ENVIRONMENTAL IMPACT STATEMENT

FOR

PRELIMINARY & FINAL MAJOR SUBDIVISION

BLOCK 355, LOTS 6, 7, 8 & 11

TOWNSHIP OF MARLBORO

MONMOUTH COUNTY, NEW JERSEY

DECEMBER 19, 2018

PREPARED BY:

DW SMITH ASSOCIATES, LLC

DWSA Reference No. 18-191.01.00

149 Yellowbrook Rd., Suite 101, Farmingdale, NJ 07727 • P (732) 363-5850 • F (732) 905-8669 • www.dwsmith.com

Designing Special Places for people to Live, Work, and Play

TABLE OF CONTENTS

PAGE

1.0 ENVIRONMENTAL IMPACT STATEMENT

1.01 EXECUTIVE SUMMARY

This report has been prepared In accordance with the Township of Marlboro Land Use Ordinance governing Environmental Impact Statements.

This Environmental Impact Statement (EIS) addresses potential environmental impacts associated with the proposed property. The site is known as:

Block 355, Lots 6, 7, 8, & 11
Marlboro Township, Monmouth County, NJ

Owner/Applicant - Lots 6, 7 & 11:
Luther Gueyikian, President
Buckdale, LLC dba
Byron-Hill Home Builders New Jersey, LLC
42 Vanderburg Road
Marlboro, NJ 07746

Owner - Lot 8:
Harvey V. Holland, Jr. & Consula I. Holland
3 Buckley Road
Marlboro, NJ 07746

The site consists of residential and vacant land. The site is irregular in shape and contains approximately 11.33 acres.

This Environmental Impact Statement examines existing environmental conditions of the area affected by the proposed improvements of the project site, in addition to providing an evaluation and assessment of impacts of the proposed improvements on the ambient environment. This study further provides (a) details regarding how the project conforms to local and State laws and regulations; (b) the permits that will be required from various review agencies; (c) measures to be taken to mitigate any environmental impacts; and (d) discusses whether alternatives to the proposed project were considered during the design process.

The applicant proposes to construct a residential subdivision development with stormwater management structures and other associated infrastructure.

This environmental investigation has attempted to outline how the project will comply with local and State laws and regulations whenever encroachment upon environmentally sensitive lands will take place. It was prepared in accordance with the Township of Marlboro Master Plan, the Monmouth County Master Plan, the New Jersey Department of Environmental Protection Geographic Information System mapping and Title 7 Regulations.

Inasmuch as the laws and regulations in place were designed to provide guidelines and requirements that minimize environmental degradation, the issuance of permits and approvals will demonstrate compliance.

Based upon our analysis as outlined within this document, the following report has concluded that construction of the project as proposed will have minimal adverse environmental impacts to the site and surrounding areas because it has been designed to comply with existing Township, County and State environmental regulations and requirements.

1.02 PREPARERS OF THIS REPORT

The environmental or engineering professionals who either directly contributed to or were consulted in the preparation of this Environmental Impact Statement and their specialties are listed below with detailed credentials found in the Appendix.

PENELOPE A. GRIBER – SENIOR ENVIRONMENTAL PROJECT MANAGER
DW Smith Associates, LLC • 1450 State Route 34, Wall Township, NJ 07753
P (732) 363-5850, ext. 130 • pgriber@dwsmith.com
Expertise: NJDEP Certified Wetlands Delineator, Freshwater Wetlands and Coastal Wetlands Delineations and NJDEP/ACOE Permits; Environmental Impact Statements, Natural Resource Inventories, CAFRA Compliance Statements, Pinelands Compliance Statements, Freshwater/Coastal Wetlands Mitigation Design and Regulatory Permits.

TIMOTHY P. LURIE, PE, PP, CME - PRINCIPAL
DW Smith Associates, LLC • 1450 State Route 34, Wall Township, NJ 07753
P (732) 363-5850, ext. 101 • tlurie@dwsmith.com
Expertise: Geotechnical & Soils, Site Design and Environmental Assessments

1.03 SITE VISITS

Site visits were made by DWSA personnel to assess the site's development potential with regards to vegetation identification, soils investigations, and wildlife observations.

2.0 PROJECT DESCRIPTION

2.01 SITE DESCRIPTION

Tax Map & Acreage

The subject property is known and designated as Block 355, Lots 6, 7, 8 & 11 as shown on Marlboro Township Tax Map, and has frontage on Buckley Road. The site consists of approximately 11.33 acres based on a Boundary Survey prepared by DW Smith Associates, LLC dated October 11, 2018.

Existing Land Use

The subject site is in residential/agricultural use and is located in the C2 Neighborhood Commercial District Zone. The property offers sufficient land, access and topography suitable for the proposed development. The majority of the subject site is currently comprised of vacant land. The proposed project is both physically suited to the site and will provide a use appropriate to the site and municipality. The site is surrounded by vacant land and residential lots.

2.02 PROPOSED PROJECT

Description

The project will consist of 26 single-family lots and 19 townhouse units with associated access road, utilities and stormwater management facilities. The subdivision will be served by a new roadway and the stormwater management plan includes construction of an infiltration basin and three underground recharge basins. The design features of one infiltration basin and three subsurface recharge basins willl mitigate the increase in stormwater runoff.

Design

The proposed development will follow the design requirements outlined in the Marlboro Township Land Use Ordinance for property in the C2 Neighborhood Commercial District, which will include but not be limited to the following:

- Minimum building height = 35’
- Maximum impervious coverage = 60%
- Tree Save Plan
- Design of associated driveways, utilities and other infrastructure
- Site Grading
- Landscaping and Lighting Plan
- Soil Erosion and Sediment Control Plan
- Stormwater Management System designed to handle new impervious cover stormwater runoff

The final design will take into consideration the environmental constraints of the site and regulations that govern stormwater management, soil erosion and sediment

control, and is in compliance with all environmental regulations consulted during design of the project.

3.0 EXISTING ENVIRONMENTAL CONDITIONS

3.01 AIR QUALITY

Air Quality Overview

The NJDEP publishes a summary of New Jersey air quality data on an annual basis. Based on the indicators monitored, air quality in New Jersey has improved significantly since the passage of the original Clean Air Act. There are several air pollutants which are used as indicators of air quality and for which National Ambient Air Quality Standards (NAAQS) have been established. The following information is taken from the current NJDEP Air Quality Report (2012).

NJDEP monitors sulfur dioxide at various stations throughout the State. The NJDEP has established a standard of 0.5 ppm for the 3-hour maximum, which cannot be exceeded more than once in any 12-month period for sulfur dioxide. This standard has not been exceeded for the regional area. The 12-month maximum of 0.03 ppm has also not been exceeded. Sulfur dioxide emissions primarily result from the combustion of fossil fuels containing sulfur.

The particulate concentration 12-month geometric primary standard of 75 micrograms per cubic meter has not been exceeded according to the monitoring station. The carbon monoxide 1-hour average primary standard of 35 ppm has not been exceeded as recorded. The predominant source of CO emissions is gasoline fueled automobiles and trucks. The nitrogen dioxide standard of 0.25 ppm for the 1-hour average guideline has also not been exceeded.

No air quality violations are listed for any of the air monitoring centers in regional proximity to the site[1]. Therefore, in the absence of more specific local data, a reasonable preliminary conclusion can be drawn that overall regional air quality is good and no irreversible impacts are anticipated from construction of the proposed project.

3.02 WATER RESOURCES

Surface Waters

There are no streams on the site. The majority of the site is located in the Sub-watershed (HUC-14) of McGellards Brook (above Taylor Mills). The site is located in the Watershed (HUC-11) of Matchaponix Brook.

A small portion of the site (near intersection of Buckley Road and School House Road) is located in the Watershed of Navesink River/Lower Shrewsbury River, and Sub-watershed of Big Brook.

[1] Central New Jersey: Colliers Mills, NJ; Monmouth University, Long Branch, NJ; Cattus Island, Toms River; New Brunswick (Cook College); Rutger's University, New Brunswick (off Ryder's Lane).

Wetlands

Although the Wetlands Map indicates that wetlands area present adjacent to the site and on a small portion of the site, a physical investigation confirms that wetlands are not located on or adjacent to the site. Topography for the adjacent site mapped as wetlands shows a steep drop off on the adjacent property which does not support the wetlands map. Soil investigations on Lot 11 in the area shown as wetlands on the site shows no groundwater or motles within 11 feet below the surface and bright brown soil. Soil map indicates all project soils are upland soils, and the on-site investigation has confirmed the mapping.

Aquifer and Confining Unit Ranking Chart

The site will use public potable water. A description of aquifers is provided as part of the general environmental background of the site. Aquifers in New Jersey can be ranked on their ability to yield groundwater to high-capacity wells. These wells include water supply, irrigation, and industrial-supply wells sited and tested for maximum yield. Many of the wells have boreholes exceeding the standard six-inch diameter for domestic wells. The five aquifer-rank values (A, B, C, D, and E) are based on a statistical analysis of median yields for over 8000 high-capacity wells. Median yield is the statistical value for which there are an equal number of wells yielding greater and lesser volumes of water. Each aquifer or confining unit is assigned a rank based on its median yield. More than one ranking value indicates that well-yield data were analyzed for several lithologies within a map unit and well yields may vary considerably due to lithologic and structural influences.

Aquifer Rank and Range of Average Yield of High-Capacity Wells (gallons per minute): The Aquifer rank for this site is B.

[A] > 500, **[B] = 251 – 500**, [C] = 101 – 250, [D] = 25 – 100, [E] < 25

This site is in an area with a groundwater recharge value of 11 to 12 inches per year.

Aquifers and Confining Units of the Coastal Plain

Surficial sediments thicker than 50 ft. overlying Coastal Plain aquifers and confining units include beach, dune, deltaic, and marine sands, and recent alluvium. Sediments are considered part of the underlying aquifer or a minor aquifer atop a confining unit.

The five principal Coastal Plain aquifers are the Kirkwood-Cohansey aquifer system, the Atlantic City 800-foot sand, the Wenonah-Mount Laurel aquifer, the Englishtown aquifer, and the Potomac-Raritan-Magothy aquifer system. All but the Kirkwood-Cohansey are confined except where they crop out or are overlain by permeable surficial deposits. The aquifers are recharged directly by precipitation in outcrop areas, by vertical leakage through confining beds, and by seepage from surface-water bodies.

More than 75 percent of the freshwater supply in the New Jersey Coastal Plain is from groundwater. In the Coastal Plain, high-capacity production wells used for public supply commonly yield 500 to 1,000 gallons per minute (gal/min), and many exceed 1,000 gal/min. Water quality is satisfactory except for local excessive iron concentrations [as

much as 460 milligrams per liter (mg/L)] in several aquifers, including the Potomac-Raritan-Magothy, and for local contamination from saltwater intrusion and waste disposal. In the unconfined Kirkwood-Cohansey aquifer system water is brackish or salty in some coastal areas. In confined aquifers, salinity generally increases with depth in the southern and southeastern parts of the Coastal Plain.

Groundwater underlying the site is located in the Englishtown aquifer system[2]. It is anticipated that the project will not have any impact on aquifers in the region because the pervious surfaces remaining after development and the stormwater basins will provide some aquifer recharge.

Flood Plains

Flood plain areas are associated with stream courses and are delineated in accordance with the Flood Hazard Area Control Act Rules[3]. Any encroachments on flood plain areas require permits from the New Jersey Department of Environmental Protection. However, there are no flood plains on the subject site.

3.03 GEOLOGY

The site is located in the Atlantic Coastal Plain Physiographic Province. Unconsolidated sediments of the Tertiary Period are the predominant underlying geologic deposits, which were deposited with the rise and fall of sea level (deltaic and marine sea level fluctuations) over a 60 million year period.

