

**WEST WINDSOR TOWNSHIP  
ENVIRONMENTAL IMPACT STATEMENT WORKSHEET**

**Application Status:**         **Preliminary**         **Final**         **Concept**

The purpose of this worksheet is to assist the West Windsor Township Environmental Commission in determining the environmental impact of a proposed project. The Commission will review the information as part of the Environmental Impact Statement (EIS) requirements. If the information supplied is insufficient or a high potential for an adverse environmental impact exists, then additional details on specific environmental parameters may be requested.

This worksheet has been formatted so that each question must be answered for both the preliminary and the final stages of plan submission. Consequently, this worksheet must be submitted to the Township prior to preliminary approval and again after final approval is granted by the planning board/ZBA. This procedure is used to monitor the changes that may occur during or as a result of the Township's review process.

It is recommended that the Natural Resource Inventory (NRI) Booklet (1985) and maps be used in conjunction with field acquired data and other secondary sources to accurately answer these questions. The NRI is available for purchase from the Township Community Development Department to assist the applicant in completing the worksheet. Large scale (1" = 800') natural resource maps are available for purchase from the Township Engineer.

1. Name of Applicant: \_\_\_\_\_
2. Mailing Address: \_\_\_\_\_  
\_\_\_\_\_
3. Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
E-mail: \_\_\_\_\_
4. Name of Property Owners: \_\_\_\_\_
5. Mailing Address: \_\_\_\_\_
6. Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
E-mail: \_\_\_\_\_
7. Name of Agent: \_\_\_\_\_
8. Mailing Address: \_\_\_\_\_  
\_\_\_\_\_
9. Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
E-mail: \_\_\_\_\_

10. Name of Development: \_\_\_\_\_

11. Type of Development: \_\_\_\_\_

12. Application Number: \_\_\_\_\_

13. General Location of proposed project (street address or nearest intersection):  
\_\_\_\_\_

14. Area of project: \_\_\_\_\_ acres; dimensions: \_\_\_\_\_ (Enclose Site Location Map with project area delineated.)

15. Intended use of property (include details such as number of units, volume, etc.):

Preliminary: \_\_\_\_\_

Final: \_\_\_\_\_

Concept \_\_\_\_\_

16. Generally describe the present and past use of the site.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

17. Construction dates (month/year) for which permit is requested: (If more than one phase is anticipated, give dates for each phase.)

Preliminary:

Begin \_\_\_\_\_ End \_\_\_\_\_

Final:

Begin \_\_\_\_\_ End \_\_\_\_\_

Concept:

Begin \_\_\_\_\_ End \_\_\_\_\_

18. List any other permits for this project from federal, state, local, or other governmental agencies for which you have applied or will apply, including the name of the issuing agency, whether the permit has been applied for, and if so, the date of the application (leave blank if not submitted), whether the application was approved or denied (including date) or pending, and the number of the application or permit.





21b. How will the flood hazard area and floodway be disturbed or developed?

Preliminary: \_\_\_\_\_ \*

Final: \_\_\_\_\_ \*

Concept: \_\_\_\_\_

\* unless reforestation therein is approved by governmental / regulatory agencies

Additional details may be provided in mitigative measures section.

21c. Did the applicant use the flood insurance maps produced by the Federal Emergency Management Agency (FEMA) dated May 1, 1984 to identify the flood hazard areas noted on the plan? \_\_\_\_ yes \_\_\_\_ no

If not, what other source was used? \_\_\_\_\_

22. Aquifer Recharge

22a. Describe the geologic formation(s) at the site.

22b. How many acres of the following categories are present on the site? (Identify on map.)

Area of Prime Aquifer Recharge: \_\_\_\_\_ acres

Area of Moderate Aquifer Recharge: \_\_\_\_\_ acres

Area of High Aquifer Recharge: \_\_\_\_\_ acres

Area of Low or Minimal Aquifer Recharge: \_\_\_\_\_ acres

22c. How many acres of prime and high aquifer recharge areas will be covered at full development?

Preliminary: \_\_\_\_\_ acres-prime recharge Final: \_\_\_\_\_ acres-prime recharge

\_\_\_\_\_ acres-high recharge \_\_\_\_\_ acres-high recharge

Concept \_\_\_\_\_ acres-prime recharge Final: \_\_\_\_\_ acres-prime recharge

\_\_\_\_\_ acres-high recharge \_\_\_\_\_ acres-high recharge

Measures used to encourage recharge should be discussed in the mitigative measures section.

23. Depth of Seasonally High Water Table

23a. What is the extent of the following depth to water table categories on the site? (Identify on map.)

Deep or Usually Deep: \_\_\_\_\_ acres (\_\_\_\_\_ ft.)

Shallow to Moderately Shallow: \_\_\_\_\_ acres (\_\_\_\_\_ ft.)

Very Shallow \_\_\_\_\_ acres (\_\_\_\_\_ ft.)

23b. How will the areas of shallow, moderately shallow and very shallow depths to water table be developed? (Identify on map.)

Preliminary: \_\_\_\_\_

Final: \_\_\_\_\_

Concept: \_\_\_\_\_

23c. Will areas of the site be artificially drained? \_\_\_\_ yes \_\_\_\_\_no

Preliminary \_\_\_\_\_ yes \_\_\_\_\_no

If yes, give details: \_\_\_\_\_

Final \_\_\_\_\_ yes \_\_\_\_\_no

If yes, give details: \_\_\_\_\_

Concept \_\_\_\_\_ yes \_\_\_\_\_no

If yes, give details: \_\_\_\_\_

Additional comments may be presented in the mitigative measures section.

24. Suitability for Septic System Effluent Disposal (Answer only if on-site sewerage treatment will be used for the project.)

24a. How many acres of the following categories are on the site?

Few to slight limitations for septic effluent: \_\_\_\_ acres

Moderate to severe limitations for septic effluent: \_\_\_\_ acres

Severe to very severe limitations for septic effluent: \_\_\_\_ acres

Describe limitations: \_\_\_\_\_

24b. Will the areas having severe or very severe limitations be used for septic system effluent disposal?

Preliminary: \_\_\_\_\_ yes \_\_\_\_\_ no

If yes, describe measures which will be used to protect water quality in the mitigative measures section. If any percolation tests have been conducted, please attach details.

\_\_\_\_\_  
\_\_\_\_\_

Final: \_\_\_\_\_ yes \_\_\_\_\_ no

If yes, describe measures which will be used to protect water quality in the mitigative measures section. If any percolation tests have been conducted, please attach details.

\_\_\_\_\_  
\_\_\_\_\_

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

If yes, describe measures which will be used to protect water quality in the mitigative measures section. If any percolation tests have been conducted, please attach details.

\_\_\_\_\_  
\_\_\_\_\_

24c. Are there any potable water wells (existing or proposed) in the vicinity of the proposed septic system effluent fields?

Preliminary \_\_\_\_\_ yes \_\_\_\_\_ no Final \_\_\_\_\_ yes \_\_\_\_\_ no

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

If yes, are they down gradient from the septic system fields?

Preliminary \_\_\_\_\_ yes \_\_\_\_\_ no Final \_\_\_\_\_ yes \_\_\_\_\_ no

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

What is the distance between the wells and the closest disposal field? \_\_\_feet

Preliminary \_\_\_\_\_ feet Final: \_\_\_\_\_ feet

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

What is the depth of each existing or proposed well? \_\_\_\_\_ feet

Additional Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

24d. Are there any existing ponds, proposed stormwater detention/retention basins or streams in the vicinity of the proposed septic fields?

Preliminary \_\_\_\_\_ yes \_\_\_\_\_ no Final \_\_\_\_\_ yes \_\_\_\_\_ no

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

If yes, what is the distance between the water body and the closest disposal field?

Preliminary \_\_\_\_\_ feet Final: \_\_\_\_\_ feet

Concept: \_\_\_\_\_ feet

Please include map or schematic drawing to aid explanation if necessary.

Additional Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

24e. Do any of the proposed septic fields overlie prime aquifer recharge areas?

