

ENVIRONMENTAL IMPACT STATEMENT

FOR

BARNEGAT CROSSING

MAJOR SITE PLAN

Block: 92.111 – Lot: 24.09

**BARNEGAT TOWNSHIP
OCEAN COUNTY, NEW JERSEY**

PREPARED BY:

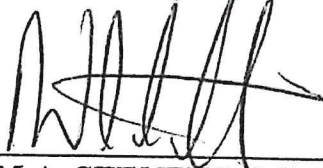
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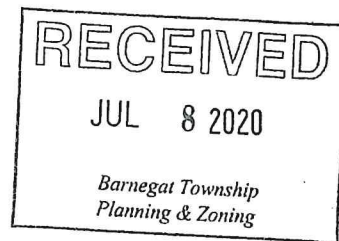
July 14, 2017



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1.0 PROJECT DESCRIPTION

1.1 Introduction

Barnegat Crossing II is an age-restricted residential condominium development located along Lighthouse Drive in Barnegat Township; Ocean County, New Jersey. The property is known as Block 92.111 Lot 24.09 and contains 9.9 acres. Figure 1, enclosed, is a copy of the Ocean County Road Map illustrating the site's location.

The project received approvals to construct a commercial site plan. The amended project proposes 148 age-restricted residential condominiums.

This project is not located within the Coastal Zone Area, and therefore, not regulated under the Coastal Area Facility Review Act (CAFRA).

The project is located within the Pinelands Area and, therefore, regulated by the Pinelands Commission pursuant to the Comprehensive Management Plan (NJAC 7:50-1.1 et. seq.). The property is located within the Regional Growth area of the Pinelands Area. A Certificate of Filing had been issued by the Pinelands Commission for development of the site.

The project is being developed consistent with the Barnegat Township Zoning and Land Use Ordinances as amended by Ordinance 2014-23 and certified by Pinelands Commission and the Pinelands Comprehensive Management Plan.

This report has been prepared to address compliance with each of the applicable policies and performance standards contained in the Pinelands Comprehensive Management Plan and the Barnegat Township Land Use Ordinance.

Site development plans have been prepared by Professional Design Services LLC, these plans have been utilized to prepare this document.

1.2 Land Use and Zoning

The property is located within the CN Commercial Neighborhood Zone as mapped by the Barnegat Township Land Use and Development Ordinance (Chapter 130). Ordinance 2017-23 which has been certified July 14, 2017 allows age-restricted residential condominiums as a conditional use. The project proposes a residential development consistent to the conditional use standards.

The property is located along the west side of Lighthouse Drive opposite the southbound Garden State Parkway exit/ entrance ramp. The surrounding properties have been recently developed as follows:

- CVS Pharmacy adjacent to northern boundary of the site.
- Wawa convenience store and gas station to the northeast across Lighthouse.

1.3 Utility Plans

The Barnegat Township Municipal Utilities Department (BTMUD) owns and operates public potable water and sanitary sewer service in Barnegat Township. There are existing water and

sewer mains located within Lighthouse Drive along the site frontage.

It is proposed that the site be serviced by an extension of public water and sewer mains.

1.4 Stormwater Management

The stormwater management plan will utilize management practices to efficiently collect and control increased stormwater runoff. Design standards of the Pinelands Commission require the applicant manage stormwater runoff by retaining all increased runoff from impervious areas from the 10-year, 24 hour storm and controlling runoff peaks for the 2, 10 and 100 year storm events to pre-development runoff levels. The plan will include the management practice of providing pervious pavement and underground recharge systems to comply with the applicable requirement.

2.0 SITE DESCRIPTION AND INVENTORY

Several site investigation of the project site was conducted by the author from April, 2016 to June 2017. The following inventory describes the existing environmental conditions onsite.

2.1 Topography

The property lies within the Outer Coastal Plan physiographic province. The property contained a fair amount of topographic relief. The highest points of the property exist adjacent to Lighthouse Drive at an elevation of 124 feet above mean sea level (MSL).

The lowest point of the property exists in the southeast corner at elevation 88. Figure 2 shows the parcel in question imposed on the USGS topographic map.

The site originally consisted of primarily wooded undeveloped, undisturbed land. A portion of the site had been cleared and a storm drainage pipe installed as part of the Lighthouse Drive improvements constructed by Ocean County. The vegetation has been removed and rough grading performed for the project as approved in 2012.

