Cranmer
Engineering

Integrity | Innovation | Excellence

2018-015-125

ENVIRONMENTAL IMPACT STATEMENT
TENNENT ROAD WASH & LUBE, LLC

BLOCK 122, LOT 33
TOWNSHIP OF MARLBORO
MONMOUTH COUNTY, NEW JERSEY

PRELIMINARY & FINAL SITE PLAN APPLICATION

May 29, 2020

Mili P. Sawyer

Mili P. Sawyer, EIT

David A. Cranmer, PE, PP, CME, M.ASCE
NJPE License No. 41926

499 Broad Street
PO BOX 7933
Shrewsbury, NJ 07702

Telephone 732 212 8900
Fax 732 212 8910
www.cranmerengineering.com

TABLE OF CONTENTS

APPENDICES

Appendix A – Use Variance Resolution

Appendix B – List of Figures

Figure 1 – Tax Map
Figure 2 – USGS Quad Map
Figure 3 – Aerial Map
Figure 4 – Site Photos
Figure 5 – Construction Schedule
Figure 6 – Bedrock Geologic Map of New Jersey
Figure 7 – Surficial Geologic Map of New Jersey
Figure 8 – NRCS Web Soil Survey
Figure 9 – NJ GeoWeb Acid Soils
Figure 10 – NJ GeoWeb Open Space
Figure 11 – NJ GeoWeb Natural Heritage
Figure 12 – NJ GeoWeb Wetlands
Figure 13 – NJ GeoWeb Highlands, Pinelands, and CAFRA
Figure 14 – NJ GeoWeb Groundwater Contamination
Figure 15 – NJDEP Landscape Viewer Piedmont Plains Habitat Rank
Figure 16 – US Fish & Wildlife Service IPaC Resource List

Appendix C – Soil Logs and Permeameter Test Results

1. INTRODUCTION

In accordance with the Township of Marlboro Land Use and Development Ordinance (§ 220-159), this report addresses the environmental impacts associated with the proposed development. The subject property is located at Block 122, Lot 33 and has frontage along Tennent Road (County Road 3).

The report is organized to discuss environmental issues as follows:

1. An inventory of existing environmental conditions;
2. An assessment of the environmental impact of the proposed development;
3. The irreversible damage to natural resources as a result of the development; and
4. Adverse impacts and the mitigation measures proposed to offset negative impacts.

2. PROJECT DESCRIPTION

A. Existing Conditions

The project site is identified as Block 122, Lot 33 of the official Tax Map of Township of Marlboro, Monmouth County, New Jersey and contains a total of 0.87 acres, located in the C-2 Neighborhood Commercial District. The development tract is adjacent to existing commercial development, with driveway access to Tennent Road.

The existing site is currently vacant, however, it was previously developed and contained a single-family dwelling. The residential structure was re-purposed for commercial use, as illustrated in a resolution of site plan approval adopted by the Township Planning Board in 2007 included herewith as **Appendix A**. The site contains open field and wooded areas primarily along the perimeter where buffer plantings were placed as part of previous development adjacent to a shopping center.

B. Proposed Design

The intended development for which approval is sought includes a one-story car wash and vehicle lube center on a previously developed 0.87 acre parcel, where a single family dwelling formerly existed. The physical improvements being proposed include a one (1) story car wash tunnel & four (4) bay vehicle lube center, essential underground utilities, landscaping and buffering improvements, a bituminous pavement parking area, and a stormwater management system.

The development will utilize public water service and sanitary sewerage collection facilities which presently exist at the site. Gas service will be provided by New Jersey Natural Gas Co. Electric service will be provided by Jersey Central Power and Light Company, as also presently exist at the site location.

3. INVENTORY OF EXISTING ENVIRONMENTAL CONDITIONS

A. Topography

The topography of the site is gently to moderately sloping at gradients typically in the 0-10 percent range. The existing configuration of the site includes a ridge line through the parcel in a north-south direction. The present topography of the site results in runoff patterns consisting of overland flows tributary to off-site storm sewers and subsequent piped stormwater flow to an existing stormwater outfall situated on adjacent Lot 31 in Block 126.

Freshwater wetlands are known to exist north and west of the site, which receive runoff from this site as well as surrounding development. No freshwater wetlands exist on site as verified by NJDEP.

Runoff from this site and surrounding development drain to swamplands which are tributary to a watercourse known as Birch Swamp Brook, the headwaters of which are situated roughly 1,900 feet northwest of the subject premises.

B. Geology

Monmouth County is a part of the Atlantic Coastal Plain Physiographic Province, which is underlain by unconsolidated sediments of Tertiary and Cretaceous age. The Geologic Maps of New Jersey sourced from the NJDEP are included herewith in **Appendix B**. This coastal plain once existed as a shallow shelf and received sediments from the eroding Appalachian Mountains. The continental plain formed a thick wedge that periodically subsided under the weight of the sediments in the eroding particles of silt, sand and clay, which were washed onto the shelf.

