

Buena Borough Municipal Utilities Authority Water Pollution Control Plant



Pinelands Commission
January 11, 2019

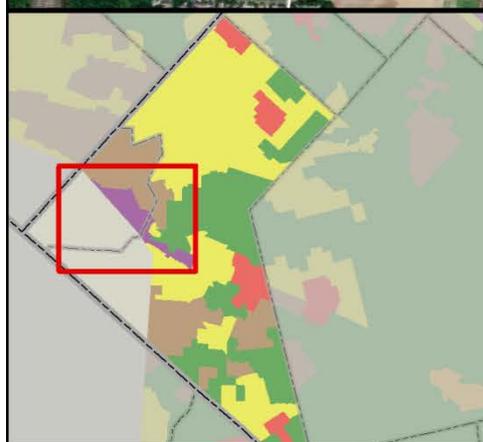
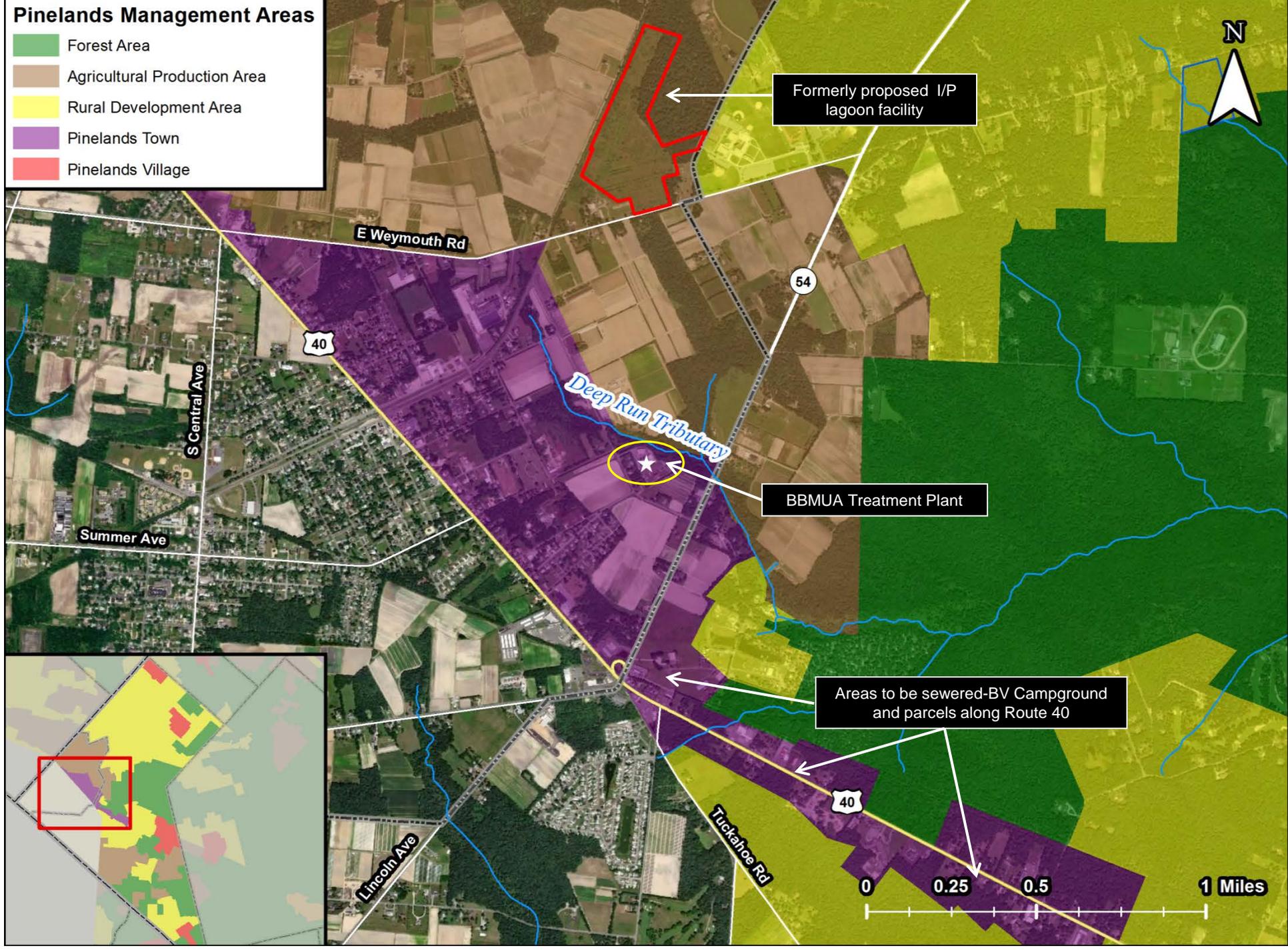
Buena Borough MUA's Water Pollution Control Facility An MOA Success Story

