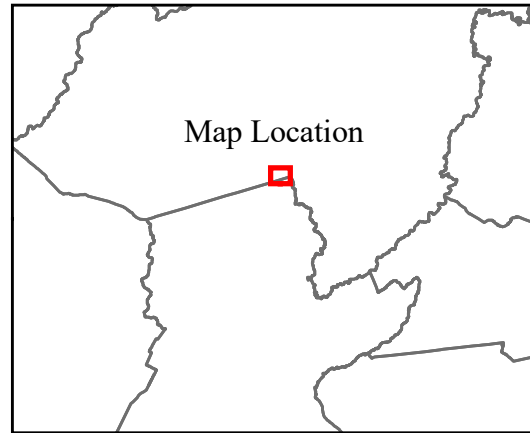
Figure 2 - Local Street Map  
 Block 147; Lots 42.06, 42.07, 42.08;  
 42.12, 42.13 & 42.16  
 Mendham Township  
 Block 8, Lot 2, Bernardsville Borough  
 Morris/Somerset Counties, New Jersey



Data Sources:  
 NJDEP OIRM BGIS- State, County, Municipal Boundaries  
 ESRI World Street Map

**Legend**

- Approximate Site Boundary
- County Boundaries



**ENVIRONMENTAL  
 TECHNOLOGY, INC.**  
 460 Main Street, P.O. Box 50  
 Chester, New Jersey 07930  
 (908) 879-8509

Date:  
 08/29/2022

22072  
 LFE  
 Fig 2 - LSM



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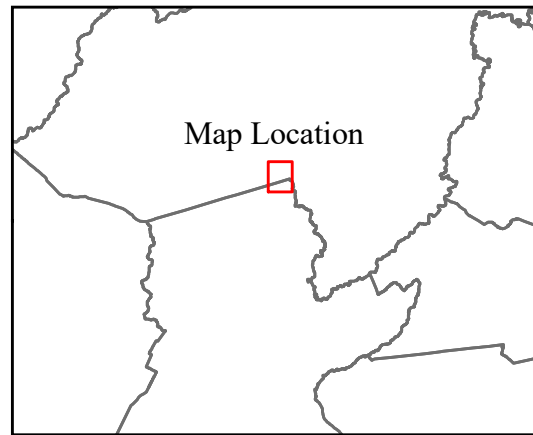
Figure 3 - Tax Map  
 Block 147; Lots 42.06, 42.07, 42.08;  
 42.12, 42.13 & 42.16  
 Mendham Township  
 Block 8, Lot 2, Bernardsville Borough  
 Morris/Somerset Counties, New Jersey

N.T.S.

Data Sources:  
 NJDEP OIRM BGIS- State, County, Municipal Boundaries  
 Mendham Twp Tax Maps: Sheet No. 33  
 Note: Approximate limit of Lot 2 in Bernardsville depicted.

**Legend**

- Approximate Site Boundary
- County Boundaries



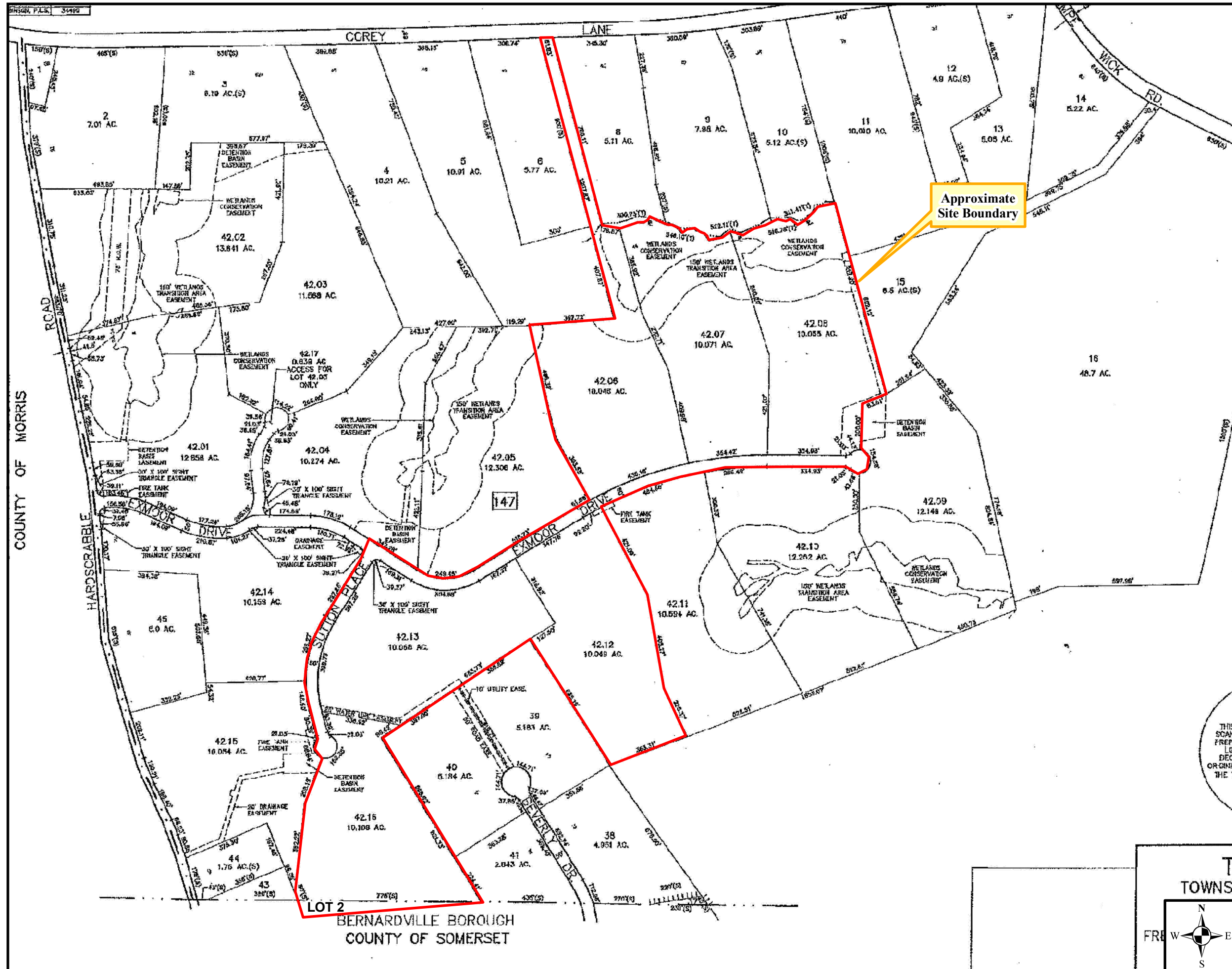
**ENVIRONMENTAL TECHNOLOGY, INC.**  
 460 Main Street, P.O. Box 50  
 Chester, New Jersey 07930  
 (908) 879-8509

Date:  
 08/29/2022

22072  
 LFE  
 Fig 3 - Tax Map



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THIS SCAN PREPARED BY ETI FROM ORIGINAL DATA

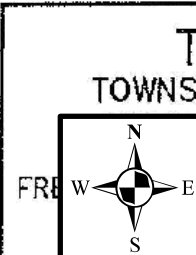
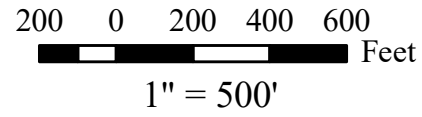


Figure 4 - Soils Map  
 Block 147; Lots 42.06, 42.07, 42.08;  
 42.12, 42.13 & 42.16  
 Mendham Township  
 Block 8, Lot 2, Bernardsville Borough  
 Morris/Somerset Counties, New Jersey



Data Sources:  
 NJDEP OIRM BGIS- State, County, Municipal Boundaries  
 NJDEP Orthophotography: 2020 Infrared  
 NRCS: SSURGO Soils

