



**MASER**  
CONSULTING P. A.

## Environmental Impact Statement

Lot 39, Block 2101  
Lawrence Township, Mercer County, New Jersey

July 2017

*Prepared For*

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|            |                                                                                            |           |
|------------|--------------------------------------------------------------------------------------------|-----------|
| <b>1.0</b> | <b>INTRODUCTION.....</b>                                                                   | <b>1</b>  |
| <b>2.0</b> | <b>PROJECT DESCRIPTION.....</b>                                                            | <b>2</b>  |
| 2.1        | PURPOSE AND SCOPE.....                                                                     | 2         |
| 2.2        | SITE SUITABILITY .....                                                                     | 2         |
| 2.3        | DEMOGRAPHICS .....                                                                         | 3         |
| 2.4        | MASTERPLAN COMPATIBILITY .....                                                             | 3         |
| <b>3.0</b> | <b>SITE DESCRIPTION AND INVENTORY .....</b>                                                | <b>5</b>  |
| 3.1        | TOPOGRAPHY .....                                                                           | 5         |
| 3.2        | GEOLOGY .....                                                                              | 5         |
| 3.3        | VEGETATION .....                                                                           | 6         |
| 3.4        | WILDLIFE.....                                                                              | 7         |
| 3.5        | SURFACE WATER .....                                                                        | 7         |
| 3.6        | SUBSURFACE WATER.....                                                                      | 8         |
| 3.7        | CULTURAL AND/OR HISTORIC FEATURES.....                                                     | 9         |
| 3.8        | EXISTING DEVELOPMENT FEATURES.....                                                         | 10        |
| 3.9        | NOISE.....                                                                                 | 10        |
| 3.10       | AIR QUALITY.....                                                                           | 13        |
| 3.11       | WETLANDS .....                                                                             | 15        |
| 3.12       | THREATENED AND ENDANGERED SPECIES.....                                                     | 15        |
| <b>4.0</b> | <b>AREA AND REGIONAL DESCRIPTION .....</b>                                                 | <b>16</b> |
| <b>5.0</b> | <b>ENVIRONMENTAL PERFORMANCE CONTROLS.....</b>                                             | <b>16</b> |
| 5.1        | SEWAGE DISPOSAL TECHNIQUES.....                                                            | 16        |
| 5.2        | WATER SUPPLY AND CONSERVATION.....                                                         | 16        |
| 5.3        | ENERGY CONSERVATION MEASURES.....                                                          | 16        |
| 5.4        | NOISE REDUCTION TECHNIQUES .....                                                           | 16        |
| <b>6.0</b> | <b>ENVIRONMENTAL IMPACTS.....</b>                                                          | <b>17</b> |
| 6.1        | FLOODING AND FLOODPLAIN IMPACT .....                                                       | 17        |
| 6.2        | IMPACT ON SURFACE WATER AND GROUNDWATER QUALITY .....                                      | 17        |
| 6.3        | IMPACT ON THE CAPACITY TO SUPPLY GROUNDWATER.....                                          | 19        |
| 6.4        | SEWAGE DISPOSAL IMPACTS .....                                                              | 19        |
| 6.5        | ALTERATION TO EXISTING VEGETATION AND ITS IMPACT ON WILDLIFE AND<br>WILDLIFE HABITATS..... | 20        |
| 6.6        | DESTRUCTION OR DISTURBANCE OF CULTURAL RESOURCES .....                                     | 20        |
| 6.7        | NOISE LEVEL IMPACTS.....                                                                   | 20        |
| 6.8        | ENERGY UTILIZATION.....                                                                    | 21        |
| 6.9        | BLIGHTING OR IMPROVING EFFECTS ON NEIGHBORHOODS.....                                       | 21        |
| <b>7.0</b> | <b>ALTERNATIVES .....</b>                                                                  | <b>21</b> |
| <b>8.0</b> | <b>LICENSES, PERMITS AND APPROVALS REQUIRED.....</b>                                       | <b>23</b> |
| <b>9.0</b> | <b>REFERENCES.....</b>                                                                     | <b>24</b> |



## **APPENDICES**

### **APPENDIX A: FIGURES**

- Figure 1- USGS Map
- Figure 2- Official Tax Map
- Figure 3- County Road Map
- Figure 4- Aerial Map
- Figure 5- Land Use Map
- Figure 6- Soil Map
- Figure 7- FEMA Flood Map
- Figure 8- Historical Properties Map
- Figure 9- Aquifer Map
- Figure 10- Groundwater Recharge Map
- Figure 11- Critical Wildlife Map

### **APPENDIX B: PHOTOGRAPHS**

### **APPENDIX C: NATURAL HERITAGE PROGRAM CORRESPONDENCE**

### **APPENDIX D: QUALIFICATIONS OF PREPARERS**



## **1.0 INTRODUCTION**

Sheft Associates, Inc. (applicant) proposes to construct a 1,200 SF coffee shop and a three (3) story 16,985 SF extended stay lodging facility along with typical appurtenant site improvements. The property is currently contained within the HC (Highway Commercial) zone, in which the proposed extended stay lodging facility is a conditional use. If the applicant meets the conditions of the use, the application will require authorization from the Planning Board. If the applicant does not meet the conditions of the use, a D (3) variance from the Zoning Hearing Board is required.

The property in question is located on the eastern side of Route 1 Business and is located west of Colonial Lake. The overall property consists of an existing bowling alley (Colonial Bowling and Entertainment) that will remain and approximately 3.2 acres of successional vegetation and deciduous forest. The proposed hotel and pad sites will be constructed on the undeveloped portion of the property.

This Environmental Impact Statement was prepared in accordance with Section 812 of the Land Use Ordinance of Lawrence Township, Mercer County, New Jersey. Per the requirements of this section of the Ordinance, an Environmental Impact Statement (EIS) shall be submitted by the applicant for all preliminary major subdivisions and site plans. In accordance with the requirements for an EIS at Section 812 of the aforementioned ordinance, the EIS shall include a description of the proposed project, the purpose and scope of the project, the suitability of the site for the intended project, the estimated resident population, if applicable, the compatibility or incompatibility of the proposed project with surrounding uses, including the adequacy of proposed exterior buffers, setbacks and screening, and an inventory and description of existing environmental conditions on the project.

The EIS shall also include an assessment of the impacts of the project on all existing environmental conditions and a description of steps to be taken to minimize adverse environmental impacts during construction and operation, both at the project site and in the surrounding area. The EIS shall address and describe those adverse environmental impacts which



cannot be avoided, with particular emphasis upon air or water quality, increase in noise, damage to natural resources, displacement of people and businesses, displacement of existing farms, increase in sedimentation and siltation, and impact of storm drainage upon water quality.

This EIS identifies, through written and graphic materials, the existing and proposed conditions and the anticipated effects of the proposed development on the physical and biological resources of the project site. Information contained in this EIS is based on information available at the time of its preparation and site plans entitled, "Preliminary/Final Major Site Plan for Sheft Associates, Inc., Block 2101, Lot 39, Lawrence Township, Mercer County, New Jersey", prepared by Maser Consulting PA, consisting of 13 sheets, dated April 18, 2017.

## **2.0 PROJECT DESCRIPTION**

### **2.1 Purpose and Scope**

The subject property presently consists of an existing 38,455 SF bowling and entertainment facility with 187 parking spaces and wooded areas. The applicant proposes to construct a 1,200 SF coffee shop and a three (3) story 16,985 SF extended stay lodging facility. The applicant also proposes to expand the existing parking lot area, propose site lighting, landscape, storm sewers, sanitary, water, utility laterals and construct one (1) above-ground detention basin. The proposed hotel and pad sites will be constructed on the undeveloped, partially forested portion of the property. All necessary Township, County, Soil Erosion Conservation District and NJDEP permits will be obtained prior to construction.

### **2.2 Site Suitability**

The project site is located in the Highway Commercial Zone (HC). The proposed development consists of an anticipated 1,200 SF coffee shop and a three (3) story 16,985 SF extended stay lodging facility along with typical appurtenant site improvements. These uses are consistent with the conditional uses permitted within the HC zone.



### **2.3 Demographics**

The proposed project will not generate any significant increases in new residents since it consists of a retail use (coffee shop) and an extended stay lodging facility. It is anticipated that staffing this facility will generate some new residents.

### **2.4 Masterplan Compatibility**

The project site is located in the Highway Commercial Zone (HC). The Highway Commercial (HC) district is intended to serve both the residents of the municipality and the general public with uses typically oriented towards motorized travel. The HC district is the primary retail zone for localized sales and services that are not regionally based. It differs from the NC-1 and NC-2 districts by including automobile business uses and excluding residential uses, with the exception of certain senior citizen housing. The Highway Commercial district is also intended to support the retail uses in the Regional Commercial district.

Permitted uses in the HC district include automobile sales through franchised new car dealers, automobile accessories and car washes, banks, including drive-in facilities, bars and taverns, convenience stores, department and discount stores, governmental uses, indoor recreational facilities, membership club bulk retail outlets, offices, retail sales of goods and services, restaurants, including fast food restaurants, shopping centers, and theaters and entertainment.

The following uses may be permitted when authorized as a conditional use by the Planning Board in accordance with §705:

- "1. Service station or repair garage conforming to the following conditions: ...:*
- 2. Motels conforming to the following conditions:*
  - a. Any motel shall contain a minimum of at least 20 units of accommodation, exclusive of, but in addition to, a permanent, on-site superintendent's living quarters. The minimum number of units of accommodation in any single building shall be 10.*
  - b. Each unit of accommodation shall contain a minimum floor area of 250 square feet. Ceilings shall be a minimum of 8 feet in height.*
  - c. No more than 20% of the units may include cooking facilities.*
  - d. There shall be a maximum residency limitation on all guests of 30 days. The residency limitation shall not apply to an employee living on the premises or to occupants of the allowed units with cooking facilities.*



- e. Minimum lot frontage shall be 300 feet.*
3. *Hotels conforming to the following conditions:*
- a. Trip generation shall not exceed the peak hour rates of permitted uses of the zone.*
  - b. Each unit of accommodation shall contain a minimum floor area of 250 square feet. Ceilings shall be a minimum of 8 feet in height.*
  - c. No more than 20% of the units may include cooking facilities.*
  - d. There shall be a residency limitation on all guests of a maximum of 30 days. The residency limitation shall not apply to an employee living on the premises or to occupants of the allowed units with cooking facilities.*
  - e. Minimum lot frontage shall be 300 feet.*
  - f. Restaurants and nightclubs shall be permitted as an accessory use within the hotel.*
  - g. Barber shops and hair salons, gift shops, newspaper stands, smoking shops and similar uses shall be permitted as accessory uses provided there is no direct access to the outside for customers and no exterior signage”*

The proposed project will advance many of the goals and objectives contained in the Township Master Plan. Specifically, the proposed development continues to be commercial and therefore protects and enhances the commercial character of the Township. The project conforms to the permitted density in the zone and provides appropriate buffers between commercial and residential and uses.

The State Plan Map indicates that the project site is located within Planning Area 2 (PA-2), or the Suburban Planning Area (Figure 6). Ecologically sound development and redevelopment, which aid in the reduction of sprawl, are envisioned for the Suburban Planning Area in the *New Jersey State Development and Redevelopment Plan* (2010). The proposed project is consistent with the aforementioned plans.

The proposed redevelopment of this property with a 126 unit extended stay facility multifamily zoning is an appropriate transitional zone between the C-3 highway commercial zone to the north, and the R-2 single-family/cluster and PL Public Land zones located generally to the south of the proposed development. This project will promote economic development by providing a consumer base and labor force for both the local and regional economies. The impact of this community is de minimis on municipal services in the entirety and even less so when compared to the net change proposed from



the existing zoning and approved development. Finally, the proposed use does not impair the protection of the ecologically sensitive portions of the tract.

### **3.0 SITE DESCRIPTION AND INVENTORY**

The subject property is an 8.9± acre tract of land in the Township of Lawrence, Mercer County, New Jersey. The property appears on the Princeton, NJ quadrangle of the U.S. Geological Survey Map and is known as Block 2101, Lot 39 per the Township of Lawrence Tax Map. An aerial map, which shows the general property location in relation to surrounding roadways, is included in Appendix B.

