

**ENVIRONMENTAL ASSESSMENT
FOR
LORÉAL FACILITY EXPANSION
BLOCK 86.03, LOT 10.32
TOWNSHIP OF FRANKLIN
SOMERSET COUNTY, NEW JERSEY**

Prepared for:

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I. EXECUTIVE SUMMARY

LORÉAL USA of Clark, New Jersey, is proposing an expansion of its existing facility on a 29.58±-acre property known as Block 86.03, Lot 10.32 in the Township of Franklin, Somerset County, New Jersey. The property is located at 100 Commerce Drive. The property is occupied by the L'Oréal facility, solar arrays, and parking areas. The undeveloped portions of the property are characterized by upland woodlands and wetlands. The property is bordered to the north by woodlands and residential development, to the south by Commerce Drive, to the west by Dahmer Road, and to the east by the Franklin Sewerage Authority and industrial development.

Phase I of the project would entail two utility rooms, utility courtyard, and an 140,700 square feet (SF) building addition, which would connect the existing manufacturing and warehouse buildings. As part of Phase I, a 1,450 SF pump house is proposed in the northeastern portion of the property. Phase II of the project would include the construction of 69,930 SF building addition to the west of Phase I addition and a 32,5800 SF building to the east of the Phase I addition. The existing side access driveway onto Dahmer Drive would be abandoned, lined with a concrete curb, and fenced. A chain link fence is proposed along the expansion. The existing driveway around the rear of the existing buildings would be rerouted around the entire building expansions. Ninety-nine additional parking spaces are proposed. The eastern driveway to Commerce Drive would be widened. As part of the project, the existing emergency access portion of Commerce Drive would be converted to a fully paved road.

Stormwater from the developed portions of the site will be collected by a modified stormwater management system. This system will consist of a series of catch basins and inlets and subsurface piping that will convey stormwater to an existing bioretention basin and two proposed bioretention basins and porous pavement parking areas. The stormwater management system has been designed to be in compliance with the requirements of the NJDEP's Stormwater Management Rules (N.J.A.C. 7:8) for runoff volume, ground water recharge, water quality, and green infrastructure. For specific details regarding the proposed stormwater management system, refer to the Stormwater Management Report prepared for the project by Bohler dated October 2021.

Principal long-term impacts of the proposed development are those that are associated with a change in land use from upland woodlands and wetlands to expanded industrial use. Long-term impacts to the property include an increase in impermeable surfaces, a slight increase in loadings of common stormwater constituents, and the loss of upland woodlands and wetlands. Temporary impacts will occur during the construction phase of the project and may include soil loss and increased

noise and dust levels. All impacts will be minimized through appropriate mitigation procedures and best management practices.

This Environmental Assessment (EA) has been prepared by EcolSciences, Inc. of Rockaway, New Jersey in accordance with Franklin Township Development Ordinance, §112-199 (Requirements for Environmental Assessment) and is intended to support plans prepared by Bohler of Mount Laurel, New Jersey. The following chapters provide a project description, an inventory of existing environmental conditions on and in the immediate vicinity of the property, an assessment of potential impacts associated with the proposed expansion, a description of performance controls designed to mitigate adverse impacts, and a listing of required permits and approvals.

II. PROJECT DATA

A. General Description

L'ORÉAL USA of Clark, New Jersey, is proposing an expansion of its existing facility on a 29.58±-acre property known as Block 86.03, Lot 10.32 in the Township of Franklin, Somerset County, New Jersey (Figures 1 and 2). The property is located at 100 Commerce Drive. The property is occupied by the L'Oréal facility, solar arrays, and parking areas. The undeveloped portions of the property are characterized by upland woodlands and wetlands. The property is bordered to the north by woodlands and residential development, to the south by Commerce Drive, to the west by Dahmer Road, and to the east by the Franklin Sewerage Authority and industrial development.

Phase I of the project would entail two utility rooms, utility courtyard, and an 140,700 SF building addition, which would connect the existing manufacturing and warehouse buildings. As part of Phase I, a 1,450 SF pump house is proposed in the northeastern portion of the property. Phase II of the project would include the construction of 69,930 SF building addition to the west of Phase I addition and a 32,5800 SF building to the east of the Phase I addition. The existing side access driveway onto Dahmer Drive would be abandoned, lined with a concrete curb, and fenced. A chain link fence is proposed along the expansion. The existing driveway around the rear of the existing buildings would be rerouted around the entire building expansions. Ninety-nine additional parking spaces are proposed. The eastern driveway to Commerce Drive would be widened. As part of the project, the existing emergency access portion of Commerce Drive would be converted to a fully paved road.

B. Zoning

The property is located within the Suburban Planning (PA 2). The Suburban Planning Area, having utility infrastructure, is expected to accommodate much of the market demand for future growth and new development in the state (New Jersey State Planning Commission, March 2001). The state plan encourages centers as the focus for development; however, any development in the environs (areas outside centers) should be planned and located to maintain the existing character of the environs.

Franklin Township has been divided into five planning sectors, due to its large area and varying character. The subject property is located in Sector 3, which is the most intensely developed Sector of the Township (Schoor DePalma, March 2006). As per the Franklin Township Master Plan, the property is identified as "Industrial" (Schoor DePalma, March 2006).

The property is located within the Business and Industry (B-I) Zone of the Township of Franklin. The proposed project adheres to the bulk requirements for the B-1 zone with the exception of a few requested variances. For details, please refer to the site plans prepared by Bohler (2021).

C. Sanitary Sewage

Sanitary sewage service for the proposed expansion will be provided through connection to existing on-site facilities. Wastewater for the project will be conveyed to the Middlesex County Utilities Authority. It is estimated that the existing development generates approximately 6,650 gallons per day of wastewater (Bohler, 2021). It is estimated that the proposed expansion will generate an additional 5,550 gallons per day of wastewater for a total of approximately 12,200 gpd (Bohler, 2021).

D. Potable Water Supply

Potable water for the proposed development will be provided by a water service owned and operated by Franklin Township, known as the Main system. Connections to existing on-site potable water lines are proposed. It is estimated that the existing development has an approximate potable water demand of 6,650 gpd (Bohler, 2021). The average daily water demand for the proposed expansion is estimated to be an additional 5,550 gpd for a total of approximately 12,200 gpd (Bohler, 2021).

E. Stormwater Management Facilities

Stormwater from the developed portions of the site will be collected by a modified stormwater management system. This system will consist of a series of catch basins and inlets and subsurface piping that will convey stormwater to an existing bioretention basin and two proposed bioretention basins and porous pavement parking areas. The stormwater management system has been designed to be in compliance with the requirements of the NJDEP's Stormwater Management Rules (N.J.A.C. 7:8) for runoff volume, water quality, and green infrastructure. However, as required by NJDEP's Stormwater Management Rules soil testing was performed and concluded that the soil types in the area of the development are clays with permeability results of less than 0.2 inches per hour. While the mapped soil types are classified as Hydrologic Soil Group (HSG) C, the observed soil conditions are more indicative of a HSG D due to the low permeability rates. When groundwater recharge is calculated using the observed soil type existing groundwater recharge is maintained in the proposed condition. For specific details regarding the proposed stormwater management system, refer to the Stormwater Management Report prepared for the project by Bohler dated October 2021.

F. Utilities Plan

Utilities to be provided to the proposed project include electricity, gas, cable television, and telephone. All utilities will be located underground and will connect to existing on-site utility lines or lines within Dahmer Road.

G. Solid Waste Plan

Solid waste generated by the proposed commercial development will be collected by a private hauler and transported to an approved landfill for disposal. In accordance with the New Jersey Mandatory Recycling Law, the Township of Franklin, in conjunction with Somerset County, has developed a recycling program that requires glass, aluminum cans, tin cans, corrugated cardboard, magazines/mail, and newsprint to be separated from trash for recycling purposes.

III. EXISTING ENVIRONMENTAL FEATURES

A thorough inventory of environmental conditions is a fundamental prerequisite to an understanding of a land tract's ecological and cultural history, current condition, and suitability for alternative future uses. The inventory of existing environmental conditions in this chapter is divided into systematic and logical subsections that treat each aspect of the property and vicinity in detail, and collectively define the constraints to future land use.

A. Natural Resources

1. **Geology**

The portions of New Jersey that have similar sequences of rock types, geological structures, and geological history have been characterized as physiographic provinces - major areas of the state that have experienced specific geological histories and that have similar characteristics at present. From northwest to southeast across the State, the major physiographic provinces are: Appalachian Ridge and Valley, Highlands, Piedmont, and Coastal Plain. Each of these physiographic provinces has regional subdivisions, and each is also a continuation of larger regions in the northeastern United States (Widmer, 1964; Robichaud and Buell, 1973).

The Township of Franklin is located in the Piedmont, a band physiographic province stretches from the Hudson River southwestward into Virginia. It is composed mostly of shale, sandstone, and argillite formations. These formations are less resistant to erosion than the Highlands province to the north and as such are generally lower in elevation with more gentle slopes. The Piedmont slopes southeastward from 400 feet at its boundary with the Highlands to less than 100 feet at the Delaware River in the west and sea level at Newark Bay in the east. The land is generally flat to slightly rolling with occasional steep-sided valleys cut by rivers. There are some ridge formations on the Piedmont made of more resistant diabase and basaltic rocks with elevations as high as 850 feet including the Watchung Ridges, Cushetunk Mountain, the Sourlands, and the Palisades. Varying parent rock material and glacial deposits have produced a variety of soil types (Robichaud & Buell, 1973). The property is underlain by Weathered Shale, Mudstone, and Sandstone, which consists of reddish brown, yellow, or light gray silty sand to silty clay with shale, mudstone, or sandstone fragments (NJDEP, August 4, 2021). The Weathered Shale, Mudstone, and Sandstone may be as much as 10 feet thick on shale and mudstone and 30 feet thick on sandstone (NJDEP, August 4, 2021). Below the Weathered Shale, Mudstone, and Sandstone, the bedrock geology of the property as well as the majority of Franklin Township consists of siltstone and shale of the Passaic Formation with origins in the Late Triassic and Early Jurassic (Drake, *et al*, 1996).

2. Topography

The topography of a property or area is a description of the variation in elevation of the land surface with horizontal distance; topography is generally described by contour maps where points of equal elevation are connected by smooth contours. The surficial topography of a property or area reflects the underlying geology as altered by geomorphological processes; the surficial topography, in turn, directly influences the drainage patterns, watercourses, soils, and biological communities evolving on the particular property.

The property is relatively level to gently sloping with elevations ranging from 127 feet in the southeastern portion of the property to 105 feet in the northwestern portion of the property.

3. Soils

Soils are formed through the interaction of a variety of physical, chemical, and biological factors that include climate, parent material, topography, biological activities, and time. The degree to which any or all of these factors affects the local soil characteristics is quite variable, generally leading to the formation of a mosaic of soil types in any particular locality. The United States Department of Agriculture has, through the Soil Conservation Service, mapped soils in detail; for New Jersey, the results of these soil surveys are issued for each county.

According to the Somerset County Soil Survey (SCS, 1989, Sheets 30 and 31) as prepared by the United States Department of Agriculture Soil Conservation Service (Figure 3), three units representing three soil series occur on the site: Penn silt loam, 2 to 6 percent slopes (PmB); Reaville silt loam, 0 to 2 percent slopes (ReA); and Royce silt loam, 2 to 6 percent slopes (RyB). Refer to Table 1 for soil suitabilities, capabilities, and limitations. A brief description of each soil per the SCS is provided as follows:

Penn Series (PMB) - This soil series consists of moderately deep, well drained soils ranging from nearly level to strongly sloping occurring on undulating and rolling uplands. They formed in material weathered from shale, siltstone, and fine-grained sandstone. Permeability and the available water capacity are moderate. The depth to bedrock varies from 1.5 to 3.5 feet and the seasonal high water table is at a depth of greater than 5.0 feet.