Surficial geology consist of Weathered Coastal Plain Formations (Qwcp). Lithology consists of exposed sand and clay of Coastal Plain bedrock formations. Includes thin, patchy alluvium and colluvium, and pebbles left from erosion of surficial depsotis. Geologic Age: Chiefly Pleistocene, locally Miocene and Pliocene.

Site specific surficial geology consists of the Samdy Hook Member Coastal Plain Formation (Krbsh). This formation's lithology consists of quartz sand, fine grained, clayey, micaceous. The geologic age of this formation is chiefly Pleistocene, locally Miocene and Pliocene.

Shrewsbury Member (Krbs). Lithology consists of quartz sand, find to coarse,-grained.

The following table was prepared by the Monmouth County Planning Board, and the information is presented to provide the general characteristics of the aquifers found in the Coastal Plain.

[2] Ground-Water Recharge and Aquifer Recharge Potential for Monmouth County, NJ, by Mark A. French, 2003, NJDEP & NJ Geological Survey

[3] N.J.A.C. 7:13-1.1 et seq.

TABLE 1

THICKNESS, PUMPAGE & WATER-BEARING CHARACTERISTICS OF MAJOR AQUIFERS

AQUIFER	THICKNESS (feet)	PUMPAGE (mgd)	WATER-BEARING CHARACTERISTICS
Navesink and Magothy Formations	25-70	12.3	Most important aquifers. Yields range from 100-1,400 gpm.
Englishtown Formation	30-50	4.0	Yields average 25 gpm. Large capacity wells average 410 gpm.
Wenonah Formation Mount Laurel Sand	30-50	0.65	Considered a single aquifer. Average yield 10 gpm, maximum.
Red Bank Sand	40	--	Yields range from 3 to 30 gpm to domestic wells.
Kirkwood Formation	0-100	--	Yields range from 10 to 1,200 gpm for domestic wells.
Cohansey Sand	250		Water table aquifer

After Jablonski (1970)
SOURCE: MONMOUTH COUNTY PLANNING BOARD

3.04 SOILS

A Custom Soils Report for the site obtained from the US Department of Agriculture, Natural Resource Conservation Service, confirms the above information about the site's soils and is found in the Appendix A03 of this report.

The Soil Survey of Monmouth County, New Jersey[4] indicates that the following upland soil series are located on the subject property:

EveC – Evesboro sand, 5 to 10% slopes. These soils are moderately sloping, excessively drained soil on side slopes. Permeability is rapid in the subsoil and substratum. Seasonal high water table is more than 6 feet. Runoff is slow. Water erosion is a moderate hazard, and wind erosion is a severe hazard. The main limitations for development is poor filter, cutbanks caving, slope and sandiness.

ThgB – Tinton loamy sand, 0 to 5 % slopes. These are moderately sloping, well drained soils on side slopes. Runoff is low. Permeability is moderately rapid in the substratum. Seasonal high water table is at a depth of more than 6 feet. Runoff is

[4] USDA "Soil Survey Of Monmouth County NJ" issued April 1989

medium. Water erosion and wind erosion are moderate hazards. Reaction is extremely acid to very strongly acid. Major limitations are cutbanks caving and slope.

ThgC – Tinton loamy sand, 5 to 10% slopes.
ThhB – Tinton-Urban land complex, 0 to 5% slopes.
These soils have similar characteristics to those described above, except degree of slope differs.

None of the soils on site are hydric soils.

TABLE 2

CHARACTERISTICS OF THE SOILS ON PROJECT SITE

Soil Symbol	Slope Percent	Erosion Factors K	T	Drainage Classification	Depth to Bedrock (inches)	Depth to Water Table (feet)	Runoff Potential	Permeability In/Hr.	Soil Reaction (pH)
Evesboro sand	5-10%	0.17	5	Excessively Drained	>60+"	6.0'+	A	6.0-20	3.6-5.0
Tinton loamy sand,	0-5%	0.20	4	Well Drained	>80+"	>6.0'	A	0.6-6.0	3.6-5.5
Tinton loamy sand,	5-10%	0.20	4	Well Drained	>80"	>6.0	A	06.6.0	3.6-5.5
Tinton-Urban land complex	0-5%	0.20	4	Well Drained	>80"	>6.0	A	06.6.0	3.6-5.5

SOURCE: MONMOUTH COUNTY SOIL SURVEY
SOIL CONSERVATION SERVICE, USDA, 1989
WEB SOIL SURVEY, NRCS

3.05 SEWERAGE SYSTEMS

The site is in a sewer service area. According to the Marlboro Township Utilities Authority and the Monmouth County Wastewater Management Plan, the property is located within the Western Monmouth Utility Authority jurisdiction. The proposed development will be required to provide a sanitary sewer main extension to the closest available manhole.

3.06 POTABLE WATER

Potable water will be provided to the site via the Gordons Corner Water Utility. Conversations with the utility confirmed that there is adequate capacity within the water main to service the proposed subdivision.

3.07 TOPOGRAPHY AND SLOPE

Marlboro Township is situated within the Coastal Plain Physiographic Plain. The proposed project site is located in the northwestern portion of Monmouth County near the border of Middlesex County.

At the northeasterly corner of the property, a hill/high point exists approximately 14 FT above the roadway elevation. The topography of the site generally flows away from that high point toward the south, toward the west, toward the north and a small section toward the east. Elevations range from a high of approximately 187 at the northeast corner of the property to approximate elevation 173 at the westerly property line and to approximate elevation 169 in the southerly portion of the property.
(see Figure 1, USGS Topographic Map).

3.08 NATURAL RESOURCES

Vegetation

The site is currently residential and farmland with wooded areas along the perimeter and in woodrows. Common trees found on the site include, Ash, Black Locust, Northern Catalpa, Norway Spruce, Blue spruce, Maple, White pine, Japanese maple, Black cherry, Pin oak, Cedar, Sassafras, Elm, and Tree of heaven. A total of 55 trees will be removed.

NJDEP Landscape Project Map – Threatened and Endangered Species

The NJDEP, Division of Fish, Game and Wildlife, Endangered and Non-game Species Program (ENSP) regulates Threatened and Endangered species in the area of the subject property. ENSP utilizes three components for evaluating if T&E species or the potential for T&E species are present within the project area. These components include reviewing NJDEP's Natural Heritage Database, reviewing NJDEP's Landscape Mapping, and conducting preliminary on-site assessments. In addition, the ENSP reviewed the project to determine if T&E species or supporting habitat for T&E species is present on the subject property during review of the NJDEP wetlands Letter of Interpretation application.

NJDEP uses the Landscape Project Maps in review of applications for Letters of Interpretation, to assist in assigning the width of the wetlands transition area (buffer). An Intermediate resource value institutes a 50-foot buffer from the approved wetland line. Likewise, an Exceptional resource value institutes a 150-foot buffer from the wetland line. This buffer is used when threatened or endangered species or suitable habitats are present within the boundaries of a site.

A review of the Landscape Project GIS database indicates no regulated species are located on the subject site.

Based on a review of these components, no T&E species or potential presence of T&E species was identified by the NJDEP Geographic Information System within the project area.

Contact was made with the Natural Heritage Data Base. The response may not be received in time for the Township submission, but it will be provided upon receipt.

3.09 NOISE

Noise from development can be burdensome during construction, but disappears soon after project completion. Due to the low density character of the area, it is anticipated that the proposed development would not generate noise from the vehicular traffic associated with such projects to any significant receptors.

3.10 TRAFFIC & CIRCULATION PATTERNS

As previously mentioned, the subject site maintains frontage on Buckley Road. Access to the proposed project will be provided from this road.

3.11 CULTURAL, HISTORICAL & ARCHAEOLOGICAL RESOURCES

A review of New Jersey and National Registers of Historic Places, indicates that there are no historic or archaeological resources listed as within or near the proposed project area.

4.0 PROJECT IMPACT

4.01 SOIL EROSION AND SEDIMENTATION

All grading will conform to a Soil Erosion and Sediment Control Plan approved by the Freehold Soil Conservation District. The project plans demonstrate the use of approved soil erosion and sediment control measures, such as silt fences, a stabilized construction entrance, inlet filters, tree protection, hay bale sediment filters and topsoil stockpile vegetative stabilization. Erosion will be minimized through the use of temporary and permanent landscaping on exposed soils.

Landscape alterations will occur primarily in the immediate vicinity of the proposed driveways, roads and structures. Erosion hazard is directly related to intensity and frequency of rain and wind. Soils on site range from 5 to 10 percent slope and a moderate erosion potential.

The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soil erosion K values range from 0.17 to 0.20, with the lower values indicating low erodibility (See Table 2). The soils on the project site have low runoff potential. All grading activities will conform to an approved Soil Erosion and Sediment Control Plan by the Freehold County Soil Conservation District.

Any potential adverse impacts which could result from grading, erosion or sedimentation will be mitigated by implementation of the required soil erosion and sediment control measures reflected above.

4.02 FLOODING AND FLOODPLAIN DISRUPTION

The proposed project is not anticipated to cause any flooding. FEMA maps indicate that the site is not located within a flood zone.

4.03 DEGRADATION OF SURFACE WATER QUALITY

The stormwater management system for the proposed project is designed to handle the stormwater needs of the proposed improvements. The use of this system will reduce the post-development flow rates in excess of the required reductions by storing and recharging runoff from the site. The site design will adhere to the requirements ot the N.J. Stormwater Management Rules[5].

Post-construction impacts are primarily associated with stormwater runoff from impervious surfaces such as the driveways and internal roadways. This runoff can contain tars, oils, and grease related to both the exposed surfaces and vehicular deposits. Other pollutants that can be carried in stormwater runoff are the phosphorous and nitrogenous constituents of fertilizers, various hydrocarbons, and

[5] N.J.A.C. 7:8-1.1 et seq.

trace metals from paints, stains, treated lumber or vehicle components and solid waste such as litter.

The proposed development will result in an increase of new impervious surfaces on the site. The stormwater runoff from the proposed impervious surfaces will be directed into the proposed infiltratin basin and underground recharge basins.

Stormwater management facilities will be designed to provide water quality treatment for the stormwater from the site. Since the volume of runoff from the site will be reduced from existing conditions as a result of the facilities to be constructed,, no adverse impacts are anticipated to the surrounding area and watershed, no mitigation measures are required. A full Stormwater Management Report addressing all concerns will be submitted under separate cover.

4.04 GROUNDWATER POLLUTION

There are no adverse impacts of the site's groundwater capabilities expected. There are no direct discharges or potential discharges to groundwater, thereby meeting local, county and State guidelines.

4.05 REDUCTION OF GROUNDWATER CAPABILITIES

There are no adverse impacts of the site's groundwater capabilities expected. Developments of this nature typically have a minimal impact on groundwater due to the use of a stormwater management basin which will return some stormwater runoff to the ground during periods of detention and infiltration through the soil layers, and the use of public potable water.

Currently, groundwater recharge is limited to soil absorption where the balance of runoff is lost to sheet flow and evaporation.

4.06 SEWAGE DISPOSAL

The project site is located within an active sewer service area which has infrastructure to collect and treat sewage from the site. The proposed sewerage infrastructure will connect to the nearest sewerage authority manhole.

4.07 SOLID WASTE DISPOSAL

All solid waste generated during construction, such as lumber, cardboard, etc. will be collected on the site and disposed of in a manner consistent with the local ordinances. After construction, the development will generate typical types and volumes of residential waste.