The property in question is located on the eastern side of Business Route 1 and is located north of Colonial Lake. The overall property consists of an existing bowling alley (Colonial Bowling and Entertainment) that will remain. Approximately 3.2 acres of the site is undeveloped and partially forested. The 3.2 acres is to be developed and is the subject of the EIS.

#### **3.1 Topography**

The property is relatively flat, sloping gently from north to south. This is largely due to the fact the site has an existing development on it consisting of a large flat parking area. Elevations range from a high of 70 ft. in the northern portion of the property to 55 ft. in the southern and eastern portions of the site which border Colonial lake. There are no steep slopes or other unusual topographic features on the property.

#### **3.2 Geology**

Project site is located within the Inner Coastal Plain Physiographic Province of New Jersey. The Inner Coastal Plain is made up of inter-bedded sand, gravel, silt and clay. Deposits originating in the breakdown of Appalachian and Catskill sedimentary, metamorphic and igneous rocks are interbedded with layers formed by oceanic (marine) deposition, which occurred as the ocean shoreline advanced and receded over geologic time. The Inner Coastal Plain layers date from the Cretaceous Period, 135 to 65 million years ago. Generally, soils of the Inner Coastal Plain are quite fertile and the topography of the area is flat and low lying.

The underlying geology consists of weathered schist and gneiss. The lithology on the property is described as silty clay to clayey sand with fragments of gneiss and schist; reddish yellow to olive brown, as much as 50 feet thick. The Mercer County Soil Survey describes the soils as “cut and



fill” and “pits” indicating that there has been extensive disturbance to the soils on the property, possibly due to past mining or borrow activities.

### 3.3 Vegetation

The vegetation of the site is indicative of the geographic location (New Jersey’s Inner Coastal Plain), topography and exposure, bedrock geology and soils, landscape processes, and land use history. A review of historic aerial photography indicated that this entire property was previously cleared of vegetation in the 1930-40s. A site inspection was conducted in the June of 2017 to record the vegetative communities on the property. The majority of the vegetation identified on the site is early to late successional. The following vegetative communities were identified on-site:

#### **Deciduous forested corridor along Colonial Lake:**

|                      |                                |
|----------------------|--------------------------------|
| Sycamore             | <i>Platanus occidentalis</i>   |
| Silver maple         | <i>Acer saccharinum</i>        |
| Poison Ivy           | <i>Toxicodendron radicans</i>  |
| Pin oak              | <i>Quercus palustris</i>       |
| Black locust         | <i>Robinia pseudoacacia</i>    |
| Black gum            | <i>Nyssa sylvatica</i>         |
| Roundleaf greenbrier | <i>Smilax rotundifolia</i>     |
| Staghorn sumac       | <i>Rhus typhina</i>            |
| Red maple            | <i>Acer rubrum</i>             |
| Sweetgum             | <i>Liquidambar styraciflua</i> |

#### **Mature deciduous forest**

|                      |                                |
|----------------------|--------------------------------|
| Tulip poplar         | <i>Liriodendron tulipifera</i> |
| Poison Ivy           | <i>Toxicodendron radicans</i>  |
| Pin oak              | <i>Quercus palustris</i>       |
| Red maple            | <i>Acer rubrum</i>             |
| Sweetgum             | <i>Liquidambar styraciflua</i> |
| Black locust         | <i>Robinia pseudoacacia</i>    |
| Black gum            | <i>Nyssa sylvatica</i>         |
| Roundleaf greenbrier | <i>Smilax rotundifolia</i>     |
| Multiflora Rose      | <i>Rosa multiflora</i>         |
| Fox grape            | <i>Vitis labrusca</i>          |

#### **Early successional field/forest**

|                   |                             |
|-------------------|-----------------------------|
| Autumn olive      | <i>Elaeagnus umbellata</i>  |
| Japanese knotweed | <i>Polygonum cuspidatum</i> |



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|                    |                                |
|--------------------|--------------------------------|
| Common mullein     | <i>Verbascum thapsus</i>       |
| Mugwort            | <i>Artemisia vulgaris</i>      |
| Red maple          | <i>Acer rubrum</i>             |
| Sweetgum           | <i>Liquidambar styraciflua</i> |
| Black locust       | <i>Robinia pseudoacacia</i>    |
| Milkweed           | <i>Asclepias syriaca</i>       |
| Eastern cottonwood | <i>Populus deltoides</i>       |
| Staghorn sumac     | <i>Rhus typhina</i>            |
| Eastern Red Cedar  | <i>Juniperus virginiana</i>    |
| Milkweed           | <i>Asclepias syriaca</i>       |

### 3.4 Wildlife

The project site is developed with a bowling alley and contains impervious asphalt parking areas, a forested corridor along Colonial Lake, mature deciduous forest and an area consisting of early successional vegetation.

During the site visits, the following species were observed either by visual observation or signs of the species (prints, scat, call, etc.):

|                        |                                |
|------------------------|--------------------------------|
| Turkey vulture         | <i>Cathartes aura</i>          |
| Eastern painted turtle | <i>Chrysemys picta</i>         |
| Gray squirrel          | <i>Sciurus carolinensis</i>    |
| American robin         | <i>Turdus migratorius</i>      |
| American crow          | <i>Corvus brachyrhynchos</i>   |
| Song sparrow           | <i>Melospiza melodia</i>       |
| Starling               | <i>Sterna vulgaris</i>         |
| Northern green frog    | <i>Rana clamitans melanota</i> |

The wildlife species observed on the site are common and widespread in the region. No threatened or endangered species or suitable habitats for such species were observed in the areas to be developed on the site. One site inspection cannot provide a comprehensive list of all species expected to be found on the property, since many species are nocturnal and other species are seasonal. A more comprehensive list of wildlife species found throughout the Township can be reviewed in the Environmental Resource Inventory for Lawrence Township.

### 3.5 Surface Water

The subject property shares approximately 1,200 LF of frontage along Colonial Lake. Colonial Lake is part of the Shabakunk Creek, which is tributary to the Assunpink Creek. According to the FEMA



flood insurance effective map (3402500002B) dated July 3, 1985, the portion of Shabakunk Creek (Colonial Lake) which shares frontage along this site has a flood hazard elevation ranging from elevation 52-54 in the NVGD 1929 datum. NVGD 1929 is approximately one foot higher than NAVD 1988. The FEMA flood insurance preliminary map (34021C0138F) with an effective date of July 20, 2016, shows flood hazard elevations ranging from elevation 51-53 in the NAVD 1988 datum for the same frontage.

In addition to the FEMA flood insurance mapping, the New Jersey Department of Environmental Protection has performed a delineation of the floodway and flood hazard area of Shabakunk Creek. The delineation dated 12/15/80, shows the New Jersey Flood Hazard Design Flood elevations to range from elevations 54-55 between stations 23+00 and 45+00 (NVGD 1929 datum). However, these elevations are in the NVGD 1929 datum, and must be converted to NAVD 1988 datum. The converted elevations range from elevations 53-54. According to N.J.A.C. 7:13, the highest of the elevations must be used when establishing the design flood hazard elevation. Therefore, the flood hazard area design flood elevation for Shabakunk Creek (Colonial Lake) was determined to range between elevation 53-54, using method 1 (NJDEP delineation method). The limit of the flood hazard area associated with Colonial Lake occurs only in the southeastern portion of the site.

The Shabakunk Creek is not classified as a Category One waterway nor is it designated a trout production and/or located within one mile of a trout maintenance water. Additionally, there are no threatened or endangered species, and/or present or documented habitat for those species, which is critically dependent on the regulated water for survival, and all upstream waters (including tributaries) located within one mile of such habitat. According to N.J.A.C. 7:13-4.1, all regulated waters that do not fall under these criteria, require a 50-ft riparian zone. Therefore, a 50-ft riparian zone is assumed along Shabakunk Creek and is shown on the FHA verification plan.

### **3.6 Subsurface Water**

An aquifer is an underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravel, sand, or silt) from which groundwater can be extracted using a water well. Aquifers



are typically saturated regions of the subsurface that produce an economically feasible quantity of water to a well or spring. Sand and gravel or fractured bedrock often make good aquifer materials.

A Bedrock aquifer is an aquifer composed of consolidated material such as limestone, dolomite, sandstone, siltstone, shale, or fractured crystalline rock. The NJDEP's Geoweb mapping for the property indicates that the underlying formation is composed of igneous and metamorphic rock. The NJDEP ranks aquifers based on the median yield of selected non-domestic wells. Yield is used as it is indicative of the capacity of the aquifer to supply water, which defines an aquifer. The NJDEP estimated the potential yield of groundwater from this formation and gave it a ranking of "D" (25-100 gallons/minutes (gpm)).

Aquifer recharge potential was mapped by the NJDEP by superimposing ground-water recharge maps over aquifer maps. A rankings system was developed to display the potential for aquifer recharge. Five ranks, A-E, were assigned: E, less than 25 gpm; D, 25 to 100 gpm; C, greater than 100 gpm to 250 gpm; B, greater than 250 gpm to 500 gpm; and A, greater than 500 gpm. The project site is ranked "E", the lowest value for aquifer recharge potential.

Sole Source Aquifers are designated by the U.S. Environmental Protection Agency as the sole or main source of drinking water for a community, under provisions of the Federal Safe Drinking Water Act. The NJDEP's Geoweb mapping for this property indicates that it is located in an area which is classified as "Not a Sole Source Aquifer".

### **3.7 Cultural and/or Historic Features**

A review of the NJDEP's GeoWeb mapping for the property indicates that there are no cultural resources located on the subject property. This mapping indicates that there is an identified archaeological site approximately 0.25 miles to the east of the site (Archaeological Grid: CL152 NJ Site Grid Cell CL152 Designation Status – Identified).

A review of the NJDEP's GeoWeb mapping for the property indicates that there are no historic resources located on the subject property and the property is not located within a Historic District. The



nearest historic property is the Israel Stevens House (2167 Brunswick Avenue) located approximately 1800 ft. south west of the subject property.

The majority of the site is an existing bowling alley with no unique and or scenic features.

### **3.8 Existing Development Features**

The site currently contains the Colonial Bowling and Entertainment Center which consists of one structure that houses the bowling and entertainment center and an associated paved parking area. The building is approximately 38,000 S.F. in size and the parking area is approximately 3.5 acres in size.

### **3.9 Noise**

Sound is what we hear and noise is unwanted sound. A sound measurement scheme is sometimes used to filter sound pressure readings to reflect human sensitivity and mimic the way the human ear hears sound. The USEPA commonly uses a sound measurement scheme where an A-weighted sound level is used to describe environmental noise and can be quantified in decibels (dBA). The decibel (dBA) scale ranges from 0 for the threshold of perception of sound to approximately 130 dBA for the threshold of pain at the ear; a quiet residential street may have sound levels in the 5-60 dBA range, while heavy trucks generate sound levels in the 85-95 dBA range. At the highest levels, noise above 120 dB can cause instant hearing damage. The lowest levels represent the threshold of hearing, and it is evident that at lower levels our ears are less receptive to the lowest frequencies.

Many different characteristics specific to individual locations affect noise levels, such as distance from noise-producing sources, vehicular traffic, man-made or natural obstacles, and time of day. To provide an idea of the range of ambient noise levels in the landscape, outdoor day-night sound levels, which are the average sound levels over a 24-hour period, are as low as 30 to 40 dB in wilderness areas and as high as 85 to 90 dB in urban areas (USEPA, 1974). The project site is located in a predominately commercial zone with a residential community located to the north of the property. Commercial areas are likely to have a day-night sound level in the 40-65 dBA range (EPA/ONAC 550/9-74-004, March 1974).