Reaville Series (ReA) – This soil series consists of moderately deep, moderately well drained and somewhat poorly drained soils. These nearly level and gently sloping soils are on upland flats and, in depressions, and on concave lower slopes at the heads of drainageways. They formed in material weathered from red sandstone, siltstone, or shale. Permeability is moderate in the surface layer and moderately slow in the subsoil. The available water capacity is moderate. These soils have a seasonal

Table 1: Soil Characteristics, Limitations, and Suitabilities

| PARAMETER | Penn (PmB) | Reaville (ReA) | Royce (RyB) |
|--|---|---|----------------------------------|
| Texture | Silt loam | Silt loam | Silt loam |
| Slope (%) | 2 – 6 | 0 – 2 | 2 – 6 |
| Depth to Bedrock (ft.) | 1.5 – 3.5 | 1.5 – 3.5 | 3.5 – 6.0 |
| Depth to Seasonally High Water Table (ft.) | > 5.0 | 0.5 – 3.0 | > 5.0 |
| Permeability (in./hr.) | 0.6 – 6.0 | 0.2 – 2.0 | 0.2 – 2.0 |
| Available Water Capacity (in./in. soil) | 0.05 – 0.26 | 0.08 – 0.24 | 0.18 – 0.22 |
| pH | 5.1 – 6.5 | 5.1 – 6.0 | 4.5 – 5.5 |
| Erosion Hazard | Slight | Slight | Slight |
| Limitations for Streets and Parking Lots | Moderate: moderate frost-action potential | Severe: seasonal high water table at a depth of 0.5 foot to 3 feet; high frost action potential | Moderate: frost-action potential |

Source: SCS, 1989

high water table at a depth of 0.5 feet to 3.0 feet late in fall, and early in spring. The depth to bedrock is between 1.5 to 3.5 feet.

Royce Series (RyB) - This soil series consists of deep, moderately well drained soils. These gently sloping soils are on high positions in the land. They formed in a thin mantle of mixed marine sediment and in the underlying material weathered from red shale, siltstone, or fine sandstone. Permeability is moderately slow and the available water capacity is high. The depth to seasonal high water table is greater than 5.0 feet. The depth to bedrock is between 3.5 to 6.0 feet.

Whitestone Associates Inc. (September 28, 2021) advanced six soil borings and excavated four test pits and eight soil profile pits within the project site. The test pits were completed to depths between five and 12.3 feet below ground surface (fbgs) (Whitestone Associates Inc., September 28, 2021). The top of weathered rock was encountered at depths ranging from approximately two fbgs to 11 fbgs. Static groundwater was not encountered within the subsurface tests conducted. However, apparent perched/trapped groundwater was encountered within a portion of the tests at depths ranging from approximately four fbgs to 7.5 fbgs, generally on top of or within weathered rock (Whitestone Associates Inc., September 28, 2021).

4. Ground water

Ground water is all water within the soil and subsurface strata that is not at the surface of the land. It includes water that is within the earth that supplies wells and springs. Ground water resources are often functionally linked to overlying land areas and surface water bodies; ground water is often recharged through "outcrop" areas at the land surface and ground water discharges ("seeps") may contribute to base flows of streams and rivers.

The ground water yields of any particular geological formation are a function of the porosity and permeability of the material comprising the formation (consolidated rock or unconsolidated deposits). Porosity describes the water-containing spaces between individual mineral grains, while permeability is the ease or difficulty with which water is transmitted through interconnecting spaces in the formation. Formations lacking open spaces between the mineral grains have both low porosity and low permeability. Weathering and cracking of the parent bedrock can induce secondary porosity in the formation; water can accumulate and move through these fractures in the primary rock formation.

The property lies within a portion of the Piedmont Physiographic Province where ground water is derived from the Brunswick Aquifer, a fractured rock aquifer of the Newark Basin. Water drawn from this aquifer is normally fresh, slightly alkaline, non-corrosive and hard. The average

yield of high-capacity wells in the vicinity of the property ranges from 100 to 500 gallons per minute (Herman, *et al*, 1998).

The NJDEP, NJGS, Bureau of Water Resources (BWR) in conjunction with Mark A. French prepared a GIS layer of “Aquifer Recharge Potential.” According to this GIS layer, the majority of the property is mapped as Rank B Ground-Water Recharge Rank (12 to 16 inches per year) and Rank C Water-Table Aquifer Rank (100 to 250 gallons per minute) (NJDEP, NJGS, BWR, Mark French, 2005). The northeastern portion of the property is mapped as Rank C Ground-Water Recharge Rank (9 to 11 inches per year) and Rank C Water-Table Aquifer Rank (NJDEP, NJGS, BWR, Mark French, 2005). The southwestern portion of the property is mapped as Rank D Ground-Water Recharge Rank (1 to 8 inches per year) and Rank C Water-Table Aquifer Rank (NJDEP, NJGS, BWR, Mark French, 2005). Rank A is the highest rank and Rank E is the lowest rank (NJDEP, NJGS, BWR, Mark French, 2005).

5. Surface Water

Surface waters include lakes, rivers, ponds, and streams - water bodies at the surface of the land. These waters serve as valuable habitats for aquatic organisms; collect, store and distribute water from rainfall; and serve as important aesthetic and recreational features.

Overland runoff from the property drains either towards the west to an unnamed tributary of Middlebush Brook, which is mapped approximately 630 feet to the west of the property or towards the southeast towards another unnamed tributary of Middlebush Brook, which is mapped approximately 170 feet to the southeast of the property. Middlebush Brook discharges into Six Mile Run. The NJDEP has not classified Middlebush Brook, but has classified Six Mile Run and its unnamed tributaries. The NJDEP has classified Six Mile Run outside Six Mile Run State Park as a FW2-NT (Non-Trout) surface water (NJDEP, 2020). However, Six Mile Run flows through Six Mile Run State Park downstream of the property and within the same HUC-14 drainage area. The NJDEP has classified Six Mile Run inside Six Mile Run State Park as a FW2-NT(C1) (Category One) surface water (NJDEP, 2020).

The NJDEP (June 24, 2021) published a “DRAFT 2018/2020 New Jersey Integrated Water Quality Assessment Report (Integrated Report)”, which is intended to provide an effective tool for maintaining high quality waters and improving the quality of waters that do not attain their designated uses. The Integrated Report describes attainment of the designated uses specified in New Jersey's Surface Water Quality Standards (N.J.A.C. 7:9B), which include: aquatic life (general), aquatic life (trout), recreation, public water supply, fish consumption, and shellfish consumption (NJDEP, June 24, 2021). The Integrated Report includes management strategies, including Total Maximum Daily

Loads (TMDLs), under development to achieve surface water quality standards and attain the designated uses of the waters (NJDEP, June 24, 2021). TMDLs represent the assimilative or carrying capacity of the receiving water taking into consideration point and nonpoint sources of pollution, natural background, and surface water withdrawals (NJDEP, June 24, 2021).

The NJDEP assesses each applicable designated use for all of the State's 293 subwatersheds (assessment units), to determine whether each subwatershed is "fully supporting" the use, "not supporting" the use, or if insufficient information is available to assess the use. A subwatershed is "fully supporting" a designated use only if data for the minimum suite of parameters are available and there are no exceedances of the applicable criteria for each parameter in the suite. If data are available for only some of the minimum suite of parameters, the use is not assessed due to insufficient information. If any one parameter associated with a designated use exceeds the applicable criteria, then the subwatershed is "not supporting" for the designated use.

The site is located within the Six Mile Run (below Middlebush Road) assessment unit (NJDEP, June 24, 2021). This assessment unit had "fully supporting" for and "insufficient information" for Fish Consumption (NJDEP, June 24, 2021). This assessment unit was "not supporting" for Aquatic Life-General, Water Supply, and Primary Recreation for non-attainment of total phosphorus, biological standards, arsenic, and *Escherichia coli* (NJDEP, June 24, 2021).

By definition, FW-2 waters are suitable for public potable water supply after required treatment. This classification requires that waters be acceptable for primary contact recreation, industrial and agricultural use, and maintenance and migration of the established biota. The Non-Trout (NT) suffix indicates that the waters do not possess the properties suitable for the maintenance of trout species, i.e., high dissolved oxygen levels, relatively low summer temperatures, and low pollutant loadings. However, more tolerant fish species, particularly warm-water species, may flourish in such waters. The Category One (C1) designation indicates waters that are protected from measurable changes in their water quality characteristics because of their clarity, color, scenic setting, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource.

6. Vegetation

Vegetation is the plant life or the total plant cover that is found in a specific area, whether indigenous or introduced by humans. The Piedmont Physiographic Province of New Jersey contains a moderately diverse mixture of major terrestrial plant habitats, including freshwater marshes, swamps and floodplains, upland valleys and slopes, upland ridges, and rock outcrops (Robichaud and Buell, 1973). This habitat diversity results in a mosaic of plant communities occurring in small areas,

a situation rather different from the more homogeneous habitat conditions and plant communities found in more southern portions of the state, and less inherently "patchy" than habitats of more severe topographic relief in the Highlands and Ridge and Valley provinces to the north.

Based upon species composition, soils, and apparent hydrology noted during the field investigation, two vegetative communities were identified within the undeveloped portions of the property: upland woodlands and palustrine forested (PFO1) wetlands. Each community is briefly described below.

Upland Woodlands – This community is found in the northern portion of the property. Canopy vegetation includes red maple, eastern white pine, black cherry, American elm, Eastern red cedar, sassafras, and sugar maple. The woody understory includes eastern red cedar, wisteria, climbing bittersweet, and Japanese honeysuckle. Ground cover includes microstegium, white snakeroot, and garlic mustard.

Palustrine forested wetlands (PFO1) - This community is limited to two small isolated wetlands in the northwestern portion of the property. Canopy vegetation includes red maple and American elm. The woody understory includes wisteria, red maple, crab apple, pin oak, eastern poison ivy, white ash, Japanese honeysuckle, and multi-flora rose. Ground cover includes microstegium, manna grass, devil's beggar-ticks, soft rush, stout woodreed, and sedges.

7. Wildlife

The utility of an area as wildlife habitat depends on many factors. All wildlife species require food, water, cover, and space. The relative abundance or lack of these resources in relation to each species' particular requirements will, in part, determine the species composition and distribution of a particular area. In addition, the types of vegetative communities present, the size, shape, and complexity of the habitat(s), and the surrounding land uses will further interact to determine the success of various wildlife species at the location being considered. Some wildlife species have demonstrated great adaptability and tolerance to the human presence; others are less able to tolerate such activities and are displaced to more suitable habitats, if such are available and accessible.

Starting in July 2002, the Natural Heritage Program (NHP) of the NJDEP Office of Natural Lands Management adopted use of the Landscape Project to supplement threatened and endangered species data requests. The Landscape Project was developed by the NJDEP, Division of Fish & Wildlife, Endangered & Nongame Species Program (ENSP). It is a wildlife habitat-mapping program that is used to identify and map critical habitats for endangered, threatened, and special concern species. This approach takes documented records of threatened and endangered wildlife and, based on a species-specific model or "occurrence area", maps areas of suitable habitat contiguous to the record as critical wildlife habitat. Each critical habitat patch appears as a shaded color from light to

dark (5 Ranks) indicating its relative priority ranking. Rank 1 is the lowest priority ranking, while Rank 5 is the highest priority ranking. Rank 1 meets the minimum area requirement, but no data exists for the presence of priority species (New Jersey Division of Fish and Wildlife, 2017). This is the NJDEP's lowest priority ranking and is defined as areas meeting the minimum size requirements but with no documented sightings of threatened or endangered species. Rank 2 contains records for priority species, which are species of special concern. Ranks 3, 4, and 5 indicate that the identified land cover type has been identified as providing habitat for State threatened (Rank 3), State endangered (Rank 4), or Federally threatened or endangered (Rank 5) species.