Preliminary: \_\_\_\_\_ yes \_\_\_\_\_ no Final: \_\_\_\_\_ yes \_\_\_\_\_ no

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

25. Suitability for Buildings with Basements (Answer only if basements are proposed on the site.)

25a. What is the extent of the following categories on the site?

Slight limitations for basements: \_\_\_\_\_ acres

Moderate limitations for basements: \_\_\_\_\_ acres

Severe limitations for basements: \_\_\_\_\_ acres

25b. What are the reasons for the limitations (i.e., flooding, slope, drainage, etc.)? \_\_\_\_\_

25c. Are buildings with basements planned for areas of severe limitations?

Preliminary: \_\_\_\_ yes \_\_\_\_ no Final: \_\_\_\_ yes \_\_\_\_ no

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

If yes, what corrective measures will be taken?

Preliminary: \_\_\_\_\_

Final: \_\_\_\_\_

Concept: \_\_\_\_\_

Additional details may be provided in the mitigative measures section.

26. Vegetation and Wildlife Habitat (Provide location map for all vegetation and trees.)

26a. What are the predominant vegetation categories on the site and their acreage before and after development? (Identify on map.)

| Vegetation Type | Acres Existing | Acres Post Development |
|-----------------|----------------|------------------------|
| Preliminary:    |                |                        |
|                 |                |                        |
|                 |                |                        |
|                 |                |                        |
|                 |                |                        |

| Vegetation Type | Acres Existing | Acres Post Development |
|-----------------|----------------|------------------------|
| Final:          |                |                        |
|                 |                |                        |
|                 |                |                        |
|                 |                |                        |
|                 |                |                        |

| Vegetation Type | Acres Existing | Acres Post Development |
|-----------------|----------------|------------------------|
| Concept:        |                |                        |
|                 |                |                        |
|                 |                |                        |
|                 |                |                        |
|                 |                |                        |

26b. List the number and species of trees on the site having a diameter at breast height (dbh) of 12 inches or greater. (Identify on map.)

| Number | Species |  |
|--------|---------|--|
|        |         |  |
|        |         |  |
|        |         |  |
|        |         |  |

Will any of these large diameter trees be removed due to construction? (Identify on map.)

Preliminary: \_\_\_\_\_yes \_\_\_\_\_no      Final \_\_\_\_\_yes \_\_\_\_\_no

Concept: \_\_\_\_\_yes \_\_\_\_\_no

27. Green Belt

27a. Is the Township Green Belt, as it appears on the approved land use plan, present on the proposed development site? (Identify on map.)

27b. If yes, how many acres does it cover? \_\_\_\_\_ acres

27c. If yes, do you plan to disturb the Green Belt area? \_\_\_\_\_yes \_\_\_\_\_no

Preliminary: \_\_\_\_\_yes \_\_\_\_\_no      Final \_\_\_\_\_yes \_\_\_\_\_no

Concept: \_\_\_\_\_yes \_\_\_\_\_no

27d. How many acres of the Green Belt are proposed to be lost to development?

Preliminary: \_\_\_\_\_acres      Final: \_\_\_\_\_acres

Concept: \_\_\_\_\_acres

27e. How many acres of the Green Belt are proposed to be covered by a conservation easement or dedicated to the Township?

Preliminary: \_\_\_\_\_ acres                      Final: \_\_\_\_\_ acres

Concept: \_\_\_\_\_ acres

Additional Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

28. Land Suitability for Development

28a. What is the extent of the following suitability categories on the site as defined in the most recently approved Natural Resource Inventory?

Most suitable for development: \_\_\_\_\_ acres

Moderately suitable for development: \_\_\_\_\_ acres

Unsuitable for development: \_\_\_\_\_ acres

28b. Using the matrix of soil suitability in the most recently approved Natural Resource Inventory: check the factors causing the soils on site to be unsuitable for development.

\_\_\_\_\_ slope

\_\_\_\_\_ erosion hazard

\_\_\_\_\_ drainage

\_\_\_\_\_ depth to bedrock

\_\_\_\_\_ depth to seasonally high water table

\_\_\_\_\_ runoff potential

\_\_\_\_\_ suitability for septic drainage field

28c. If development is proposed on areas considered unsuitable for development, what corrective measures will be taken?

Preliminary: \_\_\_\_\_  
\_\_\_\_\_

Final: \_\_\_\_\_  
\_\_\_\_\_

Concept: \_\_\_\_\_  
\_\_\_\_\_

29. Environmentally Sensitive Areas

29a. Does the proposed development site include any environmentally sensitive areas as defined on the Environmentally Sensitive Area map in the most recent, approved Natural Resource Inventory?        \_\_\_\_\_ yes        \_\_\_\_\_ no

29b. If yes, check the environmentally sensitive area category which occurs on the site and give acreage:

|  | <u>Sensitive Areas</u>                  | <u>Preliminary Acreage</u> | <u>Final Acreage</u> |
|--|---|----------------------------|----------------------|
|  | Wetlands                                |                            |                      |
|  | Freshwater Marshes                      |                            |                      |
|  | Flood prone Acres                       |                            |                      |
|  | Prime Aquifer Recharge Areas            |                            |                      |
|  | Woodland and Wildlife (Green Belt Plan) |                            |                      |
|  | Prime Agricultural Land                 |                            |                      |
|  | Archaeological Sites (number)           |                            |                      |
|  | Historical Sites and Routes (number)    |                            |                      |
|  | Streams with Extremely Low Flow         |                            |                      |

29c. Will these environmentally sensitive areas be impacted by development?

Preliminary: \_\_\_\_\_yes \_\_\_\_\_no Final \_\_\_\_\_yes \_\_\_\_\_no

Concept: \_\_\_\_\_yes \_\_\_\_\_no

Explain: (More details may be given in the mitigative measures section.) \_\_\_\_\_

---



---

30. Historic/Archaeological Sites

Is the proposed project located within 500 feet of an area or structure having recognized historic, cultural or archaeological value? \_\_\_\_\_yes \_\_\_\_\_no

31. Surface Water

31a. Do any streams run through the property? \_\_\_\_\_yes \_\_\_\_\_no

31b. What is the distance to the nearest stream off the property? \_\_\_\_\_ feet

31c. Are these point (i.e., wastewater treatment plant discharges) or nonpoint (i.e., stormwater) pollution sources on or near the site? \_\_\_\_\_yes \_\_\_\_\_no

If yes, give details: \_\_\_\_\_

---



---

31d. If a stream exists on the property, give a brief description of its condition including details on, but not limited to, flow, nutrient levels, aquatic community, substrate, bank stability: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

31e. If any surface water impoundments exist on the site, indicate below their present surface area and average depth. Will these dimensions be changed after site development?

|                    | <u>Surface Area</u> | <u>Average Depth</u> |
|--------------------|---------------------|----------------------|
| Impoundment 1      |                     |                      |
| existing condition |                     |                      |
| post development   |                     |                      |
| Impoundment 2      |                     |                      |
| existing condition |                     |                      |
| post development   |                     |                      |

31f. What types of fish are found in the impoundments?  
 \_\_\_\_\_  
 \_\_\_\_\_

31g. Are the impoundments \_\_\_\_\_ natural, or \_\_\_\_\_ man-made?

31h. Are the impoundments used for \_\_\_\_\_ fishing, \_\_\_\_\_ irrigation, or \_\_\_\_\_ other?

31i. Additional comments on impoundment quality: \_\_\_\_\_  
 \_\_\_\_\_

32. Water Supply

32a. What is the anticipated daily demand for water?

Preliminary: \_\_\_\_\_ average; \_\_\_\_\_ peak

Final: \_\_\_\_\_ average; \_\_\_\_\_ peak

Concept: \_\_\_\_\_ average; \_\_\_\_\_ peak

32b. What is the proposed source of water for the project?

\_\_\_\_\_  
 \_\_\_\_\_

32c. Are there known groundwater pollution problems on or near the site?

\_\_\_\_\_ yes \_\_\_\_\_ no

Is there a groundwater supply problem \_\_\_\_\_ yes \_\_\_\_\_ no If yes, give details: \_\_\_\_\_

32d. If the water is to be supplied from the site, attach a statement substantiating the adequacy of the water source and assessing the potential impact on existing and proposed wells and streams within the predicted zone of influence.