### **Examples of Environmental Noise Sources**

|                                                              |                 |
|--------------------------------------------------------------|-----------------|
| weakest sound heard                                          | 0 dB            |
| normal conversation at 3-5 ft.                               | 60-70 dB        |
| dial tone of telephone                                       | 80 dB           |
| city traffic inside car                                      | 85 dB           |
| <b>Regular sustained exposure may cause permanent damage</b> | <b>90-95 dB</b> |
| power mower                                                  | 107 dB          |
| power saw                                                    | 110 dB          |
| <b>Pain begins 125 dB</b>                                    |                 |
| pneumatic riveter at 4 ft.                                   | 125 dB          |
| jet engine at 100 ft.                                        | 140 dB          |

Continued exposure to noise above 85dBA (adjusted decibels) over time will cause hearing loss. The volume and length of time of exposure to sound determines how harmful the noise is. In general, the louder the noise, the less time required before hearing loss will occur. According to the National Institute of Occupational Safety and Health, the maximum exposure time at 85 dBA is eight hours. At 110 dBA, the maximum exposure time is one minute and 29 seconds.

The project site is presumed to have background noise levels within the range of moderate to high due to its frontage along U.S. Route 1, where there are high traffic volumes. Levels of highway traffic noise typically range from 70 to 80 dB(A) at a distance of 15 meters (50 feet) from the highway. Most people prefer the noise levels in their homes to be in the 40-45 dB(A) range, similar to the levels found in a small office.



Construction sites produce varying degrees of noise. The following table lists some of the noise levels associated with different types of construction equipment (\*British Columbia, "Construction Noise," Workers Compensation Board of BC).

| Equipment                             | Sound Level at Operator |         |
|---------------------------------------|-------------------------|---------|
|                                       | Average                 | Range   |
| <i>Background*</i>                    | 86                      |         |
| <i>Earth Moving:</i>                  |                         |         |
| Front End Loader                      | 88                      | 85-91   |
| Back Hoe                              | 86.5                    | 79-89   |
| Bull Dozer                            | 96                      | 8 9-103 |
| Roller                                | 90                      | 79-93   |
| Scraper                               | 96                      | 8 4-102 |
| Grader                                | <85                     |         |
| Truck                                 | 96                      | 8 9-103 |
| Paver                                 | 101                     | 100-102 |
| <i>Material Handling:</i>             |                         |         |
| Concrete Mixer                        | <85                     |         |
| Concrete Pump                         | < 85                    |         |
| Crane                                 | 100                     | 9 7-102 |
| Derrick                               | <85                     |         |
| <i>Power Units:</i>                   |                         |         |
| Generators                            | <85                     |         |
| Compressors                           | <85                     |         |
| <i>Impact:</i>                        |                         |         |
| Pile Driver (diesel and               | 98                      | 8 2-105 |
| Pile Driver (gravity, bored)          | 82.5                    | 62-91   |
| Pneumatic Breaker                     | 106                     | 94-111  |
| Hydraulic Breaker                     | 95.5                    | 9 0-100 |
| Pneumatic chipper                     | 109                     |         |
| <i>Other Equipment:</i>               |                         |         |
| Poker Vibrator                        | 94.5                    | 87-98   |
| Compressed Air Blower                 | 104                     |         |
| Power Saw                             | 88.5                    | 78-95   |
| Electric Drill                        | 102                     |         |
| Air Track Drill                       | 113                     |         |
| <b>Noise Standards</b>                | <b>Noise Level</b>      |         |
| OSHA (at workers ear)                 | 90 dB (A)               |         |
| Day Time Community (at property line) | 65 d                    |         |



### **3.10 Air Quality**

Since the passage of the Clean Air Act in 1970, New Jersey's air quality has significantly improved, to the point where New Jersey is in compliance with all National Ambient Air Quality Standards (NAAQS) except for ozone (NJDEP Bureau of Air Monitoring 2014). The Federal Clean Air Act requires each state to attain and maintain specified air quality standards. Ambient Air Quality Standards have been promulgated by the federal government and by New Jersey for total suspended particulate (TSP), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), lead and ozone. The New Jersey standards are generally the same as the federal standards for these pollutants. Primary air quality standards are set to protect human health and secondary standards are set to protect human welfare. The following air quality assessment is taken from the 2014 Annual Air Quality Report published by the NJDEP Bureau of Air Monitoring.

The Township of Lawrence is located within the Suburban Region of the NJ Pollutant Standards Index Reporting Regions. The most recently available data from NJDEP's Bureau of Air Monitoring Air Quality Reports is provided. In 2014, air quality in the Suburban Region was good on 295 days, moderate on 66 days, unhealthy for sensitive groups on 4 days, unhealthy or very unhealthy on 0 days. The air quality sampling stations in the Region are located in Chester, New Brunswick and at Rutgers University (NJDEP Bureau of Air Monitoring 2014).

Carbon monoxide (CO) is considered a poisonous gas formed when carbon in fuels is not burned completely. It is a by-product of motor vehicle exhaust, which contributes over 51% of all CO emissions nationwide (NJDEP 2014). Carbon monoxide levels are not measured in the Suburban Region. The closest station that monitors Carbon Monoxide is Elizabeth Lab sampling station in the Southern Metropolitan Region. Carbon monoxide levels measured 2.2 parts per million (ppm) in Elizabeth Lab for the 1-hour maximum and 1.5 ppm for the 8-hour maximum. The New Jersey Ambient Air Quality Primary and Secondary Standards of 35 ppm for the 1-hour average standard and 9 ppm for the 8-hour maximum average standard were not exceeded (NJDEP Bureau of Air Monitoring 2014).



At ground level, ozone ( $O_3$ ) is considered an air pollutant that can have serious health effects. Ground-level ozone is created when nitrogen oxides and volatile organic compounds (VOCs) react in the presence of sunlight and heat (NJDEP 2014). Nitrogen oxides are primarily emitted by motor vehicles, power plants, and other sources of combustion. Volatile organic compounds are emitted from motor vehicles, chemical plants, factories, consumer and commercial products, and natural sources. Because ozone needs sunlight and heat to form, it is mainly a daytime problem during the summer. Ozone is measured at Chester and Rutgers University. Maximum Daily 1-Hour levels averaged 0.086 ppm at Chester and 0.115 at Rutgers University. The State's Maximum Daily 1-Hour Average Primary Standard of 0.12 ppm was not exceeded in the Suburban Region. The highest 8-Hour averages were 0.074 ppm at Chester and 0.095 ppm at Rutgers University. The New Jersey 8-Hour standard is 0.075 ppm. Chester did not exceed the State's standard of 0.075 ppm but Rutgers University exceeded the standard (NJDEP Bureau of Air Monitoring 2014).

Nitrogen dioxide ( $NO_2$ ) is a gas which is emitted from the exhaust of motor vehicles, the burning of coal, oil or natural gas and industrial processes. This pollutant was measured at Chester and Rutgers University in the Suburban Region in 2014. The Maximum 1-Hour Average was 0.051 ppm at Chester and 0.083 in Rutgers University. Neither level exceeded the National 1-Hour Standard of 0.100 ppm. The respective 12-Month Averages were 0.005 ppm and 0.009 ppm, neither of which exceeded the National 12-Month Standard of 0.053 ppm (NJDEP Bureau of Air Monitoring 2014).

Particulate air pollution consists of solid particles and liquid droplets suspended in the atmosphere. They can be emitted directly or they can form in the atmosphere from gaseous emissions. Airborne particles can harm vegetation and aquatic ecosystems, and can cause damage to paint and building (NJDEP 2014). Coarse particulate matter was not measured in the Suburban Region in 2014. Fine particulate matter ( $PM_{2.5}$ ) was measured in New Brunswick in the Suburban Region in 2014. The highest daily concentration was  $32.5 \mu g/m^3$ . The annual mean concentration was  $8.2 \mu g/m^3$ . None of the  $PM_{2.5}$  standards were exceeded. "Smoke Shade" was not monitored in the Suburban Region (NJDEP Bureau of Air Monitoring 2014).

Mercer County is located within the Northern New York – Northern New Jersey – Long Island Non-attainment Area for Fine Particulates. None of the New Jersey monitoring stations exceeded the



annual standard of  $12.0 \mu\text{g}/\text{m}^3$  or the 24-hour standard of  $35 \mu\text{g}/\text{m}^3$  in 2014 (NJDEP Air Quality Monitoring Bureau 2014).

Sulfur dioxide ( $\text{SO}_2$ ), a gas that forms when fuel containing sulfur is burned or when gasoline is extracted from oil, was measured at the Chester sampling station in the Suburban Region in 2014. The 3-Hour Average Maximum levels measured 0.014 ppm. The 3-Hour Average standard of 0.5 ppm was not exceeded. The 12-Month Average Maximum level was 0.001 ppm, which did not exceed the Primary Standard of 0.03 ppm (NJDEP Bureau of Air Monitoring 2014).

Lead, a metal that occurs naturally and is also produced by human activities (NJDEP Bureau of Air Monitoring 2014), was not measured.

Although some of the sampling stations do not provide an accurate account of air quality in the immediate vicinity of the project site, the general air quality characteristics are understood. As a property presently under a mix use of agricultural, residential and undeveloped use, air quality can be generally expected to be generally sound, when compared to the relative air quality in urban and industrial regions of the State.

### **3.11 Wetlands**

An isolated wetland was verified by the NJDEP in the eastern corner of the site pursuant to a Letter of Interpretation under Extension File No. 1107-08-0001.1 FWW160001. The isolated wetland is approximately 961 SF in size.

### **3.12 Threatened and Endangered Species**

A request was made to the NJDEP Natural Heritage Database regarding potential threatened and endangered species sightings and potential habitats on the site. The June 21, 2016 response indicated potential foraging habitat for Bald Eagle (*Haliaeetus leucocephalus*) and Great Blue Heron (*Ardea herodias*) were mapped for the site. Cooper's Hawk (*Accipiter cooperii*) sighting was also listed. However, the LOI and FHA Verification issued for the site indicated the absence of potential threatened and endangered species habitat since the riparian and wetland buffers were established by the permits were intermediate resource value and/or an indication the habitats were not present.



#### **4.0 AREA AND REGIONAL DESCRIPTION**

The site is located in close proximity and is adjacent to U.S. Route 1 Northbound. The US Route 1 corridor is heavily developed with commercial land uses. The area adjacent to the property to the north and south are developed with residential communities and commercial development. A shopping center is developed opposite the site along the US Route 1 southbound. Water and sewer are located along US Route 1. Trenton Water Works is the water purveyor and the site is within the Ewing-Lawrence Sewerage Authority service area. Mass transit is available along the Route 1 corridor.

#### **5.0 ENVIRONMENTAL PERFORMANCE CONTROLS**

##### **5.1 Sewage Disposal Techniques**

The subject property is located within the Ewing-Lawrence Sewage Authority (NJ0024759) service area. ELSA has confirmed that capacity is available for the proposed development at the ELSA treatment plant, but is subject to completion of an engineering review by the Authority's consulting engineer. An application must be filed with ELSA in order for the Authority to review the project.

##### **5.2 Water Supply and Conservation**

Similar to sewer service demands, NJDEP provides average daily water demands in the Safe Water Drinking Act Rules (N.J.A.C. 7:10-12.6). Water service infrastructure is available and adjacent to the site.

##### **5.3 Energy Conservation Measures**

There is a construction sequence designed to minimize the amount of earthwork the contractor will be required to do; thus, reducing emissions from construction vehicles. Construction will be done during daylight hours, eliminating the use of lights for construction purposes.

##### **5.4 Noise Reduction Techniques**

High noise levels on construction worksites can be lowered by using commonly accepted engineering and administrative controls. Normally, earplugs and other types of personal protective equipment (PPE) are used to control a worker's exposure to noisy equipment and work areas. Earplugs are the typical PPE given to workers to reduce their exposure to noise. As



a general rule, workers should be using earplugs whenever they are exposed to noise levels of 85 dB (A).

Engineering controls modify the equipment or the work area to make it quieter. Examples of engineering controls are: substituting existing equipment with quieter equipment; retro-fitting existing equipment with damping materials, mufflers, or enclosures; erecting barriers; and maintenance.

Administrative controls are management decisions on work activities, work rotation and work load to reduce workers' exposure to high noise levels. Typical management decisions that reduce worker exposures to noise are: moving workers away from the noise source; restricting access to areas; rotating workers performing noisy tasks; and shutting down noisy equipment when not needed.