According to the Landscape Project (Version 3.3), the majority of the site is mapped outside of habitats (Figure 4). The extreme southeastern portion of the site is mapped within a Rank 1 habitat, which does not contain any occurrences of endangered, threatened, or special concern species.

A request for information was sent to the Natural Heritage Program regarding threatened and endangered species. Their response is pending.

During EcolSciences' site inspection on October 1, 2021, the following species were identified by sight, call, tracks, or other signs: white tailed deer, gray squirrel, eastern chipmunk, Canada goose, red-bellied woodpecker, hairy woodpecker, Northern flicker, blue jay, American crow, black-capped chickadee, tufted titmouse, Carolina wren, golden-crowned kinglet, American robin, gray catbird, and black-and-white warbler. During EcolSciences field investigation of the property, no sightings of threatened or endangered species were made.

8. Wetlands

Wetlands are lands where water saturation is the dominant factor determining the nature of soil development and the types of plants and animal communities living in the soil and on its surface. Wetlands are transitional areas between terrestrial and aquatic systems, and are unique biological habitats of socioeconomic value. Wetlands moderate extremes in water flow, aid in the natural purification of water, and may be areas of ground water recharge. According to regulations promulgated by the United States Army Corps of Engineers (COE) and the Environmental Protection Agency (EPA) (33 CFR Section 323.2 and 40 CFR Section 230.2, respectively) and pursuant to the New Jersey Freshwater Wetlands Protection Act (2001), wetlands are those areas that are inundated or saturated with surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Previously, the NJDEP issued a Letter of Interpretation-Line Verification (LOI) and LOI extension, but both have since expired (File Nos. 1808-04-0029.1 and 29.2). In addition, the NJDEP previously authorized several Freshwater Wetlands General Permits and Transition Area Waivers for previous projects. All of these NJDEP approvals are expired. EcolSciences, Inc. conducted a field investigation on the property and confirmed that the previously NJDEP approved wetlands boundaries remains accurate. The previous NJDEP approved wetlands boundary and transition area are shown on the plans prepared by Bohler (2021). EcolSciences, Inc. conducted a field investigation on the property during which freshwater wetlands were delineated on the property. An application for a Letter of Interpretation-Line Verification (LOI) will be submitted to the NJDEP, which will reverify the extent of the wetlands and width of the transition areas.

9. Floodways and Floodplains

The area inundated by the flood waters of a river or stream is termed the floodplain. Within the floodplain can be found several subdivisions: the channel, where normal, non-floodplain flow is confined; the floodway, or terrestrial areas on the margins of the channel that show permanent terracing effects of repeated flooding; and the flood fringe, or areas landward of the floodway that may be inundated during more severe (and less frequent) storms. Taken together, these areas constitute the flood hazard area around a river or stream.

According to FEMA mapping (Community Panel No. 34035C0260E), all portions of the site are located outside of the Special Flood Hazard Area Subject to Inundation by the 1 percent Annual Chance Flood.

As part of NJDEP Flood Hazard Area Control Act Rules (N.J.A.C. 7:13 et seq), a riparian zone adjacent to all regulated waters is required and protected. These regulations implement riparian zones that are 50, 150 or 300 feet in width along each side of surface waters throughout the State. The riparian zone width depends on the environmental resources being protected, with the most protective 300-ft riparian zone applicable to waters designated as C1 and certain upstream tributaries. Certain waters supporting trout, or habitats of threatened or endangered species critically dependent on the watercourse to survive receive a 150-ft riparian zone. Regulated waters not identified above would have a 50-foot riparian zone.

As discussed above, the site does drains to Category One waters within the same HUC-14 drainage area. Therefore, it is anticipated that the off-site unnamed tributaries of Middlebush Brook would have a 300-foot riparian zone. One tributary is mapped approximately 630 feet to the west of the property and the other tributary is mapped approximately 170 feet to the southeast

of the property. Therefore, the extreme southeastern portion of the property is within the 300-foot riparian zone.

B. Man-Made Resources

1. **Air Quality**

The Federal and State environmental regulatory agencies have established permissible concentrations, termed the National Ambient Air Quality Standards (NAAQS), for six principal pollutants including carbon monoxide, lead, nitrogen dioxide, ozone, particle pollution, and sulfur dioxide. These standards have been shown to reduce to an acceptable level the risk of health effects to vulnerable human populations, primarily the young, the elderly, and those with respiratory ailments. Primary standards define air quality levels intended to protect the public health including “sensitive” populations such as asthmatics, children, and the elderly. The secondary standards define levels of air quality intended to protect the public welfare including protection against decreased visibility and damage to animals, crops, vegetation, and buildings (EPA, 2021).

The NJDEP annual air quality reports summarize the air quality monitoring data for that particular year in New Jersey. The State of New Jersey has been monitoring air quality since 1965. The most recent NJDEP Air Quality Summary Report available is for the year 2019. Based on the 2019 annual air quality report, the entire state of New Jersey is in non-attainment for the ozone NAAQS, and northern New Jersey is classified as being “moderate”. A “moderate” area has an ozone range from 0.081 to 0.093 parts per million (ppm) (EPA, 2018). New Jersey was in attainment in 2019 for the remaining five principal pollutants including PM, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead (NJDEP, November 23, 2020).

The NJDEP annual air quality reports also provide information on longer-term trends in the state, providing summary data for all monitoring locations from 1965 to the latest year reported. Examination of those data indicates that New Jersey has shown a somewhat erratic downward trend in the ozone standard and is getting close to meeting the ozone NAAQS. There has been a steady decline in overall particulate matter (PM)_{2.5}, which is now in compliance with the NAAQS. A sharp increase and subsequent decrease in sulfur dioxide concentrations in New Jersey occurred in 2013 as a result of a coal-burning facility across the Delaware River in Pennsylvania. The facility has since ceased operations under a court agreement, and sulfur dioxide levels in New Jersey have returned to meeting the NAAQS for sulfur dioxide. The State of New Jersey has long been in compliance with the NAAQS for the remaining three principal pollutants including nitrogen dioxide, carbon monoxide, and lead (NJDEP, November 23, 2020).

The Rutgers University air quality monitoring station is located in the general vicinity of the site. The Rutgers University station monitors nitrogen oxides (NO_x), ozone, particulates, photochemical assessment monitoring (PAMs), mercury, and weather conditions. The summary data included in the 2019 report indicates no contravention of standards for nitrogen dioxide, sulfur dioxide, and carbon monoxide (NJDEP, November 23, 2020).

The Air Quality Index (AQI) is a national air quality rating system based on the NAAQS. An index value of 100 is equal to the primary, or health-based, NAAQS for each pollutant. This allows for a comparison of each of the pollutants used in the AQI. These pollutants are ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The Rutgers University station had three days in 2019 where the AQI reached the “Unhealthy for Sensitive Groups” (“USG”) threshold but did not have any days in 2019 where the AQI reached “Unhealthy” (UG) threshold (NJDEP, November 23, 2020). The USG threshold means that members of sensitive groups may experience health effects and that the general public is not likely to be affected. The UG threshold means that everyone may begin to experience health effects and that members of sensitive groups may experience more serious health effects.

These positive trends in air quality have been occurring despite significant population increases in the central and southern regions of the state, and the concomitant increase in vehicular traffic associated with population growth. These countervailing trends appear to be the result of more effective emissions controls on vehicle exhausts and on industrial emissions, the net result of which is a decline in overall air loadings since air monitoring began in 1965 as summarized in the NJDEP report for 2019.

2. Sound Characteristics and Levels

Sound is conducted through air as a series of pressure waves having kinetic energy. The kinetic energy of these sound waves can be quantified in decibels - scalar units that are geometrically related to the energy of the sound at the receptor. A doubling in the sound energy will yield an increase of 6 dB. 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 noises in the 55-60 dBA range, while heavy street traffic generates noises in the 85-95 dBA range (EPA, 1976). The "A" suffix means that the sound energy characteristics have been weighted to emphasize the upper audible frequency ranges (A-weighting).

The site is located in a suburban area primarily surrounded by residential and industrial uses. The site is located along Dahmer Road and Commerce Drive. Sounds within the site are from a variety of sources. Sounds from lawn mowers and leaf blowers are periodically heard. A power

mower produces an average of 92 decibels (dB) (Noise Free America, 2010). Vehicles can be heard from the adjacent roadways. Sound levels are likely to be typical of a normal suburban residential area, in the range of 53-57 dB (EPA, 1976).

3. Land Use

The development of a property is in many cases a major alteration of the features of a property. The extent to which such change in land use is significant depends in part on the existing land use(s) on the property and in surrounding areas, and on the zoning constraints selected for the land by the governing municipality.

The property is located within the Business and Industry B-I Zone of the Township of Franklin. The property is located along Dahmer Road and Commerce Drive. The property is occupied by the L'Oréal facility, solar arrays, and parking areas. The property is bordered to the north by woodlands and residential development, to the south by Commerce Drive, to the west by Dahmer Road, and to the east by the Franklin Sewerage Authority and industrial development.

4. Fire Prevention and Police Facilities

Ten fire companies within four fire districts service the Franklin Township area. The Community Fire Company, which is located at 121 Pine Grove Avenue is the nearest fire-fighting unit and is located approximately 2.6-miles east of the property. The Franklin Township Police Department is located on 495 DeMott Lane, approximately 0.7 miles north of the property.

5. Schools

The school system currently consists of seven elementary schools, two middle schools, and one high school.

6. Traffic

A Traffic Report has been prepared by Atlantic Traffic and will be submitted under separate cover.

C. Human Resources

1. Aesthetics

The aesthetic quality of a particular area is a general representation of how the area is perceived by humans. Literally, it is how the sensory information provided by an area is interpreted. Pleasing visual, auditory, and olfactory stimuli will combine to provide a perception of high aesthetic appeal. Offensive sights, sounds or odors will yield the opposite impression. Aesthetics, of course,

vary from observer to observer; generally though, rural and natural landscapes offer higher aesthetic appeal than do urban, highly modified landscapes.

As noted previously, Franklin Township is divided into five planning sectors. The property lies within Sector 3, which is the most intensely developed sector (Schoor DePalma, March 2006). The property is occupied by the L'Oréal facility, solar arrays, and parking areas. The undeveloped portions of the property are characterized by upland woodlands and wetlands. The undeveloped portions of the property represent the site's most aesthetically appealing features.

2. Cultural and Historic Resources

Cultural resources are man-made or man-modified features of the environment, including objects, structures, site and districts deemed to be of cultural significance. Such resources may be pre-historic or historic in age, and are often worthy of preservation to provide present and future generations with a sense of the peoples who once lived and worked in a particular locality.

The property is occupied by the L'Oréal facility, solar arrays, and parking areas. The New Jersey & National Registers of Historic Places (NJDEP, 1995, last updated September 28, 2021) does not list any historic or eligible for listing resource on or immediately adjacent to the property. In addition, the Historic Preservation Plan for Franklin Township (Franklin Township Staff and Historic Advisory Commission, July 2019) does not identify any historic or eligible resource on or immediately adjacent to the property. Based on a review of the GIS layers "NJDEP Historic Districts, Property Features, Properties, and Site Grid Map of New Jersey" (NJDEP, NHR, HPO, 2021), the "Identified" Millstone and New Brunswick Railroad Historic District is mapped along the northern property boundary (Figure 5). "Identified" means that resources have been identified through cultural resource survey or other documentation on file at the State Historic Preservation Office. It appears that this off-site railroad line was previously removed and a portion redeveloped with residential development. Based on a review of the GIS layers "NJDEP Historic Districts, Property Features, Properties, and Site Grid Map of New Jersey" (NJDEP, NHR, HPO, 2021), there are a couple more mapped off-site historic districts or properties in the general vicinity of the property, but these features are not immediately adjacent to the property (Figure 5).