Construction debris will be collected frequently to prevent any adverse impacts caused by wind blown movement or impacts to the aesthetics of the area. Solid waste will be collected and disposed of by a State licensed waste hauler to an NJDEP permitted landfill in accordance with applicable State regulations. Recyclable material will be collected and disposed of in accordance with all applicable local, county, and state regulations. Furthermore, no hazardous substances will be transported to or from the

site or stored on the subject site. Therefore, as no adverse impacts are anticipated, no mitigation measures are proposed.

4.08 VEGETATION DISRUPTION

Construction of the proposed development will require the disturbance of vegetated areas. A total of 55 trees will be removed. However, the majority of the site has been cleared for agricultural and residential use. A complete landscaping plan has been developed for this project that includes a variety of tree and shrub species to be planted in disturbed areas. The proposed project will be constructed entirely in upland areas. In addition, local ordinances require tree planting which will be met by the developer as shown on the landscaping plan.

4.09 WILDLIFE HABITAT DISRUPTION

In order for a particular site to provide a wildlife habitat, specific habitat requirements essential for survival must be present. These include food, cover and a water source. Various species have differing biological needs, as would be expected from the diversity of wildlife types. All of those habitat requirements - food, cover and water - exist in varying degrees on the site.

The basic levels of the ecosystem which interact with each other to produce a habitat are the nutrients, producers, consumers, decomposers and the energy of the sun. Nutrients include inorganic and organic substances, such as carbon dioxide, oxygen, nitrogen, minerals and salts, which are not part of a living organism. Producers are the green plants and bacteria that synthesize organic compounds from inorganic compounds and sunlight. Consumers utilize the material synthesized by producers, such as herbivores (plant eaters), carnivores (flesh eaters) and omnivores (consumers of plants and animals). Decomposers are the bacteria and fungi that break down organic compounds and are associated with decaying plant and animal material. The nutrient release rate produced by the decomposers is an essential link in the cycle of life because they break down complex molecules to forms which may be absorbed by green plants.

In order for a site to provide habitat to wildlife species, the ecosystem structure and dynamic relationships of the components listed above should be present. Man's alteration of the environment is evident in the portion of the site that has been cleared of vegetation, but has not limited all of the site in its ability to provide an ecosystem capable of supporting a diversity of the components necessary to sustain a wildlife population. Each soil has a suitability classification for various types of plants that can provide wildlife habitats. As has been stated elsewhere in this report, the types of soils on the site have moderate limitations that reduce the choice of types of plants existing or to be planted.

In addition, the majority of the site has been cleared for agricultural activities

The predominant wildlife to be found are birds, squirrels, mice, chipmunk and other small mammals that may traverse the property, some of which were observed during

the site visit. There may be larger mammals on the site from time to time, such as White-tailed deer, raccoon, opossum, and groundhog. Each of these species has a specific habitat range, starting under an acre in size for the smaller mammals, up to 640 acres for the white-tailed deer. Although a few small mammals were observed during the site visit, most of the above-listed animals were not observed on the site due to nocturnal habits.

Trees reaching a mature height will attract nesting species such as the bluejay, common crow and cardinals. Fruit and nut-bearing trees attract birds and squirrels, who use the fruits and nuts as a food source. Birds of prey, such as hawks, will hunt small mammals, although no hawks were observed during site visits.

The following is a list of wildlife species known to exist in New Jersey and some of these common species could be found to inhabit the subject site:

COMMON MAMMALS, REPTILES & AMPHIBIANS IN NJ

MAMMALS

Opossum	Gray Fox
Smokey Shrew	Woodchuck
Least Shrew	Eastern Chipmunk
Short-tail Shrew	Eastern Gray Squirrel
Starnose Mole	Red Squirrel
Eastern Mole	Southern Flying Squirrel
Keen's Myotis (bat)	Beaver
Little Brown Myotis	White-footed Mouse
Small-footed Myotis	House Mouse
Silver-haired Bat	Norway Rat
Eastern Pipistrel	Southern Bog Lemming
Red Bat	Boreal Redback Vole
Big Brown Bat	Meadow Vole
Hoary Bat	Pine Vole
Raccoon	Muskrat
Longtail Weasel	Meadow Jumping Mouse
Mink	Eastern Cottontail Rabbit
River Otter	New England Cottontail
Striped Skunk	Virginia Whitetailed Deer
Red Fox	European Hare

REPTILES

Lizards

Northern Fence	5-Lined Skink

Turtles

Common Snapping	Bog Turtle
Wood Turtle	Spotted Turtle
Musk Turtle	Eastern Mud

Diamond-Backed Terrapin	Eastern Painted
Eastern Box	Red-Eared

Snakes	
Eastern Smooth Earth	Red-Bellied
Northern Brown	Northern Water
Eastern Garter	Eastern Ribbon
Eastern Hognose	Eastern Worm
Northern Ringneck	Rough Green
Northern Black Racer	Northern Pine
Black Rat	Corn
Eastern King	Eastern Milk

AMPHIBIANS

Toads	
Eastern Spadefoot	Fowlers
Tree Frogs	
Spring Peeper	Gray
True Frogs	
New Jersey Chorus	Carpenter
Cricket	Green
Pickerel	Wood
Northern Leopard	Bull

Some of the listed species will utilize wooded areas around the site. Most of these species were not observed at the site and are not recorded as being present due to nocturnal feeding habits, underground burrows, and other wildlife behavior not compatible with human observation during a site visit for purposes of this report.

Development of the proposed design will have an impact on wildlife habitat by construction of buildings and roads. Some of the types of wildlife species present are known to be adaptive. Birds and small mammals will migrate within their range to remaining wooded areas.

The proposed improvements will require removal of some of the existing vegetation and wildlife habitat. Populations of birds and mammals may be disrupted by construction at the site, but these species might return to the area once new vegetation is established and construction activities have ceased. Some of these species are also capable of co-existing in a man-made environment once landscaping plants are installed.

4.10 DESTRUCTION / DEGRADATION OF SCENIC / HISTORIC FEATURES

There are no scenic or historic features on or adjacent to the subject property. Thus, no adverse impacts are anticipated.

4.11 AIR QUALITY DEGRADATION

Air pollution can damage vegetation, corrode buildings and bridges, soil clothes and create health hazards to humans and animals. Air pollution is caused by industrial emissions, car and truck traffic and heating equipment. Monmouth County as a whole, including the Marlboro area, meets State and Federal primary and secondary ambient air quality standards.

The nearest State Central New Jersey air quality monitoring stations to the site are located in Colliers Mills, at Monmouth University, at Cattus Island, in Toms River and at Rutger's University. Data gathered at these stations indicates that existing regional area air quality generally falls within acceptable limits set by the NJDEP. The factor having the greatest influence on ambient air quality is vehicular emissions from prevailing traffic on area roadways. We do not anticipate that the additional traffic created by the additional transportation will be significant enough to detrimentally affect area ambient air quality.

In general, the environment contains a certain level of particulate matter, such as particulates in emissions resulting from construction activities. Particulate concentration for the region is measured at Freehold. The 12-month geometric mean primary standard of 15 micrograms per cubic meter has not been exceeded at this site. The 24-hour average primary standard of 65 micrograms per cubic meter has not been exceeded.

Carbon monoxide (CO) is the most widely distributed and most commonly occurring air pollutant. The majority of atmospheric CO is produced by the incomplete combustion of carbonaceous materials used for vehicle fuel, heating and burning of refuse. Major adverse effects are those of health, occurring only through prolonged and continuous exposure. Plant material is not affected by carbon monoxide. The 1-hour average primary standard is 35 ppm, and has not been exceeded based on information recorded at the data collection center. The 8-hour average of 9 ppm has likewise not been exceeded.

Further, as carbon monoxide does not remain constant over the entire spatial extent in a given region and disperses rapidly over a short distance, the overall impact of emissions from normal traffic flow is slight and general air quality is not affected.

Nitrogen dioxide emitted by exhaust from high temperature combustion sources can affect vegetation causing acute injury to leaves, and can cause fading in synthetic fibers and yellowing of white clothes. The recorded data for the 1-hour average guideline does not exceed the standard of .25 ppm. The human threshold for sensing nitrogen oxide in the atmosphere is approximately .12 ppm.

During the project's construction stages, local air quality may be temporarily affected by emissions from construction equipment, automobiles used by workmen, fugitive dust and delivery vehicles to the site. The effect will be minimal though as emissions will not be excessive and dispersion of carbon monoxide in the atmosphere is rapid.

The site is expected to return to pre-development air quality conditions and the proposed activity is not expected to produce any conditions that would negatively affect ambient air quality.

4.12 NOISE LEVELS

Noise levels are typically controlled by a Noise Control Ordinance, which is generally enforced by the municipal Police Department. This type of ordinance generally prohibits construction between early evening and early morning hours and regulates construction site noise standards, which establish maximum levels of sound permissible at the property boundary.

Noise created by construction equipment is further controlled by Federal and State regulations on equipment noise. The Noise Control Act of 1972 places limits on manufacturers of construction equipment for decibel levels that may be produced. After construction, sound sources will consist primarily of vehicular traffic entering and exiting the site during pre-construction. Sound levels are expected to be typical of the surrounding area.

An increase in trucking activity may be anticipated upon commencement of the construction phase of the proposed project. However, significant adverse impacts would not be expected to migrate to off-site receptors as a result of proposed project, since the area is not densely populated.

The New Jersey Noise control Code[6] provides standards and guidelines applicable to potential community impacts from such projects. The operation of the proposed facility will not produce substantial traffic during peak hours.

[6] N.J.A.C. 7:29-1.1 et seq.

5.0 ENVIRONMENTAL PERFORMANCE CONTROLS

The following is a description of steps to be taken to minimize adverse environmental impacts during construction and operations.

5.01 DRAINAGE, SOIL EROSION AND SEDIMENTATION

The project meets the definition for "Major Development" as described by the New Jersey Department of Environmental Protection and the Township. The net increase in impervious area will be more than one-quarter acre and the overall disturbance will exceed one acre. Due to these facts, the project will have to comply with the Township's Land Use Ordinance sections regarding Stormwater Management; therefore, the post development stormwater flows must be 50%, 75% and 80% of the 2, 10 and 100 year storm events respectively, as compared to predevelopment stormwater flows.

1. New impervious surfaces on the site will be created by rooftops and pavement areas, which will create increased storm water runoff. Infiltration and underground recharge basins will be used in conjunction with proposed stormwater management facilities to meet all stormwater regulations. The runoff will be released to a stable outfall. Water quality of runoff flowing into the basins is expected to provide 84% Total Suspeded Solids (TSS) removal based on the permament storage volume and its detention time.

   The clean runoff generated by the roofs of the proposed dwellings will be routed by overland flow to the stormwater management system.

   Stormwater management facilities have been designed to provide water quality treatment for the stormwater from the site. A full Drainage Report addressing all concerns will be submitted under separate cover.

   The retained stormwater will allow contaminants to settle on the bottom of the basins. Biodegradation, aeration, aging and nutrient uptake will further reduce any waste load remaining, which will then undergo the natural soil purification process as excess runoff travels through the soil horizons.

2. Regrading will be necessary to implement the project design. Erosion potential increases with the length and steepness of slope. A general rule is that if the length of slope is doubled, soil loss will increase by a factor of 1.5. The relationship between degree of slope (gradient between vertical height and horizontal length of slope) and erosion potential can be specified as follows:

10 percent or greater:	*highly erodible*
2 to 10 percent:	*moderately erodible*
2 percent or less:	*slightly erodible*

   Erosion hazard is directly related to intensity and frequency of rain and wind.

Vegetative cover of varying types protects the soil from erosion. According to mapped information, Most of the soils on the site have a 5 to 10 percent slope. Therefore, erosion potential is moderate for slopes less than 10 percent.