The coastal plain sediments are of marine and continental origin and are composed mainly of sand, silt, clays and green sands, or glauconitic sands, with interspaced gravel beds. Sandstones and shales formed from compaction and cementation are locally scattered throughout the formations. A thin veneer of sand, clay and gravel deposits of more recent age overlie the coastal plain sediments. This layer is of Quaternary age, or less than 1 million years old, and was deposited by outwash from the glacial age. The last glacier that covered the land formed a terminal moraine (i.e., a ridge of transported material found at the end of a glacier) in northern New Jersey.

According to U.S. Geological Survey and County maps, the site location lies on the Englishtown Formation of the Cretaceous age. This Cretaceous formation is the parent material for the Keyport soils found on the site.

The Englishtown Formation, in Monmouth County, is approximately 140 feet thick. It consists of quartz sand which is course to fine-grained and locally embedded with thin to thick beds of clay. The clay is black to gray. Locally sand is cemented with an iron oxide

cement. Although rare in Monmouth County, marine fossils are found in the Englishtown Formation.

Like the Raritan and Magothy Formations below it, the Englishtown Formation is important in Monmouth County. Both private homeowners and municipal water supplies in the county utilize the Englishtown Formation for water wells.

The Englishtown Formation rests conformably on the Woodbury Clay and is in turn conformably overlain by the Marshalltown Formation. It occupies in outcrop area of approximately 45 square miles in Monmouth and Middlesex Counties.

According to the U.S.D.A. Soil Conservation Service, Monmouth County Soil Survey, the depth to bedrock of all soil series mapped on the subject property is greater than 60 inches.

C. Geohydrology

The saturated, or groundwater zone can fall into three categories: an aquifer (a saturated formation that yields a significant quantity of water); an aquiclude (a saturated formation through which there is limited movement of water and small yield); and an aquitard (a saturated formation through which vertical leakage of water is possible, but which yields minor quantities of water).

The Englishtown Formation yields sufficient water to be considered an important aquifer. It is estimated that the water-yield potential for the Englishtown Formation is in excess of 4,000,000 gallons per day.

The Englishtown Formation is an aquifer which is considered to have a good aquifer yield. Most of the geologic formations above bedrock in Monmouth County are permeable to some degree, thereby providing varying amounts of recharge to aquifers. Recharge from this site is limited to infiltration through on-site soils. As no on-site water well is planned as part of the proposed improvements it is not anticipated that the proposed site improvements will have any impact on the local aquifers.

TABLE 1

THICKNESS, PUMPAGE AND WATER-BEARING CHARACTERISTICS OF MAJOR AQUIFERS IN MONMOUTH COUNTY

AQUIFER	THICKNESS (feet)	WATER-BEARING CHARACTERISTICS
Englishtown Formation	30-50	Yields range from 25-640 gpm.
Woodbury Clay Merchantville Formation	50	Not considered an aquifer.
Raritan and Magothy Formation	25-50	Yields range from 100 to 1400 gpm for large diameter wells.

Source: Special Report No. 2, Geology and Groundwater Resources of Monmouth County, New Jersey, prepared by U.S. Geological Survey in cooperation with the State of New Jersey Department of Conservation and Economic Development.-1968

Water Service to the site will be provided by present infrastructure, with no expansion of which anticipated or proposed. The above information is provided to illustrate the nature of subsurface conditions at the site. The proposed development is expected to have negligible adverse environmental impact on existing aquifers, particularly considering the re-use of rooftop runoff in the car washing process, and recycling and re-use of washwaters.

D. Water Quality

Water quality is affected by soil permeability, chemical and mineralogical properties, such as iron and aluminum content, organic matter, acidity and clay content. Physical properties, such as soil moisture, texture and structure can all influence a site's vulnerability to contamination from development-related sources, such as contaminants washed from pavement surfaces into stormwater runoff, and effluent from improperly maintained septic systems.

Groundwater samples, taken from the Englishtown aquifer by the NJDEP, concluded that there were no major water quality problems and that the groundwater generally meets New Jersey criteria for potable water.

Water quality in the area of the site is greatly dependent upon the influence of fallow and wooded lands, as well as surrounding land use. The surrounding undeveloped tracts assist in the maintenance of water quality due to natural infiltration and filtration processes and the low incidence of contaminants. Some negative impact on area water

quality can occur through the use of poorly designed, constructed or maintained septic systems, and pavement surfaces.

Untreated runoff from pavement surfaces can contribute organic and metallic pollutants, plus salts. A comprehensive stormwater management system is part of the design of this development project, consisting of manufactured water quality treatment devices and a detention basin has been proposed to handle runoff from the site.

E. Air Quality

The New Jersey Department of Environmental Protection (NJDEP) has established a list of standards for concentrations of various substances present in the air. The air quality monitoring station located nearest to the site is in Ryder University. This monitoring station evaluates the ozone levels and nitrogen dioxide levels. The nearest sulfur dioxide monitoring station is located in Perth Amboy. The nearest inhalable and fine particulate monitoring station is located in New Brunswick and the nearest carbon monoxide monitoring station is located in Freehold. The closest lead monitoring station was located in New Brunswick. The following information was taken from the 2006 Air Quality Report which is the most recent complete air quality report available.