**Legend**

- Approximate Site Boundary
- Soils Boundaries
- County Boundaries



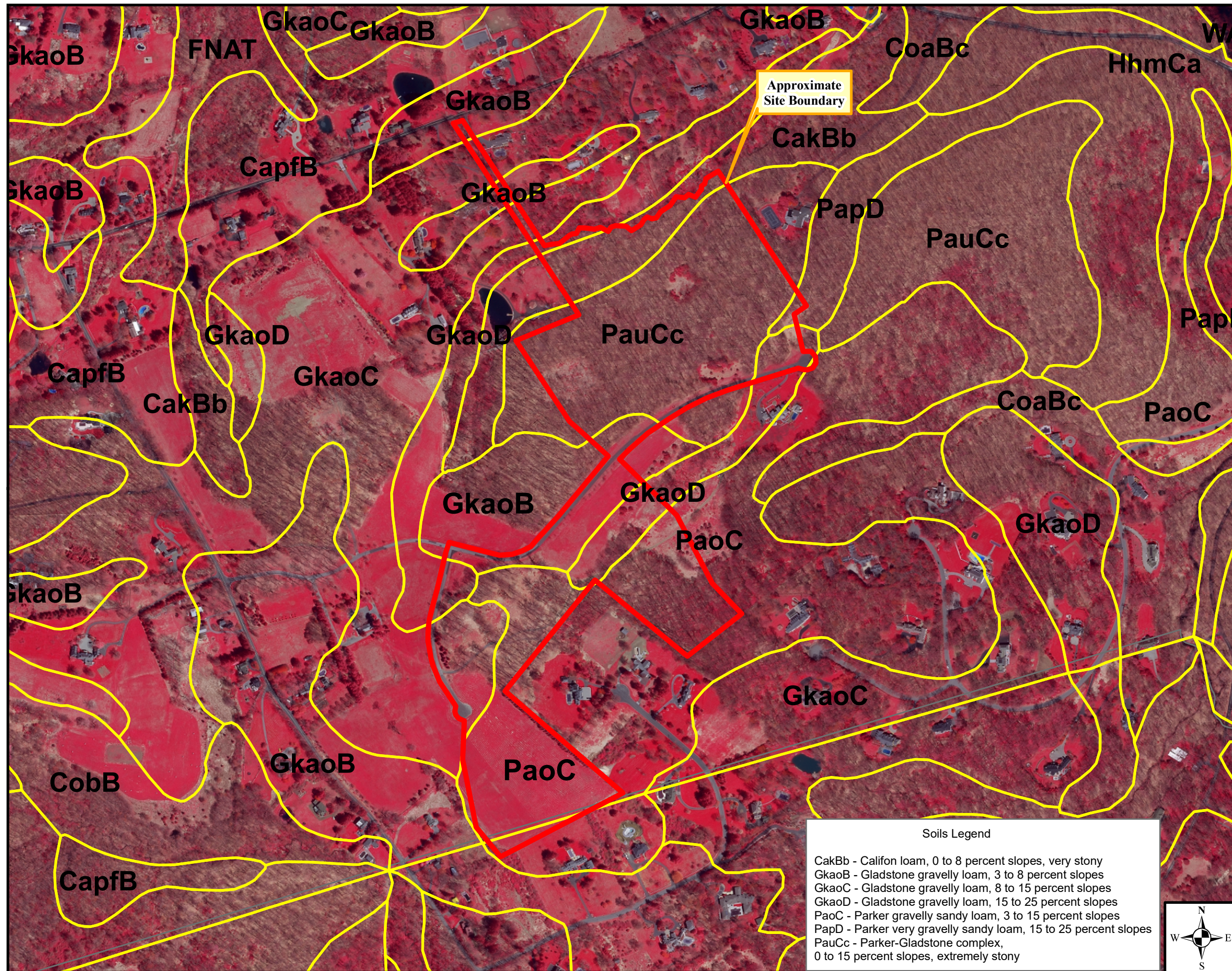
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Date:  
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22072  
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 Fig 4 - Soils



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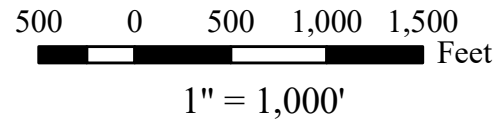


**Soils Legend**

- CakBb - Califon loam, 0 to 8 percent slopes, very stony
- GkaoB - Gladstone gravelly loam, 3 to 8 percent slopes
- GkaoC - Gladstone gravelly loam, 8 to 15 percent slopes
- GkaoD - Gladstone gravelly loam, 15 to 25 percent slopes
- PaoC - Parker gravelly sandy loam, 3 to 15 percent slopes
- PapD - Parker very gravelly sandy loam, 15 to 25 percent slopes
- PauCc - Parker-Gladstone complex, 0 to 15 percent slopes, extremely stony



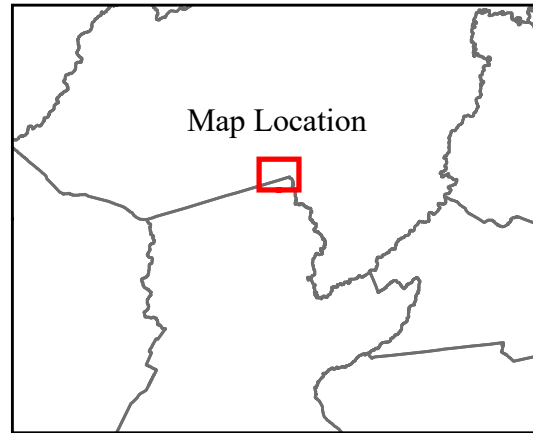
Figure 5 - USGS Quadrangle  
Block 147; Lots 42.06, 42.07, 42.08;  
42.12, 42.13 & 42.16  
Mendham Township  
Block 8, Lot 2, Bernardsville Borough  
Morris/Somerset Counties, New Jersey



Data Sources:  
NJDEP OIRM BGIS- State, County, Municipal Boundaries  
U.S. Geological Survey, 7.5 Quadrangle: Mendham, NJ

### Legend

- Approximate Site Boundary
- County Boundaries



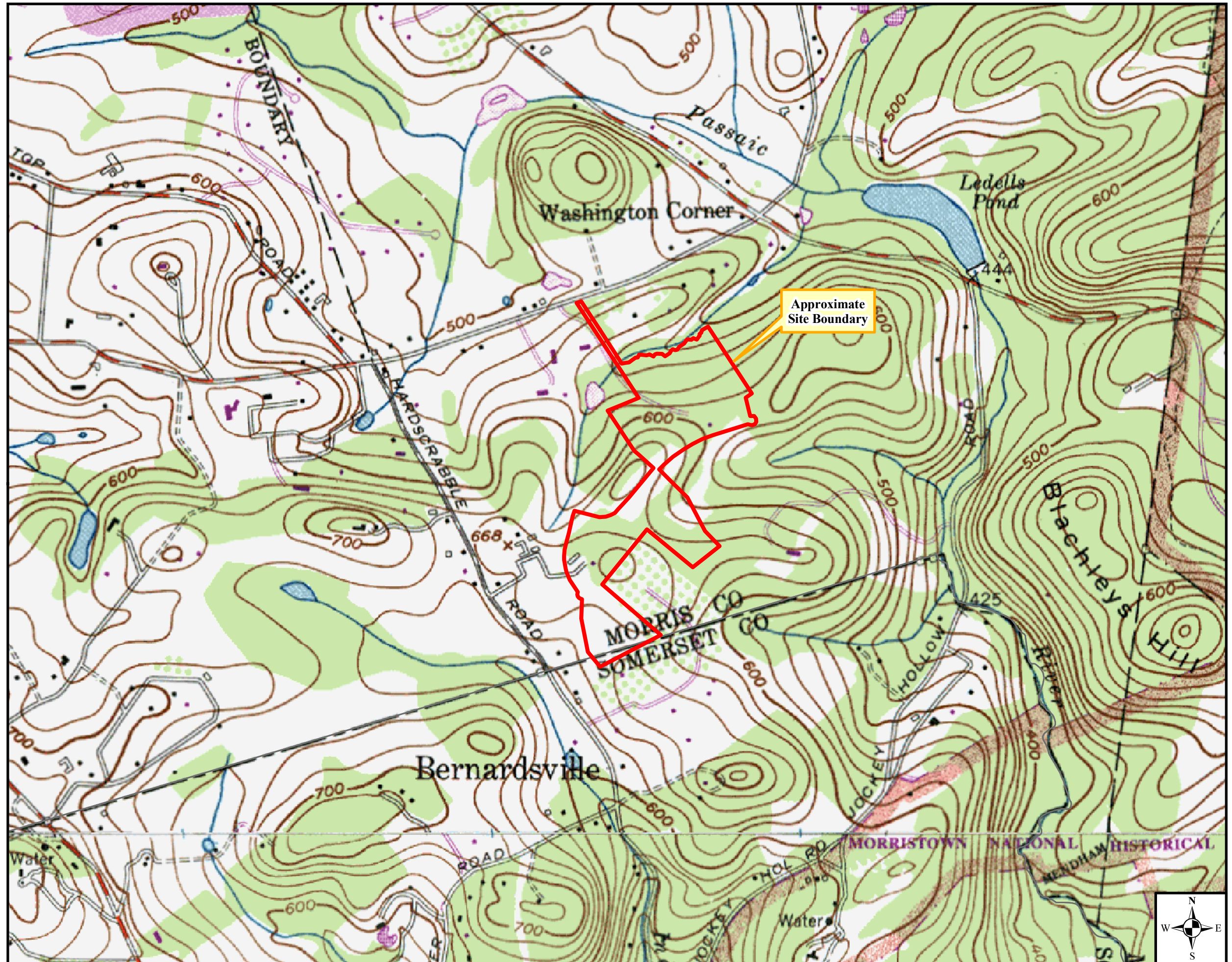
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22072  
LFE  
Fig 5 - USGS