2.2 Soils

The property is underlain by the following soils as mapped by the U.S. Department of Agriculture, Ocean County Soil Survey:

<u>Soil Type</u>	<u>% Slope</u>	<u>Depth to SHWT</u>	<u>HSG (1)</u>
DoA - Downer loamy sand	0-5	>6.0'	B

(1) Hydrologic soil group

The majority of the soils underlying the proposed areas of development are comprised of the Downer and Woodmansie series soils. These soils are well suited for the proposed development.

Figure 3 is a copy of the Ocean County Soil Survey with the parcel in question depicted thereon.

Soil test pits were performed throughout the site to assess soil conditions and seasonal high water table. Permeability tests were performed of samples obtained from the test pits. The soils are moderately permeable and suitable for the proposed development. The location of each test pit and log are shown on the site plans.

2.3 Surface Water

No surface water area exists on or near the site.

2.4 Subsurface Water

The upper part of the Kirkwood Formation and the Cohansey Sand are hydraulically well connected and together function as an aquifer system. Underlying the Kirkwood-Cohansey aquifer system is the composite confining unit, a complex series of geologic units that, depending on location, can include as many as nine distinct units. The part of the composite confining unit of interest in this area ranges in age from Paleocene to early Miocene.

The project will extend public water mains to provide potable water to the proposed development.

2.5 Topography and Existing Development Features

Topographic contours and all existing feature onsite and within 50 feet of the site are depicted on the inserted site plans.

2.6 Wetlands and State Open Waters

Wetlands are areas where the substrate is inundated or saturated by surface or groundwater at frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wetlands include lands with poorly drained or very poorly drained soils as designated by the

National Cooperative Soil Survey of the Soil Conservation Service of the United States Department of Agriculture. All activities must comply the Pinelands Comprehensive Management Plan.

No freshwater wetlands exist on the project site. No development activities are proposed within any wetlands or wetland buffers regulated by the Pinelands Commission.

2.7 Floodplains

No Floodplain or regulated flood hazard areas exist on the site. No development is proposed within any regulated flood hazard areas or flood plain.

2.8 Vegetation

The site originally contained forested uplands dominated by Red Oak, White Oak, Black Oak and Pitch Pine. The understory consisted of perennial herbs and common greenbrier. The following Table 2-1 documents the vegetative species identified during the field inspections.

No historic or specimen trees were identified during field investigation of the site.

**TABLE 2-1
VEGETATIVE SPECIES LIST**

<u>Common Name</u>	<u>Scientific Name</u>
Pitch Pine	<i>Pinus Rigida</i>
White Oak	<i>Quercus alba</i>
Scrub Oak	<i>Quercus ilicifolia</i>

Blackjack Oak	<i>Quercus marilaica</i>
Chestnut Oak	<i>Quercus prinus</i>
Black Oak	<i>Quercus velutina</i>
Poison Ivy	<i>Rhus radicans</i>
Red Maple	<i>Acer rubra</i>
Greenbrier	<i>Smilax rotundifolia</i>

2.9 Wildlife

The Landscape Project is a pro-active, ecosystem-level approach for the long-term protection of imperiled species and their important habitats in New Jersey. The project began in 1994 by the N.J. Division of Fish Wildlife's Endangered and Nongame Species Program (ENSP). The Landscape Project focuses on large land areas called "landscape regions" that are ecologically similar with regard to their plant and animal communities. Using an extensive database that combines imperiled and priority species location information with land-use/land-cover data, the Endangered and Nongame Species program has identified and mapped areas of critical importance for imperiled species within each landscape region.

Landscape Project critical habitat maps were developed to provide users with peer-reviewed, scientifically-sound information that is easily accessible via the internet and hard copy. Neither the landscape project nor Natural Heritage Database has records of any threatened or endangered wildlife species within 1/4 mile of the referenced site.

The landscape project habitat mapping labels the site as being contained in a conservation

rank 2 area which contains the following species of special concern, Coastal Milk Snake and Eastern Box Turtle. Neither of these species are Endangered or Threatened so their critical habitat is not regulated.