The NJDEP has established a standard of 0.14 ppm which cannot be exceeded more than once in any 12-month period for sulfur dioxide. This standard has not been exceeded for the regional area by the recorded reading of 0.031 ppm.

There is no ambient air quality standard for smoke shade. The daily average coefficient of haze (CoH) found in Freehold was found to be 0.59.

The national standard for inhalable particulates (PM2.5) annual arithmetic mean concentration of 15 micrograms per cubic meter has not been exceeded by the recorded annual mean of 9.8 ug/m^3.

The national standard for inhalable particulates (PM10) annual arithmetic mean concentration of 50 micrograms per cubic meter has not been exceeded by the recorded annual mean of 22.0 ug/m^3.

The carbon monoxide 1 hour average primary standard of 35 ppm has not been exceeded by the recorded data of 3.3 ppm, nor has the 8 hour average of 9 ppm, by the recorded data of 1.5 ppm, both recorded at the Freehold Monitoring Station.

The nitrogen dioxide concentration 12 month geometric primary and secondary standard of 0.05 ppm for the 1-hour average guideline has not been exceeded by the recorded average of 0.017 ppm.

The ozone standard of 0.12 ppm for the daily maximum 1-hour average has not been exceeded with a high reading of 0.116 at the Monmouth University Station.

The lead standard of 1.5 micrograms per meter cubed for the 3-month arithmetic mean was not exceeded.

The two (2) aspects of potential air quality impacts for this specific site are construction and operation. During construction, pollutants would be emitted by construction vehicles (carbon monoxide, hydrocarbons, nitrogen dioxide, and particulates), along with fugitive dust from the disturbed area. Fugitive dust generation will be controlled through the implementation of temporary seeding procedures on exposed soils during construction in accordance with the approved Soil Erosion and Sediment Control Plan. With respect to fuel emissions from construction vehicles, air quality impacts will be temporary, and because of good existing air quality in the area, are not expected to cause any violation of the NJ Ambient Air Quality Standards.

Once completed, the principal air pollutants generated by the project would be carbon monoxide and hydrocarbons from the vehicular traffic generated by the car wash development. This increase is not expected to cause a violation of the NJ Ambient Air Quality Standards.

Upon completion of the project, the types of energy that will serve the development will be electricity and gas. As it is proposed, the project will not impact the ambient air quality. The resulting emissions from vehicular activity will be the only potential pollutant. However, the scope of the project is not large enough to generate significant emissions levels.

The proposed carwash and lube center will generate a very modest volume of new traffic to the area, with a significant number of pass-by trip volume anticipate. Refer to a Traffic Impact report prepared by Dolan and Dean Associates, dated November 18, 2019 for detailed study. Because of the small amount of expected traffic volumes, no notable impact on area air quality is likely to occur.

There was no air quality violation listed for the above air quality monitoring centers in regional proximity to the site other than ozone which is at non-attainment statewide. Therefore, a conclusion can be drawn that overall air quality is good and no measurable impacts are anticipated from build out of the project.

F. Soils

The USDA NRCS Web Soil Survey **(Appendix B)** lists the following soils as present at the subject property:

1. KemB – Keyport sandy loam, 2 to 5 percent slopes

2. KkgkB – Klej loamy sand, clayey substratum, 0 to 5 percent slopes

The Keyport soils are described as moderately well drained soils, formed in acid, clayey coastal plain sediments, with depths to groundwater noted to range from 1.5 feet to 4 feet.

Klej soils are described as moderately well drained soils with depths to groundwater described to range from 1.5 feet to 2 feet, however actual soils investigations conducted on site indicate a significantly greater depth to groundwater. The klej soils are noted to be limited on-site along the property frontage at Tennent Road.

Site soils were further investigated by advancing soil borings and the placement of monitoring wells to record fluctuating ground water levels. The soils were sampled and subjected to tube permeameter testing to identify actual permeability rates. Actual permeability rates were recorded ranging from 6.1 inches per hour (K-4) to 24.3 inches per hour (K-5).

Detailed soil logs and permeameter test results are also included in **Appendix 'C'** of this report.

G. Acid Soils

The soils on-site are anticipated to have relatively low pH values, but the impact from the disturbance of acid soil is expected to be minimal. A brief discussion of the potential impacts follows.

Acid-producing soil deposits consist of iron sulfide minerals (pyrite or marcasite), which oxidize and produce sulfuric acid upon exposure to air or water. This sulfuric acid can have adverse environmental impacts because it can increase the solubility of metals to the extent that they can become toxic to aquatic life or land vegetation. The acidification impacts of a development proposal are largely determined by the acid-producing potential of the deposits and the physical extent and the duration of their exposure.

H. Surface Water

There is no surface water feature associated with the proposed development property in question. A review of the property utilizing NJDEP's GeoWeb database confirmed the findings. A small portion of the property in the northwest corner along the property's edge contains deciduous wooded wetlands.