32e. If a development of fifty (50) or more dwelling units is proposed, certification of adequacy (of proposed water supply) must be obtained from the New Jersey Department of Environmental Protection (NJDEP). (List permit number under Question No. 18.)

32f. If the water is to be supplied from the site or other new source and the total project demand for water supply is in excess of 100,000 gallons per day, the applicant must obtain a diversion permit from the NJDEP and, where applicable, the Delaware River Basin Commission. (List permit number under Question No. 18.)

32g. If water is to be supplied by an existing public or private facility, attach documentary proof that the facility has the available excess capacity to supply the proposed project and is willing to do so. State location of the existing distribution point to which the proposed project would be connected.

33. Wastewater Management (Answer only if off-site treatment system is proposed.)

33a. What is the projected daily wastewater flow?

Preliminary: \_\_\_\_\_ average; \_\_\_\_\_ peak Final \_\_\_\_\_ average; \_\_\_\_\_ peak

Concept: \_\_\_\_\_ average \_\_\_\_\_ peak

33b. Will any non-domestic wastewater be produced by the project?

Preliminary: \_\_\_\_\_ yes \_\_\_\_\_ no Final \_\_\_\_\_ yes \_\_\_\_\_ no

Concept: \_\_\_\_\_ yes \_\_\_\_\_ no

If yes, give details:

Preliminary \_\_\_\_\_

Final: \_\_\_\_\_

Concept: \_\_\_\_\_

33c. Attach documentation on the facility to be used for wastewater treatment, correspondence with NJDEP Division of Water Resources and, if required, the Delaware River Basin Commission.

34. Solid Waste Management (List permit number under Question No. 18.)

34a. What is the proposed method of solid waste disposal?

---

---

34b. Estimate the volume of solid wastes, by type, expected from the proposed project during construction and during operation.

During Construction: \_\_\_\_\_

During Operation: \_\_\_\_\_

35. Air Quality (Answer only if commercial or industrial development is proposed.) (List permit number under Question No. 18.)

List sources, identify, and quantify air pollutants which will be generated by the project:

---

---

(See Section 5.11 of the Site Plan Ordinance for West Windsor's Technical Performance Standards.) Provide detail in mitigative measures section, if necessary.

36. Noise Levels (Answer if nonresidential use is proposed or if proposed residential development has more than five (5) dwelling units.) Describe sources, location and decibel rating for noise generation on-site after construction. (See Section 5.11 of the Site Plan Ordinance for West Windsor's Technical Performance Standards.)

---

---

37. Land Use

37a. Check types of land use occurring on parcels adjacent to project site. (Identify on map.)

\_\_\_\_\_ residential    \_\_\_\_\_ commercial    \_\_\_\_\_ industrial    \_\_\_\_\_ recreational  
\_\_\_\_\_ agricultural    \_\_\_\_\_ institutional    \_\_\_\_\_ vacant

37b. What are the effects (detrimental and beneficial) of proposed development on adjacent land uses?

---

---

38. Mitigation Measures

Describe the methods that will be used during and after construction to avoid or minimize adverse environmental impacts associated with the project. Use additional sheets as required.

---

---

---

39. Adverse Impacts Which Cannot be Avoided

List all adverse environmental impacts that will be caused by the proposed development, including the construction phase and post-development. Short-term impacts should be distinguished from long-term impacts. Reversible impacts should be distinguished from irreversible impacts. Specify the types of impacts on critical areas which include, but are not limited to, the Green Belt, streams, floodways, wetlands, steep slopes, areas of high water table, prime aquifer recharge areas and mature strands of native vegetation (specify the type of critical area involved). Define the extent of the area to be affected and the extent of similar areas of the site which will not be affected.

---

---

---

---

40. Proximity to Electrical Transmission Lines, Distribution Lines or Substations

Is proposed development site located near an electric utility Right of Way (ROW) or electrical substation? (Identify on map.) \_\_\_ yes \_\_\_ no

If yes:

40a. What is the distance from the utility ROW in relation to boundaries of the proposed building site? Please include map or schematic drawing to aid explanation.

---

---

40b. What is the kV\*\*\* voltage in the transmission\* and/or distribution\*\* lines?

---

---

40c. How many dwelling units will actually back up to the utility ROW?

---

---

40d. What is the proposed distance of dwelling units from the edge of the utility ROW?

---

---

40e. What are the projected magnetic field measurements for those dwellings backing up to the ROW?

---

---

41. Is radon present on the site? \_\_\_\_\_yes \_\_\_\_\_ no

If so, what measures will be taken to mitigate radon accumulation? \_\_\_\_\_

---

---

\*Transmission Lines - high voltage power lines that efficiently carry electric power over long distances from generating facilities to substations. Lines are mounted on high towers and voltages are usually 115kV, 230kV and 500kV.

\*\*Distribution Lines - secondary conductor power lines that radiate from a substation and carry electrical power to local neighborhoods. Voltages are usually 11-15kV but 26kV and 69kV are also classified as distribution lines.

\*\*\*kV - refers to voltage or the electrical force that causes electrical current to flow in a conductor (wire). The electrical force or "strength" is measured in volts.

Revised: 10-7-2013

O:\Application Forms\EISworksheet.doc

**Supplemental Sheets  
West Windsor Township  
Environmental Impact Statement Worksheet  
Princeton Executive Park**

**19. Topographic Slopes**

Man-made slopes >10% occur on the berm around the stormwater basin and along road embankments. Otherwise slopes across the site are <10%.

**20. Excavation/Fill**

A portion of the site was previously excavated to construct the stormwater basin. Isolated wetlands were previously filled in accordance with Freshwater Wetlands General Permit 6 issued by the New Jersey Department of Environmental Protection.

**28. Land Suitability for Development**

The soils of the site proposed for development are suitable for structures without basements.

**32(g). Water Supply**

Water service will be through connection to an existing main along Old Meadow Road and Carnegie Center Drive.

**33(c). Wastewater Management**

Wastewater generated by the project will be conveyed to the Stony Brook Regional Sewerage Authority (SBRSA) Sewage Treatment Plant in Princeton, NJ.

**36. Noise Levels**

Noise levels generated on-site after construction are expected to be in the range of 55-65 dB. The noise will be generated from activities associated with a mixed-use property such as vehicles, HVAC units, and leaf blowers. Traffic from Route 1 will continue to be a primary influence of on-site noise levels.

**38. Mitigation Measures**

- Use of soil erosion and sediment control measures certified by the Mercer County Soil Conservation District.
- Control of fugitive dust.
- Stormwater management in accordance with New Jersey's Stormwater Management Rules.
- Avoidance of on-site wetlands and flood hazard area.

- Implementation of a Landscape Plan.

### **39. Adverse Impacts Which Cannot be Avoided**

#### Short-term environmental impacts

- Construction noise.
- Minor amounts of soil loss and sedimentation.
- Minor amounts of fugitive dust.

#### Long-term environmental impacts

- Loss of 8.2 acres of woodland vegetation and associated wildlife habitat.
- Loss of 3.0 acres of old field vegetation and associated wildlife habitat.
- Loss of 33.4 acres of agricultural land.
- Slight increases in loadings of common constituents in stormwater runoff.
- Increased traffic.