2.10 Noise

Noise is defined as "any sound of such level to be injurious to human health or welfare, or which would unreasonably interfere with the enjoyment of life or property throughout the state or in any portion thereof, but excludes noise emanating from residential structures."

Ambient noise levels are assumed to be well below the NJDEP standards, due to the nature of the area. Additionally, noise emanating from the proposed development is anticipated to be minimal.

2.11 Cultural, Historical and Archaeological Resources

Historic and archaeological resources may include objects, structures, shipwrecks, neighborhoods, districts, and manmade or man-modified features of the landscape and seascape, including archaeological sites, which either are on or are eligible for inclusion on the State or National Register of Historic Places.

The site was vegetated by mature forest. There is no evidence of historic or archaeological resources on the project site.

2.12 Land Use

All current and approved land uses onsite and within 500 feet are limited to uses permitted in

the CN Zone. The proposed development is consistent with the zoning ordinance as amended by Ordinance 2014-23.

3.0 PINELANDS CMP COMPLIANCE

The Pinelands Comprehensive Management Plan (NJAC 7:50-1.1 et seq.) contains minimum standards which govern any development application. Each of the applicable standards has been identified and is fully examined for compliance.

3.1 Intensity of Development and Land Use (7:50-5.28)

The property is located within the regional growth area as defined by the Pinelands Comprehensive Management Plan. Developable lands are those privately held, non-wetland lands with a depth to seasonal high water table of greater than five feet. Where sewer systems are available, lands with a depth to seasonal high water table exceeding 1.5 feet shall also be considered developable.

The Barnegat Township Land Use and Development Ordinance (Chapter 130) maps the property as being within the regional growth zone. The zone standards permit commercial development on lots with a minimum size of 40,000 square feet provided that the lots will be served by a public sanitary sewer system with adequate capacity.

The property contains 9.9 acres. The development will be serviced by public sewers. The property is located within the Central Sewer Service Area per the Ocean County Water Quality Management Plan. A significant number of test pits were performed throughout property and the depth to seasonal high water table in all cases is greater than five (5) feet. The project complies with the intensity of development and land use standards.

3.2 Wetlands (7:50-6.6)

Wetlands Transition Areas (7:50-6.14)

Development shall be prohibited in all wetlands and wetlands transition areas in the Pinelands except as specifically authorized in this Part. Only activities permitted in wetlands pursuant to this part shall be permitted in wetlands transition areas.

No development, except for those uses which are specifically authorized in this subchapter, shall be carried out within 300 feet of any wetland, unless the applicant has demonstrated that the proposed development will not result in a significant adverse impact on the wetland.

Freshwater wetlands do not exist on or adjacent to the subject property. No development activities are proposed within the wetland or wetland transition area thereby complying with this standard.

3.3 Vegetation (7:50-6.24 & 6.27)

Each application for major development and any other application where a municipality otherwise requires a landscaping plan shall contain a landscaping or revegetation plan in accordance with the following standards.

In order to conserve water, conserve natural features and reduce pollution from the use of fertilizers, pesticides and other soil supplements, the following elements shall be incorporated into all revegetation or landscaping plans.

1. The limits of clearing shall be identified;
2. Existing vegetation, including New Jersey's Record Trees as published by the New Jersey Department of Environmental Protection in 1991 and periodically updated, shall be incorporated into the landscape design where practical;
3. Permanent lawn or turf areas shall be limited to those specifically intended for active human use such as play fields, golf courses and lawns associated with a residence or other principal non-residential use. Existing wooded areas shall not be cleared and converted to lawns except when directly associated with and adjacent to a proposed structure; and
4. Native shrubs and trees shall be used for revegetation or landscaping purposes.

Other shrubs and trees may be used in the following circumstances:

- i. When the parcel to be developed or its environs contain a predominance of non-native shrubs and tree species;
- ii. For limited ornamental purposes around buildings and other structures; or
- iii. When limited use of other shrubs or tree species is required for proper screening or buffering.

No development shall be carried out by any person unless it is designed to avoid irreversible adverse impacts on the survival of any local populations or the following plants, which are hereby found and declared to be threatened or endangered plants of the Pinelands:

The development plans include the limits of clearing and has limited the extent of lawn areas as much as practicable given the necessary land grading. The proposed landscaping consists of street trees and buffer trees primarily and the proposed species are all native species contained within the list approved by the Pinelands Commission.