I. Drainage Patterns

The stormwater management system designed as part of this project maintains present runoff patterns as related to adjacent properties and provides on-site detention and water quality treatment. The stormwater runoff leaving the site in the post-development condition shall meet the stringent requirements of NJDEP related to major development as related to post-development peak rate reductions and water quality enhancements.

J. Subsurface Water

Subsurface water at the site is contained in the water table found in the soils on the site and in the Coastal Plain geologic formations underlying the site (see Section entitled "Geohydrology"). No adverse impacts from development are anticipated or reasonably expected to occur.

K. Vegetation

Onsite vegetation includes the following tree species: Black Oak, Black Pine, Holly, Locust, Norway Spruce, Pitch Pine, Red Maple, Sassafras, Sweetgum, Sycamore, White Pine, and Yellow Birch. All existing trees are to be removed unless otherwise noted in the civil plan set. Prior to site disturbance, a tree removal permit must be obtained in accordance with Section §337-15 of the Marlboro Township code.

The following vegetation species are proposed for the site:

Scientific Name	Common Name
Shade Trees	
Fraxinus Pennsylvania 'Patmore"	Patmore Green Ash
Ornamental Trees	
Cercis Canadensis	Eastern Redbud
Evergreen Trees	
Picea Pungens Glauca	Colorado Blue Spruce
Chamaegyparis x Cupressocyparis Leylandii	Leyland Cypress
Thuja Occidentalis 'Smaragd'	Emerald Green Arborvitae
Shrubs	
Azalea x 'Hino Crimson'	Hino Crimson Azalea
Juniperus Sabina Arcadia	Arcadia Juniper
Buxus Microphylla Japonica 'Winter Gem'	Winter Gem Boxwood
Ilex Mesenae 'China Girl'	China Girl Holly
Photinia x Fraseri	Fraser's Photinia
Rosa x 'Radrazz'	Knock-Out Shrub Rose
Juniperus Chinensis 'Armstrong'	Armstrong Juniper
Prunus Laurocerasus 'Schipkaensis'	Schipka Cherry Laurel
Rhododendrom x 'Scintillation'	Scintillation Rhododendron
Viburnum Nudum 'Bulk'	Brandywine Viburbum

L. Wildlife

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

Man's alteration of the environment is evident in the existing on-site improvement but has not limited the site in its ability to provide an ecosystem capable of supporting a diversity of the components necessary to sustain a wildlife population. Each soil has a suitability classification for various types of plants that can provide wildlife habitat. There are six elements of plant life that can provide habitat and are affected by soil conditions:

1. Grains and seed crops: This group includes crops grown for grain or seed, such as corn, wheat, barley, buckwheat, sunflowers and other crops grown for seed and grain. Some of these species are present on the site.

2. Grasses and legumes: These include domestic perennial grasses and herbaceous legumes established by planting, such as bluegrass, fescue, orchard grass, reed canary grass, clover and alfalfa. Some of these species are present on the site.

3. Wild herbaceous plants: These are native or introduced perennial grasses and weeds that grow naturally. Included are barnyard grass, wild rye, panic grass, goldenrod, wild carrot (Queen Anne's Lace), nightshade and dandelion. Some of these plants are found on the site.

4. Hardwood woody plants: These include nonconiferous trees, shrubs and woody vines producing nuts or other fruits, buds, catkins, twigs or foliage that wildlife eat.

   Among the native plants that grow naturally or can be planted are oak, cherry, maples, yellow poplar, beech, apple, dogwood, sumac, sassafras, hazelnut, black walnut, hickory, sweet gum, bayberry, huckleberry, viburnum, grape and briers. Also included in this group are commercially raised fruiting shrubs that can be planted, such as Autumn-olive, Amur honeysuckle, Tatarian honeysuckle, crabapple and silky cornel dogwood. A number of these types of plants are present.

5. Coniferous woody plants: These include cone-bearing evergreen trees and shrubs that provide cover, browse and seed cones, such as Norway spruce, shortleaf pine, Scotch pine, red cedar and juniper. These grow naturally or may be planted. Some of these species exist on the site.

6. Wetlands plants: These are wild, herbaceous annual and perennial plants that grow in moist to wet environments, such as smartweed, wild millet, bullrush and other sedges, arrowarum, pickerlweed, waterwillow, wetlands grasses and cattails. There are almost none of these and other species on the site.

The predominant wildlife that may traverse the property are birds, squirrels, mice and other small mammals. There may be larger mammals on the site from time to time, such as white-tailed deer, raccoon, opossum, groundhog and rabbit. Each of these species has a specific habitat range, starting under an acre in size for the smaller mammals, up to 640 acres for the white-tailed deer.

Trees reaching a mature height will attract nesting species such as the bluejay, common crow and mourning dove. Fruit and nut-bearing trees attract birds and squirrels that use the fruits and nuts for a food source. Birds of prey, such as the red-tailed hawk, will hunt the mammals, such as squirrel. There has been a research and site investigation concerning the issue of potential threatened or endangered species on the subject site. All site investigations have revealed that there is no evidence that threatened or endangered species existing within the subject tract.