IV. IMPACT OF THE PROPOSED PROJECT

This chapter addresses the potential impacts to the environmental resources of the project site and surrounding areas that could result from the proposed expansion. Potential impacts are first discussed generally, then according to the specific topics set forth in the preceding chapter that inventoried environmental characteristics of the property. The incorporation of mitigation measures during construction and operational phases of the proposed project are cited here in the context of the potential impacts; reference is made again to these mitigating measures in the following chapter.

The unavoidable environmental impacts resulting from construction and expanded use of the LORÉAL facility are anticipated to be the development of a primarily upland woodlands, slight increases in loadings of common constituents in stormwater runoff discharged from the property, slight increases in use of municipal services, and increased traffic. In general, the principal environmental impacts associated with the construction phase the proposed project result from temporary disturbances to soils and vegetation. In the absence of appropriate control measures, clearing of vegetated tracts of land for construction and access to construction sites could reduce the productivity of the soil and create unsightly conditions and fugitive dust. Precipitation falling on disturbed areas could tend to erode fine soil particles and, in the absence of appropriate controls, increase loadings to areas receiving stormwater runoff. As will be detailed below, these potential adverse effects will be minimized by adherence to the Soil Erosion and Sediment Control Plan, as approved by the local district of the Soil Conservation Service.

The principal environmental impact associated with the operational phase of the proposed project would be the expanded use and the direct and indirect influences on the surrounding areas associated with the operation of the expanded LORÉAL facility. Construction of the development will convert 11±acres of upland woodlands and wetlands to expanded industrial use.

Potential impacts on specific natural or human resources are discussed in the following sections.

A. Natural Resources

1. Geology

Potential impacts to the project site's geological integrity are typically related to the location and extent of bedrock disturbance resulting from the construction phase. The project will be partially constructed upon Penn and Reaville soils where bedrock occurs at a depth of 1.5 to 3.5 feet, according to the Somerset County Soil Survey (SCS, 1989). The remaining Royce soils have a depth of bedrock

greater than 3.5 feet. However, the underlying shallow bedrock - the upper stratum of the Brunswick Formation - is "rippable", and can be excavated using standard excavation equipment and techniques. Thus, no significant impacts to the project area's geological integrity are anticipated from the construction of the proposed development.

2. Topography

Potential impacts to the topography of the project site are related to the extent of excavation and/or filling required to achieve the desired topography for construction of the building expansion and associated features. The topography within the area of proposed development is of gentle relief. Some modifications to the existing topography will be necessary to construct the expansion. Cutting and grading will be required at the proposed building expansion, parking area, modified stormwater management system, and driveway modifications. In addition, a sound wall is proposed by the proposed loading dock and a small wall is proposed along the northern side of the proposed rain garden. Throughout the property, soil erosion and sediment control measures will minimize soil loss and erosion wherever grading is proposed. Where changes to existing topography are planned, the proposed contours will be graded to meet the existing contours.

3. Soils

In the absence of appropriate control measures, construction activities may result in both short-term and long-term impacts related to soil loss. Removal of topsoil and organic layers could reduce the productivity of the soils, remove ground cover vegetation, and create unsightly conditions. During construction, the potential for soil disturbance will be limited to the area surrounding the proposed building expansion, parking areas, driveways modification, and modified stormwater management system. During the entire construction period, soil loss and associated adverse impacts will be minimized by strict adherence to the measures specified in the Soil Erosion and Sediment Control Plan, as approved by the Somerset-Union Soil Conservation District.

Soil conservation measures include the use of stabilized construction entrances, installation of inlet sediment traps for all catch basins, and installation of silt fences around the limits of disturbance. Immediately following rough grading, all disturbed soils will be protected from erosion and soil loss by temporary seeding and mulching. In areas where grading is necessary, rapid stabilization of all disturbed soil areas will minimize adverse effects related to soil loss or erosion.

4. Ground water

Construction of the proposed development is not expected to have an adverse impact on the ground water resources of the project area. No ground water withdrawal is proposed within the property, and no private wells will be used to supply potable water for the project. Potable water for

the proposed development will be provided by Franklin Township. The total daily potable water demand from the site will be approximately 12,200 gpd (Bohler, 2021).

Wastewater for the project will be conveyed to Middlesex County Utilities Authority. It is estimated that the proposed development will generate a total of approximately 12,200 gpd of wastewater (Bohler, 2021). This off-site treatment of wastewater by a regional municipal facility will eliminate the potential for contamination of ground water by wastewater effluent.

There will be a slight increase in impervious surfaces because of the proposed development. Typically, this would result in a slight decrease in groundwater recharge. However, as required by NJDEP's Stormwater Management Rules soil testing was performed and concluded that the soil types in the area of the development are clays with permeability results of less than 0.2 inches per hour. While the mapped soil types are classified as Hydrologic Soil Group (HSG) C, the observed soil conditions are more indicative of a HSG D due to the low permeability rates. When groundwater recharge is calculated using the observed soil type existing groundwater recharge is maintained in the proposed condition.

5. Surface Water

The construction of the proposed expansion is expected to have a minimal impact to local surface water resources in the vicinity of the project area. Potential short-term impacts to surface water quality are generally associated with soil loss, erosion, and sedimentation during construction activities. As previously described in Section 3 (Soils) of this chapter, soil disturbance will be largely confined to areas around proposed expansion, parking areas, driveways modification, and modified stormwater management system. Any adverse impacts will be minimized by the installation and maintenance of proven soil erosion and sediment control measures presented in the plans. These measures will retain disturbed soil sediment within the areas of construction.

Stormwater from the developed portions of the site will be collected by a modified stormwater management system. This system will consist of a series of catch basins and inlets and subsurface piping that will convey stormwater to an existing bioretention basin and two proposed bioretention basins and porous pavement parking areas. The stormwater management system has been designed to be in compliance with the requirements of the NJDEP's Stormwater Management Rules (N.J.A.C. 7:8) for runoff volume, water quality, and green infrastructure. However, as required by NJDEP's Stormwater Management Rules soil testing was performed and concluded that the soil types in the area of the development are clays with permeability results of less than 0.2 inches per hour. While the mapped soil types are classified as Hydrologic Soil Group (HSG) C, the observed soil conditions are more indicative of a HSG D due to the low permeability rates. When groundwater recharge is

calculated using the observed soil type existing groundwater recharge is maintained in the proposed condition. For specific details regarding the proposed stormwater management system, refer to the Stormwater Management Report prepared for the project by Bohler dated October 2021.

6. Vegetation

Construction for the proposed development will require removal of existing vegetation from most of the undeveloped portion of the property. A total of 158 trees are proposed to be removed. For a discussion and calculations of the required tree replacement, please refer to the site plans prepared by Bohler (2021). Approximately 11 acres of the property will be disturbed. However, a landscaping plan will be implemented to mitigate for the loss of vegetation.

As indicated in the site plans, a landscaping plan will be implemented to enhance the aesthetic features of the development. The plan provides for the planting of an aesthetically pleasing arrangement of evergreen trees, shade trees, ornamental trees, and evergreen shrubs throughout the property. These plantings will provide a year round vegetative screen and will supplement the existing natural vegetative buffer between the adjacent properties and the proposed project. In addition, the proposed bioretention basins will be planted with deciduous and evergreen shrubs, and ornamental grasses.

7. Wildlife

The construction of the proposed development is not expected to have a significant adverse impact to local wildlife species. Wildlife species using the site are generally common in suburban areas of New Jersey and some will continue to utilize the site following development. No impacts to threatened and endangered species are anticipated.

8. Wetlands

Encroachments into the wetlands and its associated transition areas will be required. These encroachments will require approval from the NJDEP and have been designed to meet the conditions of the permits and waiver available for the types of encroachments proposed. These will include General Permit Numbers 6 (non-tributary wetlands) and 6A (transition areas adjacent to non-tributary wetlands). An application for General Permit Numbers 6 and 6A will be submitted the NJDEP and obtained prior to construction.

9. Floodways and Floodplains

According to FEMA mapping (Community Panel No. 34035C0260E), all portions of the site are located outside of the Special Flood Hazard Area Subject to Inundation by the 1 percent Annual Chance Flood. No disturbances are proposed to the 300-foot riparian zone from the off-site unnamed

tributary of Middlebush Brook. Thus, no impacts to floodplains, floodways, or riparian will result from the proposed project.

B. Man-Made Resources

1. **Air Quality**

Short-term air quality impacts during construction are related to production of fugitive dust and generation of emissions from exhausts of construction vehicles. Mitigating measures, including dust control practices and the use on construction equipment of efficient air pollution control devices meeting applicable State/Federal specifications, will minimize adverse effects on local air quality.

Long-term air quality impacts will be related primarily to vehicle exhaust emissions, primarily carbon monoxide (CO), hydrocarbons, and nitrogen oxides (NOx). However, the magnitude of the environmental effects attributable to the vehicular traffic associated with the proposed project will not affect regional air quality.

2. **Sound Characteristics and Levels**

Short-term generation of noise levels elevated over existing ambient levels will be generated during the construction of the proposed development. Sound levels generated during the construction phase can be expected in the range of 66 to 78 dBA at a distance of 50 feet from construction equipment, based upon the use of best available technology for noise reduction (EPA, 1976). The construction equipment included in this range consists of backhoes, concrete mixers, bulldozers, pavers, and trucks. To minimize adverse impacts to ambient noise levels during the construction period, construction equipment will only be operated during construction periods permitted by local law.

During the operational phase of the development, the principal sources of sound will be vehicular traffic from local area roads, fixed mechanical equipment (e.g., air conditioning units), and lawn maintenance equipment (e.g., lawn mowers and leaf blowers).

3. **Fire Prevention and Police Facilities**

The proposed connection of Commerce Drive to Dahmer Road will be provide improved access for the fire department and police for the site and for the surrounding development. The proposed expansion will continue to use the existing fire prevention and police facilities.

4. Schools

The proposed project is not residential in nature. Therefore, the proposed project should have no impacts on schools.

5. Land Use

The proposed development will result in the conversion of 11±acres from primarily upland woodlands to expanded industrial use. The proposed development is generally compatible with the surrounding residential and industrial land uses adjacent to the property and in the surrounding area.

6. Traffic

A Traffic Report has been prepared by Atlantic Traffic and will be submitted under separate cover.

C. Human Resources

1. Aesthetics

The surrounding community and passers-by will readily perceive the consequences of the construction of expansion. Most of the upland woodlands will be removed as part of the project. For some, this change in landscape may represent a decrease in aesthetic value of the property. A buffer of approximately 60 feet of upland woodlands will remain undisturbed along the northern site boundary. A buffer of at least 50 feet of woodlands will remain undisturbed along the western boundary along Dahmer Road. Berms with evergreen or shade trees are proposed along the northern and western portions of the expansion, which will provide an increased buffer between the project and surrounding areas.

2. Cultural and Historic Resources

Based on a review of the GIS layers “NJDEP Historic Districts, Property Features, Properties, and Site Grid Map of New Jersey” (NJDEP, NHR, HPO, 2021), the “Identified” Millstone and New Brunswick Railroad Historic District is mapped along the northern property boundary (Figure 5). It appears that this off-site railroad line was previously removed, and a portion redeveloped with residential development. A buffer of approximately 60 feet of upland woodlands will remain undisturbed along the northern site boundary. As such, the proposed project is not expected to adversely impact any known cultural or historical resources.