The developable areas of the site contain no threatened or endangered species as evidenced by the Pinelands Commission issuance of the Certificate of Filing.

3.4 Fish and Wildlife (7:50-6.33)

No development shall be carried out unless it is designed to avoid irreversible adverse impacts on habitats that are critical to the survival of any local populations of those threatened or endangered animal species designated by the Department of Environmental Protection.

The developable areas of the site contain no threatened or endangered species as evidenced by the Landscape Mapping results and the Pinelands Commission approval of the development site.

3.5 Water Quality (7:50-6.83 & 6.84)

All development permitted under this Plan, or under a certified county or municipal master plan or land use ordinance, shall be designed and carried out so that the quality of surface and ground water will be protected and maintained.

The following point and non-point sources may be permitted in the Pinelands:

Surface water runoff, provided that:

- i. The total runoff generated from any net increase in impervious surfaces by a 10 year storm of a 24 hour duration shall be retained and infiltrated on-site. Runoff volumes shall be calculated in accordance with the United States Soil Conservation Service Technical Release No. 55, including the definitions, methodologies and guidance contained therein, or the S.C.S. National Engineering Handbook, section 4;
- ii. The rates of runoff generated from the parcel by a two year, 10 year and 100 year storm, each of a 24 hour duration, shall not increase as a result of the proposed development. Runoff rates shall be calculated in accordance with the United States Soil Conservation Service Technical Release No. 55, including the definitions, methodologies and guidance contained therein, or the S.C.S. National Engineering Handbook, section 4;
- iii. The standards set forth in (a)6i and ii above shall not apply to minor residential development, provided such development does not involve the construction of any new roads, or to minor non-residential development, provided such development does not involve the grading, clearing or disturbance of an area in excess of 5,000 square feet within any five year period;
- iv. Surface water runoff shall not be directed in such a way as to increase the volume and rate of discharge into any surface water body from that which existed prior to development of the parcel;

- v. Excessively and somewhat excessively drained soils, as defined by the Soil Conservation Service, should be avoided for recharge of runoff wherever practical;
- vi. A minimum separation of at least two feet between the elevation of the lowest point of the bottom of the infiltration or detention facility and the seasonal high water table is met, or a lesser separation when it is demonstrated that the separation, either due to soil conditions or when considered in combination with other stormwater management techniques, is adequate to protect ground water quality; and
- vii. For private development applications, a four year maintenance guarantee is provided for the entire stormwater management system by the applicant. In addition, for both private and public development applications, the applicant or other interested party shall fund or otherwise guarantee an inspection and maintenance program for a period of no less than 10 years. This may be accomplished by various mechanisms, including but not limited to, the assumption of the inspection and maintenance program obligation by a municipality, county, public utility or homeowners association or other viable mechanisms to achieve the purposes of this section. The program proposed shall identify the entity charged with responsibility for annual inspections and the completion of any necessary maintenance, and the method to finance said program.

The project does not propose to provide any on-site treatment for sanitary sewerage. An extension of public sewer facilities will be used to service each proposed dwelling unit.

The stormwater runoff which will result from the proposed development will be directed to

an on-site management system. The system will serve to retain and infiltrate the net increase of runoff volume from impervious areas for the ten year, 24 hour storm event (i). Additionally, the basin will serve to mitigate any increased runoff rate from the two 10 and 100 year, 24 hour storm events (ii).

The bottom of the management system is located more than two feet above the seasonal high water table based upon test pits performed within the basin area.

The management system will be owned and maintained by the property owner upon completion of the project. The owner will be responsible to post the required four year maintenance guarantee and fund a ten year inspection and maintenance program. The Owner will own the systems after the project is completed and will be responsible to perform the appropriate inspection and maintenance. The required maintenance activities are contained on the site plans.

3.6 Air Quality (7:50-6.94)

Applications for the following developments shall ensure that all state ambient air quality standards in N.J.A.C. 7:27 et seq. for carbon monoxide shall not be exceeded at places of maximum concentration and at sensitive receptors:

1. Residential development of 50 or more units and any other development involving more than 100 parking spaces located in a Regional Growth Area or Pinelands Town; and
2. Residential development of 100 or more units and any other development involving more than 300 parking spaces located in any other Pinelands management area.