Endangered species are defined as those whose prospects for survival in New Jersey are in immediate danger; threatened species are those that may become endangered if conditions surrounding the species continue to deteriorate. The NJDEP Division of Fish, Game and Wildlife is responsible for the protection of endangered and threatened species in New Jersey. An inquiry was made to the NJDEP for records were sightings of any threatened or endangered species on were in the immediate vicinity of the site. The US Fish and Widlife Service's IPaC resource list was also consulted. A copy of these findings is provided in **Appendix B**. Only the Northern Long-eared Bat is listed as potentially affected by activities in this location, however no critical habitat has been designated for this species.

During routine site visits no evidence was found that would indicate the presence of any threatened or endangered species. As would be expected most of the wildlife sightings were in and around the wooded area located directly along the stream corridor. Proximity to watercourse provides a more enhanced wildlife habitat within the stream corridor. Habitat on site and in the general vicinity is limited due to the developed nature of the vicinity.

The following is a list of wildlife species known to exist in Monmouth County:

TABLE 3
WILDLIFE FOUND IN MONMOUTH COUNTY

Mammals

Opossum	Gray Fox
Smokey Shrew	Woodchuck
Least Shrew	Eastern Chipmunk
Short-tail Shrew	Eastern Gray Squirrel
Starnose Mole	Red Squirrel
Eastern Mole	Southern Flying Squirrel
Keen's Myotis (bat)	Beaver

Little Brown Myotis
Small-footed Myotis
Silver-haired Bat
Eastern Pipistrel
Red Bat
Big Brown Bat
Hoary Bat
Raccoon
Longtail Weasel
Mink
River Otter
Striped Skunk
Red Fox
White-footed Mouse
House Mouse
Norway Rat
Southern Bog Lemming
Boreal Redback Vole
Meadow Vole
Pine Vole
Muskrat
Meadow Jumping Mouse
Eastern Cottontail Rabbit
New England Cottontail
Virginia Whitetailed Deer
European Hare

Reptiles

Lizards

Northern Fence
5-Lined Skink

Turtles

Common Snapping
Wood Turtle
Musk Turtle
Diamond-Backed Terrapin
Eastern Box
Bog Turtle
Spotted Turtle
Eastern Mud
Eastern Painted
Red-Earred

Snakes

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

Amphibians

Toads

Eastern Spadefoot
Fowlers

Tree Frogs

Spring Peeper	Gray
New Jersey Chorus	

True Frogs

Cricket	Carpenter
Pickerel	Green
Northern Leopard	Wood
Bull	

(Source: Monmouth County Parks System)

Some of these species may utilize wooded areas at the site, as they are known to exist in Monmouth County. Actual sightings are not recorded due to nocturnal feeding habits, underground burrows and other wildlife behavior not compatible with human observation during a site visit for purposes of this report.

Development of the proposed design will further impact wildlife habitat by construction of the commercial development. The majority of the site consists of already disturbed land. The project will require the removal of a significant portion of the existing wooded area on site. However, the types of wildlife species present are known to be adaptive. They will migrate within their range to less developed surrounding areas.

M. Land Use

Land uses surrounding the subject property in Township of Marlboro are similarly situated in the C-2 Commercial Zone and include the following:

1. Long standing bank is adjoining to east on lot 32
2. Insurance/finance office & art school to west on lot 34
3. Morganville square shopping center to north on lot 31
4. Existing residences to south across Tennent Road in block 123
5. Exxon gas station just east of site on opposite side of Tennent Rd.
6. Several automotive related uses along Tennent Road west of the site

N. Solid Waste Management

Solid waste management planning is implemented under the supervision of the Township. All collection and disposal of solid waste is governed by the provisions of the County's Solid Waste Management Plan, under the authority of the municipality, in conformance with the New Jersey Solid Waste Management Act. Solid waste removal from the site will be provided as follows:

Solid waste is to be removed by a hired private contractor. Used oil collection from the intended vehicle lubrication use shall be performed by private hauler, duly licensed to perform such work.

4. ASSESSMENT OF ENVIRONMENTAL IMPACT OF PROJECT

A. Impact on Vegetation and Wildlife Habitat

There will be some impact on vegetation and wildlife habitat due to the proposed development. Populations of birds and mammals will be less disrupted by construction at the site due to the previous clearings of land onsite and in the surrounding area. Species tend to return to the area once new vegetation is established and construction activities have ceased. These species are also capable of co-existing in a man-made environment. Portions of the surrounding area are wooded and can provide nesting and habitat.

B. Impact on Hydrologic Conditions

The stormwater management system designed as part of this project is in strict conformance with local and NJDEP requirements for major development. Please refer to a report entitled "Stormwater Management Report" prepared for this project for detailed analyses to support a conclusion that no adverse environmental impact will result from the intended development.

All development affecting groundwater will be carried out in conformance with State laws and NJDEP regulations. Therefore, no degradation of surface water quality is expected to occur as a result of development. One water quality/detention/infiltration basin is proposed. This will allow contaminants, such as petroleum products from automobiles and vehicle tire wear, and nutrients, pesticides and herbicides from landscape management, to settle out and infiltrate runoff before it enters the surface water body. All construction will be in accordance with State permits and an approved Soil Erosion and Sediment Control Plan specifically designed to eliminate soil erosion and prevent sediments from entering the existing storm sewer systems or waterways.