A Soil Erosion and Sediment Control Plan approved by the Freehold Soil Conservation District will be implemented prior to and during construction. Temporary seeding of any stockpiled topsoil will stabilize cut and fill material. After construction, erosion on-site will be reduced by installation of permanent vegetation.

Any potentially adverse impacts which could result from drainage, erosion or sedimentation will have been mitigated by the above measures.

5.02 VEGETATION AND WILDLIFE HABITAT DESTRUCTION

The proposed project will impact the common species of birds, small mammals and reptiles found in the wooded area of the site. Deer and larger common mammals with wider home ranges, such as raccoon, opossum, skunk and woodchuck, would continue to use wooded areas around the periphery of the site.

Once the construction phase is complete, wildlife populations of the more common species should reach a balance in the area and continue to inhabit the landscaped and remaining wooded portions of the site. The rural nature of the surrounding areas will continue to provide some wildlife habitat.

Wildlife Habitat Created by Landscaping – The Natural Resources Conservation Service[7] recognizes landscaped wildlife habitat as beneficial for birds, butterflies, small animals and insects. The horizontal and vertical areas that can provide habitat stretch from the soil to the treetops. Different wildlife species live in each of these zones, so numerous habitats can be provided on even a small piece of land. Many trees and shrubs are excellent food and cover sources for wildlife. Proper plant selection by the landscape designer can increase the property's use by wildlife. By adding trees, shrubs, flowers and groundcovers over time, wildlife will be attracted and habitat created. Landscaping practices that help wildlife, like reducing chemicals and using native plants, also help to improve air, water and soil quality. Therefore, it is a premature assumption that all wildlife will permanently abandon developed properties.

5.03 AIR QUALITY DEGRADATION

Local air quality may be temporarily affected by emissions from construction vehicles and delivery trucks and construction of the proposed development. This effect will be minimal as emissions will not be excessive and dispersion of particulates is rapid over a spatial area.

[7] Natural Resource Conservation Service, Backyard Conservation Tip Sheet, Pages 1-8

To mitigate the potential of dust being raised during construction and grading activities, an approved Soil Erosion and Sediment Control Plan will be implemented. Temporary and permanent vegetative stabilization will minimize soil movement, thereby assuring the protection of air quality. Approved dust control measures will also be implemented, providing protection from off-site contamination.

An assessment that the project will not degrade ambient air quality is based upon regional data collection and the fact that the surrounding area air quality is well within Federal and State defined parameters for acceptable air quality. Some increase in carbon monoxide from vehicular emissions is unavoidable. However, due to the upgrading of emission technology, post-development air quality would be expected to be as good, or better than, current air quality associated with the proposed project.

5.04 NOISE ABATEMENT

Noise levels are controlled by a Township Noise Control Ordinance, which is generally enforced by the Borough Police Department. This type of ordinance generally prohibits construction between early evening and early morning hours and regulates construction site noise standards, which establish maximum levels of sound permissible at the property boundary.

Noise created by construction equipment is further controlled by Federal and State regulations on equipment noise. The Noise Control Act of 1972 places limits on manufacturers of construction equipment for decibel levels that may be produced.

After construction, sound sources will consist of vehicular traffic consistent with the surrounding area. The project will not contravene the standards of the New Jersey Noise Control Code.

5.05 LOSS OF OPEN SPACE

Open space includes public land, private land, forests, ranches, farms and other undeveloped lands. Open space is found across the landscape in rural, suburban and urban areas. In many cases, open space is cataloged in the Natural Resource Inventory or Open Space Inventory, or Master Plan.

Landowners have many reasons for selling or developing their property. Research[8] reveals that some of the reasons include real estate and other taxes, gentrification of rural areas and corresponding rises in property values, and other landowner situations that require liquidation of assets to cover costs.

[8] USDA Forest Service, Caring for the land and serving people.

As of December 2014,, New Jersey has preserved over 1,272,771 acres of public open space, not including farmland. With farmland, the total of preserved open space exceeds 1,484,900 acres[9]. Data suggests that the pace of open space and farmland preservation has accelerated in recent years. New Jersey placed a question regarding funding of open space preservation on the November 2007 ballot and the Garden State Preservation Trust Act approved $1.4 billion for open space preservation

New Jersey has been a leader in purchasing open space necessary to perform vital functions, such as replenishing aquifers, protecting wildlife habitats and satisfying recreational demand. Protection of open space is usually accomplished through the purchase of development rights, by the use of government funded grants, by agricultural trusts and other non-profit conservation organizations, etc.

In much of the literature reviewed, the term "open space" is usually applied to large tracts of land[10]. The subject site is not zoned for a public use or otherwise designated for a public purpose, or contained in an open space inventory. It is not subject to a Transfer of Development Rights Ordinance or program established under N.J.S.A. 40:55D-137 et seq., or any Transfer of Development Rights Real Estate Market Analysis regulated by N.J.A.C. 5:86, and it is not the subject of any offer to purchase development rights.

Local zoning codes permit the development proposed. The proposed project will result in the loss of privately owned low-density vacant land, but the property is currently zoned to allow for the proposed development. This type of development will use community services to the same extent as other developments in the surrounding area.

6.0 ALTERNATIVES

Several conceptual plans were prepared for the alternatives considered, including investigating the cluster option, and these alternatives were considered during design discussions about Ordinance requirements.

In summary, the proposed use is allowed in the current zone and conforms to the development regulations in effect at the time of this submission, and the proposed improvements will minimally impact and be compatible with the surrounding environment.

9 NJDEP Green Acres program, www.state.nj.us/dep/greenacres.

10 USDA Forest Service, various publications.

7.0 UNAVOIDABLE IMPACTS

7.01 VEGETATION AND HABITAT LOSS

Development of the subject project under the current proposal will require removal of trees. The species of trees in the wooded portion of the site are noted elsewhere in this report.

Construction of the proposed development will require the disturbance of vegetated areas. The majority of the trees to be removed are mainly common species. The trees removed will be replaced by the required landscaping for the proposed project.

The landscape plan will provide a seeding mixture for ground cover, and provide trees and shrubs.

See Tree Save Plan, Sheet 1 of 2, and Tree Save Charts, Sheet 2 of 2 of the Sudivision Plans, which details trees to be removed. The Landscaping Plan shows trees to be planted.

7.02 AIR POLLUTION

The New Jersey Department of Environmental Protection has established a standard of 0.5 ppm, which cannot be exceeded, more than once in any 12-month period for sulfur dioxide. This standard has not been exceeded for the regional area.

Particulate concentration 12-month geometric primary standard of 75 micrograms per cubic meter has not been exceeded.

The carbon monoxide 1-hour average primary standard of 35 ppm has not been exceeded, nor has the 8-hour average of 9 ppm.

The nitrogen dioxide standard of 0.25 ppm for the 1-hour average guideline has not been exceeded.

There are two aspects of potential air quality impacts for this specific site: construction and operation. During construction, potential pollutants would be emitted by construction vehicles (carbon monoxide, hydrocarbons, nitrogen dioxide, and particulates), along with fugitive dust from the disturbed area. Fugitive dust generation will be controlled through the implementation of temporary seeding procedures on exposed soils during construction in accordance with the approved Soil Erosion and Sediment Control Plan. With respect to fuel emissions from construction vehicles, air quality impacts will be temporary, and because of good existing air quality in the area, should not cause any violation of the Ambient Air Quality Standards.

Once completed, the principal air pollutants generated by the project would be particulates, carbon monoxide, sulfur dioxide and hydrocarbons from the local road traffic.

Based upon published regional indicators, a conclusion can be drawn that overall air quality is good and no irreversible impacts are anticipated from the proposed project.

7.03 WATER POLLUTION

The proposed project will utilize the public sewer system.

Soil profile pits have been excavated at the site of the proposed stormwater management basin for the purpose of determining the suitability and distribution of soil types present . The on-site stormwater infiltration system has been designed to manage stormwater associated with the increased impervious cover. There will be an increase in groundwater infiltration as a result of the onsite stormwater management facilities. There is no anticipated water pollution which would be generated by proposed site improvements.

7.04 GEOLOGIC FEATURES

There are no geologic features on the site that are considered to be unique. No impact is expected to important geologic features.

The proposed development will have increased impervious areas on the site, which should be offset by modern stormwater recharge practices. As a result, groundwater recharge is not expected to be impacted from its present state. The site provides moderate groundwater recharge under existing conditions[11].

Based on the inventory of existing geologic characteristics on site, it is evident that no adverse conditions exist that prohibit or restrict development of the site as proposed. The proposed project will have no further effect on the site's geologic condition.

7.05 TOPOGRAPHIC FEATURES

Topographic elevations on the site do not exceed 10%. No steep slopes will be created by development of the site. The site will be regraded to provide positive drainage that will direct stormwater runoff to the stormwater management system. No adverse impacts are projected to occur with respect to topography.

[11] NJDEP GIS data regarding groundwater recharge at the site, which is estimated to be from 11 to 12 inches per year.

8.0 CONCLUSION

The development of the project will be accomplished according to local and State regulations governing engineering and environmental practices associated with projects of this nature. While a development design may affect environmental constraints, if the environmental constraints affected are deemed to be minor, they are regulated by local ordinances and State laws and regulations designed to insure that encroachments are carried out in accordance with the published guidelines so that there will be minimal environmental impacts. Upon issuance of the required permits and approvals, verification will be provided by the State that negative environmental impacts are minimal and allowed by the State's permitting authority.

The following permits will be required:

Table 4: Summary of Permits/Approvals Required for Project Implementation

Agency/Entity	Type
State	
NJDEP	Treatment Works Approval
	Water System Approval
Marlboro Township	
Township of Marlboro	Preliminary and Final Major Subdivision Approval
Marlboro Township Water Utilities	Potable Water Approval
Marlboro Township WMUA	Sewer System Approval
County	
Monmouth County	Planning Board Approval
Freehold Soil Conservation District	Plan Certification

No natural resources, such as streams, floodplains, unusual geologic or topographic features, endangered species of wildlife or unique natural vegetative associations, will be destroyed by the proposed construction. The State construction permit program will regulate the minor encroachments previously discussed.

An analysis of the project was made by comparing the site's environmental constraints with the mapped information readily available for the surrounding area.

These sources confirmed the following information about the site:

- Permeability of the site's soils is from moderate to moderately rapid. The proposed improvements will be designed in such a way as utilize the best soils on the site for stormwater management.

- Required construction permits will regulate all construction.
- The public sewer system will be used for collection and treatment of sewerage.
- Potable public water will be used in accordance with the local water utility.
- According to the Standards for Soil Erosion and Sediment Control in New Jersey, a pH of 5 is acceptable for seedbed preparation. Soils having a pH of 4 or less shall be covered with a minimum of 12 inches of soil having a pH of 5 or more prior to seedbed preparation.
- Generally, soils with a pH above 4 are not considered a hazard as long as proper soil erosion control procedures are maintained during construction. Proper procedures will be followed to reduce soil acidity if acid soils are found during construction.
- Slopes in the area of construction are generally moderate.
- The soils on site have a moderate potential for erosion. Erosion will be minimized through the use of temporary and permanent vegetative cover, and other soil erosion control methods as specified throughout this report and as set forth in the details on the Soil Erosion and Sediment Control Plan for the project. [12]
- The proposed floor elevations will be compatible with existing topography as much as possible. Grading will be carried out in accordance with a Soil Erosion and Sediment Control Plan approved and monitored by the Soil Conservation District.
- The project appears to be compatible with all planning documents consulted.

No adverse impacts will affect private potable water well or any other infrastructure, either on or off the site. No groundwater pollution is anticipated from the proposed development which will utilize a septic system constructed in accordance with NJDEP regulations[13].