The “Carbon Monoxide Hot Spot Guidelines” prepared by the United States Environmental Protection Agency was consulted to determine if a carbon monoxide hot spot potential exists at the proposed street intersections with Lighthouse Drive and Bay Avenue. McDonough & Rea have performed a traffic impact analysis for the proposed project. The two (2) primary access points at Lighthouse Drive will be fully signalized. There are no traffic delays proposed which are sufficient enough to create air quality hotspots.

3.7 Historic, Archaeological, and Cultural Preservation (7:50-6.155)

A cultural resource survey shall accompany all applications for development in a Pinelands Village or Town and applications for major development in other Pinelands Management Areas in order to determine whether any significant historic resources exist on the parcel.

Notwithstanding above, the need for a cultural resource survey may be:

Waived by the Pinelands Commission or by an approval agency for individual applications for development if it is determined that:

1. There is insufficient evidence of cultural activity on the project site or, in the case of Archaeological resources, within the vicinity;

2. The evidence of cultural activity on the site lacks the potential for importance because further recording of the available data will not contribute to a more comprehensive understanding of Pinelands culture; or
3. The evidence of cultural activity lacks any potential for significance pursuant to the standards of N.J.A.C. 7:50-6.154(b).

The developable areas of the site contain no historic, archaeological or cultural resources as evidenced by the undisturbed nature of the site and the Pinelands Commission approval of the Certificate of Filing.

4.0 ENVIRONMENTAL IMPACT STATEMENT

The Barnegat Township Ordinance regarding preparation and content of an Environmental Impact Statement requires an assessment of both adverse and positive impacts of the proposed activity. These impacts have been previously addressed within the site description and inventory. The following brief list of impacts is provided in summary:

a. Soil Erosion and Sedimentation

Runoff shall be directed to the on-site management systems. The proposed development shall be reviewed by the Ocean County Soil Conservation District and complies with their standards.

b. Floodplain

No regulated floodplain areas will be impacted by the proposed development.

c. Surface Water

No degradation of surface water is anticipated to occur. All management of increased runoff complies with the Pinelands Comprehensive Management Plan, thus ensuring adequate water quality and quantity control.

d. Ground Water

No degradation of ground water is anticipated to occur. The development will be serviced by public water and sewerage facilities

e. Ground Water Capabilities

Potable water will be provided by public water. The Barnegat Township Municipal Utilities Department currently has issued a final approval for the project.

f. Sewage Disposal

The project will be serviced by an extension of public sewer facilities. The Barnegat Township Municipal Utilities Department has issued a final approval for the project.

g. Solid Waste Disposal

All solid waste generated during tree removal activities shall be recycled by creating mulch or firewood for reuse, as appropriate. All solid waste generated during construction such as lumber, paper, etc. will be collected in dumpsters located on the site and disposed of in a manner consistent with local ordinances and the Ocean County Recycling Plan. Care will be taken to ensure that all construction debris is collected frequently to prevent any adverse impacts such as aesthetics or wind blown movement. Solid waste generated by the businesses will be collected, recycled and disposed of in a manner consistent with local ordinances and the Ocean County Recycling Plan.

h. Vegetation

13.9 acres of forest vegetation have been removed.

i. Wildlife Habitats

There is no critical habitat present for Threatened or Endangered species per the Landscape Habitat Mapping prepared by NJDEP.

j. Scenic and Historic Features

To the best of our knowledge, no scenic or historic features exist onsite. The approval of the project by the Pinelands Commission is indicative of this fact.

k. Air Quality

Increased traffic volume could potentially impact ambient air quality. Air quality

impacts typically arise from traffic delays. The proposed project by itself is not anticipated to result in a significant impact on ambient air quality. A traffic impact study has been performed by McDonough & Rea Associates for the entire project which confirms that the project will not cause traffic delays which may potentially impact air quality.

l. Noise

Projected noise levels, as a result of the proposed development, is not anticipated to increase ambient noise levels above NJDEP standards. The noise levels during construction will be temporarily increased but are subject to regulatory constraints such as maximum noise levels and permissible construction times.

m. Energy Utilization

The proposed development is designed so as to include energy conservation fixtures and measures, as appropriate.

n. Wetland Impacts

No irreversible or significant adverse impacts to any wetlands will occur as a result of this proposed development.