C. Impact on Soil Erosion and Sedimentation

All grading activities will conform to a Soil Erosion and Sediment Control Plan approved by the Freehold Soil Conservation District, the agency in charge of soil disturbance for Township of Marlboro. The developer will use approved soil erosion and sediment control measures such as silt fences, a stabilized construction entrance, inlet filters, tree protection, topsoil stockpile, vegetative stabilization and conduit outlet protection devices. Before and after construction, erosion will be minimized by installation of temporary and permanent landscaping on exposed soils.

D. Impact on Water Quality

Water quality of the Birch Swamp Brook or surrounding waters of the state will not be adversely affected by drainage from the site. Runoff leaving the site will be pre-treated by a detention basin and subsequent manufactured treatment devices to allow potential pollutants to settle out of the flows that reach the ultimate discharge point. The effects of any remaining small amounts of waste are mitigated by dilution, biodegradation, infiltration, aeration, aging and uptake by organisms.

The peak runoff flows at the discharge point will be controlled to maintain the natural pattern of flow. All storms up to and including the 100-year storm, will be properly attenuated in accordance with applicable standards. Pre-development peak flows for the 2, 10, and 100-year storms have been reduced in the post-development conditions. Because the design adheres to the State Water Quality Standard for stormwater runoff, adverse impacts to water quality are not anticipated from site runoff.

E. Impact on Air Quality

Upon completion of the project, resulting emissions from onsite vehicular traffic will be the only potential air pollutant. It is our conclusion that this impact on air quality will be minimal recognizing the scope of development intended. The use is not expected to generate a significant increase in local vehicular traffic. The impact on air quality was analyzed using NJDEP published ambient air quality standards and data based on regional receptors.

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

Monmouth County as a whole and the Township of Marlboro area, meets State and Federal primary and secondary ambient air quality standards. Lead has become less of a problem through decreased use of leaded gasoline. Therefore, it is our opinion that the construction of the proposed improvements will not result in a violation of the state air quality standards.

F. Impact on Noise Levels

The site is bordered by Tennent Road in close proximity to State Highway Route 79. Most of the noise generated in the vicinity of the site is generated by vehicular traffic on Tennent Road and State Highway 79.

Construction of the commercial development will introduce noise sources in the form of construction related activities.

Once construction is complete, this use is expected to have a negligible effect on noise levels, due to the fact that the proposed enclosed car wash tunnel is not expected to generate a substantial quantity of noise, nor result in a significant increase in vehicular traffic on either Tennent Road or Highway 79.

Therefore, it is our opinion that the construction of the proposed improvements will not result in a significant increase in ambient noise levels at that location.

G. Impact on Potable Water Supply

There will be a negligible impact on potable water as a result of the proposed project, as no on-site water wells are proposed.

The site stormwater management design incorporates the re-use of rooftop runoff to minimize domestic water usage. Additionally, the car wash mechanical components are designed to recycle and reuse washwaters to further minimize domestic water usage.

H. Impact on Sanitary Sewerage Disposal

The intended use shall consist of restroom facilities for employees and patrons, however due to the nature of the carwash use intended the sanitary sewage generation form the site shall be substantially less than that associated with other permitted uses such as an office building. Therefore, there will be minimal adverse impacts on sanitary sewerage disposal associated with the proposed improvements.

I. Impact on Traffic Volume and Flow

A detailed Traffic Impact Statement was prepared by Dolan and Dean Associates for this project and concluded that there shall be no adverse impact upon surrounding properties or roadways as a result of this development.

J. Impact on Geologic Features

Based on the inventory of existing geologic characteristics onsite, it is evident that no significant geological features exist on site. Therefore, there are no adverse conditions that would prohibit or restrict development of the site as proposed. The proposed project will have no effect on the site's bedrock condition since U.S. Geologic Surveys have established the depth of bedrock in the Coastal Plain to be in excess of 1,000 feet. Therefore, it is our conclusion that the proposed site improvements will have little or no significant impact to onsite geology.

K. Impact on Topography

The proposed development will require regrading of existing topography. Alterations will occur primarily in the immediate vicinity of the proposed structures, the detention system and the circulation driveway.

Existing slopes on-site will be maintained to the greatest extent feasible and drainage paths will maintained or routed to the proposed onsite drainage facilities. All regrading will be carried out in accordance with an approved soil erosion and sediment control plan and no steep slopes will be created as a result of the proposed improvements. Therefore, there will be minimal adverse environmental impact to the on-site topography.

L. Impact on Historic or Archaeological Resources

Our site investigations found no evidence of historical or archaeological resources onsite. A review of the Marlboro Township Master Plan indicates that the site is not associated with any of the known Indian paths in Marlboro Township nor is the site listed as a municipal historic site or on the Monmouth County Historic Sites Inventory. Further, the subject site is not listed or potentially eligible for listing on the National Register and NJ Register of Historic Places therefore is our opinion that no historical or archaeological resources will be impacted by the proposed improvements.