An analysis of published data indicates no negative impact to air pollution or noise is expected. Additional storm water runoff will be managed in accordance with State Stormwater Management Rules and Township Ordinances. Proper soil erosion and sediment control measures will be implemented during construction.

[12] Monmouth County Soil Survey

[13] N.J.A.C. 7:9A-1.1 et seq.

This report has attempted to outline how the project will comply with local and State laws and regulations wherever encroachment upon environmentally sensitive lands will take place. Inasmuch as the laws and regulations were designed to provide guidelines and requirements that minimize environmental degradation, the issuance of permits and approvals will demonstrate compliance.

Therefore, the foregoing analysis has concluded that construction of the project as proposed will have minimal adverse environmental impacts to the site and surrounding areas.

9.0 REFERENCES

The preceding environmental analysis was prepared following review of all published information and a site visit by the preparer of this report. The following reference materials and agencies were consulted and/or utilized in conjunction with the preparation of this document.

Literature & Documents

Internet Literature Search regarding Wildlife Habitat Creation, citations noted on appropriate pages

Land Use Regulation, Marlboro Township

NJDEP, Bureau of Air Monitoring http://www.state.nj.us/dep/airmon/.

NJDEP, Air Quality Report

NJDEP, Freshwater Wetlands Map.

NJDEP, Freshwater Wetlands Protection Act Rules, N.J.A.C. 7:7A-1.1 et seq.

NJDEP, New Jersey Geographic Information System, web based GIS downloads:
- Wetlands and Wetlands Buffers
- HUC-14 Subwatersheds
- C-1 Waters
- Landscape Project Maps
- Soils (SURRGO)
- Known Contaminated Sites
- Groundwater Geology
- Surficial Geology
- Bedrock Aquifer
- Groundwater Recharge
- Physiographic Provinces
- Sewer Service Areas
- State Plan Land Use
- New Jersey Fish & Wildlife literature search

NJDEP, Trees of New Jersey and the Mid-Atlantic States, Fifth Edition, 2003

Monmouth County 208 Water Quality Management Plan, NJDEP.

Peterson, R.T. and M. McKenney, 1968, A Field Guide to Wildflowers.

Petrides, G.A., 1972, A Field Guide to Trees and Shrubs.

Robichaud, B. and M.F. Buell, 1973, Vegetation of New Jersey, Rutgers University Press.

Subitsky, Seymour, Rutgers University Press, Geology of Selected Areas in New Jersey and Eastern Pennsylvania,

Traffic Impact Report, Prepared by McDonough Rea

U.S. Department of Agriculture, Soil Conservation Service, 1989, Soil Survey of Monmouth County, New Jersey.

U.S. Geologic Survey Topographic Map for the site.

NJDEP Interactive Mapping Database

10.0 FIGURES

F01 USGS TOPOGRAPHIC MAP

F02 NJDOT ROAD MAP

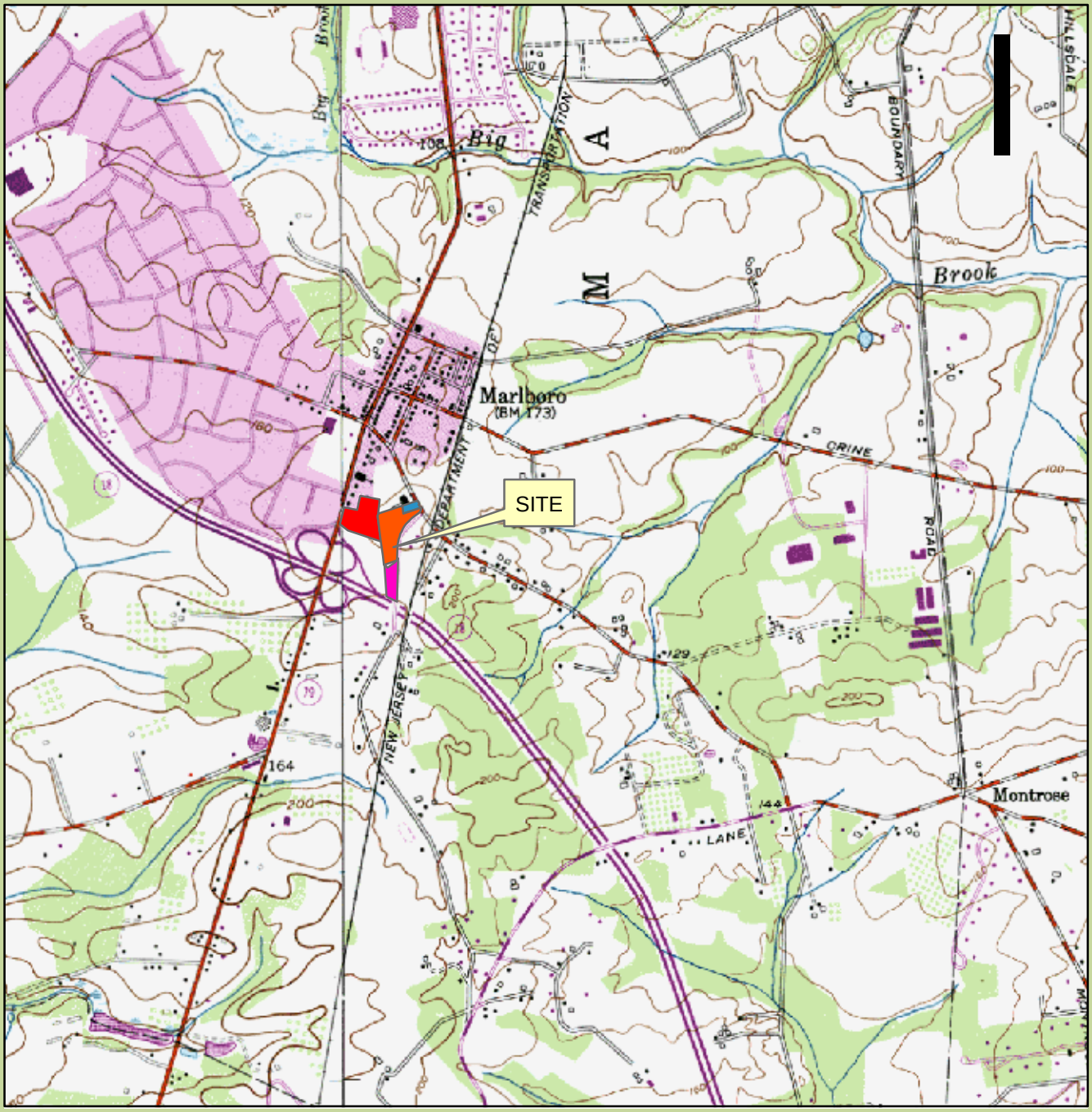
F03 TAX MAP

F04 MONMOUTH COUNTY SOIL SURVEY MAP

F05 WETLANDS MAP

F01 USGS TOPOGRAPHIC MAP

USGS MARLBORO TOPO QUAD



DW SMITH ASSOCIATES, LLC
1450 State Highway 34
Wall Township, NJ 07753
P. 732-363-5850
F. 732-905-8669
pgriber@dwsmith.com

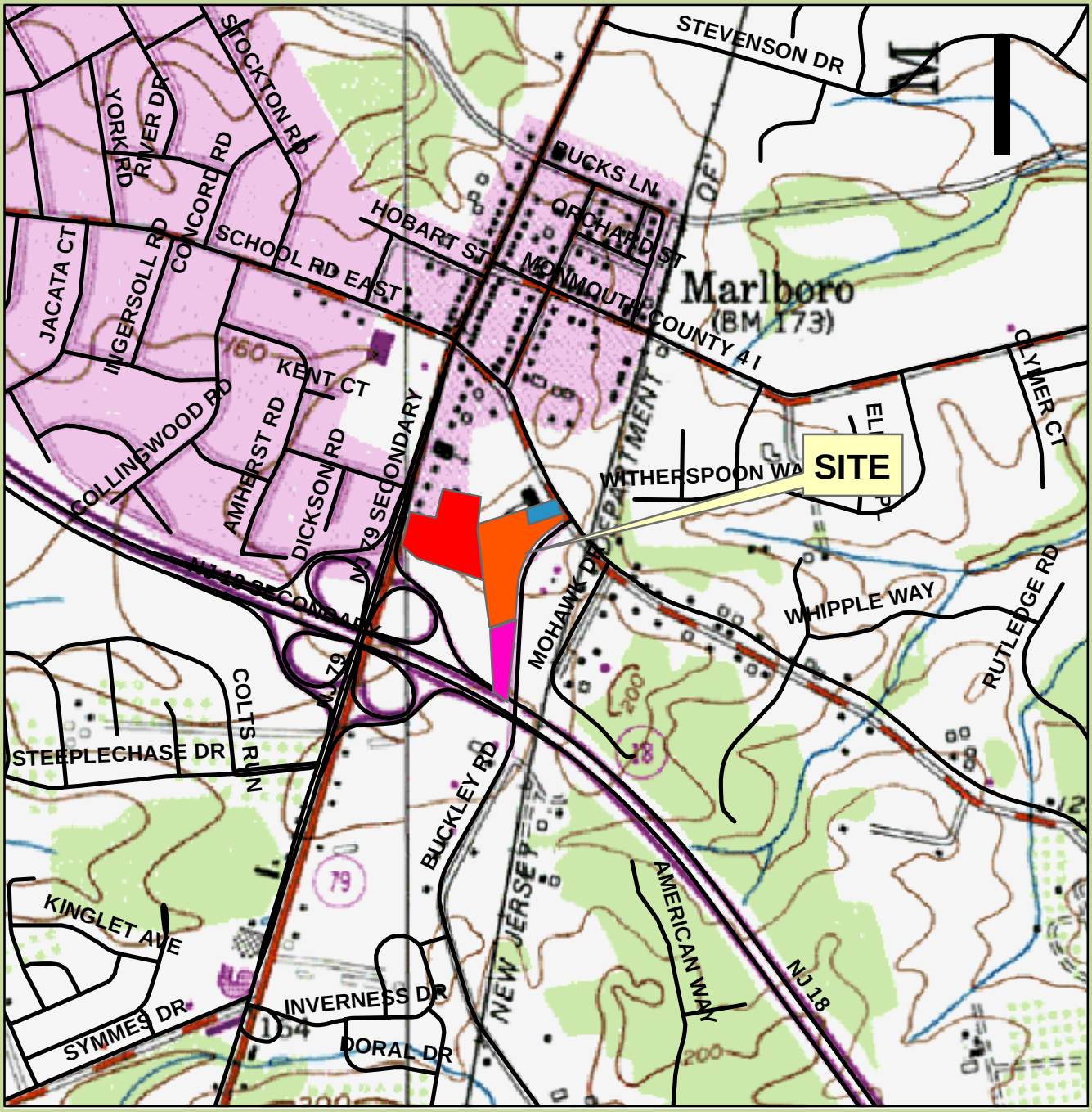
Date: November 19, 2018
Job Number: 18-191.01

Block 355, Lots 6, 7, 8, 11
Marlboro Township
Monmouth Couunty, NJ

Scale: 1" = 2000'
Northing: 538,332'
Easting: 562,471'

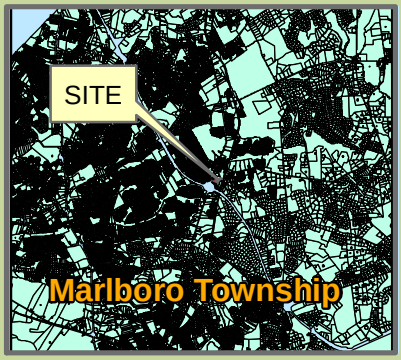
F02 NJDOT ROAD MAP

NJDOT ROAD MAP



DW SMITH ASSOCIATES, LLC
1450 State Highway 34
Wall Township, NJ 07753
P. 732-363-5850
F. 732-905-8669
pgriber@dwsmith.com