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**APPENDIX B**

**ENVIRONMENTAL CONSTRAINTS PLAN**

NORTH PER FILED MAP No. 5891  
N.J.S.P.C.S. AND 87

SOILS CLASSIFICATION PROPERTIES				
MAP SYMBOL	SOIL SERIES	SLOPE	DEPTH TO SEASONAL G.WATER	DEPTH TO BEDROCK
CslRb	CALIFON LOAM	0-8%	1.5 FT.	> 6.5 FT.
CapB	CALIFON LOAM	3-8%	1.5 FT.	> 6.5 FT.
CoBc	COKEBURY LOAM	0-8%	0.5 FT.	> 6.5 FT.
GksoB	GLADSTONE GRAVELLY LOAM	3-8%	> 6.5 FT.	> 5.5 FT.
GksoC	GLADSTONE GRAVELLY LOAM	8-15%	> 6.5 FT.	> 5.5 FT.
GksoD	GLADSTONE GRAVELLY LOAM	15-25%	> 6.5 FT.	> 6.5 FT.
Paoc	PARKER GRAVELLY SANDY LOAM	3-15%	> 6.5 FT.	> 6.5 FT.
Paop	PARKER GRAVELLY SANDY LOAM	15-25%	> 6.5 FT.	> 6.5 FT.
PaocC	PARKER-EDNEYVILLE EXTREMELY STONY SANDY LOAMS	3-15%	> 6.5 FT.	> 6.5 FT.

SOIL LIMITATION DATA CHART		
SOIL SERIES & MAP SYMBOLS	DISPOSAL OF SEWAGE EFFLUENT (ONSITE)	SEPTIC SUITABILITY
CALIFON: CslRb	SEVERE	III+IV
CALIFON VARIANT: CapB	SEVERE	III+
COKEBURY: CoBc	SEVERE	III+IV
GLADSTONE: GksoB	SLIGHT	I, IIsc
GksoC	MODERATE	IIsc
GksoD	SEVERE	IIsc
PARKER: Paoc	MODERATE	IIsc
Paop	SEVERE	IIsc
PaocC	MODERATE	IIsc

EXISTING LOT ACREAGE TABLE

LOT NO.	ACREAGE
42.06	10.046
42.07	10.071
42.08	10.055
42.12	10.049
42.13	10.068
42.16	10.108
TOTAL	60.398



**YANNACCONNE VILLA & ALDRICH, LLC**  
Civil Engineers & Land Surveyors  
460 MAIN STREET, P.O. BOX 459  
CHESTER, NEW JERSEY 07930  
PHONE: 908-879-6646  
FAX: 908-879-8591

N.J. STATE BOARD OF P.E. & L.S.  
CERTIFICATION OF AUTHORIZATION  
No. 24GA27934500

**CANDICE J. DAVIS**  
N.J. PROFESSIONAL ENGINEER  
NO. 24GE04527000 DATE 9/02/22

NOT VALID WITHOUT SIGNATURE AND RAISED SEAL

PROJECT TITLE:  
**LAWRENCE FARM ESTATES**  
MAJOR SUBDIVISION PLANS  
EXMOOR DRIVE & SUTTON PLACE  
LOTS 42.06, 42.07, 42.08 &  
LOTS 42.12, 42.13, 42.16 - BLOCK 147  
TAX MAP SHEET 33  
TOWNSHIP OF MENDHAM  
MORRIS COUNTY, NEW JERSEY  
LOT 2 - BLOCK 8  
TAX MAP SHEET 8  
BOROUGH OF BERNARDSVILLE  
SOMERSET COUNTY, NEW JERSEY

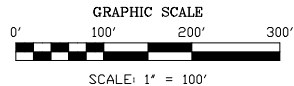
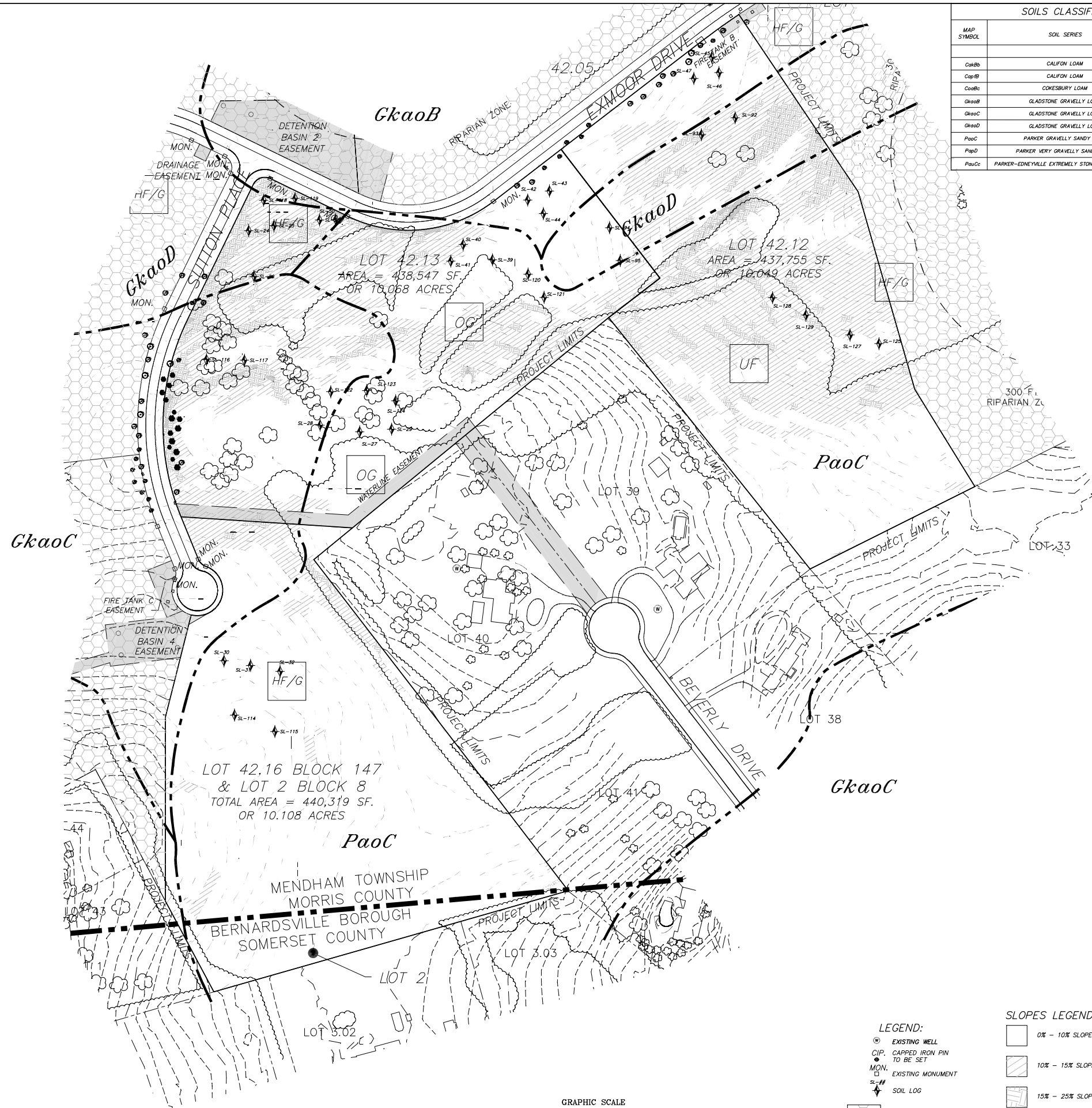
SHEET TITLE:  
ENVIRONMENTAL CONSTRAINTS PLAN  
EXISTING LOTS 42.12, 42.13 & 42.16 AND BLOCK 8 LOT 2