V. ADVERSE IMPACTS

The proposed expansion has been designed with careful attention to its surroundings and with due consideration for adjacent developments. No project, however, can be built and operated without generating some degree of adverse impact on some aspect of the natural or man-made environment. As discussed in the preceding chapter, there will be impacts to the existing topography, and vegetation, among other features of the subject property. This chapter identifies the probable adverse environmental impacts of the proposed development. The unavoidable environmental impacts resulting from construction and operation of proposed commercial development are anticipated to be:

- Development of undeveloped portions of the property.
- Slight increase in the use of municipal utilities.
- Disturbances to the isolated wetlands and transition areas.
- Slight increase in loadings of common constituents of stormwater runoff.

In general, the principal short-term environmental impacts associated with the construction phase of such an expansion result from temporary disturbances to soils and from the clearing of vegetation. In the absence of appropriate control measures, clearing of vegetated tracts of land for construction and access to construction sites could reduce the productivity of the soil and create unsightly conditions and fugitive dust. Precipitation falling on disturbed areas could tend to erode fine soil particles and, in the absence of appropriate controls, increase loadings to areas receiving stormwater runoff. These potential adverse effects will be managed by adherence to the Soil Erosion and Sediment Control Plan, as approved by the Somerset-Union Soil Conservation District.

The principal long-term impact associated with the project is the commitment of natural resources resulting from the change in land use. The construction of the project will convert approximately 11 acres of upland woodlands and wetlands to expanded industrial use. The mitigating measures described in the preceding chapters will serve to minimize the potential impacts to natural resources in the project area.

VI. AMELIORATIVE MEASURES

A number of potential impacts associated with construction and operation of the proposed project were identified in Chapter IV. Environmental protective measures that can minimize or eliminate environmental impacts are summarized below. Some have already been included in the project plans; others will be implemented during the construction phase. Many of the measures identified below have already been discussed in the preceding chapter in the context of the particular environmental features in which they are identified.

A. Soils and Surface Water Resources

- The existing topography for the entire property will be altered, however, adherence to the Soil Erosion and Sediment Control Plan will mitigate this impact.
- Stabilized construction entrances will be installed at the intersections with Commerce Drive to reduce tracking of sediment onto adjacent roadways during construction activities.
- Sediment filter fences will be erected around and/or down slope of disturbed areas to prevent sediment from being transported off-site.
- Upon completion of final grading, all disturbed areas will receive a final seeding and mulching in accordance with the Soil Erosion and Sediment Control Plan.
- All side slopes shall be protected from erosion by top soiling, seeding, and mulching as soon as possible after final grading.
- All soil erosion and sediment control measures shall be kept in place until construction is complete and/or the disturbed area is stabilized.
- All work will be done in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey.

B. Air Quality

- Construction vehicles that are to operate upon the public highways of the State of New Jersey will comply with the regulations as required by N.J.A.C. 7:27-14 and 15.
- Disposal of incinerable wastes by open burning will not be permitted.
- Exhaust systems and emission control devices on all construction machinery will be maintained in good operating condition.
- Vehicles transporting fill, dirt, or other materials will be covered with canvas or similar material.

C. Sound levels

- To minimize noise generated by construction equipment, mufflers or similar noise abatement devices will be in good operating condition on all construction machinery.

- Silencers, shields, or enclosures will be used around all stationary noise-generating equipment.
- Operation of machinery will be limited to work periods permitted by local law.

VII. PROJECT ALTERNATIVES

LORÉAL USA has proposed an expansion of its existing facility presents employment opportunities in Franklin Township. As presented previously in this report, the land poses few environmental constraints for the project as proposed. The property is located within the Business and Industry (B-I) Zone. The proposed project adheres to the bulk requirements for the B-1 zone with the exception of a few requested variances. As the project is an expansion of an existing facility, there are limited options for the project.

Under the no-build option, the property would continue to be occupied by the LORÉAL facility. The no-build alternative would not allow LORÉAL USA to continue to improve and further invest in their existing facility in the Township of Franklin, which may at some point result in LORÉAL USA relocating elsewhere. The no-build alternative would not generate the public benefit of providing employment opportunities for the Township of Franklin. The impact on the natural environment would be positive, as there would be no additional disturbance to the property. This would avoid the environmental impacts described in Chapter V above, but would not conform to the Township's anticipated use of the property. This alternative was rejected because it does not allow a reasonable use of the property.

REQUIRED APPROVALS

The following constitutes a list of licenses, permits and approvals required for the project:

Table 2: List of Licenses, Permits, or Other Approvals Needed

| Granting Authority | License, Permit, or Approval | Status |
|---|---|----------------------------|
| Township of Franklin Planning Board | Preliminary & Final Major Site Plan Approval | Subject of this submission |
| Somerset County Planning Board | Preliminary & Final Major Site Plan Approval | To be submitted |
| Delaware and Raritan Canal Commission | Major Project | To be submitted |
| Somerset - Union Soil Conservation District | Soil Conservation and Sediment Control Plan Certification | To be submitted |
| NJDEP | Letter of Interpretation-Line Verification | To be submitted |
| | General Permit Number 6 (non-tributary wetland) | To be submitted |
| | General Permit Number 6 (transition areas adjacent to non-tributary wetlands) | To be submitted |

IX. REFERENCES

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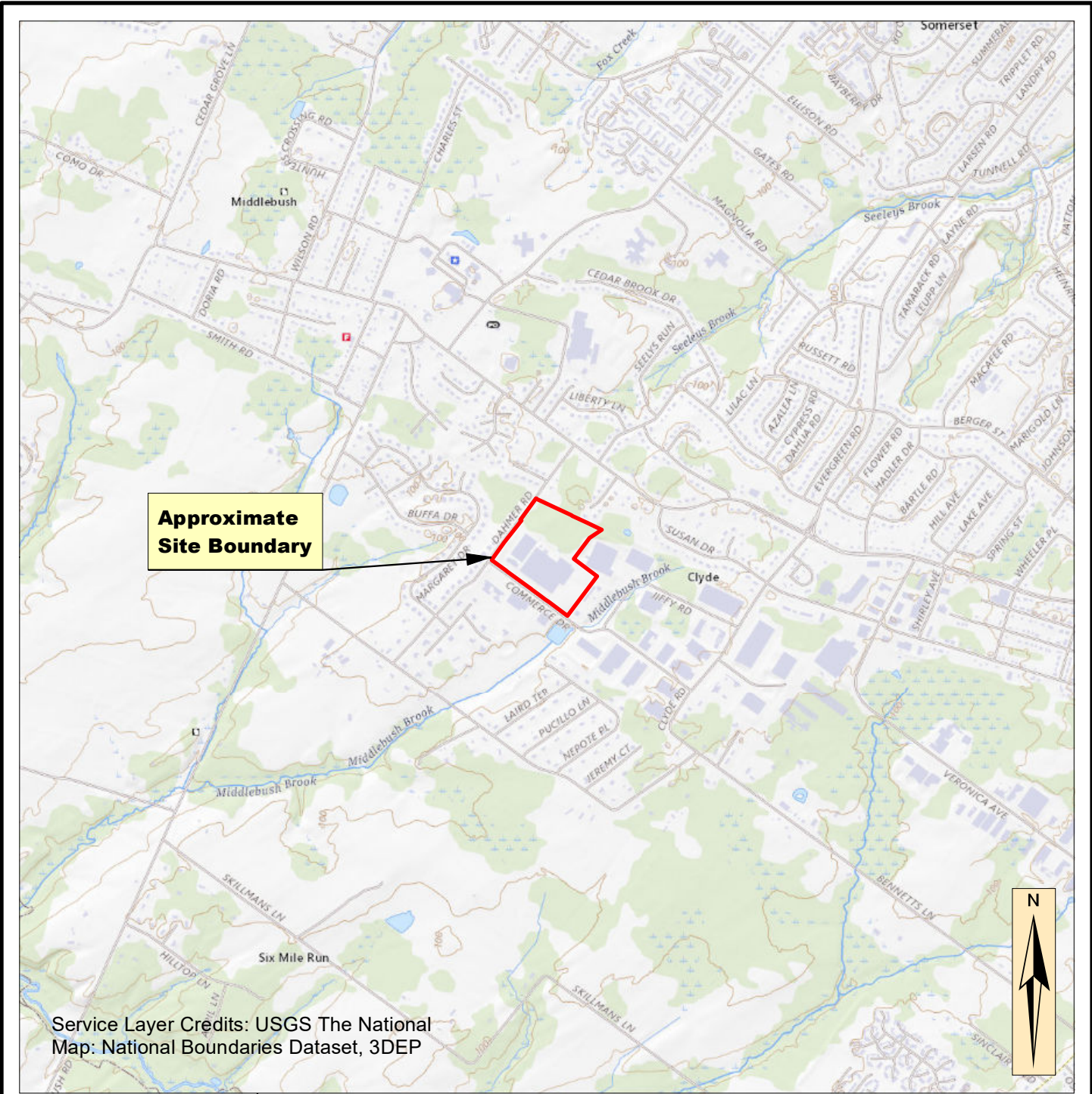
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ATTACHMENT A

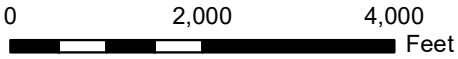
Figures

- Figure 1: USGS Site Location
- Figure 2: 2020 Aerial Photograph
- Figure 3: SCS Soils Mapping
- Figure 4: Landscape Project
- Figure 5: Historic Resources

EcolSciences, Inc.
Environmental Management & Regulatory Compliance



Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP



SITE LOCATION

State Plane Coordinates (New Jersey NAD 83)
486,319' E; 602,705' N

FIGURE 1: USGS SITE LOCATION

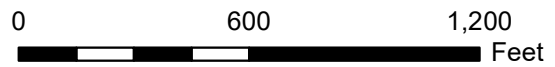
Block 86.03, Lot 10.32
Township of Franklin
Somerset County, New Jersey

USGS The National Map. 2020 (Bound Brook, Monmouth Junction, New Brunswick, and Plainfield NJ Quadrangles)