The proposed development is not anticipated to have any noticeable impact on the noise characteristics of the site or the immediately surrounding area.

## **6.0 ENVIRONMENTAL IMPACTS**

### **6.1 Flooding and Floodplain Impact**

Based on the NJDEP Flood Hazard Verification Approval, File No. 1107-08-0001.1 FHA 160001, dated October 24, 2016, the flood hazard elevation for Colonial Lake along the property boundary varies between elevations 53 - 54 (NAVD 88). Pursuant to the permit, the Colonial Lake also has a 50' riparian buffer from the top of bank. Also, a 100' Delaware Raritan Canal Commission and Lawrence Township stream corridor buffer is required from the Colonial Lake. No floodplain impact or flooding is anticipated by the proposed project.

### **6.2 Impact on Surface Water and Groundwater Quality**

The project will disturb approximately 3.2 acres. The stormwater management measures proposed for the site have been designed to meet erosion control, groundwater recharge, stormwater runoff quantity and water quality standards as set forth by N.J.A.C. 7:8.



To meet the NJDEP standards, the stormwater management system has been designed so that the post-development peak runoff rate for the 2-year storm event is 50%, 10-year storm is 75% and 100-year storm is 80% of the pre-development peak runoff rate from the developed portion of the site. One (1) above-ground detention basin is proposed on site to control the runoff volume generated from the proposed development. A detailed description of this basin is included in the project's Stormwater Management Report.

The outlet structure for the basin was designed to attenuate the peak rate of stormwater runoff leaving the site in accordance with NJDEP's stormwater management requirements. The primary outlet from the basin will point discharge to Colonial Lake and will meet the County Soil Conservation District (SCD) offsite stability requirements. Safety measures including trash racks, overflow grates & escape provisions have been proposed on the outlet structure for the basin in accordance with Stormwater Management requirements.

The proposed basin has a dam height of less than 5 ft. Therefore, the basin will not be classified as a Class IV dam. The basin will be designed for emergency spillway assuming the lowest orifice in the basin fails. The 100-year water surface elevation in the basin is 58.86. The emergency spillway elevation will be set at Elevation 58.90. The peak elevation at emergency spillway location when the lowest orifice fails for the 100-year storm event is 59.10. The top of berm is set at Elevation 60.10, which provides at least 1' of freeboard from the emergency spillway peak elevation to the top of berm..

The storm sewer has been designed in accordance with the Township of Lawrenceville ordinance requirements. The proposed storm sewer was designed using the Rational Method with a minimum time of concentration of 10 minutes. A weighted 'C' coefficient was used for the inlet areas within each drainage area. The storm sewer was designed to convey the 25-year and the 100-year storm frequencies to the basin. The storm sewer downstream of the outlet structure was designed to convey the runoff discharged from the 100-year storm frequency. The storm sewer design calculations can be found in the Stormwater Management Report.



NJDEP regulations require that water quality treatment be provided for sites that add 0.25 acres of new impervious area. The net increase in impervious area due to the proposed development on the property is approximately 0.03 acres. Therefore, no water quality treatment is required for the proposed development.

### **6.3 Impact on the Capacity to Supply Groundwater**

A Bedrock aquifer is an aquifer composed of consolidated material such as limestone, dolomite, sandstone, siltstone, shale, or fractured crystalline rock. The NJDEP's Geoweb mapping for the property indicates that the underlying formation is composed of igneous and metamorphic rock. Aquifers were ranked based on the median yield of selected non-domestic well yields. Yield was used as it was indicative of the capacity of the aquifer to supply water, which defines an aquifer. The NJDEP estimated the potential yield of groundwater from this formation and gave it a ranking of "D" (25-100 gpm).

Sole Source Aquifers are designated by the US Environmental Protection Agency as the sole or main source of drinking water for a community, under provisions of the Federal Safe Drinking Water Act. The NJDEP's Geoweb mapping for this property indicates that it is located in an area which is classified as "Not a Sole Source Aquifer"

Aquifer recharge potential was mapped by the NJDEP by superimposing ground-water recharge maps over aquifer maps. A rankings system was developed to display the potential for aquifer recharge. Five ranks, A-E, were assigned: E, less than 25 gpm; D, 25 to 100 gpm; C, greater than 100 gpm to 250 gpm; B, greater than 250 gpm to 500 gpm; and A, greater than 500 gpm. The project site is ranked "E", the lowest value for aquifer recharge potential. The proposed development will not have any negative groundwater recharge deficit on site. Therefore, the proposed development meets the NJDEP groundwater recharge requirement for the site.

### **6.4 Sewage Disposal Impacts**

The subject property is located within the Ewing-Lawrence Sewage Authority (NJ0024759) service area. ELSA has confirmed that capacity is available for the proposed development at the ELSA treatment plant, but is subject to completion of an engineering review by the Authority's consulting engineer. An application must be filed with ELSA in order for the Authority to review the project. No impacts are anticipated.



### **6.5 Alteration to Existing Vegetation and its Impact on Wildlife and Wildlife Habitats**

The project will primarily result in the loss of already fragmented woodlands which offers little to no wildlife habitat. A small isolated wetland will be filled as part of the stormwater management design for the project. This activity is eligible for authorization under a NJDEP Freshwater Wetland General Permit No. 6.

### **6.6 Destruction or Disturbance of Cultural Resources**

As previously indicated, not archaeological or cultural resource exist on the subject property. Therefore, the project will not impact any cultural resources.

### **6.7 Noise Level Impacts**

The major receptors for the increased noise at the construction site will be the construction equipment operators, laborers, and project management personnel, which will be required to take necessary health and safety precautions such as hearing protection.

As described above, Colonial Lake is located to the east and south of the project site. U.S. Route 1 is located to the west of the project site, and a residential community is located to the north of the project site. The residential community is the closest noise receptor with the nearest home being located approximately 125 ft. from the northern property boundary. This 125 ft. strip of land is currently wooded and part of intervening Lot 40.01, Block 2101.

As distance from the source of sound increases, the decibel level decreases according to the Inverse Square Law. The inverse square law is used to estimate the decrease in noise with distance in an ideal situation. If there are barriers between the source and the point of measurement, the decrease in noise may be less than predicted with this method. Nevertheless, the inverse square law is the logical first estimate of the sound you would get at a distant point in a reasonably open area. If we assume construction equipment noise levels in the range of 85-90 dBA, the noise levels at a distance of 125 ft. (using the inverse square law) would be approximately 65dBA.

The level of noise at the residential receptors will be further reduced by the 125 ft. of vegetation. Vegetation reduces noise pollution through a phenomenon called *sound attenuation*, which is the reduction of sound intensity. Normal attenuation of sound occurs as the energy of sound



dissipates over long distances until not enough energy is left to vibrate air molecules. Vegetation hastens the normal attenuation mechanisms of absorption, deflection, refraction, and masking.

Leaves, twigs, and branches on trees, shrubs, and herbaceous growth absorb and deflect sound energy. Refraction of sound waves occurs when sound passes through vegetative barriers and bends around plant structures. Vegetation generates masking sounds, as leaves rustle, branches sway, and stems creak.

Therefore, construction activities on the site will cause temporary increases in sound levels in the vicinity of the site, but not at a level harmful to hearing (50-65 dBA range). According to the USEPA, noise levels typically range between 40 and 55 dBA in residential areas and between 55 and 65 dBA in commercial areas.

Following construction, it is anticipated that the main source of noise on the project site will be external heating and cooling units and noise from the additional traffic generated by this use. The noises during operational phases are consistent with the noises that already occur within adjacent and nearby residential areas.

#### **6.8 Energy Utilization**

It is anticipated the proposed extended stay lodging facility and coffee shop will utilize highly efficient and modern heating, cooling systems, lighting systems and will be constructed of materials to reduce energy waste.

#### **6.9 Blighting or Improving Effects on Neighborhoods**

The project site is located within the Route 1 corridor and can be characterized as a mix of commercial and residential land uses. The majority of the site is developed in a commercial land use and not in a neighborhood. No blighting is anticipated by developing the remainder of the site in a commercial land use.

### **7.0 ALTERNATIVES**

This section presents the results of our analysis of alternative sites, sizes, and environmental control technologies for the proposed development. The analysis demonstrates that the benefits of developing the site in a commercial land use at the proposed location significantly outweighs the environmental



and social costs imposed as a result of the planned construction and operation in the Township of Lawrence, Mercer County, New Jersey.

Developing the proposed lodging facility and coffee shop at alternative locations does not represent a feasible alternative for redevelopment at the proposed site. The applicant performed a preliminary engineering and environmental assessment of the proposed site before advancing potential development opportunities. Evaluation efforts focused on an extensive list of criteria that included, but were not limited to, the following:

- Site ownership and availability of additional property adjacent to the site, if needed;
- Availability of developable land that was zoned appropriately to allow for extended stay hotel and coffee retail as a permitted use;
- Availability of an adequate water supply to meet the development needs, as well as the capability to discharge sewage in compliance with Federal and State standards;
- Proximity to major roadways and/or rail access;
- Availability of sufficient developable acreage to allow engineering to design a development that avoids and/or minimizes potential impacts on wetlands, as well as threatened or endangered species habitats; and,
- Proximity to a skilled labor force to support construction and operational phases of the Project.
- Have minimal impact on residential communities.

Based upon these evaluations, the applicant confirmed its interest in developing the project at the current site.

The proposed development meets or exceeds key objectives articulated by New Jersey State officials for projects that are market driven, create jobs and produce economic development within the State and Mercer County. The proposed project site also satisfactorily addresses the evaluation criteria detailed above. These include:



- Construction of the proposed project will require construction jobs;
- Revenue will be generated for the municipality during construction and operational phases and will include labor benefits, overhead and taxes and the purchase of local supplies, services and consumables. The facility will also have minimal impact on the municipal services (e.g. schools, police, fire, etc.);
- The facility, once operational, will employ skilled staff for facility operations;
- There will be minimal, if any, impact on local roadways after construction;
- The project will have minimal or no impacts on wetlands. It also is not anticipated to impact scenic, recreational, or cultural resources;
- The project will comply with both state and local noise requirements.

## **8.0 LICENSES, PERMITS AND APPROVALS REQUIRED**

As with any major development in New Jersey, specific approvals from various agencies will be required to carry out the proposed activities. The following is a list of the approvals that may be necessary:

- NJDEP: Treatment Works Approval
- NJDEP: Bureau of Safe Drinking Water
- Ewing-Lawrence Sewerage Authority
- Zoning Board of Adjustment
- Mercer County Planning Board
- Mercer County Soil Conservation District
- New Jersey Department of Environmental Protection
- New Jersey Department of Transportation



## 9.0 REFERENCES

- Delaware Valley Regional Planning Commission (DVRPC). 2003. Conservation Element Plumsted Township Master Plan. DVRPC, Philadelphia, PA.
- FEMA. 2006. Flood Hazard Insurance Rate Maps Community Panel No. 34029C0108F.
- Helms, Douglas. 1992. The Development of the Land Capability Classification. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/about/history/?cid=nrcs143\\_021436](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/about/history/?cid=nrcs143_021436) Accessed February 29, 2016.
- Herman, G.C., R.J. Canace, S.D. Stanford, R.S. Pristas, P.J. Sugarman, M.A. French, J.L. Hoffman, M.S. Serfes, and W.J. Mennel. 1998. *Aquifers of New Jersey*. New Jersey Geological Survey and the New Jersey Department of Environmental Protection.
- Maser Consulting. 2016. Stormwater Management Report Maser Consulting P.A., Red Bank, NJ.
- Natural Resources Conservation Service (NRCS), USDA. 1990. New Jersey Important Farmlands Inventory. ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/nj/soils/?cid=nrcs141p2\\_018875](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/nj/soils/?cid=nrcs141p2_018875)). Accessed February 29, 2016.
- New Jersey Department of Environmental Protection (NJDEP). 2014. Air Quality Index Summary.
- New Jersey Department of Environmental Protection. 2015. Freshwater Wetlands Protection Act Rules. N.J.A.C. 7:7. Date last amended February 2, 2015.
- NJDEP. 2004. Division of Fish and Wildlife - New Jersey's Endangered and Threatened Wildlife. <http://www.nj.gov/dep/fgw/tandespp.htm> Accessed December 3, 2009.
- NJDEP. 2008. *Surface Water Quality Standards (N.J.A.C. 7:9B)*. Trenton, NJ.