DRAWN BY: DATE:  
GY/JPW SEPT 2, 2022

CHECKED BY: SCALE:  
GY 1" = 100'

W.O. 222040  
F.B. -----

FILE:  
FILE PATH: M:\SEPTIC\DATA\222040\222040\PLANNING\BDRD  
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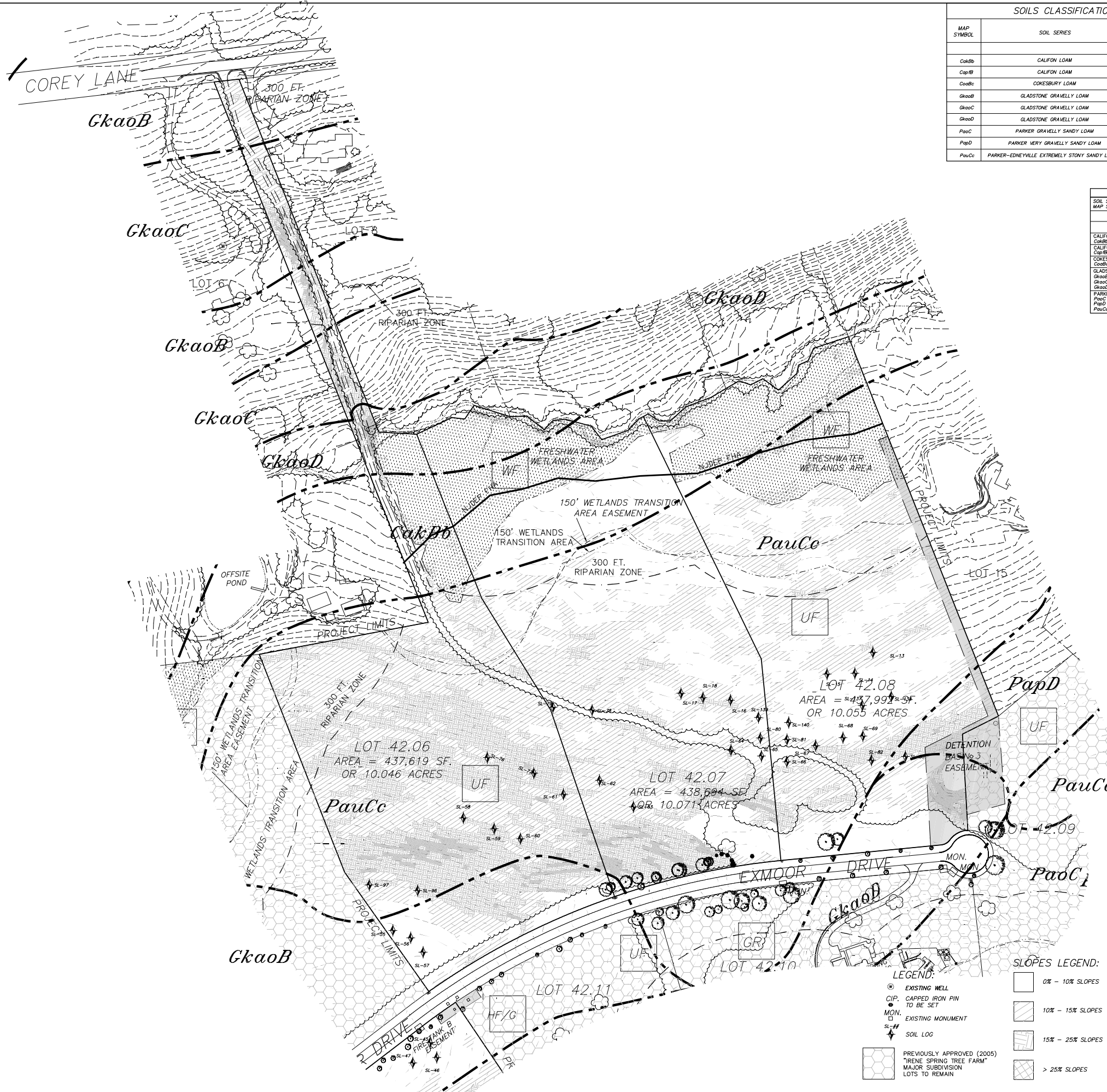


- LEGEND:**
- EXISTING WELL
  - CIP. CAPPED IRON PIN TO BE SET
  - MON. EXISTING MONUMENT
  - SL/IF SOIL LOG
  - PREVIOUSLY APPROVED (2005) "RENE SPRING TREE FARM" MAJOR SUBDIVISION LOTS TO REMAIN

- SLOPES LEGEND:**
- 0% - 10% SLOPES
  - ▨ 10% - 15% SLOPES
  - ▧ 15% - 25% SLOPES
  - ▩ > 25% SLOPES

- VEGETATION COMMUNITIES & FORESTED AREAS LEGEND:**
- HF/G HAYFIELD/GRASS/MAINTAINED LAWN
  - UF UPLAND FOREST CONSISTS MOSTLY OF OAKS, MAPLES, HICKORY, POPLAR (12-48" DIA.)
  - WF WETLAND FOREST CONSISTS MOSTLY OF OAKS, MAPLES, HICKORY, POPLAR (12-48" DIA.)
  - OG OAK GROVE CONSISTS MOSTLY OF OAKS (12-48") IN MAINTAINED MEADOW GRASS

NORTH PER FILED MAP No. 5891  
N.J.S.P.C. AND 87



**SOILS CLASSIFICATION PROPERTIES**

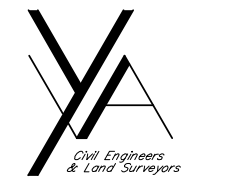
MAP SYMBOL	SOIL SERIES	SLOPE	DEPTH TO SEASONAL G.WATER	DEPTH TO BEDROCK
GkaB	CALIFON LOAM	0-8%	1.5 FT.	> 6.5 FT.
GkaC	CALIFON LOAM	3-8%	1.5 FT.	> 6.5 FT.
GkaD	COKEBURY LOAM	0-8%	0.5 FT.	> 6.5 FT.
GkaE	GLADSTONE GRAVELLY LOAM	3-8%	> 6.5 FT.	> 5.5 FT.
GkaF	GLADSTONE GRAVELLY LOAM	8-15%	> 6.5 FT.	> 5.5 FT.
GkaG	GLADSTONE GRAVELLY LOAM	15-25%	> 6.5 FT.	> 6.5 FT.
PaC	PARKER GRAVELLY SANDY LOAM	3-15%	> 6.5 FT.	> 6.5 FT.
PaD	PARKER VERY GRAVELLY SANDY LOAM	15-25%	> 6.5 FT.	> 6.5 FT.
PaE	PARKER-EDNEYVILLE EXTREMELY STONY SANDY LOAMS	3-15%	> 6.5 FT.	> 6.5 FT.