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

Date: 10/4/21

Scale 1:24,000



Legend

- Approximate Site Boundary
- ~ ~ ~ Streams

FIGURE 2: 2020 AERIAL IMAGERY

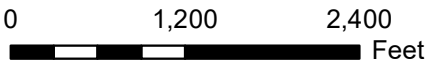
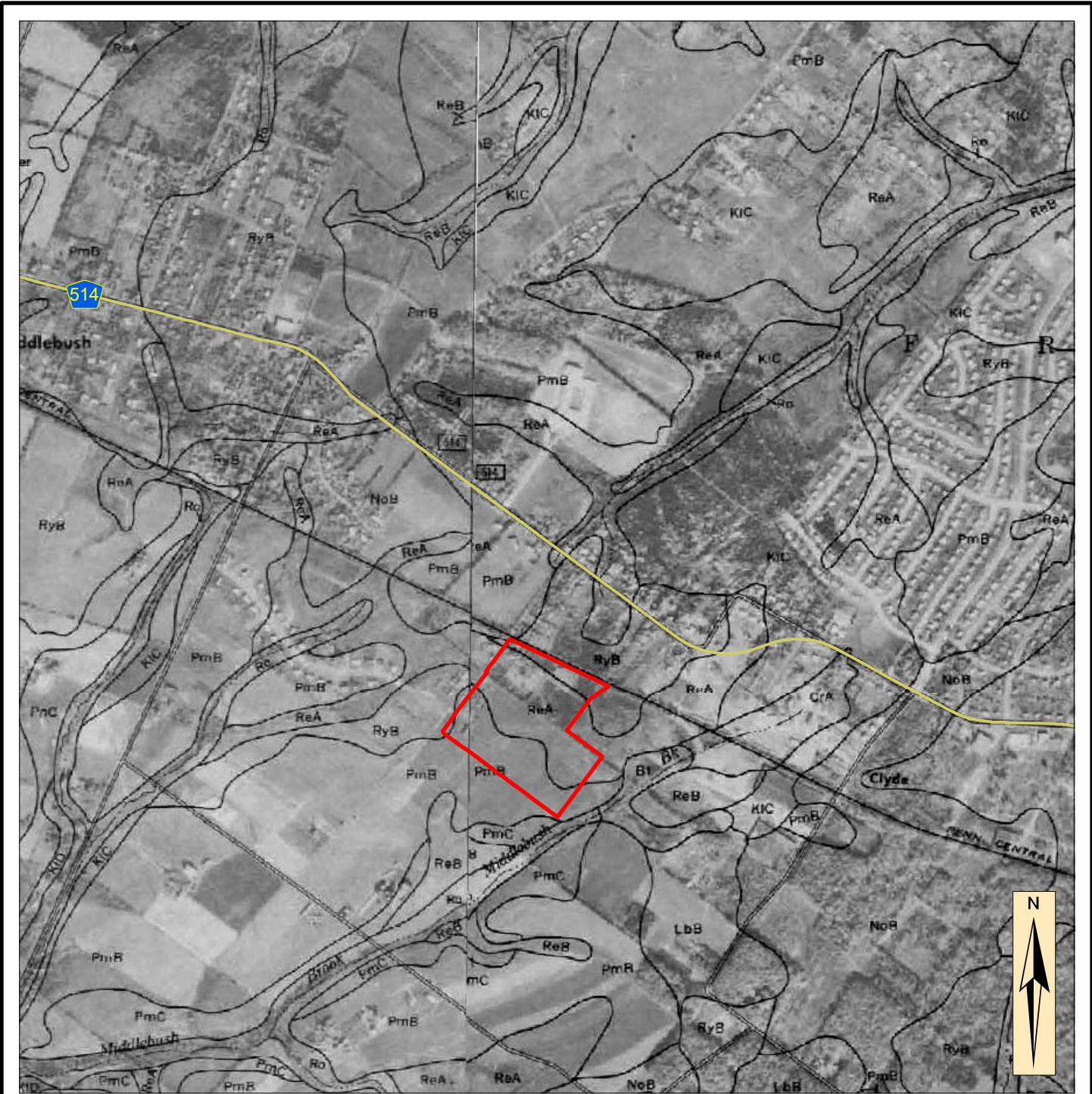
Block 86.03, Lot 10.32
 Township of Franklin
 Somerset County, New Jersey

Source: NJOIT, OGIS. 2021. NJ 2020 High Resolution Orthophotography.

EcolSciences, Inc.
 Environmental Management & Regulatory Compliance

Date: 10/4/21

Scale 1:6,000



Legend


 Approximate Site Boundary

FIGURE 3: SCS MAPPING

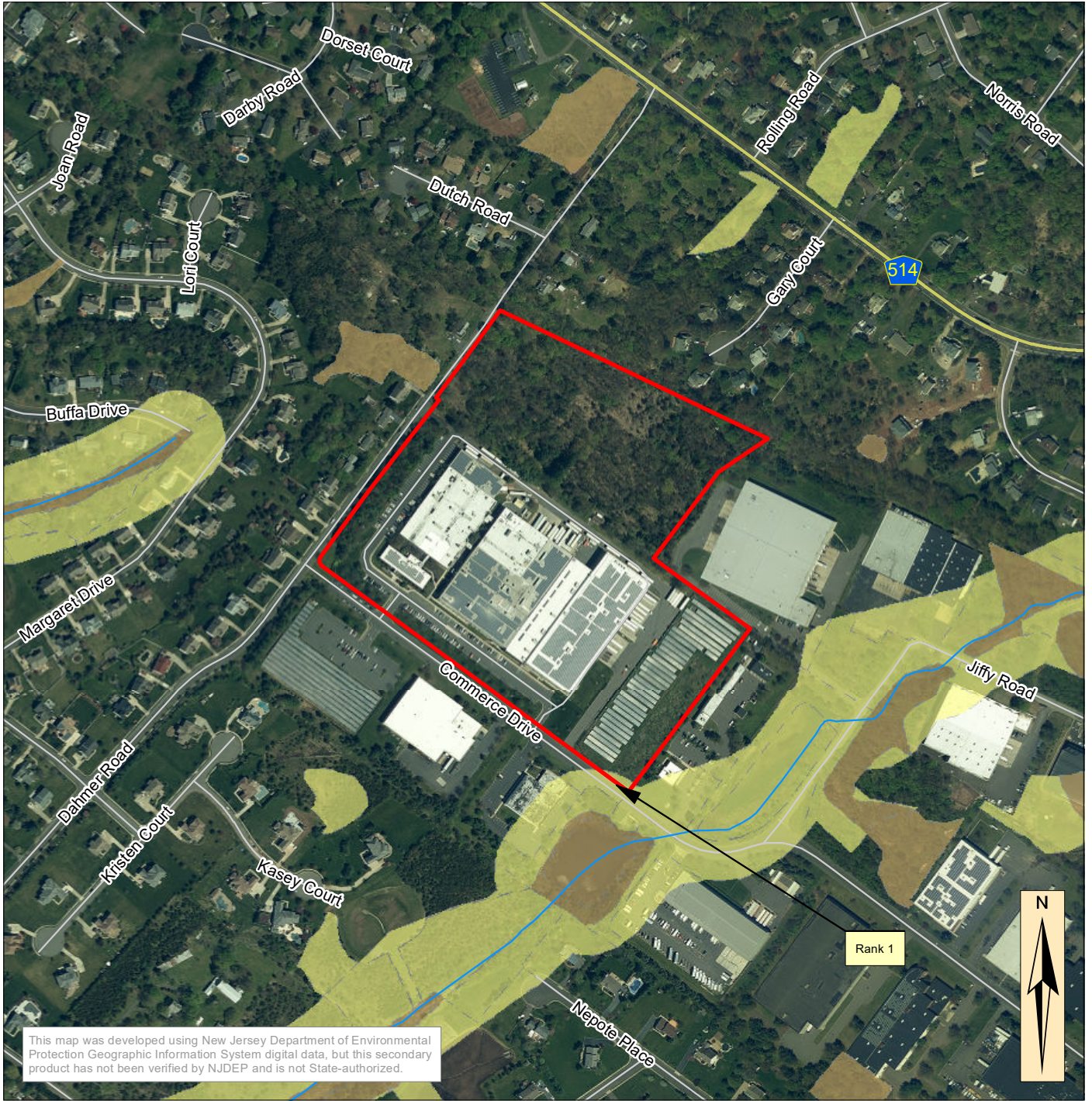
Block 86.03, Lot 10.32
 Township of Franklin
 Somerset County, New Jersey

Source: USDA. SCS. 1989. Soil Survey of Somerset County, New Jersey (Sheets 30 and 31)

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Date: 10/4/21

Scale 1:15,840

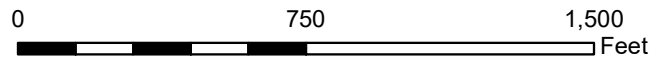


Approximate site boundary

Species-Based Habitat

RANK

- Rank 1 - Habitat specific requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federal Listed



| | |
|--|--|
| FIGURE 4: LANDSCAPE PROJECT | |
| <p>Block 86.03, Lot 10.32 Township of Franklin Somerset County, New Jersey</p> | |
| <p>Sources: NJDEP, DFW, ENSP. 2017. New Jersey's Landscape Project (Version 3.3). NJGIT, OGIS. 2021. NJ 2020 High Resolution Orthophotography.</p> | |
| EcolSciences, Inc. Environmental Management & Regulatory Compliance | <p>Date: 10/4/21 Scale 1:6,000</p> |







37 Dwelling

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

0 600 1,200 Feet

Legend

-  Approximate Site Boundary
-  Historic Properties
-  Archaeological Site Grid
-  Historic Districts

| | |
|--|--------------------------------|
| FIGURE 5: HISTORIC RESOURCES | |
| Block 86.03, Lot 10.32 Township of Franklin Somerset County, New Jersey | |
| Sources: NJDEP, NHR, HPO. 2021. NJDEP Historic Property Features, Properties, Districts, and Site Grid Map of NJ. NJOIT, OGIS. 2021. NJ 2020 High Resolution Orthophotography. | |
| EcolSciences, Inc. Environmental Management & Regulatory Compliance | Date: 10/4/21 Scale 1:6,000 |

ATTACHMENT B

Qualifications of Preparers

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

ECOLSCIENCES, INC.

CORPORATE HISTORY

EcolSciences, Inc., was founded in 1973 in response to the growing need for responsible environmental planning, as mandated by NEPA, The National Environmental Policy Act. EcolSciences specializes in performing environmental investigations relating to permit acquisition and regulatory compliance, demonstration of "due diligence", waste management, impact analysis, mitigation, and remediation. EcolSciences' strength is a proficiency in current environmental and waste management laws, regulations, and policies, coupled with a practical problem-solving approach to analyzing the environmental consequences of projects.

During its forty-seven years under the same management, EcolSciences has successfully completed more than 10,000 studies for private, quasi-public and public clients. Over the years EcolSciences was awarded a number of "Mission Contracts" working as USEPA's surrogate in preparing EPA Environmental Impact Statements in Region II, Region II and Region V. In addition, EcolSciences was contracted to provide training on the regulatory process associated with NEPA to USEPA employees and State Environmental Agency employees in all ten USEPA regions. Personnel involved in that work remain part of EcolSciences' team. EcolSciences has represented many of the country's leading industries, corporations, developers, and financial institutions including AT&T, American Cyanamid Company, Lucent Technologies, Merck, Johnson & Johnson, Hartz Mountain Industries, Exxon, K. Hovnanian Companies, Roseland Property Company, Trammell Crow Company, Principal Real Estate Investors, PNC Bank, The Bank of New York and JP Morgan Chase. Among the many utilities that EcolSciences has served are PSE&G, Jersey Central Power & Light, New Jersey Natural Gas Company, Verizon Wireless, Sprint, Elizabethtown Gas Company, Essex and Hudson County Improvement Authorities, Ocean County Utilities Authority, and numerous municipal utilities authorities. Representative government agency clients, in addition to the U.S. Environmental Protection Agency, include New York City Economic Development Corporation, New York City Department of Design and Construction, and New York City Department of Sanitation.

EcolSciences' interdisciplinary staff of environmental engineers, geologists, biologists and scientists has extensive experience in a diversity of studies related to biological assessment and toxic and hazardous materials management. EcolSciences has performed environmental assessments and has acquired appropriate permits and approvals under a wide variety of federal, state, regional, and local jurisdictions. These include, but are not limited to: federal Section 404 and Section 10 authorizations; New York SEQRA and CEQR approvals; New Jersey CAFRA, Waterfront Development, and Freshwater Wetlands Protection Act permits (both general and individual); NJ Pinelands Commission certifications; Hackensack Meadowlands Development Commission (HMDC) approvals; and Delaware & Raritan Canal Commission approvals. EcolSciences' senior staff is experienced in the delivery of expert testimony; senior staff of the firm have testified in public hearings, Administrative Law proceedings, and county, regional and municipal planning boards.