Date: November 19, 2018
Job Number: 18-191.01

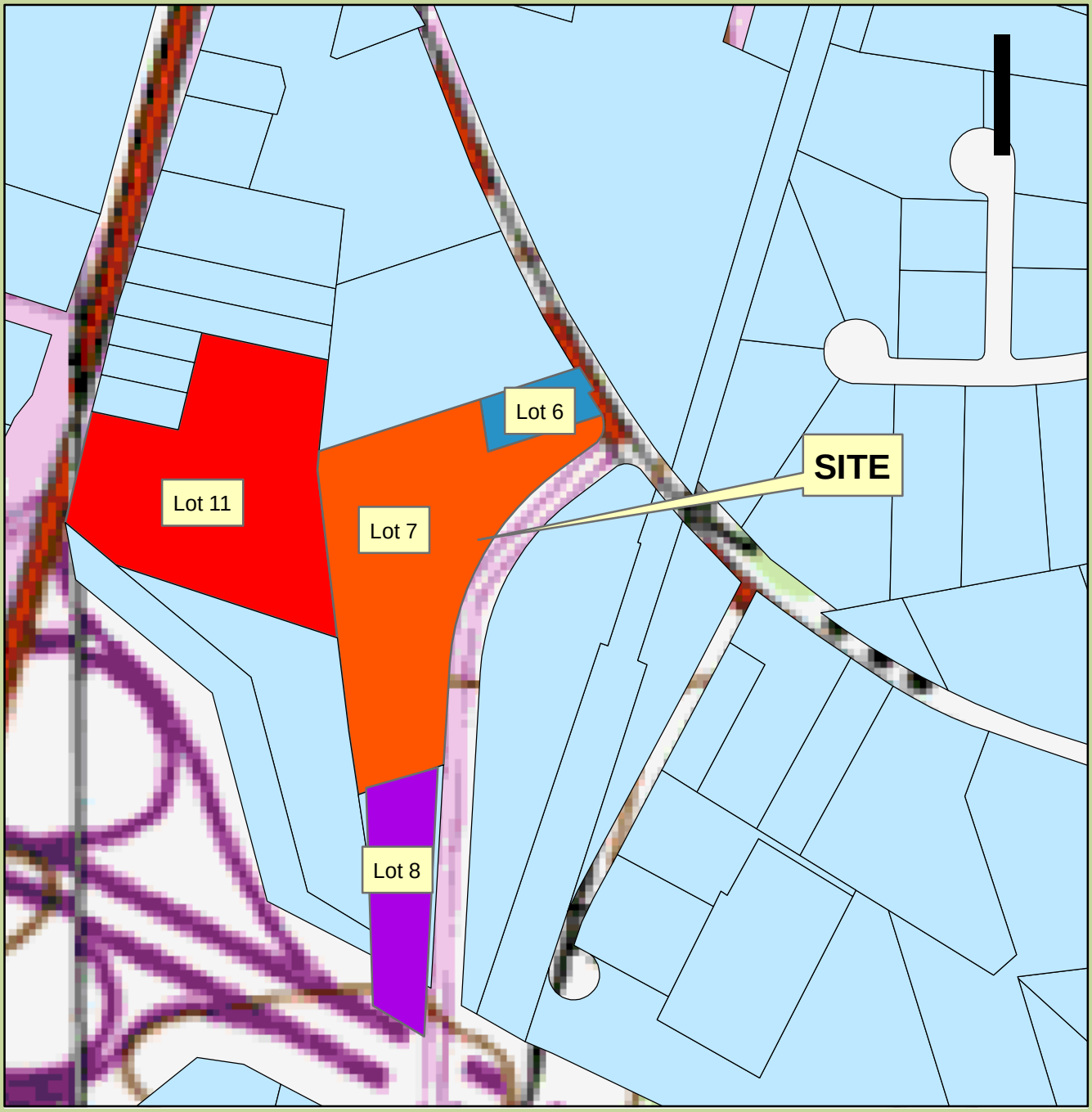


Block 355, Lots 6, 7, 8, 11
Marlboro Township
Monmouth Couunty, NJ

Scale: 1" = 1,000'
Northing: 538,332'
Easting: 562,471'

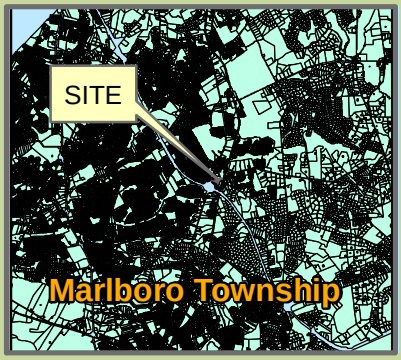
F03 TAX MAP

DIGITAL TAX MAP



DW SMITH ASSOCIATES, LLC
1450 State Highway 34
Wall Township, NJ 07753
P. 732-363-5850
F. 732-905-8669
pgriber@dwsmith.com

Date: November 20, 2018
Job Number: 18-191.01

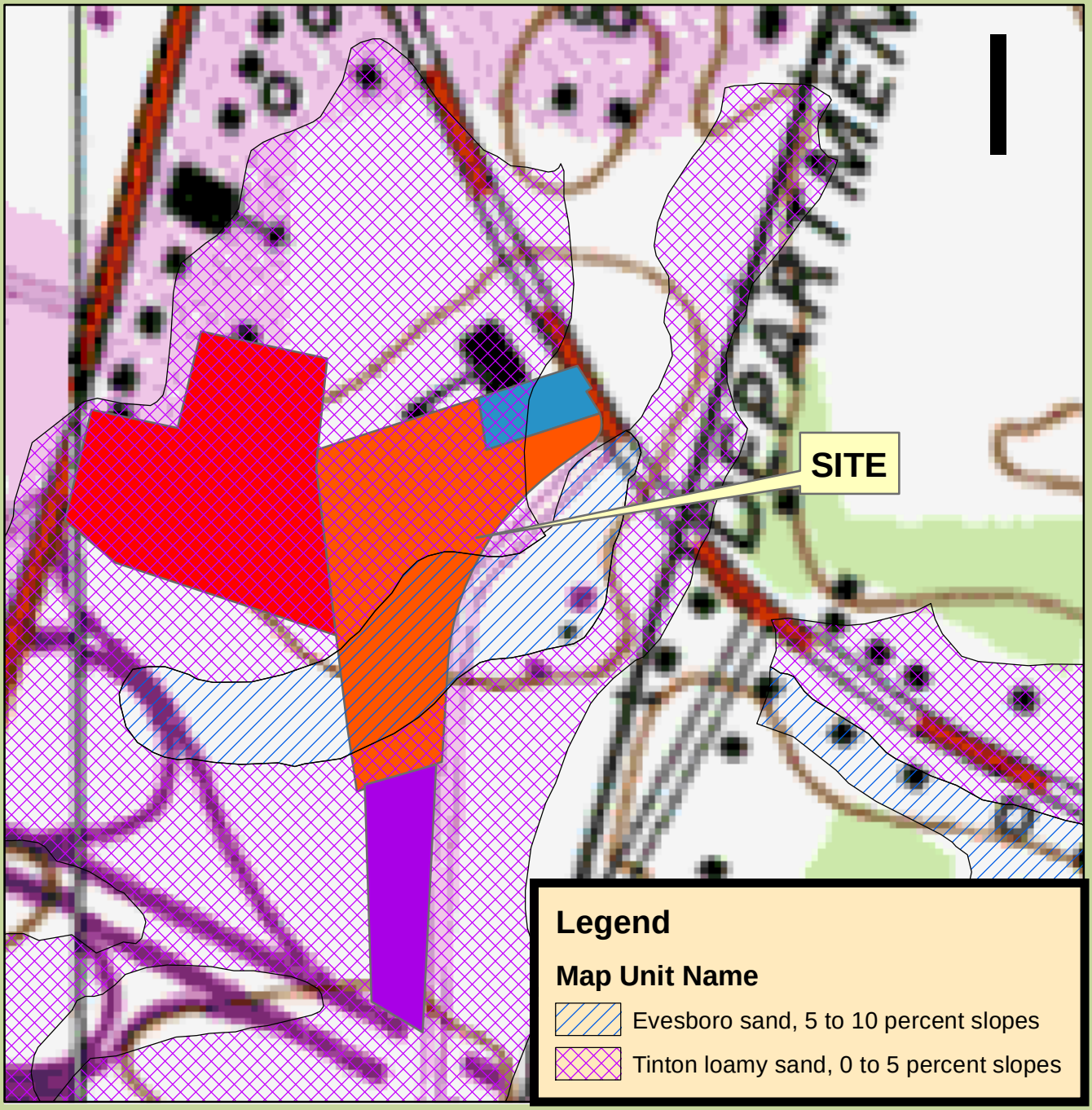


Block 355, Lots 6, 7, 8, 11
Marlboro Township
Monmouth Couunty, NJ

Scale: 1" = 300'
Northing: 538,332'
Easting: 562,471'

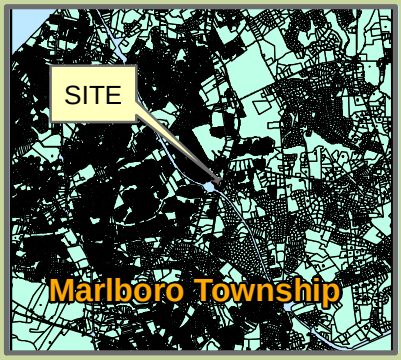
F04 MONMOUTH COUNTY SOIL (SSURGO) SURVEY

SOIL (SSURGO) MAP



DW SMITH ASSOCIATES, LLC
1450 State Highway 34
Wall Township, NJ 07753
P. 732-363-5850
F. 732-905-8669
pgriber@dwsmith.com

Date: November 19, 2018
Job Number: 18-191.01



Block 355, Lots 6, 7, 8, 11
Marlboro Township
Monmouth Couunty, NJ

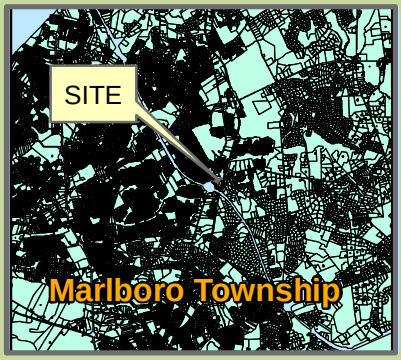
Scale: 1" = 300'
Northing: 538,332'
Easting: 562,471'

F05 WETLANDS MAP

WETLANDS MAP

DW SMITH ASSOCIATES, LLC
1450 State Highway 34
Wall Township, NJ 07753
P. 732-363-5850
F. 732-905-8669
pgriber@dwsmith.com

Date: November 19, 2018
Job Number: 18-191.01



Block 355, Lots 6, 7, 8, 11
Marlboro Township
Monmouth Couunty, NJ

Scale: 1" = 500'
Northing: 538,332'
Easting: 562,471'

11.0 APPENDICES

A01 PROFESSIONAL QUALIFICATIONS

A02 CUSTOM SOIL REPORT

A03 NJ NATURAL HERITAGE DATABASE REPORT

A01. PROFESSIONAL QUALIFICATIONS

PENELOPE A. GRIBER
SENIOR ENVIRONMENTAL PROJECT MANAGER
Direct Dial: 732-378-7491 • Fax: 732-905-8669
E-mail: pgriber@dwsmith.com

YEARS OF EXPERIENCE:	**DW SMITH ASSOCIATES, LLC**	**18.0 YEARS**
	BIRDSALL ENGINEERING, INC.	**1.6 YEARS**
	ABBINGTON ASSOCIATES, INC.	**13.0 YEARS**

EDUCATION: DEGREE/SPECIALIZATION/SCHOOL

- BA Degree, Athens State University, Athens, Ala.
- Certification in Methodology of Wetlands Delineation - 1989 Federal Manual and 1987 Army Corps of Engineers Wetlands Delineation Manual, Rutgers University, Cook College Continuing Professional Education Program – Certified in 1990 and 1995
- Proficient in use of: Geographic Information System (GIS) digital data for environmental analysis and map making (ArcView GIS)

AFFILIATIONS

- Founding and Former Member of Bay Head, N.J., Environmental Commission (1987-1990)
- Former Co-Chair, Barnegat Bay Estuary Program (BBEP) Science & Technical Advisory Committee (1995-2003)
- Former Member Barnegat Bay Estuary Program Management Committee (1995-2003)
- Former Vice-President (1998-2001) and Former Board of Directors member (1997-2003) of Monmouth/Ocean Development Council (MODC)
- Former Chairperson, MODC Energy and Environment Committee (2008 to 2010)

EXPERIENCE AND QUALIFICATIONS

Ms. Griber began her environmental career in 1985. She has over 30 years of experience as an environmental consultant.