5.0 ENVIRONMENTAL PERFORMANCE CONTROLS

As discussed in the previous sections, various measures have been taken in design preparation to avoid or minimize potential adverse environmental impacts. These measures are specifically addressed for individual resource items (i.e., water quality).

In general, the following steps have been taken in order to avoid or minimize adverse environmental impacts:

1. Extension of public water and sewerage systems to service the project.
2. The use of stormwater management systems to retain and exfiltrate runoff to minimize non-point source and flooding impacts to ground water and surface waters.

As stated above, details of these steps are provided within the previous section.

6.0 COMMITMENT OF RESOURCES

The applicant and his consultants have made every effort possible to design and plan this residential community in concert with the existing and surrounding natural resources.

Compliance with all state, local and municipal regulations shall be demonstrated by the necessity to obtain all required approvals prior to the commencement of construction.

7.0 ALTERNATIVES AND MITIGATING MEASURES

The stormwater management system had to meet the criteria for water quality and flood control in the Pinelands. All alternative designs were investigated in consideration of the existing site limitations (i.e. depth to groundwater, topography). The proposed design provides the best water quality and flood control.

The resulting design is consistent with all the applicable Pinelands Comprehensive Management Plan Rules. The design features described above together with the use of native species in the landscaping plan and adherence to the Soil Erosion and Sediment Control Plan are the primary mitigating measures incorporated into the project design.

After reviewing a variety of alternatives in consideration of the Pinelands CMP and Barnegat Zoning Ordinance, it was determined that the project, as proposed, will have the least impact on the site, surrounding properties and the Pinelands as a whole. The mitigating measures included in the site design should offset any potential adverse impact associated with the project.

8.0 OTHER REQUIRED APPROVALS

The following Table 8.0-1 lists all applicable licenses, permits and approvals required by Federal, State, County and Municipal law, to the best of our knowledge. Copies of each approval are enclosed.

**TABLE 8.0-1
LIST OF ALL APPLICABLE APPROVALS AND PERMITS**

Permit/Approval	Required	Status
Federal – Non	No	
State -		
Pinelands Commission	Yes	C of F
NJDEP – CAFRA	No	N/A
Wetlands	No	N/A
Stream Encroachment	No	N/A
Sewer Extension	Yes	Future Appl.
Water Quality Certification	No	N/A
Water Extension	Yes	Future Appl.
Well Permits	No	N/A
NJDOT – Drainage	No	N/A
Access	Yes	Future Appl.
County (Ocean)		
Preliminary Approval	Yes	Pending
Final Approval	Yes	Pending
OCUA (Sewerage Authority)	Yes	Future Appl.
SCD Soil Erosion (Ocean)	Yes	Pending
Health Dept. (Well & Septic)	No	N/A
Health Dept. (Site)	Yes	Pending
Municipal (Barnegat)		
Preliminary Approval	Yes	Pending
Final Approval	Yes	Pending
Barnegat Municipal Utilities Dept.	Yes	Pending
Local Clearing Permit	Yes	Pending
Environmental Commission	Yes	Pending
Bureau of Fire Prevention	Yes	Pending

9.0 REFERENCES

Kummel, H.B. The Geology of New Jersey, 1940 N.J. Dept. Conserv. Del. Bull. 50, 203 pp.

McCormick, J. The Pine Barrens: A Preliminary Ecological Study (1970).

Munsell, Munsell Soil Color Chart, Baltimore, MD, 1975.

"New Jersey's Record Trees," New Jersey Outdoors, September/October 1984.

National Wetland Inventory Map, Lakehurst, NJ Quadrangle.

Shaw, Frank, 1990. Eastern Birds. W.H. Smith Publishers, Inc., New York.

United States Department of Agriculture, Soil Conservation Service, Soil Survey of Ocean County, New Jersey, 1980.

USGA Lakehurst, NJ Quadrangle.

Wolfe, Peter E., The Geology and Landscapes of New Jersey, 1977. Crane, Russak & Company, Inc. New York.

USGS Simulation of groundwater flow in the unconfined aquifer system of the Toms River, Metedeconk River, and Kettle Creek Basins, New Jersey; Water Resources Investigations Report 97-4066; 1997.

Cranberries, Coops and Courts: A History of Jackson Township; Jackson Memorial High School, 1999.

FIGURES