NJDEP. 2016. NJ-GeoWeb. <http://njwebmap.state.nj.us/NJGeoWeb/>. Website accessed December 2016.

NJDEP HPO. 2016. New Jersey and National Registers of Historic Places: Mercer County. [http://www.state.nj.us/dep/hpo/identify/nrsr\\_lists/Ocean.pdf](http://www.state.nj.us/dep/hpo/identify/nrsr_lists/Ocean.pdf). Accessed March 17, 2016.

Noise Conference Website: [http://www.lhsfna.org/html/noise\\_home.html](http://www.lhsfna.org/html/noise_home.html)

Owens, J.P., P.J. Sugarman, N.F. Sohl, R.A. Parker, H.F. Houghton, R.A. Volkert, A.A. Drake Jr., and R.C. Ornduff. 1999. Bedrock geologic map of central and southern New Jersey. U. S. Geologic Survey in cooperation with the New Jersey Geological Survey. Miscellaneous Investigation Series Map 1-2540-B. [http://ngmdb.usgs.gov/Prodesc/proddesc\\_19458.htm](http://ngmdb.usgs.gov/Prodesc/proddesc_19458.htm).

Pierce II RA, White B, Jones-Farrand DT, Dailey TV, and Carpenter B. 2008. G9421 Field Borders for Agronomic, Economic and Wildlife Benefits. University of Missouri Extension.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed January 2016

Swiss Agency for the Environment, Forests and Landscape SAEFL. 2004. Guideline Air Pollution Control at Construction Sites. Construction Guideline Air. SAEFL, Berne, Switzerland.

U.S. Department of Agriculture (USDA). 1989. USDA Soil Conservation Service; in cooperation with New Jersey Agricultural Experiment Station, Cook College, Rutgers, The State University; and the New Jersey Department of Agriculture, State Soil Conservation Committee.



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U.S. Environmental Protection Agency. 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. 550/9-74-004. USEPA Office of Noise Abatement and Control. Washington, D.C., U.S.

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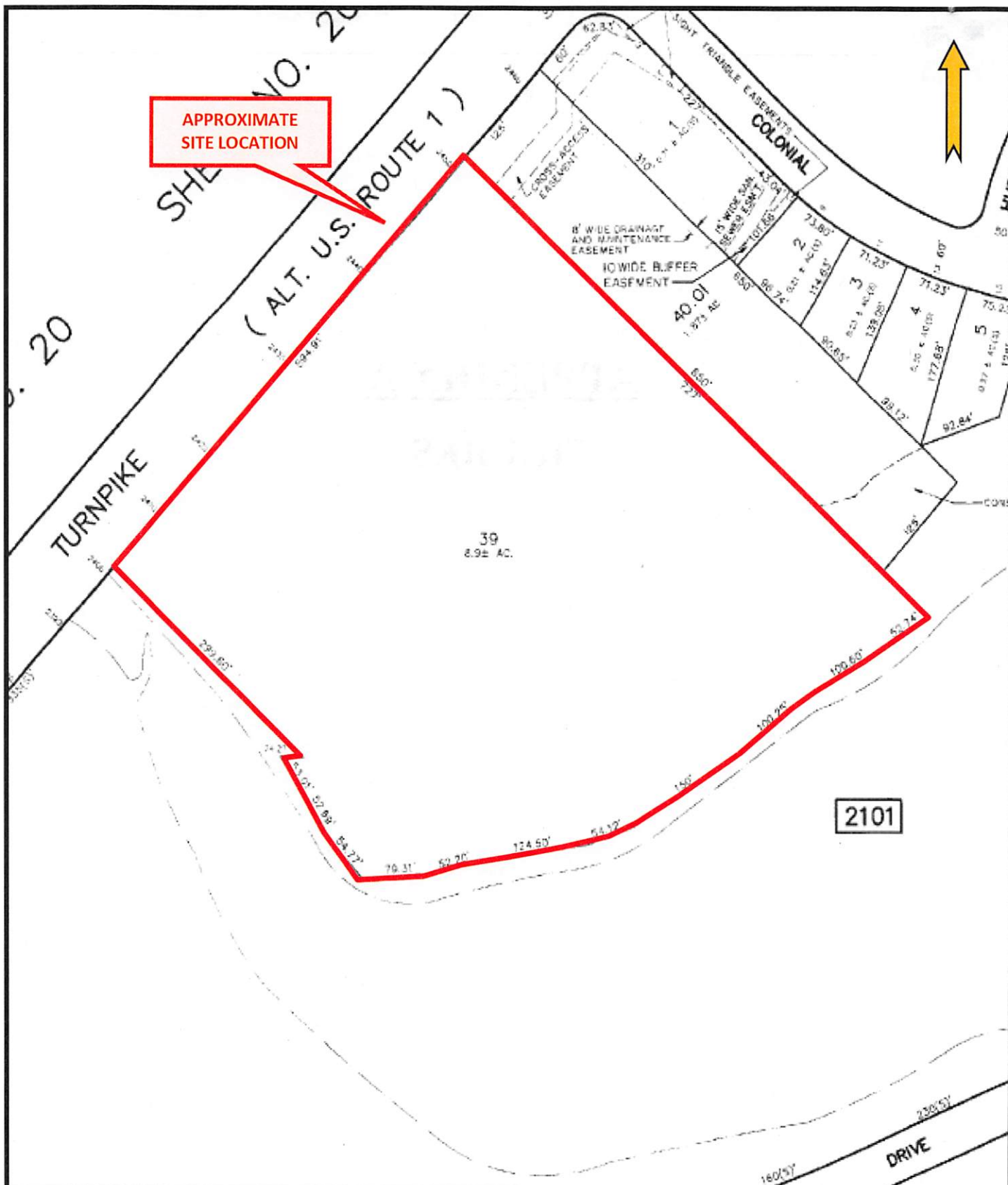


# **APPENDICES**



# **APPENDIX A**

## **FIGURES**



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 331 Newman Springs Road  
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### Figure 1: Tax Map

Block 2101, Lot 39  
 Lawrence, Mercer County, New Jersey

Source: Princeton NJ Quadrangle 2014

Scale: Not to Scale

Date: June 2017

MC Project No. 15002108A



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**Figure 2: County Road Map**

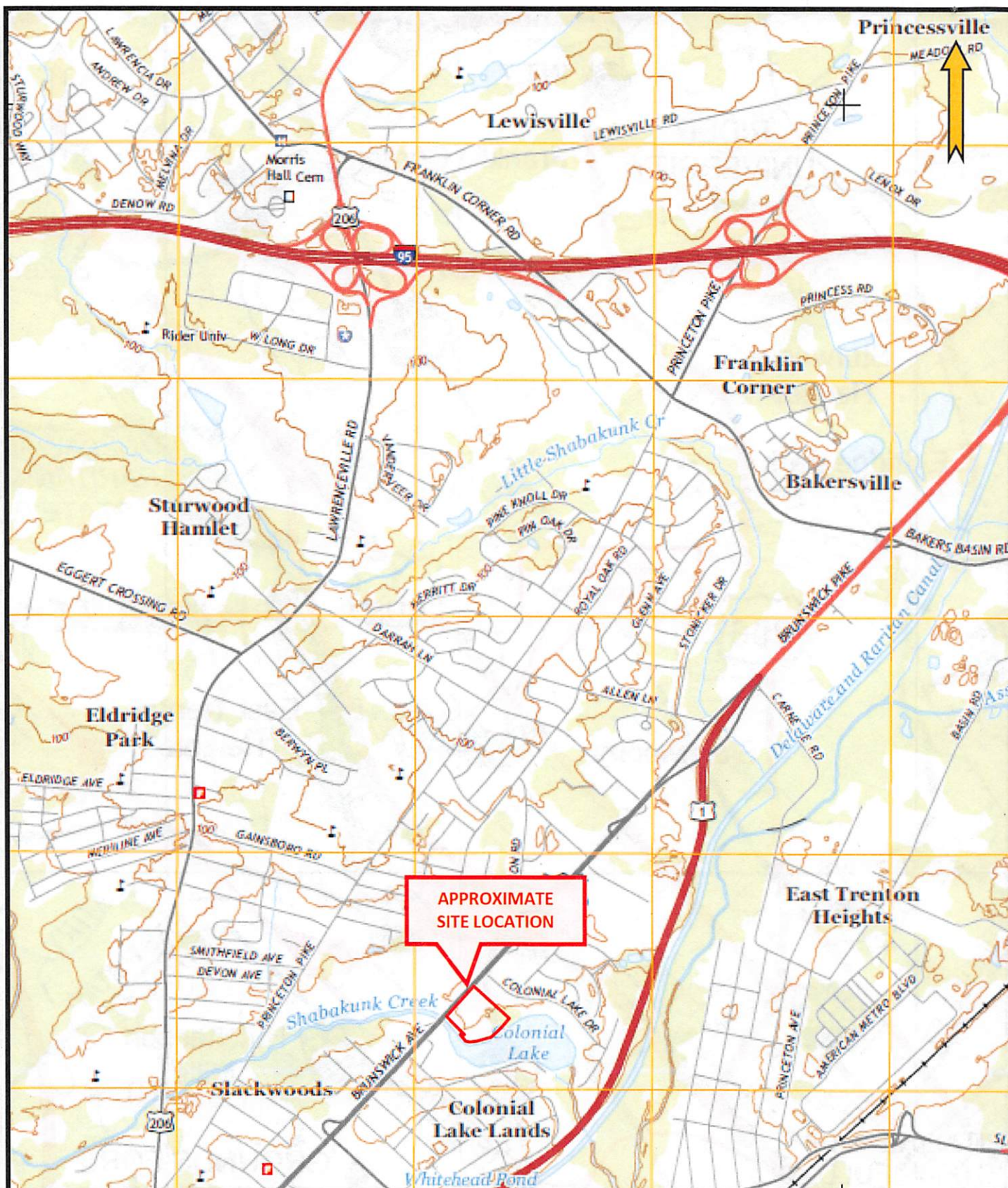
Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: Mercer County Road Map

Scale: Not to Scale

Date: June 2017

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### Figure 3: USGS Map

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: Princeton NJ Quadrangle 2014