**West Windsor Township**  
**Block 9, Lots 12.01 and 12.03 & Block 9.03, Lot 12.02**  
**Mercer County, New Jersey**

Table 1: Soil Characteristics, Limitations, and Suitabilities

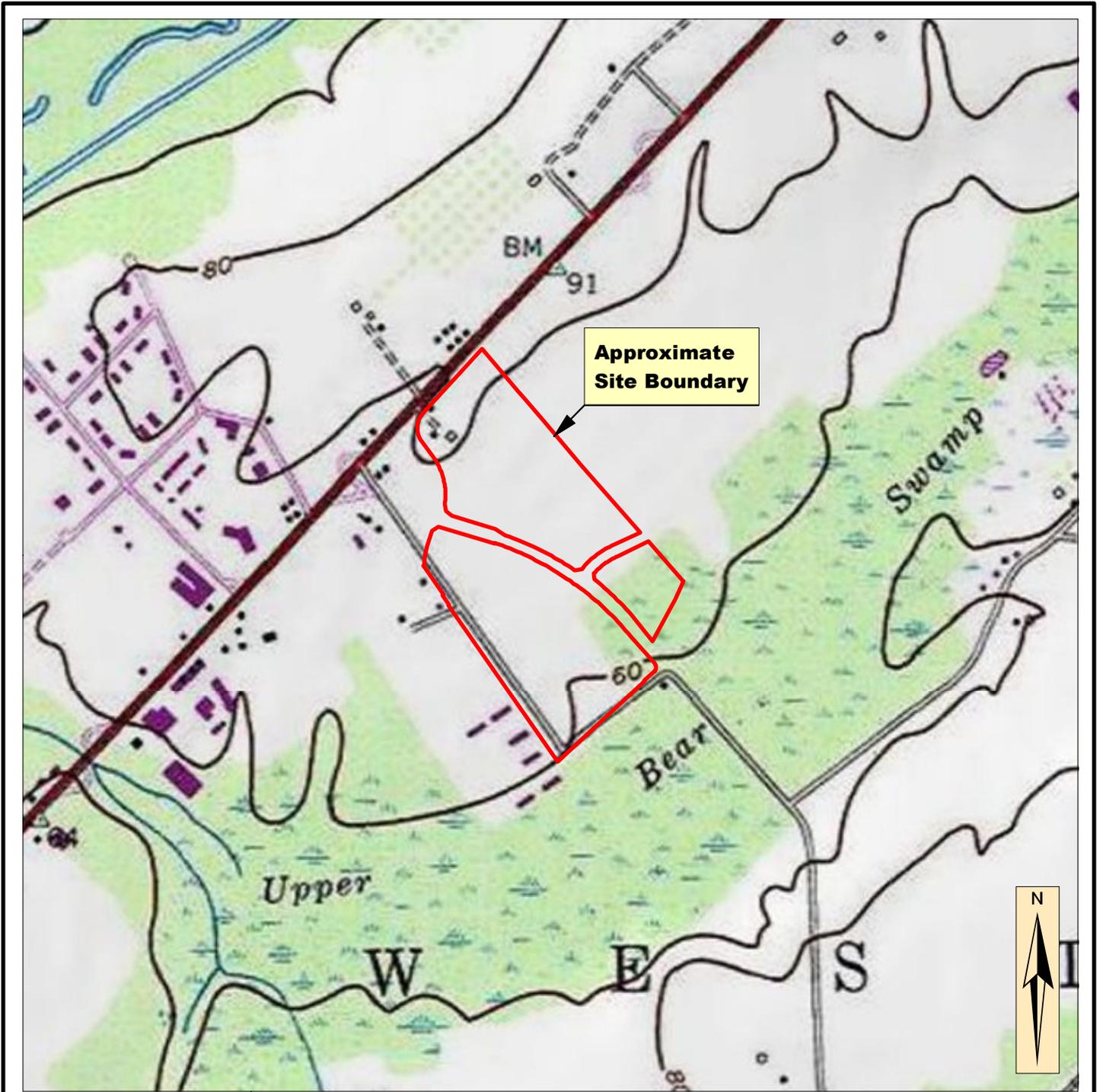
| <b>Parameter</b>   | <b>Evesboro loamy sand, 0 to 5 percent slopes (EvgB)</b> | <b>Galestown sandy loam, 0 to 5 percent slopes (GafB)</b> | <b>Galloway variant soils, 0 to 5 percent slopes (GASB)</b> | <b>Glassboro and Woodstown sandy loams, 0 to 5 percent slopes (GKAWOB)</b> | <b>Othello silt loams, 0 to 2 percent slopes, northern coastal plain (OthA)</b> | <b>Sassafras sandy loam, 0 to 2 percent slopes, Northern Coastal Plain (SacA)</b> |
|--|--|---|---|--|---|---|
| Coverage (acres)   | 0.8  | 17.4  | 36.4  | 2.1  | 2.1   | 0.3   |
| Texture  | Loamy sand   | Sandy loam  | Sandy loam  | Sandy loam   | Silt loam   | Sandy loam  |
| Drainage Class   | Excessively drained                                      | Somewhat excessively drained                              | Moderately drained  | Somewhat poorly drained  | Poorly drained  | Well drained  |
| Slope (%)  | 0 to 5   | 0 to 5  | 0 to 5  | 0 to 5   | 0 to 2  | 0 to 2  |
| Depth to Bedrock (in.)                                   | >80  | >80   | >80   | >80  | >80   | >80   |
| Depth to Seasonal High-Water Table (in.)                 | 72   | >80   | 30  | 12   | 14  | >80   |
| Permeability/Hydraulic Conductivity (Ksat) (inches/hour) | 2.0-6.3  | 2.0-6.3   | 2.0-6.3   | 2.0-6.3  | 0.63-2.0  | 0.63-2.0  |
| Available Water Capacity (in./in. soil)                  | 0.14-0.18  | 0.10-0.18   | 0.14-0.18   | 0.10-0.18  | 0.20-0.24   | 0.12-0.16   |
| pH   | 4.6  | 4.7   | 4.3   | 4.9  | 4.6   | 5.4   |
| Erosion (K Factor)                                       | 0.24   | 0.20  | 0.32  | 0.28   | 0.49  | 0.24  |
| Limitations for Dwellings with Basements                 | Not limited  | Not limited   | Very limited  | Very limited   | Very limited  | Not limited   |
| Limitations for Dwellings without Basements              | Not limited  | Not limited   | Not limited   | Very limited   | Very limited  | Not limited   |
| Limitations for Local Roads and Streets                  | Not limited  | Not limited   | Somewhat limited  | Very limited   | Very limited  | Somewhat limited  |

Source: USDA NRCS, 2011

**West Windsor Township**  
**Block 9, Lots 12.01 and 12.03 & Block 9.03, Lot 12.02**  
**Mercer County, New Jersey**

Table 2: Number and species of trees that occur on site with a diameter at breast height (dbh) of 12 inches or greater.

| Number of<br>Trees<br>> 12 inch dbh | Species   |
|-------------------------------------|---|
| 55                                  | Ash ( <i>Fraxinus</i> )                         |
| 12                                  | American Beech ( <i>Fagaceae grandifolia</i> )  |
| 2                                   | Birch ( <i>Betula</i> )                         |
| 41                                  | Boxelder ( <i>Acer negundo</i> )                |
| 2                                   | Catalpa ( <i>Catalpa</i> )                      |
| 136                                 | Black Cherry ( <i>Prunus serotina</i> )         |
| 1                                   | Unidentified (Dead)                             |
| 12                                  | Elm ( <i>Ulmus</i> )                            |
| 8                                   | Hickory ( <i>Carya</i> )                        |
| 23                                  | Locust ( <i>Robinia</i> )                       |
| 79                                  | Maple ( <i>Acer</i> )_                          |
| 3                                   | Mulberry ( <i>Morus</i> )                       |
| 64                                  | Oak ( <i>Quercus</i> )                          |
| 5                                   | Tulip Poplar ( <i>Liriodendron tulipifera</i> ) |
| 12                                  | Sassafras ( <i>Sassafras albidum</i> )          |
| 17                                  | Sweetgum ( <i>liquidambar styraciflua</i> )     |
| 28                                  | Walnut ( <i>Juglans nigra</i> )                 |
| 2                                   | Black Willow ( <i>Salix nigra</i> )             |