**SOIL LIMITATION DATA CHART**

SOIL SERIES & MAP SYMBOLS	DISPOSAL OF SEWAGE EFFLUENT (ON SITE)	SEPTIC SUITABILITY
CALIFON: GkaB, GkaC, GkaD	SEVERE	III/IV
COKEBURY: GkaE	SEVERE	III/IV
GLADSTONE: GkaF, GkaG, GkaH	SLIGHT	I, II/Sc
PARKER: PaC, PaD, PaE	MODERATE	II/Sc, III/Sc

EXISTING LOT ACREAGE TABLE

LOT NO.	ACREAGE
42.06	10.046
42.07	10.071
42.08	10.055
42.12	10.049
42.13	10.068
42.16	10.108
TOTAL	60.398



**YANNACCONNE VILLA & ALDRICH, LLC**  
Civil Engineers & Land Surveyors

460 MAIN STREET, P.O. BOX 459  
CHESTER, NEW JERSEY 07930  
PHONE: 908-879-6646  
FAX: 908-879-8591

N.J. STATE BOARD OF P.E. & L.S.  
CERTIFICATION OF AUTHORIZATION  
No. 24GA27934500

*Candice J. Davis*  
CANDICE J. DAVIS

N.J. PROFESSIONAL ENGINEER  
NO. 24GE04527000 DATE 9/02/22

NOT VALID WITHOUT SIGNATURE AND RAISED SEAL

PROJECT TITLE:  
**LAWRENCE FARM ESTATES**  
MAJOR SUBDIVISION PLANS  
EXMOOR DRIVE & SUTTON PLACE  
LOTS 42.06, 42.07, 42.08 & 42.12, 42.13, 42.16 - BLOCK 147  
TAX MAP SHEET 33  
TOWNSHIP OF MENDHAM  
MORRIS COUNTY, NEW JERSEY  
LOT 2 - BLOCK 8  
TAX MAP SHEET 8  
BOROUGH OF BERNARDSVILLE  
SOMERSET COUNTY, NEW JERSEY

SHEET TITLE:  
ENVIRONMENTAL CONSTRAINTS PLAN  
EXISTING LOTS 42.06, 42.07 & 42.08

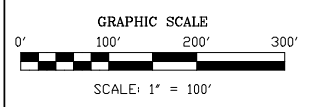
DRAWN BY: GY/JPW DATE: SEPT 2, 2022

CHECKED BY: GY SCALE: 1" = 100'

W.O. 222040

F.B. -----

FILE:  
FILE PATH: M:\SEPPIC\DATA\222040\222040\PLANNING\BOARD  
FILE NAME: PB-02-0000.DWG



- LEGEND:**
- EXISTING WELL
  - CIP, CAPPED IRON PIN TO BE SET
  - MON. EXISTING MONUMENT
  - SOIL LOG
  - PREVIOUSLY APPROVED (2005) "IRENE SPRING TREE FARM" MAJOR SUBDIVISION LOTS TO REMAIN

- SLOPES LEGEND:**
- 0% - 10% SLOPES
  - 10% - 15% SLOPES
  - 15% - 25% SLOPES
  - > 25% SLOPES
- VEGETATION COMMUNITIES & FORESTED AREAS LEGEND:**
- HF/G HAYFIELD/GRASS/MAINTAINED LAWN
  - UF UPLAND FOREST CONSISTS MOSTLY OF OAKS, MAPLES, HICKORY, POPLAR (12-48" DIA.)
  - WF WETLAND FOREST CONSISTS MOSTLY OF OAKS, MAPLES, HICKORY, POPLAR (12-48" DIA.)
  - OG OAK GROVE CONSISTS MOSTLY OF OAKS (12-48") IN MAINTAINED MEADOW GRASS

**APPENDIX C**

**NJDEP LETTER OF INTERPRETATION/FHA TRANSMITTAL  
AND PREVIOUS LOIs**



ENVIRONMENTAL  
TECHNOLOGY  
INC.

Environmental Consultants



August 30, 2022

**SENT VIA USPS PRIORITY MAIL No.: 9114 9012 3080 3687 3864 74**

Application Support Section  
Division of Land Resource Protection  
New Jersey Department of Environmental Protection  
Mail Code 501-02A  
PO Box 420  
Trenton, New Jersey 08625

Re: Applications for Freshwater Wetlands  
Letter of Interpretation – Line Verification  
and Flood Hazard Area Verification-Method 5  
**DLRP File No.: 1419-02-0004.1**  
Applicant: Lawrence Farmland, LLC  
54 Hardscrabble Rd.; 1-11, 13 Exmoor Dr.; 3 Sutton Pl.  
Block 147/8; Lots 42.01, 42.01, 42.04 thru 42.14, 42.16/2  
Mendham Twp./Bernardsville Boro., Morris/Somerset County

Dear Sir/Madam:

By way of this letter and pursuant to N.J.A.C. 7:7A-4.5 and N.J.A.C. 7:13-3.5, we request authorization of the referenced Freshwater Wetlands Letter of Interpretation-Line Verification and Flood Hazard Area Verification-Method 5 applications, respectively.

The Letter of Interpretation – Line Verification is to verify the extent and location of freshwater wetlands, State open waters and/or transition areas on the referenced property. The Flood Hazard Area Verification-Method 5 is to determine the flood hazard area and riparian zone limits of the on-site tributaries to the Passaic River.

Enclosed please find the following materials in support of the application:

1. Five (5) copies of the freshwater wetlands plan and topographical survey entitled **“IRENE’S SPRING TREE FARM NJDEP PLANS LOTS 42.01, 42.02, 42.04, THRU 42.14 AND 42.16 IN BLOCK 147 TOWNSHIP OF MENDHAM MORRIS COUNTY & LOT 2 IN BLOCK 8 BOROUGH OF BERNARDSVILLE SOMERSET COUNTY, NEW JERSEY”**, five sheets, dated August 10, 2022, without revisions and prepared by Yannaccone Villa & Aldrich, LLC. This plan depicts the wetlands boundaries, existing features, topography, data points and photograph locations.
2. A copy of a Street Map indicating the location of the subject property.



- Re: Applications for Freshwater Wetlands  
Letter of Interpretation – Line Verification  
and Flood Hazard Area Verification-Method 5  
Applicant: Lawrence Farmland, LLC  
54 Hardscrabble Rd.; 1-11, 13 Exmoor Dr.; 3 Sutton Pl.  
Block 147/8; Lots 42.01, 42.01, 42.04 thru 42.14, 42.16/2  
Mendham Twp./Bernardsville Boro., Morris/Somerset County
3. A copy of a portion of the U.S.G.S. quadrangle map with the boundaries of the property clearly indicated.
  4. A copy of a portion of the SSURGO Soil Survey Sheet with property boundaries clearly indicated.
  5. A copy of the Municipal Tax Map.
  6. Resume' of the preparer of this application.
  7. Data sheets indicating soil-boring information, depth to seasonal high-water table, and vegetative species recorded at the borings.
  8. Color photographs of the property, wetlands and watercourses with description and location.
  9. Verification that certified mail notice has been forwarded to the environmental commission, planning board and the construction official of the municipality; the county planning board; and to all landowners within 200 feet of the legal boundary line of the subject property, as well as easement holders. Also included is the certified list of property owners within 200 feet, notice letter and notice plan.
  10. Specific to the Flood Hazard Area Verification-Method 5 application, the following:
    - June 30, 2022, NJDEP, Office of Natural Lands Management response letter;
    - Color photographs of the property with description and location; and,
    - Three (3) copies of the August 1, 2022 “NJDEP Flood Hazard Area Verification Engineering Report” by Yannaccone, Villa & Aldrich. This report provides all information for the Flood Hazard Area Verification-Method 5 application, pursuant to N.J.A.C. 7:13-3.5.
    - Five (5) copies of the FHA Plan and topographical survey entitled “**IRENE’S SPRING TREE FARM NJDEP PLANS LOTS 42.01, 42.02, 42.04, thru 42.14 and 42.16 IN BLOCK 147 TOWNSHIP OF MENDHAM MORRIS COUNTY & LOT 2 in BLOCK 8 BOROUGH OF BERNARDSVILLE SOMERSET COUNTY, NEW JERSEY**”, five sheets, dated August 10, 2022, without revisions and prepared by Yannaccone Villa & Aldrich, LLC. This plan depicts the floodway, flood hazard and riparian zone limits, existing features, topography, and photograph locations.
  11. Verification that a complete copy of the Letter of Interpretation – Line Verification and Flood Hazard Area Verification – Method 5 application was sent by certified mail notice to the municipal clerk.
  12. A compact disc (CD), which contains a complete copy of the application, including site plans.