The ecological/biological staff of EcolSciences has conducted over 7,500 wetland delineations and environmental assessments throughout the eastern United States and mostly in the NJ/NY and PA region. Our staff is skilled in all technical aspects of wetland identification and delineation methodologies established by the NJDEP, ACOE, USFWS, EPA and SCS; the assessment of wetland functions and values using techniques such as HEP, WET, and IVA; the assessment of development-related wetland impacts; the acquisition of wetland permits; and the development and implementation of mitigation plans. Nine of our staff are certified as Professional Wetland Scientists and provisionally



certified by the ACOE. Additionally, EcolSciences' biologists routinely perform specialized studies related to federally-and state-listed threatened and endangered plant and animal species, wildlife habitat surveys, and the assessment of development-related impacts. Seven of EcolSciences' biologists are USFWS Qualified bog turtle surveyors, two are NJDEP Qualified Ornithologists, one is a USFWS Qualified Bat surveyor and four are USFWS Qualified Small-Whorled Pogonia and Northeastern Bulrush surveyors.

In addition, EcolSciences prepares Stormwater Pollution Prevention Plans (SWPPP) and is involved in identifying and resolving SWPPP compliance issues. These plans and accompanying documentation are required for most construction projects per section 402 of the Clean Water Act and delegated to the New Jersey Department of Environmental Protection (NJDEP) with EPA oversight. The plans document the best management practices (BMPs) and other techniques to be implemented on a site during construction that will prevent pollutants from entering waterways. We can provide the required minimum weekly compliance inspections and follow-up on repairs, maintenance, etc. of the site BMPs. We have five certified SWPPP Plan Preparers/Site Inspectors and one additional certified SWPPP Site Inspector on staff.

Since the promulgation of the New Jersey Environmental Cleanup Responsibility Act (ECRA) and its successor, the Industrial Site Recovery Act (ISRA), EcolSciences has been involved in the implementation of the entire ECRA/ISRA program for its industrial clients in several hundred cases resulting in No Further Action determinations. Most recently, and in response to the Site Remediation Reform Act (SRRA) in New Jersey, a number of our senior personnel have become Licensed Site Remediation Professionals (LSRPs). As of 2020, eight of our senior staff have obtained their LSRP licenses. We believe that our LSRPs offer our clients the highest level of confidence and comfort that the work conducted by EcolSciences meets the highest professional standards as measured by the NJDEP and the Site Remediation Professional Licensing Board (SRPLB). EcolSciences' LSRPs have been involved in hundreds of cases as LSRPs of record and have issued over fifty Response Action Outcome (RAO) regulatory approvals, the SRRA equivalent of the No Further Action (NFA) determination that was formerly issued by NJDEP. In addition to NJDEP regulations, there is often an overlap USEPA Toxic Substances Control Act (TSCA) Part 761 (polychlorinated biphenyl [PCB]) regulation when investigation sites within New Jersey. EcolSciences staff of professionals is well versed in these regulations and has successfully obtained both self-implementing and risk-based approvals for cleanup of PCB contaminated media from the USEPA. EcolSciences also maintains a professional relationship with a wide network of environmental specialists that address issues such as radiation, asbestos, lead based paint, vapors, and other aspects of site remediation and Brownfield redevelopment.

As the demonstration of "due diligence" has become a lending industry standard, EcolSciences has completed thousands of Phase I environmental audits per ASTM E1527-13 and AAI and follow-up Phase II studies to clarify the level of environmental risk and liability associated with past and current practices at a particular site or facility. These audits typically include such activities as hazardous materials inventories, building and site inspections, subsurface soil investigations, groundwater monitoring, tank testing, asbestos bulk sampling, development of remediation plans and supervision of cleanup activities. All work is conducted under the supervision of a licensed professional engineer.

EcolSciences is a multi-disciplinary firm that has the experience and capabilities to provide a full range of environmental services. Studies are conducted in a manner that emphasizes the balance of environmental, engineering and cost factors. This approach provides the information necessary for sound and practical project decisions.



DAVID P. MOSKOWITZ, Ph.D., PWS

EDUCATION:

*Ph.D. 2016 -Entomology
Rutgers University, New Brunswick, N.J.
M.S. 2000 -Environmental Policy Studies
New Jersey Institute of Technology, Newark, N.J.
B.A. 1984 -Environmental Studies
George Washington University, Washington, D.C.*

PROFESSIONAL AFFILIATIONS:

*Society of Wetland Scientists
Entomological Society of America
American Entomological Society
Lepidopterists' Society*

PROFESSIONAL CERTIFICATIONS:

*Professional Wetland Scientist -SWS
Certified Wetland Delineator -Corps of Engineers
USEPA Wetland Delineation -WTI
Qualified Ornithologist -NJDEP
Qualified Bog Turtle Surveyor – USFWS (NJ, NY, PA, DE, MD)*

PSE&G TQP TECHNICAL CATEGORIES:

1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 25, 31

EXPERIENCE:

Environmental Compliance - Construction

Reviewed hundreds of construction site plans for environmental compliance including preparation, submittal, and follow-up on State and Federal wetland permitting. Prepared hundreds of Environmental Impact Statements for the New Jersey municipal development approval process. Involved in the preparation of SWPP Plans and provided construction oversight of SWPPP compliance

- Provided SWPPP compliance oversight for a major utility on a 2-year 44-mile electric transmission line upgrade project in northern New Jersey.
- Active in preparation of SWPP Plans and in an oversight capacity on SWPPP compliance for residential and commercial construction projects

Wetland Studies

Directed and participated in more than 1,000 field studies in NJ, NY and PA for wetland regulatory compliance. Representative experience includes:

- The evaluation of more than 5,000 acres in the New Jersey Highlands.
- The evaluation of more than 2,000 acres in the complex red-shale soils of the New Jersey Piedmont.
- The evaluation of more than 1,000 acres in the sandy soils of the New Jersey Coastal Plain.



- The design and implementation of water table/soil saturation monitoring programs to determine the presence or absence of wetland hydrology in drained organic and mineral soils.

Wetlands Mitigation

Participated in the design, implementation, and monitoring of wetlands mitigation projects pursuant to regulatory violations and to compensate for wetland losses from approved wetland fills. Representative project experiences include:

- Design and coordination with state environmental agency personnel for a 20-acre wetlands restoration/enhancement project required pursuant to a settlement agreement involving wetland disturbances in Mt. Olive, New Jersey. The project involves hydrologic manipulation, extensive wetland plantings, and enhancement of wildlife habitat.

Corridor/Utility Experience

- Designed, directed and participated in ecological studies, regulatory assessment and regulatory compliance for more than 200 linear miles of road corridors, gas and electric transmission right of ways and sewer and water alignments. Studies have been performed for the New Jersey DOT, Public Service Electric and Gas, Jersey Central Power and Light, New Jersey Natural Gas, and numerous local governments.
- Conducted and/or managed comprehensive investigations of regulated wetlands/waters, flood hazard areas and threatened and endangered species for three major electric transmission line upgrade projects. Provided regulatory support for environmental permitting. Managed environmental compliance during construction, interfacing with management for the oversight contractor and construction contractor. Duties included troubleshooting soil erosion and sediment control discharge issues, installation of functional wildlife crossings, working with contractors to minimize environmental impacts of construction, and design reviews of plan changes for environmental compliance and minimization of impacts.

Threatened and Endangered Species Studies

Active in the design and implementation of numerous field studies for rare plant and animal species including, but not limited to: Bog Turtle, Wood Turtle, Pine Barrens Treefrog, Northern Pine Snake, Barred Owl, Coopers Hawk, Grasshopper Sparrow, Savannah Sparrow, Swamp Pink, Knieskern's Beaked Rush, and the plants listed in the Pinelands Comprehensive Management Plan.

- Performed an evaluation of eight NJ Superfund sites to determine the potential occurrence of the federally threatened plant species, Swamp Pink and Knieskern's Beaked-rush, for the USEPA.
- Participated in the design and implementation of a comprehensive threatened and endangered plant and animal studies on numerous large and small holdings in southern New Jersey and southern New York. Conducted field surveys for target Federal and State listed species identified by regulatory agencies, including the New Jersey Pinelands Commission, leading the botanical survey and plant identification efforts. Applied the timed-meander search technique for threatened and endangered plant species. A partial list of species surveyed for include: Swamp Pink, Knieskern's Beaked-rush, Spreading Globeflower, Sickle-leaved Golden Aster, Pine Barrens Reedgrass, Southern Twayblade, Little Ladies Tresses, Broom Crowberry, Yellow Asphodel, Curly Grass Fern, Fairy Wand, Hookers Orchid, Puttyroot, and



Globe-flowered Ludwigia.

Commercial/Industrial/Residential Studies

- Wetlands delineation, impact assessment and mitigation for more than 1000 commercial, industrial and residential development projects in NJ, NY and PA for use in site planning, U.S. Army Corps of Engineers 404 permit acquisition, and acquisition of State wetland permits.
- Preparation of municipal EIS's for major developments in New Jersey for use in planning board submissions. Major issues commonly include wetlands, endangered or threatened species, stormwater drainage and floodplains.
- Expert testimony on wetlands delineation, regulatory compliance and environmental impact analysis.

Special Environmental/Ecological Studies

A wide range of ecological studies have been conducted for various private clients, the USEPA and other government agencies. Representative studies include:

- An evaluation of the impacts of peat extraction on the functions and values of peatlands in the Pocono Mountain area of Pennsylvania for the USEPA, Region III.
- Conducted field studies, prepared the report and presented the results of the study at a public meeting for the Advance Identification of Wetlands along Moshannon Creek near Philipsburg, PA for the USEPA, Region III.
- Conducted field studies and prepared a report for the Advance Identification of Wetlands in Silkman's Swamp near Scranton, PA for the USEPA, Region III.

PUBLICATIONS:

- Moskowitz, D.P. and T.M. Auffenorde. 2003. Bird Use of Two Simulated-Tree Cellular Towers in New Jersey. *Records of New Jersey Birds* 28(4): 88-91.
- Moskowitz, D.P. and T.M. Auffenorde. 2000. Persistence of Skunk Cabbage (*Symplocarpus foetidus*) in a Drained Wetland. *Wetland Journal* 12(3): 23-29.
- Moskowitz, D., T. Auffenorde and M. Kovacs. 1997. Vegetation and surrounding landscape characteristics of long-eared owl (*Asio otus*) winter roosts in central New Jersey. *Records of New Jersey Birds* 23(1): 2-6.



KARIN TEKEL, PWS

EDUCATION:

*M.S. Hydrologic Sciences, June 2001
University of California, Davis, California*

*B.S. Environmental Science, May 1997
Rutgers University, New Brunswick, New Jersey*

*B.S. Natural Resource Management, May 1997
Rutgers University, New Brunswick, New Jersey*

AREAS OF EXPERTISE:

*Environmental Impact Statement
Regulatory Analysis and Compliance
Wetland Delineation and Permitting
Threatened and Endangered Species Surveys
Ecological Field Studies and Habitat Assessment
Geographic Information Systems (GIS)*

CERTIFICATIONS:

*Professional Wetland Scientist (Society of Wetland Scientists) #1621
Wetland Delineation Certificate – Rutgers University OCPE
NJDEP’s Flood Hazard Area Certification Program – Montclair State
University
Recognized Qualified Bog Turtle Surveyor in New Jersey (USFWS)
Recognized Qualified Bog Turtle Surveyor in Hudson River/
Housatonic Recovery Unit in New York, Massachusetts, and
Connecticut (USFWS)*

PROFESSIONAL ASSOCIATIONS:

Member of Society of Wetland Scientists since 2001

EXPERIENCE:

Ms. Tekel is an Assistant Vice President with EcolSciences, Inc. Her responsibilities include: the delineation of wetlands based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, the preparation of applications for Letters of Interpretation, Transition Area Waivers, General Permits, and Individual Permits in accordance with the New Jersey Freshwater Wetlands Protection Act, Flood Hazard Area Control Act, Coastal Zone Management Rules, the implementation and documentation of wildlife and botanical habitat assessments and species surveys, and the use of Geographic Information Systems (GIS) in its capacity as an instrument of environmental analysis.