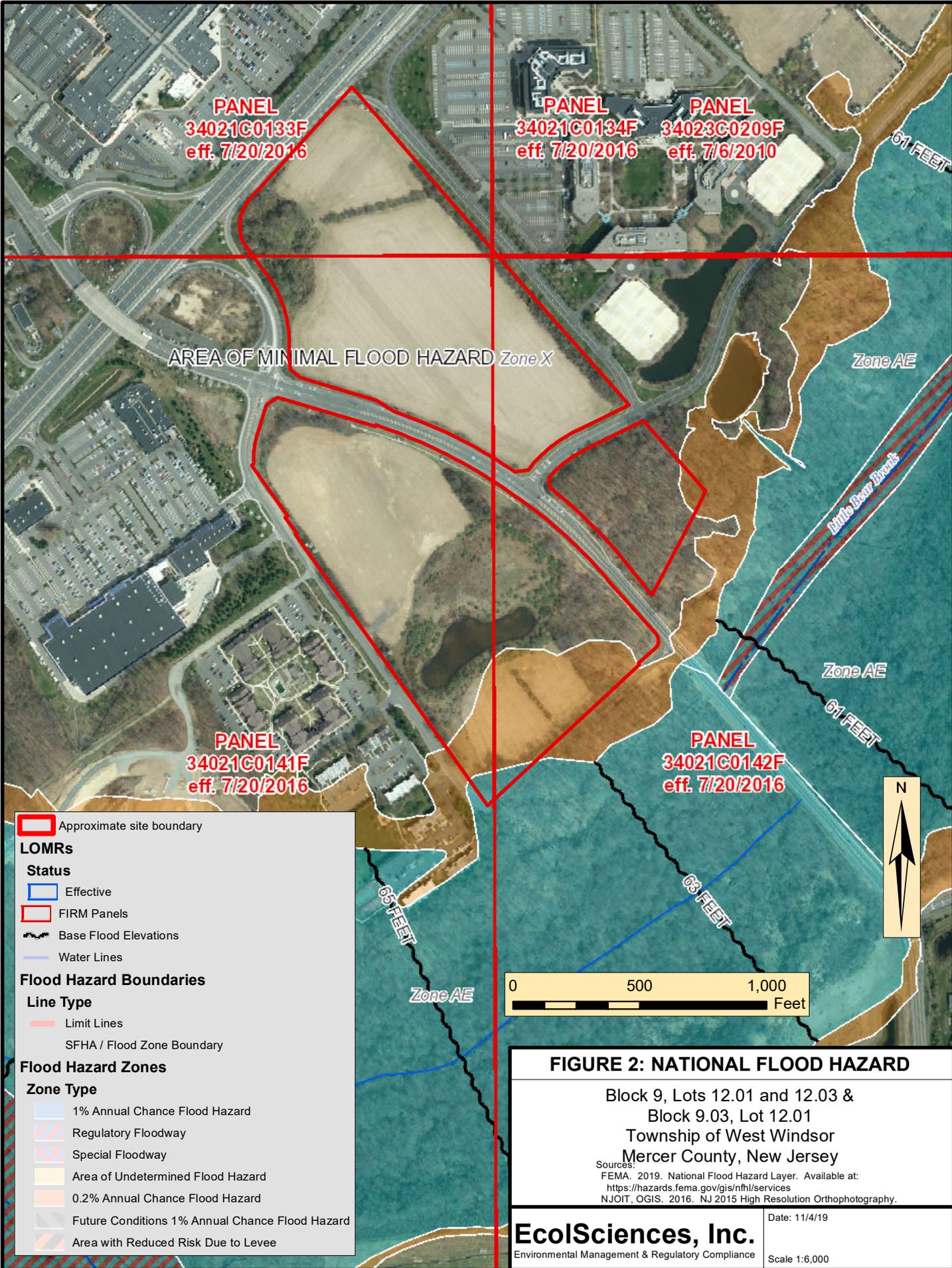


SITE  
LOCATION

State Plane Coordinates (New Jersey NAD 83)  
448,475' E; 538,041' N



|  |                                 |
|--|---------------------------------|
| <b>FIGURE 1: USGS SITE LOCATION</b>  |                                 |
| Block9, Lots 12.01 and 12.03 &<br>Block 9.03, Lot 12.02<br>Township of West Windsor<br>Mercer County, New Jersey |                                 |
| Copyright© 2013 National Geographic Society, i-cubed.  |                                 |
| <b>EcolSciences, Inc.</b><br>Environmental Management & Regulatory Compliance                                    | Date: 11/7/19<br>Scale 1:12,000 |



**Approximate site boundary**

**LOMRs**

**Status**

- Effective
- FIRM Panels
- Base Flood Elevations
- Water Lines

**Flood Hazard Boundaries**

**Line Type**

- Limit Lines
- SFHA / Flood Zone Boundary

**Flood Hazard Zones**

**Zone Type**

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee



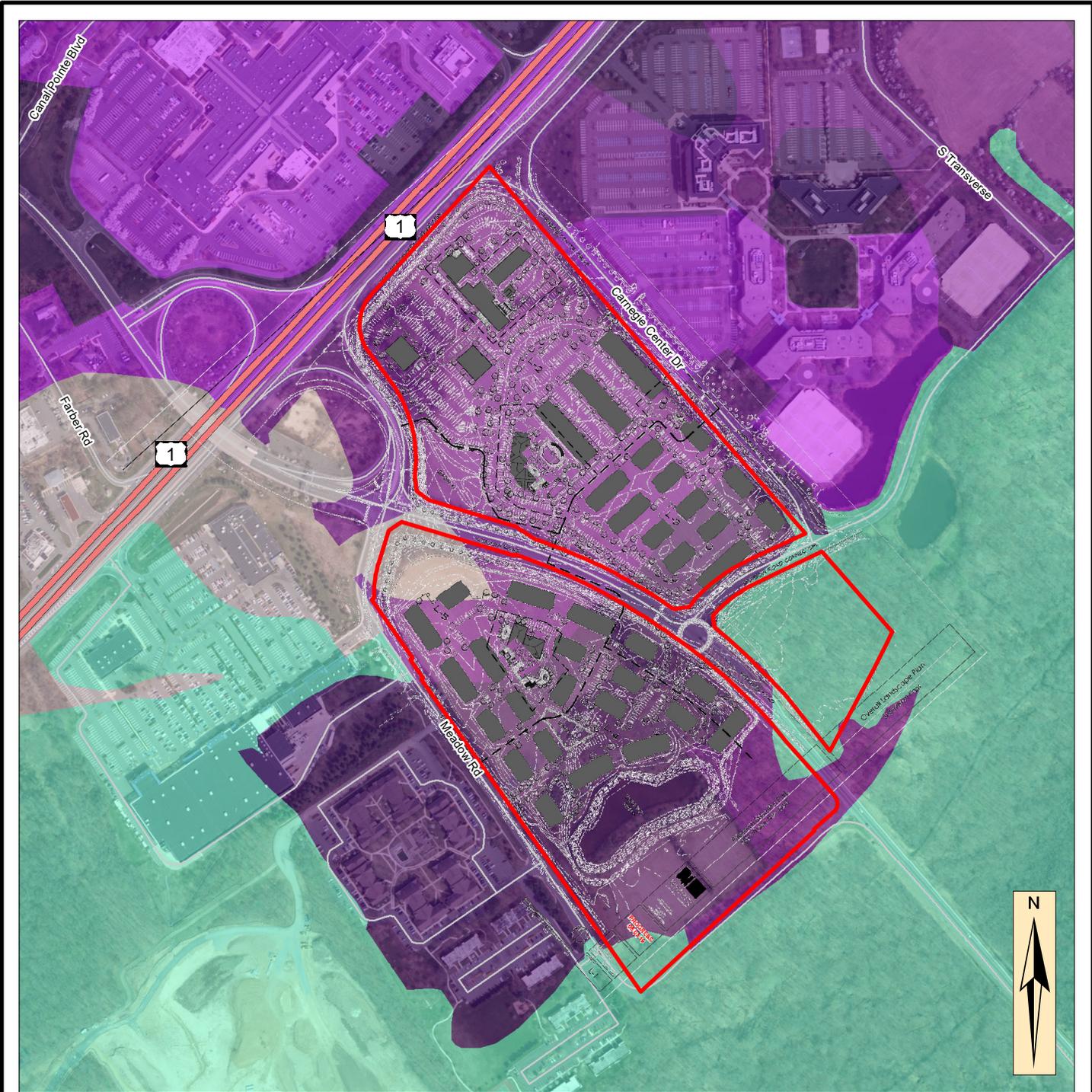
**FIGURE 2: NATIONAL FLOOD HAZARD**

Block 9, Lots 12.01 and 12.03 &  
 Block 9.03, Lot 12.01  
 Township of West Windsor  
 Mercer County, New Jersey

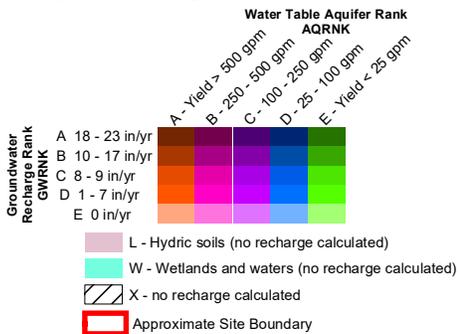
Sources:  
 FEMA. 2019. National Flood Hazard Layer. Available at:  
<https://hazards.fema.gov/gis/nhli/services>  
 NJGIT, OGIS. 2016. NJ 2015 High Resolution Orthophotography.