Rutgers University, Cook College, Continuing Professional Education Program:

- Soil Erosion & Sediment Control
- Basic Hydrology
- Stream Encroachment Analysis
- Hydrology of New Jersey Wetlands
- NJDEP Permits
- Groundwater Resource Management
- Hydric Soils
- Wetlands Plant Identification
- Certification in Methodology of Wetlands Delineation
- Environmental Audits and Site Assessments
- Applied Soil Science for Hazardous Materials
- Researching/Writing/Analyzing Environmental Impact Statements
- NJDEP Air Pollution Permits

- Advanced Wetlands Delineation
- Management and Regulation of Dredging Activities
- Threatened and Endangered Species in NJ: Regulations, Identification & Assessment
- Fundamentals of ArcView GIS
- Advanced Desktop Mapping using ArcView GIS
- Environmental Analysis using ArcView GIS
- Soils and Site Evaluations For Septic Disposal Systems
- Freshwater Wetlands Construction Techniques

During her professional career, she gained field knowledge of wetlands delineation, site environmental constraints and regulatory expertise through:

- Permits for various NJDEP Statewide General and Individual Wetlands Permits
- Letters of Interpretation for sites ranging from a single-family lot to a 1,000 acre tract
- Waterfront Development and CAFRA Permits
- Army Corps of Engineers Jurisdictional Determinations, Nationwide and Individual Permits
- Environmental Impact Statements for Planning Board review, New Jersey School Construction Corporation review, New Jersey Department of Environmental Protection review, and other regulatory agency review
- Phase I Environmental Site Assessments for real estate purchase and financing due diligence and Preliminary Assessments for private clients and government agency project financing
- Evaluation and classification of soils in the field, and preparation of Soil Logs for determination of suitability of a site for placement of septic disposal systems and infiltration basin design
- Designing and monitoring wetlands mitigation projects

She provides clients with design recommendations and environmental testimony for various municipal, County and State agencies (including N.J. Department of Environmental Protection and Pinelands Commission), and obtains State environmental construction permits for a wide variety of private clients. She is also one of the two co-founders of the Bay Head, N.J. Environmental Commission and wrote the Natural Resource Inventory for the town.

Among the hundreds of NJDEP permits she has obtained, permits for the following projects had notably ***significant environmental issues***:

- **CAFRA Permit and Freshwater Wetlands permits** for Cedarbridge Corporate Park in Lakewood, N.J., on property with potential for several Threatened and Endangered species of fauna, and contiguous to very large ***Swamp Pink*** Population. Interaction was required with U.S. Fish and Wildlife Service for permit issuance;
- **Individual Freshwater Wetlands Permit** for widening of Shafto/Wyckoff Road in Monmouth County, N.J. Wetlands Mitigation Plan approval was required from NJDEP;
- **Individual Freshwater Wetlands Permit** for widening of Mansfield Road in Mansfield Township, Burlington County, N.J., and subsequent wetlands mitigation bank contribution approval;
- **Individual Freshwater Wetlands Permit** for Marlboro Manse subdivision in Marlboro Township, N.J. Wetland Mitigation Plan approval was required from NJDEP;
- **Individual Freshwater Wetlands Permit** for last section of Leisuretowne Retirement Fellowship in Southampton Township, Burlington County on property with potential for Threatened and Endangered species and significant cultural resources;
- **Freshwater wetlands permits** for the Mansfield Farms subdivision in Mansfield Township, Burlington County on property with potential for several Threatened and Endangered species of fauna;
- **Pinelands approval** for large age-restricted residential subdivision containing the potential for several Threatened and Endangered species of flora and fauna, including Pine Barrens tree frog,

Pine snake and Timber rattlesnake, adjacent to the Toms River in Manchester Township, Ocean County;

- **Individual Freshwater Wetlands Permit, U.S. Army Corps of Engineers Permits and CAFRA Permit** for widening of Hooper Avenue in Dover Township, Ocean County, N.J.;
- **Emergency CAFRA, Waterfront Development and Freshwater Wetlands Permits for Oyster Creek Nuclear Generating Plant in Lacey Township, Ocean County,** for 10 million dollar security upgrade on property with potential for several Threatened and Endangered species of flora and fauna;
- **Kozloski Road Freshwater Wetlands Mitigation Monitoring –** Approval by NJDEP of on-going monitoring of a 2.64 acre created wetlands site as mitigation for Individual Wetlands Permit, including annual reports to NJDEP demonstrating that hydric soils (proof of organic content by weight), vegetation and hydrology exist in support of 85% success rate of project;
- **Tomlin Station Road, Coastal Wetlands and Freshwater Wetlands Permits –** Coastal and Freshwater Wetlands permits for replacement of two bridges on Tomlin Station Road in Greenwich Township, Gloucester County, in an area with known endangered species;
- **Wetlands Mitigation Plan, Tomlin Station Road –** Approval of Wetlands Mitigation Plan for disturbance to coastal wetlands and mitigation of coastal wetlands disturbance for two bridge replacements on Tomlin Station Road in Greenwich Township, Gloucester County;

In 1995, the Barnegat Bay was nominated as one of 28 national estuaries by the United States Congress. In 1996 she was appointed co-chair of the Science and Technical Advisory Committee of the Barnegat Bay Estuary Program, along with co-chair Michael P. DeLuca, Senior Associate Director, Rutgers University Institute of Marine and Coastal Sciences. As a member of the Management Committee, she participated in the management of the $750,000 yearly budget for the program for eight years, and helped to shape management policies for the bay and watershed. She contributed to the preparation of the *Comprehensive Conservation Management Plan* for the Barnegat Bay estuary, a published document used to secure on-going funding for projects identified as beneficial to the estuary. She is the author of the chapters on "History", "Land Use" and "Competing Resource Uses" for the *Scientific Characterization of the Barnegat Bay*, edited by Rutgers University, Institute of Marine and Coastal Sciences (to view the document, go to www.bbep.org www.bbep.org). This document was published jointly by the New Jersey Department of Environmental Protection and the U. S. Environmental Protection Agency in 2000.

As a member of the N.J. Builder's Association Pinelands Committee, she met quarterly with the Executive Director and senior staff of the Pinelands Commission to discuss issues pertinent to the development industry in the Pinelands region of New Jersey. In 2003, she received the N. J. Builder's Association "Chairman's Award" for significant contributions to the committee on behalf of the industry.

She is currently the Senior Environmental Project Manager managing all wetlands services and permits, coastal permits, and other land use environmental services for the company. D. W. Smith provides a wide variety of environmental services to assist private clients in obtaining approvals from Federal, State and local regulatory agencies:

- Planning Board and Regulatory Agency Testimony
- NJDEP Environmental Permitting
- Wetlands Delineation and Permitting
- Wetlands Mitigation Design and Monitoring
- Environmental Engineering
- Site Development and Land Planning
- Site Soil and Septic Suitability Services
- Environmental Impact Statements for Regulatory Review
- Waterfront/Coastal Development Permits
- Phase I Environmental Site Assessments for potential hazardous materials
- Phase II Site Remediation

TIMOTHY P. LURIE, PE, PP
DIRECTOR OF ENGINEERING / PRINCIPAL

YEARS EXPERIENCE Total 18 This Firm 14 Other Firm 4

ACTIVE REGISTRATION	LICENSE NO.	STATE
Professional Engineer	40279	New Jersey
Professional Engineer	PE061676	Pennsylvania
Professional Engineer	081731	New York
Professional Engineer	6201051324	Michigan
Professional Engineer	69103	Ohio
Professional Engineer	0402040596	Virginia
Professional Planner	05650	New Jersey
U.S.T. Closure & Testing	19235	New Jersey

EDUCATION	DEGREE	YEAR
Stevens Institute of Technology	BE – Engineering	1990
Stevens Institute of Technology	ME – Coastal Engineering	1993

HISTORY

Mr. Lurie was employed from 1993 to 1995 by the New Jersey Department of Environmental Protection as an Environmental Engineer in charge of Permitting Solid Waste Facilities and Recycling Centers. Between 1995 and 1997, Mr. Lurie was employed by Flannery, Webb and Hansen, P.A.

Mr. Lurie began his career at D.W. Smith in 1997 as a Project Engineer involved in all aspects of civil engineering design for large tract residential subdivisions and commercial site plans. In 2001 Mr. Lurie received his Professional Planners license and expanded his role to include planning design and testimony. In 2002 Mr. Lurie was promoted to Principal and Director of Engineering in charge of the all of D.W. Smith's engineering projects and staff.

Mr. Lurie designed two (2) large tract senior projects which have been awarded the Senior Communities of the year award. Mr. Lurie became the Managing Member of the firm in 2007.