M. Fiscal Impact

The intended development of the site shall result in an enhancement of assessed valuation of the site and consequently a positive impact upon the municipal tax base.

Municipal costs increase with the intensity of land use and change in real property value is a reasonable substitute for change in intensity of use. This is because the real property tax is frequently the most significant source of local revenue.

The construction of the proposed commercial development will unavoidably create a slight increase in demand for public services in the Township of Marlboro. These services would include, but not be limited to, increased demand on police protection and other public services. The increase in demand for public water and sewerage will be offset by the fees charged for these services and will not require an increase or upgrading for either of these public utilities.

It is expected that the increase in demands for services will be offset by the increase in tax base, which will be provided by the increase in tax revenues created by the construction of the commercial development.

Additionally, there is no observable adverse impact upon the health, safety and welfare of the public since the project is designed in accordance with local and regional development plans and objectives.

N. Construction Permits Required

For project compliance with the Planning Board Resolution of Approval, and prior to construction on the proposed site, the following construction permits will be required:

I. State

- NJDEP Stormwater Permit (5G3) – in conjunction with Freehold Soil permit application. This general permit authorizes point source discharges from certain construction activities. Regulated entities are required to develop a soil erosion and sediment control plan aimed at eliminating the flow of contaminated rainwater into streams and rivers. Once certification from the Freehold Soil Conservation District is received, a Stormwater 5G3 permit must be obtained prior to the start of construction.

II. County

- Freehold Soil Conservation District – Soil Erosion and Sediment Control Plan approval by the Freehold Soil Conservation District is required for any developments causing greater than or equal to 5,000 sf in disturbance.

- Road opening on county road (Tennent Road).

- Monmouth county planning board – the county planning board has statutory power to review all development plans that would affect county roads or drainage facilities. The county can oversee drainage from a regional standpoint and restrict drainage control facilities for projects that would..."cause stormwater to drain directly or indirectly to a county road or through any drainage way, structure, pipe, culvert or facility for which the county is responsible for construction, maintenance or proper functioning."

III. Municipal

- The Township of Marlboro will require Technical Review, Preliminary and Final Major Site Plan approvals. The applicant's approval from the Planning Board may be subject to receipt of all State, County and municipal permits/approvals.

- Tree Removal Permit issued by the Township of Marlboro Engineering Division.

5. IRREVERSIBLE IMPACTS TO NATURAL RESOURCES

A. Vegetation and Wildlife Habitat

Development of the subject property under the current proposal will require removal of vegetation. It should be noted that throughout the construction phase of the project, removal of trees will be kept to a minimum as much as possible where trees exist. The landscape plan will add trees and shrubs on the site and can be found within the civil engineering plan set prepared by Cranmer Engineering.

B. Air Quality

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

Once completed, no significant increase in air pollution is anticipated as a result of the operation of the commercial development. Therefore, it is not expected to cause a violation of the NJ Ambient Air Quality Standards.

C. Water Resources

The site will utilize a detention basin to control stormwater runoff and allow any pollutant load to settle out of waters to be discharged to existing wetland areas. The soil purification process is quite effective for removing residual pollutants through biological uptake, infiltration, adsorption and absorption.

Aquifer recharge potential is not expected to be significantly affected by construction of this project. It is not anticipated that site land use will degrade aquifer yield or potable water resources because the site's aquifer resources supply a limited number of domestic wells in this area. This site will utilize public water service for domestic water supply.

D. Topography

The proposed residential development will require some regrading of existing topography. Alterations will occur primarily in the immediate vicinity of the proposed commercial structure, the detention system and the access driveways.

6. ADVERSE ENVIRONMENTAL IMPACTS AND PROPOSED STEPS TO MINIMIZE THESE IMPACTS

A. Drainage, Soil Erosion and Sedimentation

1. New impervious surfaces created by rooftops and pavement areas will create increased storm water runoff. The runoff created by the addition of impervious rooftops will route to the car wash mechanical equipment for use in the car washing process and paving will be routed to a detention basin.

2. The detention basin will accommodate all additional runoff caused by the proposed development. The detained stormwater will be further treated through the use of a manufactured treatment device.

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

   10 percent or > = highly erodible
   2 to 10 percent = moderately erodible
   2 percent or < = slightly erodible

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

   Vegetative cover of varying types protects the soil from erosion. Most of the soils on the site have a 3 to 10 percent slope. Therefore, erosion potential is slight.

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

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

B. Acid Soil Mitigation

The standards which address mitigation of exposure of acid producing deposits are contained in the Standards for Soil Erosion and Sediment Control in New Jersey. These standards apply to permanent vegetative stabilization of exposed acid-producing deposits, and they require that acid-producing soils (i.e., pH of 4 or less, or containing iron sulfides) be covered with a minimum of 12 inches of soil with a pH of 5 or more before seedbed preparation. The added soil shall be limed according to State Standards.