Scale: Not to Scale

Date: June 2017

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#### Figure 4: Aerial Map

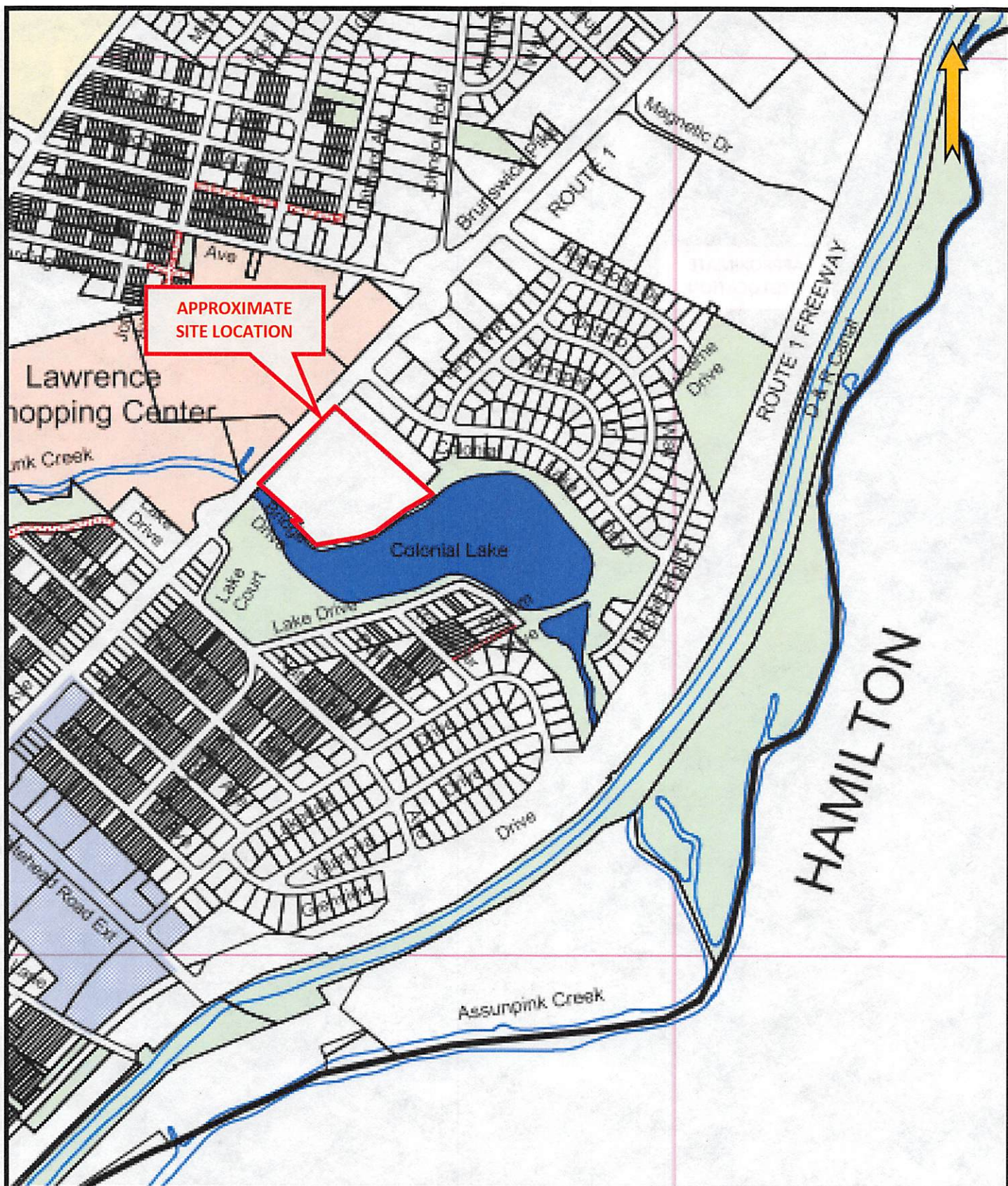
Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

Scale: Not to Scale

Date: June 2017

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## Figure 5: Zoning Map

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: Lawrence Township Zoning Map

Scale: Not to Scale

Date: June 2017

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### Figure 6: State Planning Map

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

Scale: Not to Scale

Date: June 2017

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## Figure 7: Bedrock Geology Map

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

Scale: Not to Scale

Date: June 2017

MC Project No. 15002108A



### Soil Types

Othello silt loams, 0 to 2 percent slopes, Northern Coastal Plain (OthA)

Pits, sand and gravel (PHG)

Udorthents, stratified substratum, 0 to 8 percent slopes

### Figure 8: Soil Map

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

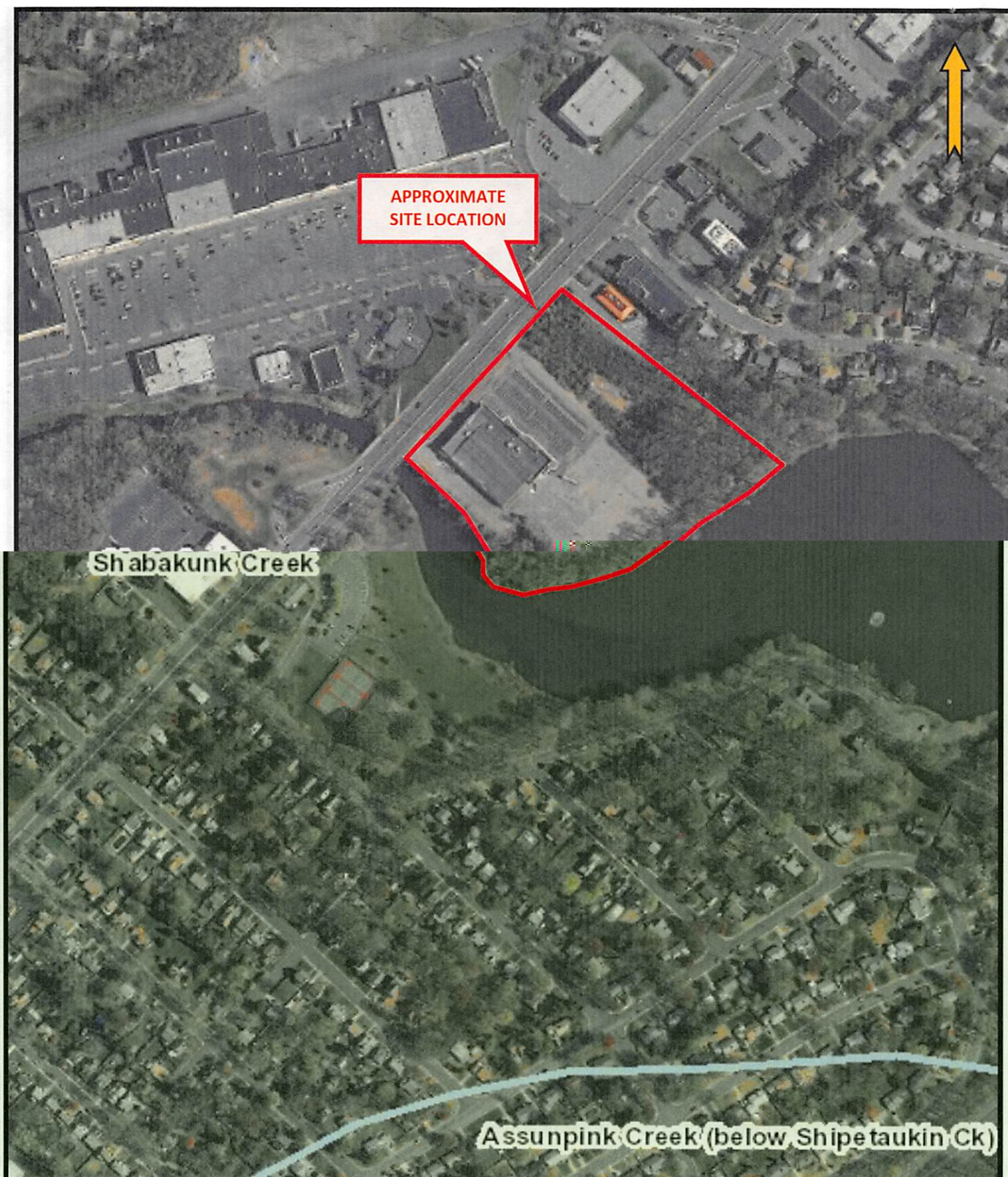
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Date: June 2107

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**Figure 9: HUC 14 and C1 Waters Map**

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

Scale: Not to Scale

Date: June 2017

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**Figure 10: Bedrock Aquifer Map**

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

Scale: Not to Scale

Date: June 2017

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### Figure 11: Wetlands Map

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

Scale: Not to Scale

Date: June 2017

MC Project No. 15002108A



**Figure 12: T&E Map**

Scale: Not to Scale

Date: June 2017

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Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Landscape Project 3.3



Corporate Headquarters  
331 Newman Springs Road  
Suite 203  
Red Bank, NJ 07701  
T: 732.383.1950  
F: 732.383.1984  
[www.maserconsulting.com](http://www.maserconsulting.com)

**Figure 11: FEMA Flood Map**

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: FEMA Flood Insurance Rate Map

Scale: Not to Scale

Date: June 2017

MC Project No. 15002108A



Corporate Headquarters  
331 Newman Springs Road  
Suite 203  
Red Bank, NJ 07701  
T: 732.383.1950  
F: 732.383.1984  
[www.maserconsulting.com](http://www.maserconsulting.com)

### Figure 13: Groundwater Recharge Map

Block 2101, Lot 39  
Lawrence, Mercer County, New Jersey

Source: NJDEP Geoweb 2017

Scale: Not to Scale

Date: June 2017

MC Project No. 15002108A



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# **APPENDIX B**

# **PHOTOGRAPHS**



Photo 1: View of the bowling alley.



Photo 2: View of the paved parking area.



Photo 3: View of early successional growth within a disturbed area of the site.

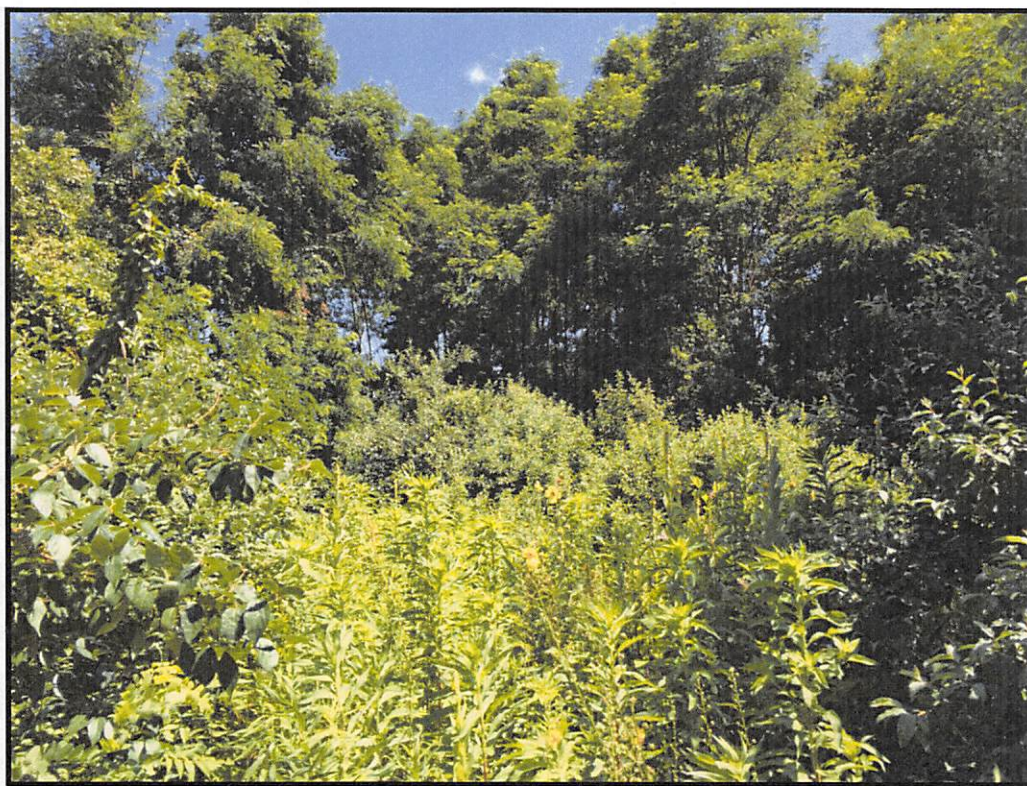


Photo 4: View of early successional growth within a disturbed area of the site.



Photo 5: View of early successional growth within a disturbed area of the site.