**EcolSciences, Inc.**  
 Environmental Management & Regulatory Compliance

Date: 11/4/19  
 Scale 1:6,000



**Aquifer Recharge Potential - AQRNK/GWRNK**



**FIGURE 3: AQUIFER RECHARGE POTENTIAL**

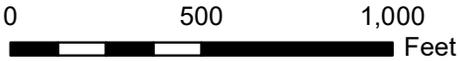
Block 9, Lots 12.01 and 12.03 &  
Block 9.03, Lot 12.02  
Township of West Windsor  
Mercer Hunterdon, New Jersey

Sources:  
NJDEP, NJGS, BWR, Mark French. 2005. Aquifer Recharge Potential for Hunterdon County, NJ  
NJOIT, OGIS. 2016. NJ 2015 High Resolution Orthophotography.

**EcolSciences, Inc.**  
Environmental Management & Regulatory Compliance

Date: 6/17/2019

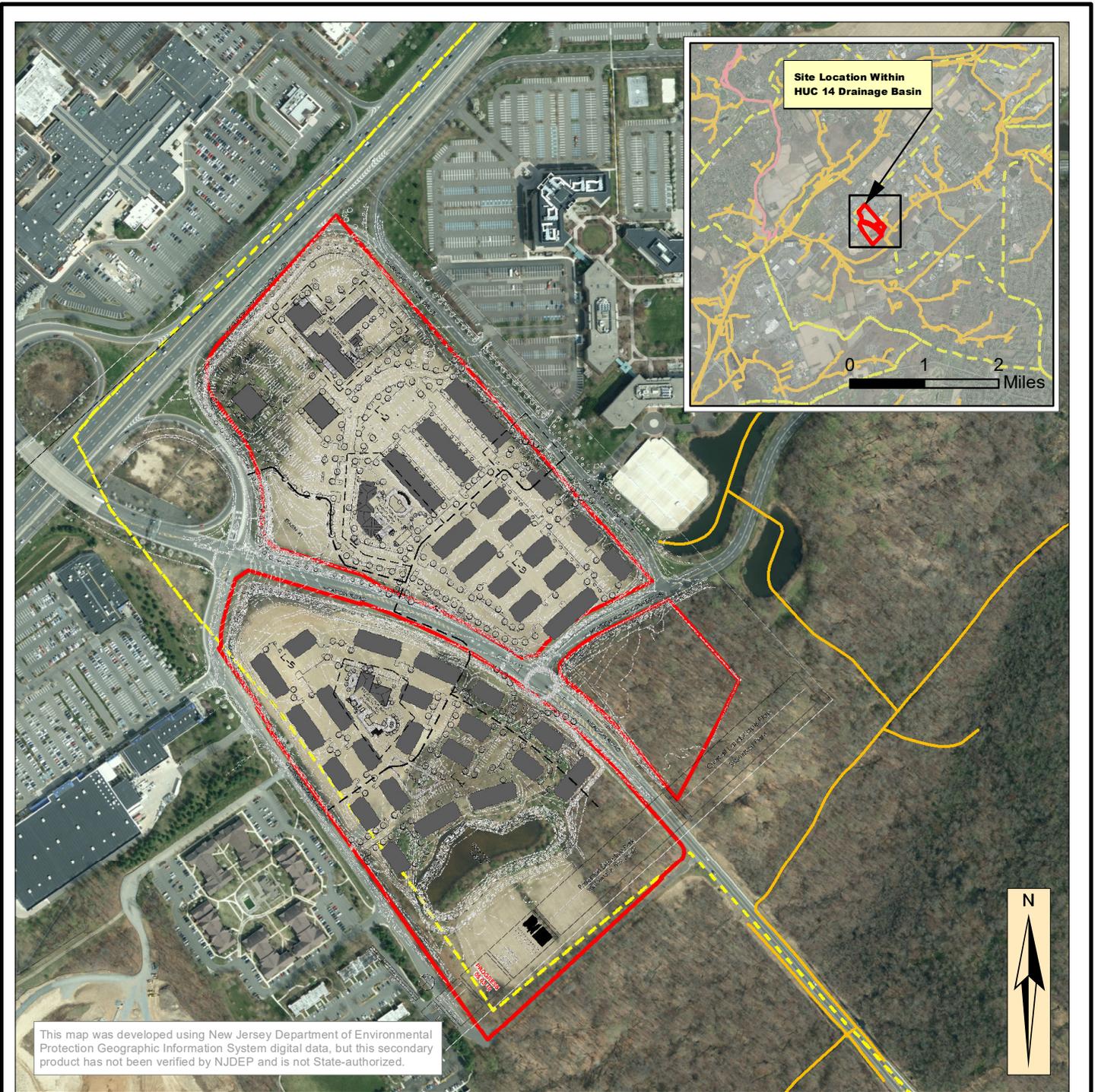
Scale 1:6,000



**Legend**

- AGRICULTURE
- OLD FIELD
- WOODED
- WETLANDS

|   |                |
|---|----------------|
| <b>FIGURE 4: 2012 Land Use Land Cover</b>   |                |
| Block 9, Lots 12.01 and 12.03 &<br>Block 9.03, Lot 12.02<br>Township of West Windsor<br>Mercer County, New Jersey |                |
| Source: NJOIT, OGIS. 2016. NJ 2015 High Resolution Orthophotography.  |                |
| <b>EcolSciences, Inc.</b>   | Date: 06/17/19 |
| Environmental Management & Regulatory Compliance  | Scale 1:6,000  |



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.

**Legend**

- C1 - Category 1 Water
- C2 - Category 2 Water
- ON - Outstanding National Resource Water
- DR -Delaware River (May 2009)
- Trout maintenance waters
- Trout production waters
- HUC 14 Drainage Area Boundary
- Watershed Management Area Boundary



**FIGURE 5: SURFACE WATER QUALITY**

Block 9, Lots 12.01 and 12.03 &  
Block 9.03, Lot 12.01  
Township of West Windsor  
Mercer County, New Jersey

Sources:  
NJDEP, WMS, BFBM, 2007. NJDEP Surface Water Quality Standards of NJ (Version 201012).  
NJOIT, OGIS. 2016. NJ 2015 High Resolution Orthophotography.