Prior to joining EcolSciences, Inc., Ms. Tekel was employed as a Research Assistant at the Water Resources Center of the University of California in conjunction with obtaining a Master of Science in Hydrologic Sciences. A summary of Ms. Tekel relevant experience includes:



Wetland Delineations

- Conducted wetland delineations using the Federal Manual three-parameter approach using vegetation, soils, and hydrology.
- Assisted in the wetland delineation on a 243-acre property in the Township of Lafayette, New Jersey.
- Led a wetland delineation on a 274-acre property in the Township of Andover, New Jersey.
- Assisted in the wetland delineation for a 1,510±-acre Duke Farms property in New Jersey.

Permitting

- Prepared and obtained New Jersey Department of Environmental Protection (NJDEP) Freshwater Wetlands and Waterfront Development Permits and U.S. Army Corps of Engineers (USACE) Nationwide Permits for the closure of three abandoned landfills and the construction on the landfill cap of over 1,000,000 square feet of state-of-the-art warehousing. The waterfront development permits ultimately authorized filling below mean high water for the landfill closure and the development of the project on the landfill cap.
- Prepared and obtained over 500 applications for Letters of Interpretation, General Permits, Transition Area Waivers, and Individual Permits pursuant to the NJDEP Freshwater Wetlands Protection Act.
- Prepared and obtained NJDEP Freshwater Wetlands and Coastal Area Facility Review Act (CAFRA) Permit for a 10-acre property in the City of Pleasantville, New Jersey. The project involves the construction of multi-family residential units divided on the site of the former Pleasantville High School, which has since been demolished. All of the required permits were obtained for the project.
- Prepared and obtained NJDEP Highlands Preservation Area Resource Area Determinations for two properties in the Township of Roxbury, New Jersey.
- Prepared and obtained Highlands Exemptions for proposed single-family residences in the Highlands Preservation Area.
- Prepared Joint Applications for USACE Section 404 Permit and Pennsylvania Water Obstruction and Encroachment Permit for sites in Pennsylvania.
- Prepared Wetlands Individual Permit application for a major residential development on ±100 acres of a former golf course spanning two towns in Bergen County, New Jersey. The development plan includes the remediation of pesticide contaminated soils through blending. Also prepared Flood Hazard Area Permit supporting documentation, which included information concerning the restoration of a stream corridor, and prepared municipal Environmental Impact Statements for submission to the two towns. The permits were obtained and the project has begun construction.

- Prepared Freshwater Wetlands and CAFRA permit applications, with supporting documentation, for the expansion of several sand mines on ±1,000 acres in Cumberland County, New Jersey. The permits were obtained, and the expansions are ongoing.
- Prepared Waterfront Development and Freshwater Wetlands permit applications, with supporting documentation, for the construction of a hotel on an existing shopping center site in Hudson County, New Jersey. Public access, threatened and endangered species, and stormwater management were of primary concern. The permits were obtained.
- Prepared and obtained Flood Hazard Area Verifications, Individual Permits, and Hardship Exceptions pursuant to the NJDEP Flood Hazard Area Control Act Rules. Evaluated properties for riparian zone widths.
- Evaluated properties for environmental sensitive areas and prepared Habitat Suitability Determinations for possible inclusion in the sewer service areas in New Jersey.

Corridor/Utility Experience

- Prepared necessary permitting for a petroleum product pipeline relocation underneath the Arthur Kill and Newark Bay and adjacent uplands and wetlands. Applications were submitted to the USACE, New York State Department of Environmental Conservation, New York State Department of State, New York State Office of General Services, NJDEP, and New Jersey Bureau of Tidelands. Issues addressed within the application support documents included impacts to essential fish habitat, freshwater and tidal wetlands, and navigation. All of the required permits were obtained for the project and the project was completed.
- Designed, directed, and participated in wetland delineations, ecological studies, regulatory assessment and regulatory compliance for several proposed underground oil pipelines, upgrade/replacement to electric transmission rights of ways (ROW), and sanitary sewer alignments, and their associated access roads throughout New Jersey.
- Managed complex electronic transmission ROW upgrade projects from planning to construction stages. This included the leading of large-scale field efforts including wetland delineations, threatened and endangered wildlife and plant assessments and surveys, vernal habitat assessments and surveys, and pre-construction monitoring. Worked with project teams to minimize disturbances to regulated areas, managed permitting efforts when needed, and negotiated with NJDEP to solve permitting concerns.
- Monitoring of construction and/or maintenance activities within environmentally sensitive areas along various overhead electric transmission and gas pipeline ROWs. Tasks include delineating and monitoring regulated activities within environmentally sensitive areas for the purposes of natural resources protection (wetlands, waters, and threatened and endangered species), soil and sediment erosion control, access road maintenance and repair, and ROW vegetation maintenance, including herbicide application, mowing, hand-cutting, and tree-cutting.

Wetland/Riparian Zone Mitigation

- Assisted in the preparation of a riparian zone and freshwater wetlands mitigation plan for remediation and subsequent redevelopment within regulated areas for a site in the Borough of Upper Saddle River, New Jersey.
- Conducted multi-year monitoring of remediated and restored wetlands and transition areas pursuant to an approved NJDEP Freshwater Wetlands General Permit Number 4 for a site in Hanover Township, New Jersey. The monitoring includes the evaluation of wetlands hydrology and hydric soils.
- Prepared a transition area restoration planting plan pursuant to a NJDEP Special Activity Waiver for a site in Denville Township, New Jersey.
- Conducted multi-year monitoring of wetlands habitat restoration project. This included the establishment and surveys of plant quadrats, supervision of planting of native shrubs and herbaceous species, and supervision of invasive species treatment and removal using herbicide and manual removal.

Municipal Environmental Impacts Statements

- Prepared over 100 Environmental Impact Statements and Assessments for residential, industrial, and commercial projects throughout New Jersey.
- Prepared an Environmental Impact Assessment for Virgin Spa at Natirar on a 90-acre property in the Borough of Peapack and Gladstone, New Jersey.
- Provided expert testimony concerning wetlands and flood hazard area issues at a municipal hearing for a preliminary and final site plan approval application for a site in Wayne Township, New Jersey.

Vernal Habitats

- Led over 200 vernal habitat assessments and surveys in accordance with survey protocols developed by the NJDEP. Pertinent information was gathered on hydrology, vegetation, observed reptile and amphibian species, and weather conditions.
- Assisted in the preparation of two vernal habitat creation plans, which involved the selection of suitable native vegetation and consultation with the project engineer concerning hydrologic budget, lining material, topographic contours, and construction methodology.

Avian Studies

- Led surveys for the State-endangered (breeding) Northern Goshawk (*Accipiter gentilis*), (breeding) Red-Shouldered Hawk (*Buteo lineatus*), State-threatened Barred Owl (*Strix varia*), special concern (breeding) Broad-Winged Hawk (*Buteo platypterus*), (breeding) Cooper's Hawk (*Accipiter cooperii*), and (breeding) Sharp-Shinned Hawk (*Accipiter striatus*) in New Jersey. Surveys included call surveys and nest/tree cavity searches.

- Led surveys for the State-endangered (breeding) Golden-Winged Warbler (*Vermivora chrysoptera*) in accordance with the Cornell Lab of Ornithology's Golden-Winged Warbler Atlas Project (1999-2005). Surveys included call surveys and habitat assessments.
- Led surveys for the State-threatened Red-Headed Woodpecker (*Melanerpes erythrocephalus*) in New Jersey. Surveys included call and cavity nest surveys.
- Assisted in grassland bird surveys for State-threatened Grasshopper Sparrow (*Ammodramus savannarum*), Savannah Sparrow (*Passerculus sandwichensis*), and Bobolink (*Dolichonyx oryzivorus*) in New Jersey.

Snake Studies

- Assisted in diurnal and nocturnal road cruising, grid searches, and drift fence trapping surveys for State-threatened Northern Pine Snake (*Pituophis melanoleucus melanoleucus*) for multiple properties in the Townships of Barnegat, Stafford, and Toms River New Jersey. The surveys were approved by the NJDEP and Pinelands Commission.
- Conducted radio telemetry for Northern Pine Snakes for multiple properties in the Townships of Stafford and Toms River, New Jersey.
- Assisted in grid searches and drift fence trapping for Northern Pine Snake and State-endangered Timber Rattlesnake (*Crotalus horridus*) on multiple properties in the Townships of Manchester and Stafford. The surveys were approved by the NJDEP and Pinelands Commission.
- Assisted in Timber Rattlesnake gestation surveys at two survey locations associated with an overhead electric transmission line in Morris and Sussex Counties, New Jersey.

Salamander Studies

- Conducted field surveys for the State-endangered Blue-Spotted Salamander (*Ambystoma laterale*) and State-Threatened Long-Tailed Salamander (*Eurycea longicauda longicauda*).
- Led Blue-Spotted Salamander surveys on multiple overhead electric transmission lines in Essex and Morris Counties, New Jersey.

Turtle Studies

- Led Phase I and Phase II Surveys for Federally-threatened and State-endangered Bog Turtle (*Glyptemys muhlenbergii*).
- Assisted in Phase III trapping and radio telemetry for Bog Turtle.
- Prepared over 25 Bog Turtle Phase II Survey Reports for many sites in New Jersey and York County, Pennsylvania.

- Prepared Bog Turtle Phase I Survey Reports for Pocono Manor Inn and Resort and Transcontinental Gas Pipeline Corporation ROW in Pennsylvania, and Tennessee Gas Pipeline ROW in New Jersey.
- Led Bog Turtle Phase I and Phase II surveys on multiple overhead electric transmission line upgrade projects or for routine maintenance for multiple sites in New Jersey.
- Conducted surveys for the State-threatened Wood Turtle (*Clemmys insculpta*) for several sites throughout New Jersey.
- Conducted a long-term Wood Turtle survey that involves radio telemetry of adults and hatchlings, hibernacula surveys, nesting surveys, and nest protection.

Rare Plant Studies

- Conducted several surveys for rare plants including the Federally-threatened and State-endangered Small Whorled Pogonia (*Isotria medeoloides*), Swamp Pink (*Helonias bullata*), and Knieskern's Beaked-Rush (*Rhynchospora knieskerni*), State-endangered Willow-Leaf Aster (*Symphotrichum praealtum* var. *praealtum*), and Pinelands Commission-listed Little Ladies' Tresses (*Spiranthes tuberosa*).

University Research Studies

- Collected field observational data on individual wetland plant species pertaining to nutrient resorption.
- Conducted vegetation surveys for percent cover, biomass estimations, and community composition for inland Californian freshwater marshes.
- Performed streamflow measurements, groundwater, and infiltration analyses.
- Conducted mesocosm experiments to assess the response of selected wetland plant species (native and introduced) to nutrient enrichment and two different water levels.

PUBLICATIONS:

Rejmánková, Eliska and Karin Tekel. Start July 1, 1998. Technical Completion Report. Life History Strategies of California Native Plants: Implications for Wetland Creation and Restoration. University of California, Davis, Center for Water Resources. http://www.waterresources.ucr.edu/wrc/publications/rejmankova_W-907.pdf

Tekel, Karin Jean. 2001. Thesis (M.S.). The relationship between water quality and plant functional groups in freshwater wetlands. University of California, Davis.