Application Support Section, NJDEP

August 30, 2022

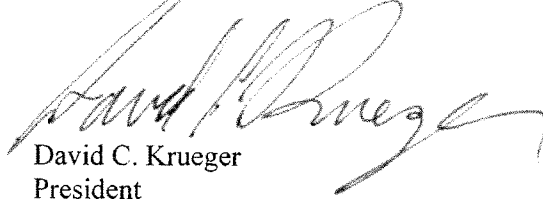
Re: Applications for Freshwater Wetlands  
Letter of Interpretation – Line Verification  
and Flood Hazard Area Verification-Method 5  
Applicant: Lawrence Farmland, LLC  
54 Hardscrabble Rd.; 1-11, 13 Exmoor Dr.; 3 Sutton Pl.  
Block 147/8; Lots 42.01, 42.01, 42.04 thru 42.14, 42.16/2  
Mendham Twp./Bernardsville Boro., Morris/Somerset County

13. The completed and endorsed DLRP Application Form and application fee of \$17,600.00 (Site is 154.64 acres). Check is made payable to “Treasurer-State of New Jersey”, No. 1261 payable by the applicant.

Please do not hesitate to contact our office should you have any questions regarding this application.

Very truly,

ENVIRONMENTAL TECHNOLOGY INC.



David C. Krueger  
President

22072

Enclosures

cc: Lawrence Farmland, LLC, w/enc.

Mendham Township Clerk, w/enc. - CMRRR # 7021 0950 0001 8868 1587

Bernardsville Borough Clerk, w enc. – CMRRR # 7021 0950 0001 8868 1570



State of New Jersey

Department of Environmental Protection  
Land Use Regulation Program  
Tel. (609) 292-1235 Fax. (609) 292-8115

Christine Todd Whitman  
Governor

Mailing Address:  
P. O. Box 439  
Trenton, NJ 08625-0439

Location:  
501 East State Street  
Trenton, NJ 08625

Robert C. Shinn, Jr.  
Commissioner

Mr. David C. Krueger  
Environmental Technology Inc.  
460 Main Street  
P.O. Box 50  
Chester, New Jersey 07930

AUG 17 1998

RECEIVED

AUG 19 1998

ENVIRONMENTAL TECHNOLOGY INC.

RE: Letter of Interpretation/Line Verification  
File No: 0000-98-0003.1  
Applicant: Lawrence Irene  
Block: 147; Lot: 42  
Mendham Township, Morris County  
Block: 8; Lot: 2  
Bernardsville Borough, Somerset County  
Upper Passaic River Watershed, Passaic Drainage Basin

Dear Mr. Krueger:

This letter is in response to your request for a Letter of Interpretation to verify the jurisdictional boundary of the freshwater wetlands and waters on the referenced property.

In accordance with agreements between the State of New Jersey, Department of Environmental Protection, the United States Environmental Protection Agency, and the United States Army Corps of Engineers, the Land Use Regulation Program is the lead agency for establishing the extent of regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted on May 1, 1998, the Land Use Regulation Program has determined that **the wetlands and waters boundary line(s) as shown on the plan map entitled, "WETLANDS MAP", dated January 21, 1998, last revised July 31, 1998, and prepared by Yannaccone Villa & Aldrich, LLC, is accurate as shown.**

Any activities regulated under the Freshwater Wetlands Protection Act proposed within the wetlands or transition areas or the deposition of any fill material into any water area, will require a permit from this office unless exempted under the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq., and implementing rules, N.J.A.C. 7:7A. A copy of this plan, together with the information upon which this boundary determination is based, has been made part of the Program's public records.

Pursuant to the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1 et seq.), you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter.

The freshwater wetlands and waters boundary line(s), as determined in this letter, must be shown on any future site development plans. The line(s) should be labeled with the above LURP file number and the following note:

"Freshwater Wetlands/Waters Boundary Line as verified by NJDEP."

In addition, the Department has determined that the waterways identified on the referenced map by points SOW W-1 through W-4 and E-6 through E-23 are classified as State open waters which do not require a standard transition area pursuant to the Freshwater Wetlands Protection Act Rules. All remaining freshwater wetlands on the subject property are classified as exceptional resource value due to their drainage into trout production water and require a standard transition area or buffer of 150 feet adjacent to their boundary. All wetlands and waters on site have also been identified as being priority wetlands by the United States Environmental Protection Agency. This classification may affect the requirements for a Individual Wetlands Permit (see N.J.A.C. 7:7A-3), the types of Statewide General Permits available for the wetlands portion of this property (see N.J.A.C. 7:7A-9) and the modification available through a transition area waiver (see N.J.A.C. 7:7A-7). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

It should be noted that this determination of wetlands classification is based on the best information presently available to the Department. The classification is subject to change if this information is no longer accurate, or as additional information is made available to the Department, including, but not limited to, information supplied by the applicant.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred on-site. Also this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

In accordance with N.J.A.C. 7:7A-12.7, any person who is aggrieved by this decision may request a hearing within 30 days of the decision date by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, CN 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist.

Please contact me at (609) 633-9277 should you have any questions regarding this letter. Be sure to indicate the Program's file number in all communication.

Sincerely,



Kerry Lynn Owen, Acting Section Chief  
Bureau of Inland Regulation

klo  
c: Municipal Clerk  
Municipal Construction Official



State of New Jersey

James E. McGreevey  
Governor

Department of Environmental Protection  
Land Use Regulation Program  
P.O. Box 439, Trenton, NJ 08625-0439  
Fax # (609) 777-3656  
www.state.nj.us/dep/landuse

Bradley M. Campbell  
Commissioner

NOV 13 2002

Mr. David C. Krueger  
Environmental Technology Inc.  
423 Main Street  
P.O. Box 50  
Chester, New Jersey 07930

RECEIVED  
NOV 25 2002  
ENVIRONMENTAL TECHNOLOGY INC.

RE: Letter of Interpretation-Line Verification  
File No.: 1419-02-0004.1 (FWW 020001)  
Applicant: Lawrence Farm Land  
Block: 147; Lot: 7  
Mendham Township, Morris County  
Nearest Waterway: Unnamed Tributary to the Passaic River  
Passaic River Watershed

Dear Mr. Krueger:

This letter is in response to your request for a Letter of Interpretation to verify the jurisdictional boundary of the freshwater wetlands and waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, Land Use Regulation Program is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retains the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted on October 31, 2002, the Land Use Regulation Program has determined that **the wetlands and waters boundary line(s) as shown on the plan map entitled: "Wetlands Map of Lot 7, Block 147, Township of Mendham, Morris County, New Jersey", consisting of one sheet, dated March 7, 2002, unrevised, and prepared by Yannaccone Villa & Aldrich, LLC, is accurate as shown.**

Any activities regulated under the Freshwater Wetlands Protection Act proposed within the wetlands or transition areas or the deposition of any fill material into any water area, will require a permit from this office unless exempted under the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B -1 et seq., and implementing rules, N.J.A.C. 7:7A. A copy of these plans,

together with the information upon which this boundary determination is based, has been made part of the Program's public records.

Pursuant to the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1 et seq.), you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter.

The freshwater wetlands and waters boundary line(s), as determined in this letter, must be shown on any future site development plans. The line(s) should be labeled with the above LURP file number and the following note:

"Freshwater Wetlands/Waters Boundary Line as verified by NJDEP."

In addition, the Department has determined that the wetlands on the subject property, are of **Exceptional** resource value and the standard transition area required adjacent to these wetlands is 150 feet. The wetlands are classified as Exceptional resource value because they drain to trout production waters. The wetlands are also classified as priority wetlands by the United States Environmental Protection Agency since they drain into the Passaic River Basin. These classifications may affect the requirements for an Individual Wetlands Permit (see N.J.A.C. 7:7A-7), the types of Statewide General Permits available for the wetlands portion of this property (see N.J.A.C. 7:7A-5) and the modification available through a Transition Area Waiver (see N.J.A.C. 7:7A-6). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

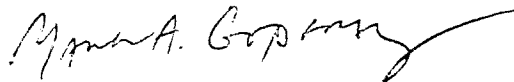
It should be noted that this determination of wetland classification is based on the best information presently available to the Department. The classification is subject to change if this information is no longer accurate, or as additional information is made available to the Department, including, but not limited to, information supplied by the applicant.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred on-site. Also this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the decision date by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, PO Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist.