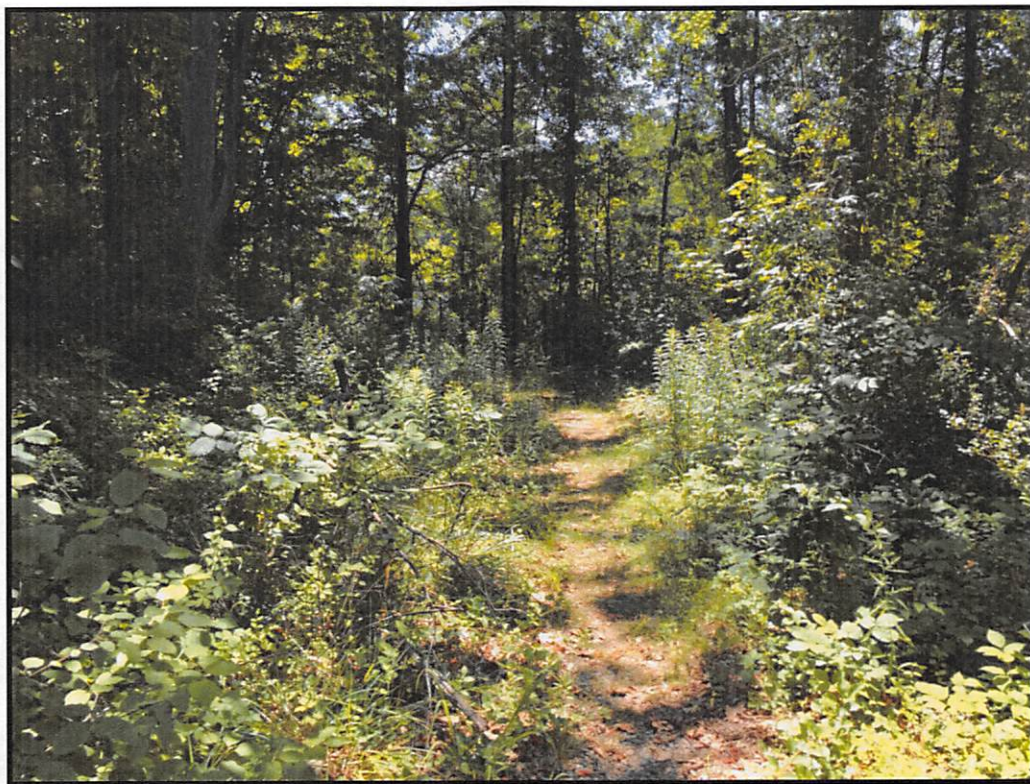


Photo 6: View of a path through along Colonial Lake.

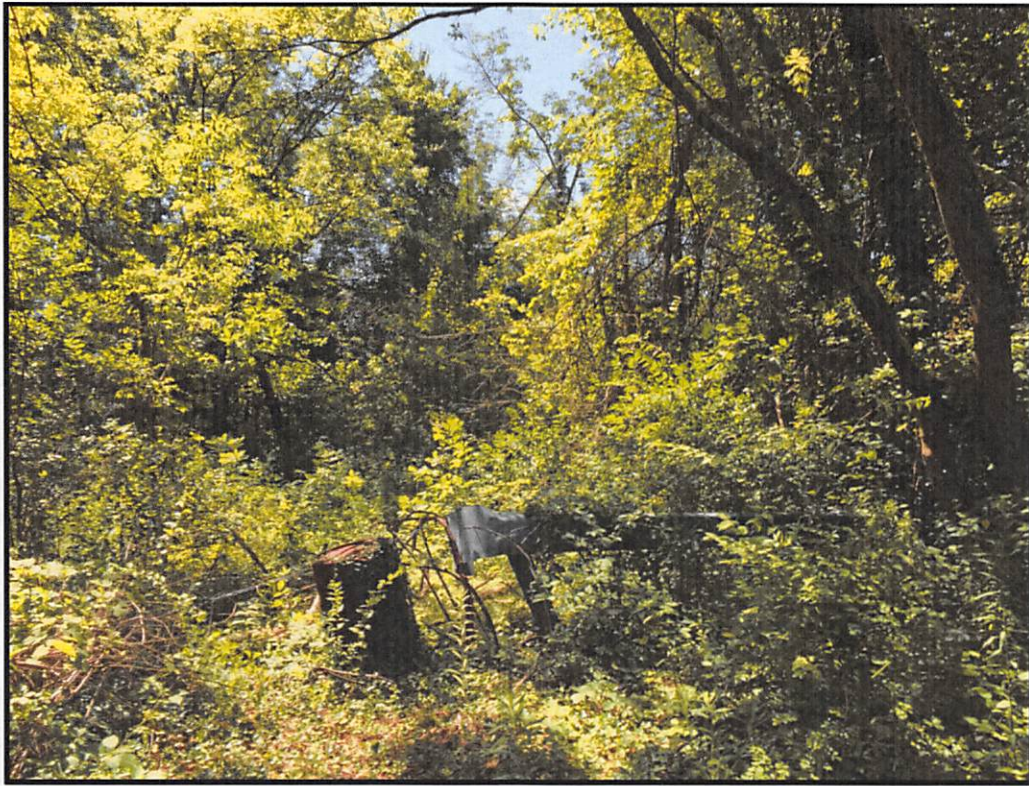


Photo 7: View of the riparian corridor along Colonial lake.



Photo 8: View of Colonial Lake.



Photo 9: View of a wetland area within the deciduous forest.



Photo 10: View of the deciduous forest.



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# **APPENDIX C**

## **NATURAL HERITAGE PROGRAM**

### **CORRESPONDENCE**



## State of New Jersey

CHRIS CHRISTIE  
Governor

### DEPARTMENT OF ENVIRONMENTAL PROTECTION

#### Division of Parks & Forestry

##### State Forestry Service

Mail Code 501-04

Office of Natural Lands Management – Natural Heritage Program

P.O. Box 420

Trenton, NJ 08625-0420

Tel. (609) 984-1339 Fax. (609) 984-1427

BOB MARTIN  
Commissioner

KIM GUADAGNO  
Lt. Governor

June 21, 2016

Richard Roseberry, P.E.  
Maser Consulting P.A.  
941 Marcon Boulevard, Suite 801  
Allentown, PA 18109

Re: Lawrence Township Hotel Site  
Block(s) - 2101, Lot(s) - 39  
Lawrence Township, Mercer County

Dear Mr. Roseberry:

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 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the 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.

This report does not include information concerning known Northern Long-eared Bat hibernacula and maternity roost trees protected under the provisions of the U.S. Fish & Wildlife Service's 4(d) Rule. You must contact the U.S. Fish & Wildlife Service, New Jersey Field Office, for additional information concerning the location of these features, or visit their website at: <http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html>.

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

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

For requests submitted as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species are also covered by the FHACA rules when the records are located within one mile of the project site. One mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from <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](http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf).

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

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

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

Sincerely,



Robert J. Cartica  
Administrator

c: NHP File No. 16-4007436-10091

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

| <b><u>Report Name</u></b>                                                                                                                                                              | <b><u>Included</u></b> | <b><u>Number of Pages</u></b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------|
| 1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database | No                     | 0 pages included              |
| 2. Natural Heritage Priority Sites On Site                                                                                                                                             | No                     | 0 pages included              |
| 3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches                                                        | Yes                    | 1 page(s) included            |
| 4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1                                                                                                    | No                     | 0 pages included              |
| 5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Stream Habitat File                                                          | No                     | 0 pages included              |
| 6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program                                                              | No                     | 0 pages included              |

|                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center"><b>Rare Wildlife Species or Wildlife Habitat on the<br/>Project Site Based on Search of<br/>Landscape Project 3.1 Species Based Patches</b></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class       | Common Name      | Scientific Name          | Feature Type      | Rank | Federal Protection Status | State Protection Status | Grank | Srank   |
|-------------|------------------|--------------------------|-------------------|------|---------------------------|-------------------------|-------|---------|
| <i>Aves</i> |                  |                          |                   |      |                           |                         |       |         |
|             | Bald Eagle       | Haliaeetus leucocephalus | Foraging          | 4    | NA                        | State Endangered        | G5    | S1B,S2N |
|             | Cooper's Hawk    | Accipiter cooperii       | Breeding Sighting | 2    | NA                        | Special Concern         | G5    | S3B,S4N |
|             | Great Blue Heron | Ardea herodias           | Foraging          | 2    | NA                        | Special Concern         | G5    | S3B,S4N |

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

| <b><u>Report Name</u></b>                                                                                                                                                                            | <b><u>Included</u></b> | <b><u>Number of Pages</u></b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------|
| 1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database | No                     | 0 pages included              |
| 2. Natural Heritage Priority Sites within the Immediate Vicinity                                                                                                                                     | No                     | 0 pages included              |
| 3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches                                        | Yes                    | 1 page(s) included            |
| 4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.1                                                                                            | No                     | 0 pages included              |
| 5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 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            |

|                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center"><b>Rare Wildlife Species or Wildlife Habitat Within the<br/>Immediate Vicinity of the Project Site Based on Search of<br/>Landscape Project 3.1 Species Based Patches</b></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class       | Common Name      | Scientific Name             | Feature Type      | Rank | Federal<br>Protection Status | State<br>Protection Status | Grank | Srank   |
|-------------|------------------|-----------------------------|-------------------|------|------------------------------|----------------------------|-------|---------|
| <hr/>       |                  |                             |                   |      |                              |                            |       |         |
| <i>Aves</i> |                  |                             |                   |      |                              |                            |       |         |
|             | Bald Eagle       | Haliaeetus<br>leucocephalus | Foraging          | 4    | NA                           | State<br>Endangered        | G5    | S1B,S2N |
|             | Cooper's Hawk    | Accipiter cooperii          | Breeding Sighting | 2    | NA                           | Special Concern            | G5    | S3B,S4N |
|             | Great Blue Heron | Ardea herodias              | Foraging          | 2    | NA                           | Special Concern            | G5    | S3B,S4N |

|                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center"><b>Other Animal Species</b><br/> <b>In the Immediate Vicinity of the Project Site Based on</b><br/> <b>Additional Species Tracked by</b><br/> <b>Endangered and Nongame Species Program</b></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | Grank | Strank |
|-----------------|-------------|---------------------------|-------------------------|-------|--------|
|-----------------|-------------|---------------------------|-------------------------|-------|--------|

***Invertebrate Animals***

|                     |             |  |  |      |    |
|---------------------|-------------|--|--|------|----|
| Faronta rubripennis | Pink Streak |  |  | G3G4 | S3 |
|---------------------|-------------|--|--|------|----|

Total number of records: 1

***Table 3: Within 1 Mile for FHACA Searches (6 possible reports)***

| <b><u>Report Name</u></b>                                                                                                                                            | <b><u>Included</u></b> | <b><u>Number of Pages</u></b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------|
| 1. Rare Plant Species Occurrences Covered by the Flood Hazard Area Control Act Rule Within One Mile of the Project Site Based on Search of Natural Heritage Database | No                     | 0 pages included              |
| 2. Natural Heritage Priority Sites within 1 mile                                                                                                                     | No                     | 0 pages included              |
| 3. Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches                      | Yes                    | 1 page(s) included            |
| 4. Vernal Pool Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.1                                                                  | Yes                    | 1 page(s) included            |
| 5. Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.1 Stream Habitat File                        | No                     | 0 pages included              |
| 6. Other Animal Species Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program                            | Yes                    | 1 page(s) included            |

**Rare Wildlife Species or Wildlife Habitat Within  
One Mile of the Project Site Based on Search of  
Landscape Project 3.1 Species Based Patches**

| Class           | Common Name        | Scientific Name             | Feature Type      | Rank | Federal Protection Status | State Protection Status | Grank | Srank   |
|-----------------|--------------------|-----------------------------|-------------------|------|---------------------------|-------------------------|-------|---------|
| <i>Aves</i>     |                    |                             |                   |      |                           |                         |       |         |
|                 | Bald Eagle         | Haliaeetus leucocephalus    | Foraging          | 4    | NA                        | State Endangered        | G5    | S1B,S2N |
|                 | Cooper's Hawk      | Accipiter cooperii          | Breeding Sighting | 2    | NA                        | Special Concern         | G5    | S3B,S4N |
|                 | Great Blue Heron   | Ardea herodias              | Foraging          | 2    | NA                        | Special Concern         | G5    | S3B,S4N |
| <i>Reptilia</i> |                    |                             |                   |      |                           |                         |       |         |
|                 | Eastern Box Turtle | Terrapene carolina carolina | Occupied Habitat  | 2    | NA                        | Special Concern         | G5T5  | S3      |

**Vernal Pool Habitat Within  
One Mile of the Project Site  
Based on Search of  
Landscape Project 3.1**

| <b>Vernal Pool Habitat Type</b> | <b>Vernal Pool Habitat ID</b> |
|---------------------------------|-------------------------------|
| Vernal habitat area             | 1761                          |
| Potential vernal habitat area   | 1743                          |
| Potential vernal habitat area   | 1768                          |
| Total number of records:        | 3                             |