**EcolSciences, Inc.**  
Environmental Management & Regulatory Compliance

Date: 6/17/2019

Scale 1:6,000



United States  
Department of  
Agriculture

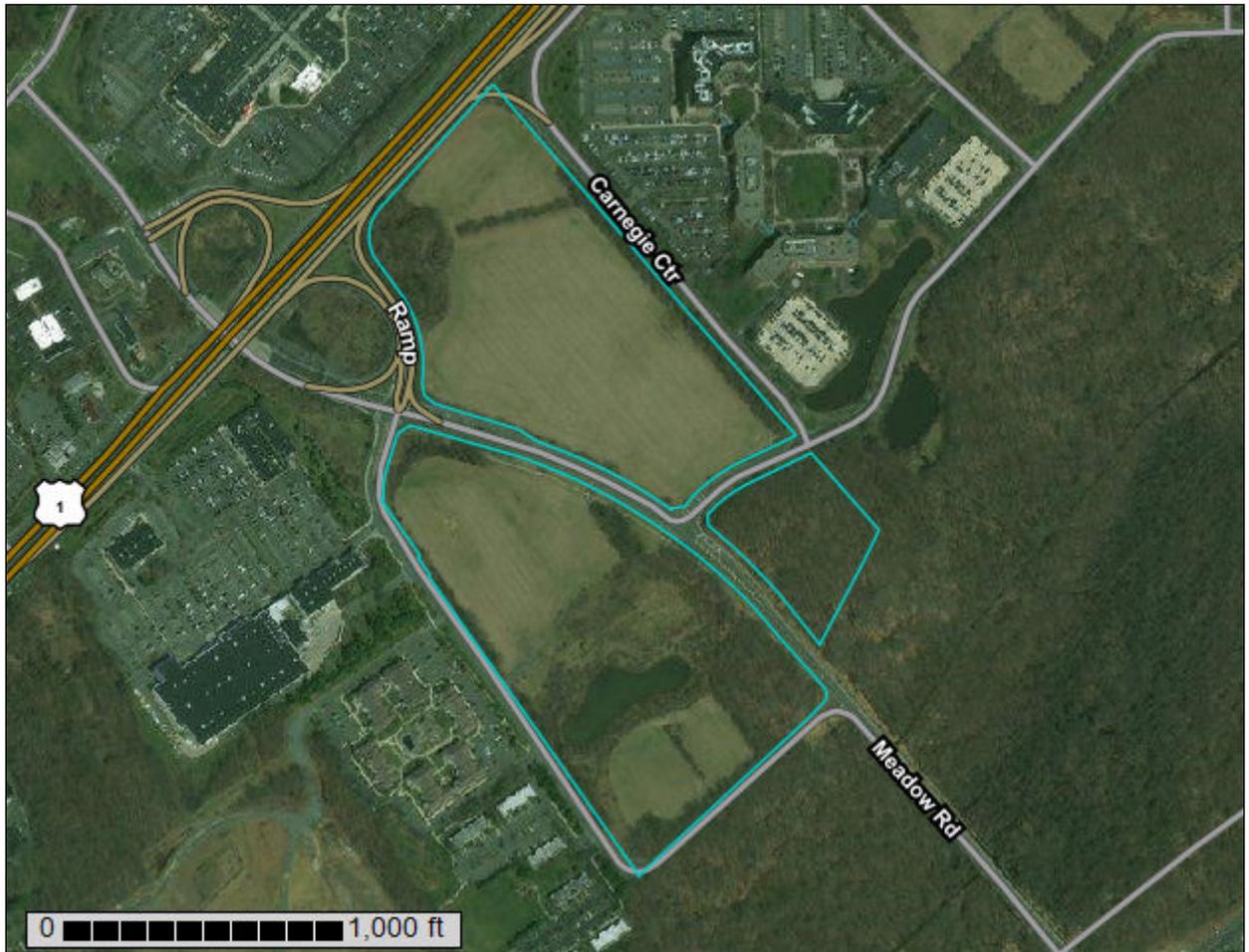
**NRCS**

Natural  
Resources  
Conservation  
Service

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

# Custom Soil Resource Report for **Mercer County, New Jersey**

## Roseland/ Mack Cali



# Preface

---

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

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

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

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

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

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

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

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

# Contents

---

|  |    |
|--|----|
| <b>Preface</b> .....   | 2  |
| <b>Soil Map</b> .....  | 5  |
| Soil Map.....  | 6  |
| Legend.....  | 7  |
| Map Unit Legend.....   | 8  |
| Map Unit Descriptions.....   | 8  |
| Mercer County, New Jersey.....   | 10 |
| EvgB—Evesboro loamy sand, 0 to 5 percent slopes.....                             | 10 |
| GafB—Galestown sandy loam, 0 to 5 percent slopes.....                            | 11 |
| GASB—Galloway variant soils, 0 to 5 percent slopes.....                          | 12 |
| GKAWOB—Glassboro and Woodstown sandy loams, 0 to 5 percent<br>slopes.....        | 14 |
| OthA—Othello silt loams, 0 to 2 percent slopes, northern coastal plain.....      | 16 |
| SacA—Sassafras sandy loam, 0 to 2 percent slopes, Northern Coastal<br>Plain..... | 18 |
| <b>References</b> .....  | 21 |

# Soil Map

---

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

# Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:5,060 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

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

### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

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

**Background**

 Aerial Photography

### MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Mercer County, New Jersey  
 Survey Area Data: Version 14, Sep 15, 2018

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

Date(s) aerial images were photographed: Aug 14, 2015—Apr 2, 2017

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

## Map Unit Legend

| Map Unit Symbol                    | Map Unit Name   | Acres in AOI | Percent of AOI |
|------------------------------------|---|--------------|----------------|
| EvgB                               | Evesboro loamy sand, 0 to 5 percent slopes                          | 0.8          | 1.3%           |
| GafB                               | Galestown sandy loam, 0 to 5 percent slopes                         | 17.4         | 29.5%          |
| GASB                               | Galloway variant soils, 0 to 5 percent slopes                       | 36.4         | 61.5%          |
| GKAWOB                             | Glassboro and Woodstown sandy loams, 0 to 5 percent slopes          | 2.1          | 3.6%           |
| OthA                               | Othello silt loams, 0 to 2 percent slopes, northern coastal plain   | 2.1          | 3.6%           |
| SacA                               | Sassafras sandy loam, 0 to 2 percent slopes, Northern Coastal Plain | 0.3          | 0.5%           |
| <b>Totals for Area of Interest</b> |   | <b>59.1</b>  | <b>100.0%</b>  |

## Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

## Custom Soil Resource Report

descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

## Mercer County, New Jersey

### EvgB—Evesboro loamy sand, 0 to 5 percent slopes

#### Map Unit Setting

*National map unit symbol:* 4jnj  
*Elevation:* 10 to 450 feet  
*Mean annual precipitation:* 28 to 59 inches  
*Mean annual air temperature:* 46 to 79 degrees F  
*Frost-free period:* 161 to 231 days  
*Farmland classification:* Farmland of local importance

#### Map Unit Composition

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

#### Description of Evesboro

##### Setting

*Landform:* Dunes  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Sandy eolian deposits and/or sandy fluvio-marine deposits

##### Typical profile

*A - 0 to 4 inches:* loamy sand  
*AB - 4 to 18 inches:* loamy sand  
*Bw - 18 to 36 inches:* loamy sand  
*C - 36 to 60 inches:* sand

##### Properties and qualities

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Excessively drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (2.00 to 20.00 in/hr)  
*Depth to water table:* About 48 to 122 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 4.4 inches)

##### Interpretive groups

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

#### Minor Components

##### Woodstown

*Percent of map unit:* 5 percent  
*Landform:* Drainageways  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope

## Custom Soil Resource Report

*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### **Klej**

*Percent of map unit:* 5 percent  
*Landform:* Dunes  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Sassafras**

*Percent of map unit:* 5 percent  
*Landform:* Knolls  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **GafB—Galestown sandy loam, 0 to 5 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 4jms  
*Elevation:* 10 to 170 feet  
*Mean annual precipitation:* 28 to 59 inches  
*Mean annual air temperature:* 46 to 79 degrees F  
*Frost-free period:* 161 to 231 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

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

### **Description of Galestown**

#### **Setting**

*Landform:* Terraces, ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, riser  
*Down-slope shape:* Linear, convex  
*Across-slope shape:* Linear  
*Parent material:* Sandy eolian deposits and/or fluviomarine deposits

#### **Typical profile**

*Ap - 0 to 9 inches:* sandy loam  
*Bt - 9 to 32 inches:* sandy loam  
*C - 32 to 60 inches:* fine sand

## Custom Soil Resource Report

### Properties and qualities

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat excessively drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 4.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* A  
*Hydric soil rating:* No

### Minor Components

#### Evesboro

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

#### Matapeake

*Percent of map unit:* 5 percent  
*Landform:* Interfluves  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Sassafras

*Percent of map unit:* 5 percent  
*Landform:* Knolls  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## GASB—Galloway variant soils, 0 to 5 percent slopes