Please contact Susan Michniewski of our staff at (609) 633-9277 should you have any questions regarding this letter. Be sure to indicate the Program's file number in all communication.

Sincerely,



Mark A. Godfrey, Supervisor  
Morris and Bergen Counties Region  
Bureau of Inland Regulation

Attachment (hearing request checklist)

c: Mendham Township Clerk  
Mendham Township Construction Official  
Mendham Township Environmental Commission  
Mendham Township Planning Board

**APPENDIX D**

**NJDEP NATURAL HERITAGE RESPONSE LETTER**





State of New Jersey

MAIL CODE 501-04

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE PARKS, FORESTS & HISTORIC SITES

OFFICE OF NATURAL LANDS MANAGEMENT

501 East State Street

P.O. Box 420, Mail Code 501-04

Trenton, NJ 08625-0420

Tel. (609) 984-1339 • Fax (609) 984-0427

PHILIP D. MURPHY  
*Governor*

SHEILA Y. OLIVER  
*Lt. Governor*

SHAWN M. LATOURETTE  
*Commissioner*

June 30, 2022

David C. Krueger  
Environmental Technology, Inc.  
32 Grove Street, P.O. Box 50  
Chester, NJ 07930

Re: Irene's Spring Tree Farm  
Mendham Township, Morris County  
Bernardsville Borough, Somerset County  
Bl. 147; L. 42.01, 42.02, 42.04-42.14, 42.16 (Mendham)  
Bl. 8; L. 2 (Bernardsville)

Dear Mr. Krueger:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) 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 map(s) submitted with the Natural Heritage Data Request Form into our GIS. 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.

We have also checked the Landscape Project habitat mapping and Biotics Database for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

For requests submitted in order to make a riparian zone width determination as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species is also covered by the FHACA rules when the records are located within one mile of the project site. One-mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any

precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, 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, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from <https://nj.gov/dep/parksandforests/natural/heritage/database.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 [https://nj.gov/dep/parksandforests/natural/docs/nhpcodes\\_2010.pdf](https://nj.gov/dep/parksandforests/natural/docs/nhpcodes_2010.pdf).

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, <https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7>, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at <http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html>.

Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements (species and/or ecological communities) or their locations. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

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. 22-4007475-25213

***Table 1: On Site Data Request Search Results (6 Possible Reports)***

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
1. 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	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

**Rare Wildlife Species or Wildlife Habitat on the  
Project Site Based on Search of  
Landscape Project 3.3 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Strank
<i>Aves</i>	Cooper's Hawk	Accipiter cooperii	Nest	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Veery	Catharus fuscescens	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
	Worm-eating Warbler	Helminthos vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Indiana Bat	Myotis sodalis	Active Season Sighting	5	Federally Listed Endangered	State Endangered	G2	S1
	Indiana Bat	Myotis sodalis	Maternity Colony	5	Federally Listed Endangered	State Endangered	G2	S1
Indiana Bat	Myotis sodalis	Roost Site	5	Federally Listed Endangered	State Endangered	G2	S1	
Northern Myotis	Myotis septentrionalis	Active Season Sighting	5	Federally Listed Threatened	NA	G1G2	S1	
Wood Turtle	Glyptemys insculpta	Occupied Habitat	3	NA	State Threatened	G3	S2	
<i>Reptilia</i>								

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

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

**Rare Wildlife Species or Wildlife Habitat Within the  
Immediate Vicinity of the Project Site Based on Search of  
Landscape Project 3.3 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Strank	
<i>Aves</i>	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Foraging	4	NA	State Endangered	G5	S1B,S2N	
	Cooper's Hawk	<i>Accipiter cooperii</i>	Nest	2	NA	Special Concern	G5	S3B,S4N	
	Great Blue Heron	<i>Ardea herodias</i>	Foraging	2	NA	Special Concern	G5	S3B,S4N	
	Veery	<i>Catharus fuscescens</i>	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N	
	Wood Thrush	<i>Hylocichla mustelina</i>	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N	
	Worm-eating Warbler	<i>Helminthos vermivorum</i>	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N	
	<i>Mammalia</i>	Indiana Bat	<i>Myotis sodalis</i>	Active Season Sighting	5	Federally Listed Endangered	State Endangered	G2	S1
		Indiana Bat	<i>Myotis sodalis</i>	Maternity Colony	5	Federally Listed Endangered	State Endangered	G2	S1
Indiana Bat		<i>Myotis sodalis</i>	Roost Site	5	Federally Listed Endangered	State Endangered	G2	S1	
Northern Myotis		<i>Myotis septentrionalis</i>	Active Season Sighting	5	Federally Listed Threatened	NA	G1G2	S1	
Wood Turtle		<i>Glyptemys insculpta</i>	Occupied Habitat	3	NA	State Threatened	G3	S2	
<i>Reptilia</i>									

**Table 3: Within 1 Mile for Riparian Zone Width Determination  
(6 possible reports)**

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
1. Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Application) - Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites for Riparian Zone Width Determination - Within One Mile of the Project Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

**Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination  
Within One Mile of the Project Site  
Based on Search of Landscape Project 3.3 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Strank
<i>Aves</i>								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Canada Warbler	Wilsonia canadensis	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Nest	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,S4N
	Veery	Catharus fuscescens	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
	Worm-eating Warbler	Helmitheros vermivorum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
<i>Insecta</i>								
	Tiger Spiketail	Cordulegaster erronea	Breeding/Cour tship	2	NA	Special Concern	G4	S3
	Tiger Spiketail	Cordulegaster erronea	Occupied Habitat	2	NA	Special Concern	G4	S3



**Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination  
Within One Mile of the Project Site  
Based on Search of Landscape Project 3.3 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
	Tiger Spiketail	Cordulegaster erronea	Territorial Display	2	NA	Special Concern	G4	S3
<i>Mammalia</i>								
	Indiana Bat	Myotis sodalis	Active Season Sighting	5	Federally Listed Endangered	State Endangered	G2	S1
	Indiana Bat	Myotis sodalis	Maternity Colony	5	Federally Listed Endangered	State Endangered	G2	S1
	Indiana Bat	Myotis sodalis	Roost Site	5	Federally Listed Endangered	State Endangered	G2	S1
	Northern Myotis	Myotis septentrionalis	Active Season Sighting	5	Federally Listed Threatened	NA	G1G2	S1
<i>Reptilia</i>								
	Eastern Box Turtle	Terrapene carolina carolina	Occupied Habitat	2	NA	Special Concern	G5T5	S3
	Wood Turtle	Glyptemys insculpta	Occupied Habitat	3	NA	State Threatened	G3	S2

**Vernal Pool Habitat for Riparian Zone Width Determination  
Within One Mile of the Project Site  
Based on Search of Landscape Project 3.3**

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<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Potential vernal habitat area	1979
Total number of records:	1

**Other Animal Species for Riparian Zone Width Determination  
Within One Mile 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	Strank
<b><i>Vertebrate Animals</i></b>					
<i>Eptesicus fuscus</i>	Big Brown Bat			G5	S3
<i>Lasiurus borealis</i>	Red Bat			G3G4	S3
<i>Myotis lucifugus</i>	Little Brown Bat			G3	S1
Total number of records:					3

**APPENDIX E**  
**RESUME OF PREPARER**



ENVIRONMENTAL  
TECHNOLOGY  
INC.

Environmental Consultants



***PROFESSIONAL EXPERIENCE AND QUALIFICATIONS OF:***

DAVID C. KRUEGER, PRESIDENT  
ENVIRONMENTAL TECHNOLOGY INC.  
Wetland Scientist, Biologist, Regulatory Manager

**EDUCATION**

Rutgers University, Cook College, Bachelor of Science, Natural Resource Management,  
New Brunswick, New Jersey

**PROFESSIONAL QUALIFICATIONS:**

**President**, Environmental Technology Inc., Chester, New Jersey. Over 35 years experience in environmental impact assessment, ecological studies and aquatic studies. Founded environmental consulting firm specializing in wetlands, regulatory compliance, and a variety of environmental assessment services.