EXPERTISE

Land Development Engineering and Planning

- Single and Multi-Family Residential, Commercial and Industrial Developments
- Large Tract (1,000+ units) Active Adult Communities, Corporate Campuses, Industrial Parks, Assisted Living and Critical Care Facilities
- Municipal and Public Works Engineering and Planning for various Boroughs and Townships throughout the State of New Jersey
- All aspects of Landfill Design including Groundwater Modeling, Methane Gas Systems and Contaminated Soil Analysis
- Underground Storage Tank Removal, Installation, Subsurface, Closure & Tank Testing
- Marina Design and Breakwater Devices
- Park and Recreational Land Development
- Presentations to and Approvals from Planning and Zoning Boards
- Environmental Permitting
- Expert Testimony
- Inspection of Construction Projects
- CAFRA Designs

A02 CUSTOM SOIL REPORT

United States Department of Agriculture

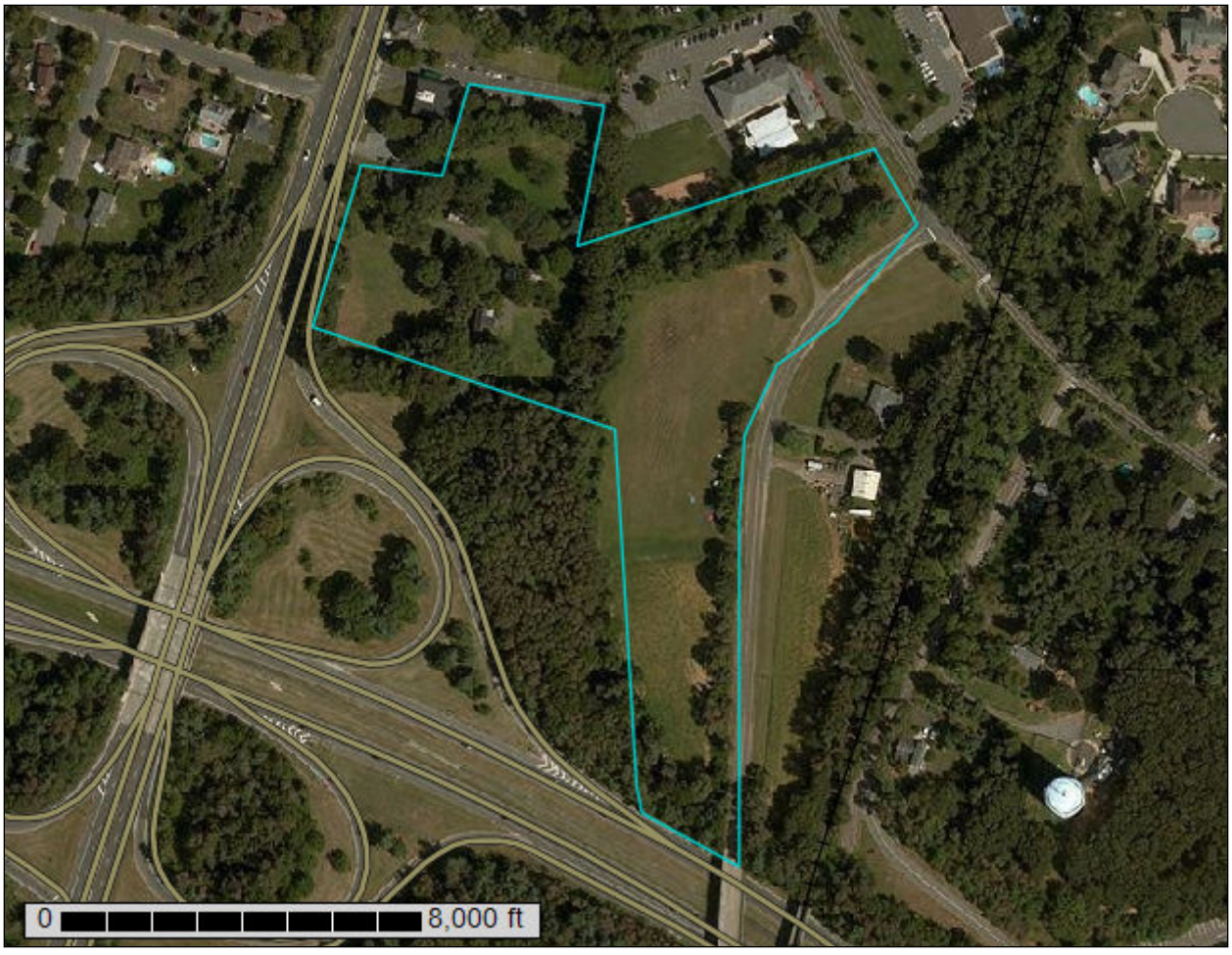
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Monmouth County, New Jersey

Block 355, Lots 6, 7, 8 & 11, Marlboro Township, Monmouth County, NJ



December 18, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

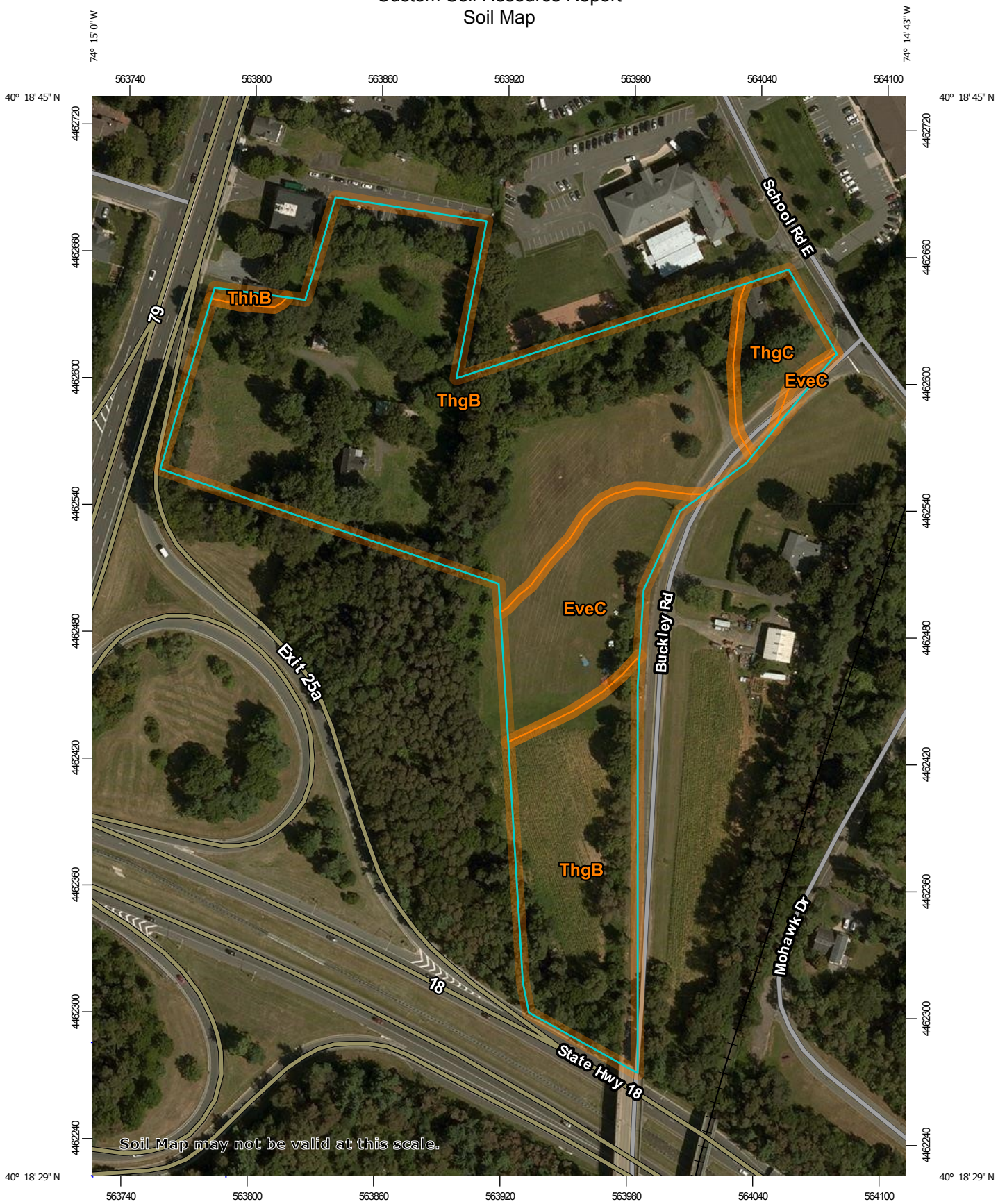
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,490 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Monmouth County, New Jersey
Survey Area Data: Version 12, Sep 15, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 25, 2014—Sep 23, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EveC	Evesboro sand, 5 to 10 percent slopes	1.5	12.7%
ThgB	Tinton loamy sand, 0 to 5 percent slopes	9.5	81.7%
ThgC	Tinton loamy sand, 5 to 10 percent slopes	0.6	5.2%
ThhB	Tinton-Urban land complex, 0 to 5 percent slopes	0.0	0.4%
Totals for Area of Interest		**11.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Monmouth County, New Jersey

EveC—Evesboro sand, 5 to 10 percent slopes

Map Unit Setting

National map unit symbol: 4j75
Elevation: 10 to 130 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Not prime farmland

Map Unit Composition

Evesboro and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Evesboro

Setting

Landform: Low hills
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy eolian deposits and/or sandy fluviomarine deposits

Typical profile

A - 0 to 4 inches: sand
AB - 4 to 17 inches: sand
Bw - 17 to 31 inches: sand
C - 31 to 80 inches: stratified loamy sand to sand

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Downer

Percent of map unit: 5 percent
Landform: Knolls, low hills
Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

ThgB—Tinton loamy sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4j8w
Elevation: 10 to 170 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tinton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tinton

Setting

Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits over glauconite bearing fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
E - 7 to 32 inches: loamy sand
Bt - 32 to 46 inches: sandy clay loam
2C - 46 to 60 inches: stratified sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Collington
Percent of map unit: 3 percent
Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Evesboro
Percent of map unit: 3 percent
Landform: Low hills
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Freehold
Percent of map unit: 3 percent
Landform: Knolls, low hills
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Holmdel
Percent of map unit: 3 percent
Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Pemberton
Percent of map unit: 3 percent
Landform: Flats, low hills
Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

ThgC—Tinton loamy sand, 5 to 10 percent slopes

Map Unit Setting
National map unit symbol: 4j8x
Elevation: 10 to 120 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tinton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tinton

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy eolian deposits over glauconite bearing fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
E - 7 to 32 inches: loamy sand
Bt - 32 to 46 inches: sandy clay loam
2C - 46 to 60 inches: stratified sand to sandy loam

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Collington

Percent of map unit: 5 percent
Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Evesboro

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Freehold

Percent of map unit: 5 percent
Landform: Knolls, low hills
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

ThhB—Tinton-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4j8z
Elevation: 10 to 170 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Not prime farmland

Map Unit Composition

Tinton and similar soils: 55 percent
Urban land: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tinton

Setting

Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits over glauconite bearing fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
E - 7 to 32 inches: loamy sand
Bt - 32 to 46 inches: sandy clay loam
2C - 46 to 60 inches: stratified sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Urban Land

Setting

Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Collington

Percent of map unit: 3 percent
Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Evesboro

Percent of map unit: 3 percent
Landform: Low hills
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Freehold

Percent of map unit: 3 percent
Landform: Knolls, low hills
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Holmdel

Percent of map unit: 3 percent
Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Pemberton

Percent of map unit: 3 percent
Landform: Low hills, flats
Down-slope shape: Convex, linear
Across-slope shape: Linear
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

A03 NATURAL HERITAGE DATABASE REPORT

State of New Jersey
MAIL CODE 501-04
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF PARKS & FORESTRY
NEW JERSEY FOREST SERVICE
OFFICE OF NATURAL LANDS MANAGEMENT
P.O. BOX 420
TRENTON, NJ 08625-0420
Tel. (609) 984-1339 Fax (609) 984-0427

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

January 2, 2019

Penelope A. Griber
DW Smith Associates, LLC
1450 State Highway 34
Wall Township, NJ 07753

Re: Subdivision
Block(s) - 355, Lot(s) - 6, 7, 8, 11
Marlboro Township, Monmouth County

Dear Ms. Griber:

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 topographic map(s) submitted with the Natural Heritage Data Request Form into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

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

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

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the immediate vicinity of the 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 http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

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

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.

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

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

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 19-4007432-15748

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

Report Name	Included	Number of Pages
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	No	0 pages 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	Yes	1 page(s) included

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

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Apamea apamiformis	A Noctuid Moth			G4	S2S4

Total number of records: 1

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

Report Name	Included	Number of Pages
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	No	0 pages included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) 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	Yes	1 page(s) included

Vernal Pool Habitat
In the Immediate Vicinity of
Project Site Based on Search of
Landscape Project 3.3

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1604

Total number of records: 1

Wednesday, January 02, 2019

NHP File No.: 19-4007432-15748

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

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Apamea apamiformis	A Noctuid Moth			G4	S2S4

Total number of records: 1