### Map Unit Setting

*National map unit symbol:* 4jmt  
*Elevation:* 10 to 450 feet  
*Mean annual precipitation:* 28 to 59 inches

## Custom Soil Resource Report

*Mean annual air temperature:* 46 to 79 degrees F  
*Frost-free period:* 161 to 231 days  
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Galloway, sandy loam substratum, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Galloway, Sandy Loam Substratum

#### Setting

*Landform:* Dunes  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Unconsolidated sandy marine deposits over fine-loamy fluviomarine deposits

#### Typical profile

*Ap - 0 to 10 inches:* sandy loam  
*Bw1 - 10 to 16 inches:* sandy loam  
*Bw2 - 16 to 40 inches:* sandy loam  
*C - 40 to 60 inches:* loamy sand

#### Properties and qualities

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Moderately well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)  
*Depth to water table:* About 18 to 42 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 4.0 inches)

#### Interpretive groups

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

### Minor Components

#### Evesboro, loamy substratum

*Percent of map unit:* 5 percent  
*Landform:* Dunes  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Klej

*Percent of map unit:* 5 percent  
*Landform:* Dunes  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **GKAWOB—Glassboro and Woodstown sandy loams, 0 to 5 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 1jg7f  
*Elevation:* 0 to 130 feet  
*Mean annual precipitation:* 28 to 59 inches  
*Mean annual air temperature:* 46 to 79 degrees F  
*Frost-free period:* 161 to 231 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Glassboro and similar soils:* 45 percent  
*Woodstown and similar soils:* 40 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Glassboro**

#### **Setting**

*Landform:* Flats  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Loamy fluviomarine deposits

#### **Typical profile**

*A - 0 to 10 inches:* sandy loam  
*BA - 10 to 13 inches:* sandy loam  
*Bg - 13 to 18 inches:* sandy loam  
*Btg - 18 to 26 inches:* sandy loam  
*C - 26 to 60 inches:* gravelly sandy loam

#### **Properties and qualities**

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 5.5 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* A/D  
*Hydric soil rating:* No

## Description of Woodstown

### Setting

*Landform:* Drainageways  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Parent material:* Old alluvium and/or sandy marine deposits

### Typical profile

*Ap - 0 to 11 inches:* sandy loam  
*BA - 11 to 17 inches:* sandy loam  
*Bt - 17 to 23 inches:* sandy loam  
*BC - 23 to 30 inches:* sandy loam  
*C - 30 to 48 inches:* sandy loam  
*2C - 48 to 60 inches:* stratified loamy sand to sandy loam

### Properties and qualities

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Moderately well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 6.00 in/hr)  
*Depth to water table:* About 18 to 42 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Moderate (about 6.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No

## Minor Components

### Mullica, rarely flooded

*Percent of map unit:* 5 percent  
*Landform:* Depressions, drainageways, flood plains  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave, linear  
*Across-slope shape:* Concave, linear  
*Hydric soil rating:* Yes

### Downer

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

### Fallsington

*Percent of map unit:* 5 percent

## Custom Soil Resource Report

*Landform:* Depressions  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

### **OthA—Othello silt loams, 0 to 2 percent slopes, northern coastal plain**

#### **Map Unit Setting**

*National map unit symbol:* 2thwm  
*Elevation:* 0 to 300 feet  
*Mean annual precipitation:* 40 to 50 inches  
*Mean annual air temperature:* 46 to 64 degrees F  
*Frost-free period:* 190 to 250 days  
*Farmland classification:* Farmland of statewide importance, if drained

#### **Map Unit Composition**

*Othello, drained, and similar soils:* 50 percent  
*Othello, undrained, and similar soils:* 30 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Othello, Drained**

##### **Setting**

*Landform:* Flats, depressions, swales  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Talf, dip  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear, concave  
*Parent material:* Silty eolian deposits over fluviomarine deposits

##### **Typical profile**

*Ap - 0 to 9 inches:* silt loam  
*Btg - 9 to 29 inches:* silt loam  
*2BCg - 29 to 34 inches:* sandy loam  
*2Cg - 34 to 80 inches:* loamy sand

##### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.57 in/hr)  
*Depth to water table:* About 10 to 20 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Rare

## Custom Soil Resource Report

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water storage in profile:* Moderate (about 8.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Hydric soil rating:* Yes

### Description of Othello, Undrained

#### Setting

*Landform:* Drainageways, flats, depressions, swales

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Dip, talf

*Down-slope shape:* Concave, linear

*Across-slope shape:* Linear, concave

*Parent material:* Silty eolian deposits over fluviomarine deposits

#### Typical profile

*Oe - 0 to 2 inches:* peat

*A - 2 to 4 inches:* silt loam

*Eg - 4 to 10 inches:* silt loam

*Btg - 10 to 29 inches:* silt loam

*2BCg - 29 to 35 inches:* sandy loam

*2Cg - 35 to 80 inches:* loamy sand

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.57 in/hr)

*Depth to water table:* About 0 to 10 inches

*Frequency of flooding:* None

*Frequency of ponding:* Occasional

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water storage in profile:* High (about 9.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* C/D

*Hydric soil rating:* Yes

### Minor Components

#### Fallsington, undrained

*Percent of map unit:* 8 percent

*Landform:* Depressions, swales, drainageways, flats

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Dip, talf

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, linear

*Hydric soil rating:* Yes

**Kentuck, undrained**

*Percent of map unit:* 7 percent  
*Landform:* Flats, depressions, swales  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Talf, dip  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* Yes

**Mattapex**

*Percent of map unit:* 5 percent  
*Landform:* Broad interstream divides, flats, depressions, swales  
*Landform position (two-dimensional):* Summit, footslope  
*Landform position (three-dimensional):* Talf, dip  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

**SacA—Sassafras sandy loam, 0 to 2 percent slopes, Northern Coastal Plain**

**Map Unit Setting**

*National map unit symbol:* 2thx8  
*Elevation:* 0 to 470 feet  
*Mean annual precipitation:* 41 to 49 inches  
*Mean annual air temperature:* 53 to 58 degrees F  
*Frost-free period:* 190 to 250 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Sassafras and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Sassafras**

**Setting**

*Landform:* Flats, fluviomarine terraces  
*Landform position (three-dimensional):* Riser, rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Loamy fluviomarine deposits

**Typical profile**

*Ap - 0 to 12 inches:* sandy loam  
*Bt1 - 12 to 18 inches:* sandy loam  
*Bt2 - 18 to 28 inches:* sandy clay loam  
*BC - 28 to 40 inches:* loamy sand

## Custom Soil Resource Report

*C1 - 40 to 58 inches: sand*

*C2 - 58 to 80 inches: sand*

### Properties and qualities

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Natural drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water storage in profile: Moderate (about 7.1 inches)*

### Interpretive groups

*Land capability classification (irrigated): 1*

*Land capability classification (nonirrigated): 1*

*Hydrologic Soil Group: B*

*Hydric soil rating: No*

### Minor Components

#### Fallsington, drained

*Percent of map unit: 4 percent*

*Landform: Broad interstream divides, depressions, swales, flats*

*Landform position (two-dimensional): Summit, footslope*

*Landform position (three-dimensional): Talf, dip*

*Down-slope shape: Linear, concave*

*Across-slope shape: Linear, concave*

*Hydric soil rating: Yes*

#### Woodstown

*Percent of map unit: 4 percent*

*Landform: Fluvio-marine terraces, flats*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Tread, talf*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Hydric soil rating: No*

#### Downer

*Percent of map unit: 4 percent*

*Landform: Flats, knolls, fluvio-marine terraces*

*Landform position (two-dimensional): Summit, shoulder*

*Landform position (three-dimensional): Interfluvium, riser, rise*

*Down-slope shape: Linear, convex*

*Across-slope shape: Linear*

*Hydric soil rating: No*

#### Ingleside

*Percent of map unit: 4 percent*

*Landform: Fluvio-marine terraces, flats*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Rise*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Hydric soil rating: No*

## Custom Soil Resource Report

### **Aura**

*Percent of map unit:* 4 percent

*Landform:* Fluvio-marine terraces, low hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope, nose slope, riser

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

# References

---

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)