Mr. Krueger's experience has included the identification of wetlands and all related research. Mr. Krueger is adept at the utilization of the Federal Manual for Identifying and Delineating Jurisdictional Wetlands as well as the U.S. Army Corps of Engineers Manual. Mr. Krueger is also certified by the U.S. Army Corps of Engineers as a Wetland Delineator after having passed both a written test and field examination. He is also acknowledged as a Professional Wetland Scientist by the Society of Wetland Scientists. Mr. Krueger has provided detailed wetlands delineations on sites ranging from less than one acre in size to those of over 1,500 acres. He is experienced in all facets of the permitting systems regarding wetlands for the State of New Jersey and the United States. He has formulated in depth reports for both the New Jersey Department of Environmental Protection as well as the U.S. Army Corps of Engineers.

Mr. Krueger's professional experience also includes aquatic ecosystem studies for both the public and private sector. Studies have been performed for the New Jersey Department of Transportation, the State of New Jersey as well as local municipalities. Studies have included benthic macroinvertebrate sampling; fish netting and trapping; electrofishing; water quality sampling; and laboratory analysis and evaluation. These studies have been prepared for future fisheries management, habitat analysis, environmental impact statements, major roadway construction, natural resource inventories and lake dredging.

Mr. Krueger has also prepared and directed the preparation of environmental impact statements for both the public and private sector. These reports have included the compilation of in-depth fieldwork and literature review to assess the existing

### **PROFESSIONAL QUALIFICATIONS (CONT.):**

environmental conditions and expected impacts of a diversity of projects. These studies as well as other studies have been performed in New Jersey, New York, Pennsylvania and Massachusetts.

As president of Environmental Technology Inc., Mr. Krueger has provided expert testimony regarding wetland studies, aquatic studies, habitat assessment, environmental impact statements and wetland methodology. Mr. Krueger has been qualified as an expert witness before numerous municipal boards throughout New Jersey; Middlesex County Court and County Tax Courts.

### **CERTIFICATIONS**

Professional Wetland Scientist, No. 000662, Society of Wetland Scientists Certification Program, Inc.

Certified Wetland Delineator, Department of the Army, Baltimore District, U.S. Army Corps of Engineers. Certificate No. WDCP94MD03101146B

### **PROFESSIONAL MEMBERSHIPS**

Society of Wetland Scientists  
Association of State Wetland Managers

### **CONTINUING PROFESSIONAL EDUCATION**

Identifying New Jersey's Wetlands  
Understanding Soil Conditions of Wetlands  
Hydrology of Wetlands  
Wetland Systems of the Northeast  
Pocono Environmental Education Center-Plant Identification  
Wetland Jurisdictional Determination Seminar  
New Jersey Freshwater Wetlands Regulations  
New Jersey Department of Environmental Protection Permit Seminar

### **ARTICLES**

"What Impact Will the Newly Revised Freshwater Wetlands Regulations Have on New Jersey Development," Tri-State Real Estate Journal, April 24, 1992.

## SELECTED PERMITTING/WETLAND STUDIES

- \* 300 Acre Transit Village, North Brunswick, NJ, Wetlands Delineation, Permitting
- \* Wireless Facility, Evesham Township, Burlington County, NJ
- \* 250 acre parcel in Sparta, NJ – Residential development; Wetlands Delineation, Permitting
- \* 250+ unit development in Chesterfield, NJ – Wetlands Delineation, Permitting
- \* Wireless Facility, Pennsville Township, Salem County, NJ
- \* Retail shopping center in Raritan, NJ – Wetlands Delineation, Permitting
- \* Wireless Facility, Greenwich Township, Cumberland County, NJ
- \* 500 acre golf course in Bedminster, NJ, Wetlands Delineation
- \* Freezer Plan, Elizabeth/Linden, NJ, Waterfront Development, Wetlands Permitting
- \* 150 acre parcel in Andover, NJ, - Residential development; Wetlands Delineation, Permitting
- \* Large residential development in Montgomery, NJ – Wetlands Delineation, Permitting
- \* 200 acre parcel in Alexandria, NJ, - Residential development, Wetlands Delineation, Permitting
- \* Multi-unit townhouse development, Allendale, NJ – Wetlands Delineation, Permitting
- \* 300+ unit residential development, Livingston, NJ – Wetlands Delineation, Permitting
- \* Large retail development, Readington, NJ – Wetlands Delineation
- \* Single family dwelling, Mendham, NJ – Wetlands Delineation, Permitting
- \* Multi-family residential development, Florham Park, NJ – Wetlands Delineation, Permitting
- \* Commercial development, Hope, NJ – Wetlands Delineation, Permitting
- \* Sixteen lot residential subdivision in Mendham Township
- \* Commercial redevelopment project in Readington Township
- \* Seventeen lot residential subdivision in Mount Olive Township
- \* Benthic Macroinvertebrate Study in Morris Township

## SELECTED PERMITTING/WETLAND STUDIES (CONT)

- \* Seventeen lot residential subdivision in Montgomery Township
- \* Eight lot residential subdivision in Bernards Township

## SELECTED ENVIRONMENTAL IMPACT ASSESMENTS/STATEMENTS

- \* Black Oak Golf Course, Washington Township, Morris County, NJ
- \* Thirty two lot residential subdivision in Andover Township, Sussex County, NJ
- \* Walmart, Readington Township, Hunterdon County, NJ
- \* Hotel Development, Rockaway Township, Morris County, NJ
- \* Twenty seven lot residential subdivision in Andover Township, Sussex County, NJ
- \* House of Worship, Readington Township
- \* Residential Development, Berkeley Heights Township, Union County, NJ
- \* 96 Unit apartment development, Haledon, NJ
- \* 145 Unit high rise development, Bayonne, NJ
- \* Eight lot residential subdivision, Freehold, NJ

## EXPERT TESTIMONY

- \* Andover Township Planning Board
- \* Andover Township Board of Adjustment
- \* Berkeley Heights Township Planning Board
- \* Berkeley Heights Township Board of Adjustment
- \* Bernards Township Planning Board
- \* Bernards Township Board of Adjustment
- \* Bernardsville Borough Board of Adjustment
- \* Chester Township Planning Board
- \* Chester Township Board of Adjustment
- \* Dunellen Borough
- \* Essex County Tax Court
- \* Franklin Lakes Borough Planning Board
- \* Franklin Lakes Borough Board of Adjustment
- \* Franklin Township (Hunterdon Co.) Planning Board
- \* Frelinghuysen Township Planning Board



## EXPERT TESTIMONY (CONT.)

- \*Greenwich Township Board of Adjustment.
- \*Harding Township Board of Adjustment
- \*Harding Township Planning Board & Environmental Commission
- \*Holland Township Planning Board
- \*Hope Township Planning Board
- \*Hunterdon County Court
- \*Jefferson Township Board of Adjustment
- \*Kinnelon Borough Planning Board
- \*Lafayette Township Planning Board
- \*Lebanon Township Board of Adjustment
- \*Long Hill Township Planning Board
- \*Maurice River Township Land Use Board
- \*Mendham Township Planning Board
- \*Mendham Township Board of Adjustment
- \*Mendham Borough Planning Board
- \*Mendham Borough Board of Adjustment
- \*Millburn Township Planning Board
- \*Montvale Borough Planning Board
- \*Morris County Tax Court
- \*Morris Plains Borough Board of Adjustment
- \*Mount Olive Township Planning Board
- \*New Jersey Department of Environmental Protection, Public Hearing
- \*New Providence Borough Planning Board
- \*Newton Planning Board
- \*Peapack-Gladstone Borough Planning Board
- \*Pequannock Township Planning Board
- \*Roxbury Township Planning Board
- \*Roxbury Township Board of Adjustment
- \*South Brunswick Township Board of Education
- \*South Brunswick Township Board of Adjustment
- \*Sparta Township Planning Board
- \*Superior Court, County of Middlesex
- \*Tewksbury Township Planning Board
- \*Tinton Falls Borough Planning Board
- \*Union Township Planning Board
- \*Upper Saddle River Planning Board
- \*Warren Township Board of Health
- \*Warren Township Planning Board
- \*Washington Township Board of Adjustment
- \*Washington Township Planning Board
- \*Watchung Borough Board of Adjustment
- \*West Paterson Borough Planning Board
- \*Wayne Township Planning Board
- \*White Township Planning Board
- \*Wyckoff Township Planning Board