**Other Animal Species Within  
One Mile of the Project Site Based on  
Additional Species Tracked by  
Endangered and Nongame Species Program**

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | Grank | Strank |
|-----------------|-------------|---------------------------|-------------------------|-------|--------|
|-----------------|-------------|---------------------------|-------------------------|-------|--------|

***Invertebrate Animals***

|                     |             |  |  |      |    |
|---------------------|-------------|--|--|------|----|
| Faronta rubripennis | Pink Streak |  |  | G3G4 | S3 |
|---------------------|-------------|--|--|------|----|

Total number of records: 1



---

# **APPENDIX D**

## **QUALIFICATIONS OF PREPARERS**

## JOSEPH P. LAYTON

Assistant Department Manager, Ecological Services

### EDUCATION

- B.S., Environmental Planning and Natural Resource Management  
Rutgers University, Cook College  
NJ

### PROFESSIONAL AFFILIATIONS

- Certified Subsurface Evaluator, License #229606
- Ecological Society of America
- Environmental Assessment Association - Certified Environmental Specialist
- Society of Wetland Scientists
- Radon Measurement Specialist #MES11066
- 40-Hour NJ/EPA Model Lead Inspector/Risk Assessor
- 40-Hour OSHA Hazwoper Training

### PROFESSIONAL CERTIFICATIONS

- 40-Hour NJ/EPA Model Lead Inspector/Risk Assessor
- 40-Hour OSHA Hazwoper Training
- 8-Hour OSHA Hazwoper Refresher Training
- Certified Environmental Specialist
- Certified Remediation Specialist
- Professional Ski Instructor of America – Level II Certification Eastern Division

### PROFESSIONAL REGISTRATIONS

- NJDEP Certified Subsurface Evaluator, License #229606
- NJDEP Certified Underground Storage Tank Closure
- Radon Measurement Specialist #MES11066

### EXPERIENCE

Mr. Layton is an Environmental Scientist with over 19 years of experience including an extensive background and expertise in environmental sciences. His expertise includes an emphasis on wetland delineation, regulatory permitting and compliance, environmental assessment, environmental impact analysis, soil evaluation. His diversified experience also includes natural resource evaluations, ecological research, watershed management, subsurface explorations, underground storage tank exploration and removal, soil classification systems, environmental sampling design and protocol in accordance with State and Federal regulations. Geographic Information Systems (GIS) and Global Positioning Systems (GPS) is utilized in environmental sampling and studies which includes site remediation design and sampling, groundwater and surface water quality monitoring and management, as well as lake rehabilitation/restoration.

As Senior Project Manager, Mr. Layton has utilized the aforementioned experience and technical skills to successfully assist clients with litigation support, regulatory compliance and has been deemed an expert in the field by various Planning and Zoning Boards while providing testimony regarding the same.

Mr. Layton's proven dedication to client satisfaction has resulted in long standing professional relationships. His client base includes private development and redevelopment companies, municipalities, county governments, infrastructure authorities, daycare facilities, higher education institutions, financial institutions, utility companies and law firms.

### CONTINUING EDUCATION

- Methodology for Delineating Wetlands, Cook College.
- Vegetation Identification for Wetland Delineation, Cook College
- Hydrology of Wetlands, Cook College
- Endangered & Threatened Species of New Jersey, Cook College
- Lake Management, Cook College
- Soils and Site Evaluation for Septic Disposal Systems & Stormwater BMP's, Cook College
- Site Remediation Basics, Cook College
- Remedial Decision Making, Cook College
- Ecological Risk Management, Cook College

The subsequent page consists of a sampling of highlighted projects Mr. Layton has worked on. A more detailed list of projects can be provided if necessary.



JOSEPH P. LAYTON

## HIGHLIGHTED PROJECTS

### Wetland Delineation

- **Runyon Interceptor Trunk Sanitary Sewer Line Alignment**  
**Township of Old Bridge, NJ**

Determined alignment of 2 miles of sanitary sewer on a 400-acre+ site using aerial photography and site reconnaissance minimizing impacts to numerous wetland communities.

### Permit Allocation

- **National Lead Redevelopment**  
**Borough of Sayreville, NJ**

Prepared and obtained numerous Coastal and Land Use permits from the NJDEP-DLUR and USACE to effectuate remediation of the largest redevelopment project currently in the State of New Jersey.

- **Transcontinental Gas Pipeline Armoring**  
**Township of Hopewell, NJ**

Prepared and obtained an Individual Permit from the NJDEP-DLUR to permanently disturb a stream and its associated wetland to construct armoring to protect a Transcontinental Gas Pipeline.

### Environmental Assessments/Regulatory Compliance

- **Heavenly Farms**

- East Brunswick, Township, NJ**

- Prepared and performed Preliminary Remedial Investigation/Action to obtain a "Letter of No Further Action" for a 230-acre farm with contaminated soils for development of recreational fields.

- **Marlboro Psychiatric State Hospital**  
**Marlboro, NJ**

Consultant to the Township of Marlboro regarding the municipality purchasing a 411-acre State owned psychiatric hospital. Responsible for identifying areas of environmental concern, review of environmental investigation and remediation reporting generated by State contractors and making recommendations to the municipality regarding environmental concerns and purchase of the property.

- **Columbian Chemicals Mapico Iron Oxide Plant**  
**South Brunswick Township, NJ**

Prepared and performed preliminary assessment/site investigation, remedial Investigation/Action and Baseline Ecological Evaluation to obtain a "Letter of No Further Action" from the NJDEP to develop an 86-acre former chemical plant in a residential land use. Extensive soil and groundwater contamination was remediated.

- **The Villas at Shoregate**  
**South Amboy, NJ**

Prepared and performed Preliminary Assessment/Site investigation to obtain a "Letter of No Further Action" for a 16-acre, former dredge disposal area adjacent to the Raritan Bay.



## RAYMOND WALKER, Ph.D., P.W.S.

Director, Ecological Services

### EDUCATION

- Ph.D., Ecology (Wetland Ecology), 1981, Rutgers University
- B.S., Environmental Biology, 1974 Manhattan College

### PROFESSIONAL REGISTRATIONS

- Professional Wetland Scientist 1995, (No. 000639)
- Provisionally Certified Wetland Delineator – U.S. Army Corps of Engineers, 1994 (No. WDCP93MD100101B)

### PROFESSIONAL AFFILIATIONS

- Society of Wetland Scientists

### PUBLIC SERVICE

- Member of the U.S. National Park Service Task Force – Plan for the Pineland National Preserve 1978-1979
- Member of Freehold Township Open Space Committee – 1997-2000
- Member of Freehold Township Board of Adjustment– 1998- 2007
- College of Mt. St. Vincent Science Advisory Committee 2009-Present

### HONORS SOCIETY / AWARDS

- Sigma Xi
- Department of the Army Official Commendation, Customer Care Award, December 22, 1986
- Department of the Army Official Commendation, Special Act Award, May 12, 1987
- Department of the Army Official Commendation, Special Act Award, December 3, 1987

### EXPERIENCE

Dr. Walker has been a proven leader and effective project manager in the field of ecological services since 1980. Dr. Walker brings a creative approach to securing regulatory approvals for a broad range of private, municipal, and public development projects that involved complex and challenging ecological issues. Having work in academia, for regulatory agencies, and as a private consultant, has allowed Dr. Walker to develop a unique understanding and perspective on what it takes to secure regulatory approvals.

Dr. Walker's scientific background coupled with his regulatory experience, open mindedness, and temperate manner has made him very effective at mediating resolutions to wetland enforcement actions. Dr. Walker has been certified as an expert in the field of ecological sciences and regulatory issues in a variety of legal venues including Federal District Court, Local Courts, Office of Administrative Law, and numerous Planning and Zoning Boards.

The staff that Dr. Walker supervises is composed of degreed experts in a variety of fields associated with ecological services. These include expertise in due diligence investigations, wetland delineations, threatened and endangered species studies, preparation of Environmental Impact Statements, preparation of NEPA and SEQRA compliance documents, development and implementation of wetland mitigation projects, submerged aquatic vegetation studies, flora and fauna inventories, rare plant studies, lake restoration and management, essential fish habitat studies, nitrate dilution modeling, carbon foot printing, green house gas analyses, environmental resource inventories, resource management, and regulatory issues.

### PREVIOUS WORK EXPERIENCE

Najarian Associates, L.P., Director of Ecological Sciences Section., 1987-1992.

U.S. Army Corps of Engineers, Philadelphia District, Regulatory Branch, Chief of Surveillance and Enforcement, 1986-1987

U.S. Army Corps of Engineers, Philadelphia District, Regulatory Branch, GS-11 Biologist, Application Section, 1984-1986

Trenton State College, Trenton, NJ, Adjunct Assistant Professor of Biology, 1982-1984.

Mercer County Community College, West Windsor, NJ, Adjunct Assistant Professor of Biology, 1982-1984.

Rider University, Adjunct Assistant Professor of Biology, 1980-1982



RAYMOND WALKER, Ph.D., P.W.S.

## PUBLICATIONS

Simpson, R.L., D.F. Whigham and R. Walker. 1978. *Seasonal patterns of nutrient movement in a freshwater tidal marsh*. In: R.E. Good, D.F. Whigham and R.L. Simpson (eds.) *Freshwater Wetlands: Ecological Processes and Management Potential*. Academic Press, NY.

Merrill, L.G., G.A. Bares, R. Walker, E. Russell, P.A. Buckley, N.P. Psuty, B. Liggett, R. Regensburg, C. Mizobe, F.P. McManamon, M. Bartlett and S. Berg. 1978. **A Plan for the Pinelands National Preserve**. Center for Coastal and Environmental Studies Tech. Report No. 78-6, Rutgers University, 110 pp.

Douglas, L.A. and R. Walker. 1979. *Nonpoint sources of pollution and the soils of the Pine Barrens of New Jersey*. Dept. Soils and Crops, N.J. Agricultural Experimental Sta., Rutgers University, New Brunswick, New Jersey.

Simpson, R.L., R.E. Good, R. Walker and B. Frasco. 1981. *Dynamics of nitrogen, phosphorus and heavy metals in Delaware River freshwater tidal wetlands*. Center for Coastal and Environmental Studies, Rutgers University, New Brunswick, New Jersey and the United States Environmental Protection Agency, Corvallis, Oregon.

Ferren, W.R., R.E. Good, R. Walker and J. Arsenault. 1981. *Vegetation and flora of Hog Island, a brackish wetland in the Mullica River, New Jersey*. *Bartonia* 48:1-10.

Simpson, R.L., R.E. Good, R. Walker and B. Frasco. 1983. *The role of Delaware River freshwater tidal wetlands in the retention of nutrients and heavy metals*. *Jour. Environ. Quality* 12:41-48.

Walker, R. and R.E. Good. 1976. *Vegetation and production of some Mullica River-Great Bay tidal marshes*. *Bull. N.J. Acad. Sci.* 21:20.

Walker, R. and R.E. Good. 1976. *Production ecology of marsh communities in the upper Mullica estuary, New Jersey*. *Aquatic Ecology Newsletter* 9:24.

Frasco, B., R.E. Good and R. Walker, 1978. *Biomass and decomposition for 3 macrophytes from a brackish and saltwater tidal marsh in New Jersey*. *Amer. Assoc. Adv. Sci. Publ.* 78-2, p. 123.

Walker, R. and R.E. Good. 1979. *Seasonal nitrogen dynamics for Peltandra virginica in a freshwater tidal marsh*. *Bull. N.J. Acad. Sci.* 29:81.

Walker, R., R.E. Good and R.L. Simpson. 1980. **Heavy metals in freshwater wetlands**. 14th Middle Atlantic Regional Meeting of the American Chemical Society, p. 77.

Simpson, R.L., R.E. Good, R. Walker and J.J. Pasquale. 1981. *Patterns of heavy metal distribution in several compartments of a freshwater tidal marsh*. *Estuaries* 4:271.

Walker, R. and R.E. Good. 1981. *Nitrogen, phosphorus and primary production of Peltandra virginica (L.) Kunth in a freshwater tidal marsh*. *Bull. Ecol. Soc. Amer.* 62:93.