Through careful construction of the intended development, the physical areas and durations of exposures of acid-producing deposits can be minimized and any water body or wetlands associated with the site can be protected from acidification.

C. Vegetation and Wildlife Habitat Destruction

Development may affect a number of common species of birds, small mammals and perhaps reptiles found in the area. These may be forced to migrate elsewhere. Other species, such as whitetail deer and raccoon, would be less affected by loss of habitat resulting from the development and conversion of the land, as they have proven highly

adaptable to changing land use patterns in the Northeastern United States. Common mammals, such as deer, raccoon, opossum, skunk and woodchuck would also continue to use wooded areas on and around the periphery of the site.

In general, development of the project site will not result in a reduction of existing wildlife populations because this site has already been previously developed and disturbed. These species will also migrate. Suitable habitat options for existing wildlife species can be provided by adjacent undeveloped tracts.

Once the construction phase is complete, wildlife populations of the more common species should reach a balance in the area and continue to inhabit the landscaped and undeveloped portions of the site. The introduction of ornamental trees and shrubs, plus the establishment of lawn area and the preservation of wooded space should help encourage the re-establishment of these species in the developed area.

D. Air Quality Degradation

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

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

An assessment that there will be no significant degradation of the ambient air quality as a result of project development is based upon regional data collection, and the fact that the surrounding area air quality is well within Federal and State defined parameters for acceptable air quality. Some increase in carbon monoxide from vehicular emissions is unavoidable. However, no post-development adverse impact will result from project construction.

E. Noise Abatement

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

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

After construction, there will be a very small increase in ambient sound due to the amount of vehicular traffic entering and exiting the site, and process equipment of the car wash tunnel. Sound levels are expected to remain nearly at their current levels at this location. Therefore, it is not anticipated that there will be an adverse effect on residential and commercial sites in the area once construction is completed.

F. Public Costs

As previously addressed, there will be very slight increase in public costs as a result of constructing the intended development. It is expected that these increases in public cost will be adequately offset by the increase in tax base along with the fees charged by public utilities.

G. Loss of Open Space

As a result of the proposed development, there will be a loss of undeveloped on the subject property. The premises lie in a commercial zone, where open space is not elemental to the municipal master plan.

The intended commercial development has been designed to conform to the zoning standards enacted by the Marlboro Township Committee for the zone in which the premises lie, therefore no adverse impact to the community shall result.

H. Alternatives

The tract has been designed to be developed in a manner which benefits the Township, by providing additional revenues to the Township and benefits the region by providing a necessary car wash service in close proximity to densely populated areas.

The washing of vehicles at car wash facilities in lieu of at home minimizes the impact upon surface waters of the state by eliminating the discharge of detergents and surfactants. In comparison to a no-build option it is evident that the development of the site as proposed shall result in a net positive impact upon the community and the environment.

7. CONCLUSION

The construction of the intended car wash development will be accomplished according to State and local regulations governing engineering and environmental practices.

No natural resources, such as streams, flood plains, unusual geologic or topographic features, endangered species, wildlife or unique natural vegetative associations will be destroyed by the proposed construction.

No adverse impacts will affect public or private potable water or other infrastructure, either on or off-site. An analysis of published data indicates no adverse impact to air pollution or noise.

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

Therefore, the foregoing analysis has concluded that construction of the project as proposed will comply with all State environmental regulations in order to mitigate environmental impacts to the site and surrounding areas.

8. REFERENCES

1. Township of Marlboro Master Plan (January 2004 and amended August 2005).
2. Chapter 220 Land Use and Development Regulations, Township of Marlboro.
3. Google Maps Aerial Imagery and Street View Imagery, accessed on May 29, 2020.
4. NJ GeoWeb Interactive Web Mapping Appliacation, New Jersey Department of Environmental Protection, accessed on May 28, 2020.
5. NJ Landscape 3.3 Viewer, New Jersey Department of Environmental Protection, accessed on May 28, 2020.
6. Web Soil Survey, USDA Natural Resources Conservation Service.
7. Tax Map Sheet 5, Township of Marlboro, July 2017.
8. U.S. Geological Survey Topographic Map for the Keyport, NJ Quadrangle, 2019.
9. Geology of Monmouth County in Brief, New Jersey Department of Environmental Protection, Bureau of Geology and Topography, August 1977.
10. Vegetation of New Jersey, B. Robichaud, and M.F. Buell, Rutgers University Press.
11. 2006 Air Quality Report. NJ Department of Environmental Protection, Division of Environmental Quality.
12. Peterson, R.T., and M. McKenney, 1968, A Field Guide to Wildflowers.
13. Petrides, G.A., 1972, A Field Guide to Trees and Shrubs.
14. New Jersey Department of Environmental Protection, Division of Water Resources, amended to August 2, 2004 , Surface Water Quality Standards, N.J.A.C. 7:9-4.1 et esq.
15. The New Practitioner's Guide to Fiscal Impact Analysis, Burchell, Robert W. and Listokin, David, 1985.
16. Special Report No. 26, Geology and Groundwater Resources of Monmouth County, New Jersey, State of New Jersey Department of Conservation and Economic Development, 1968