How local groundwater and soil permeability limitations that restricted wastewater disposal options in Buena Borough lead to:

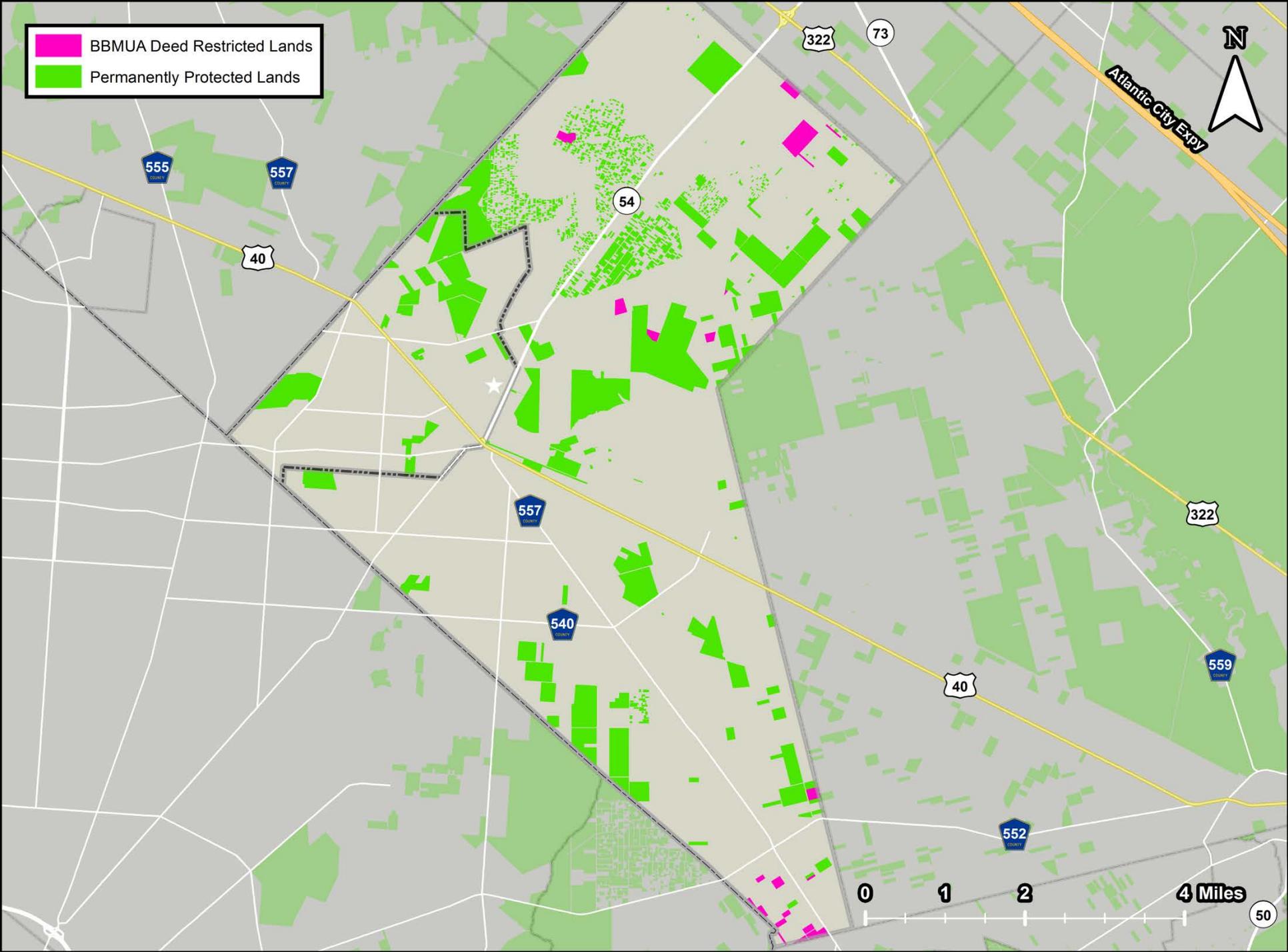
- State of the art wastewater treatment in the Pineland Area
- Improved water quality in a Pinelands stream
- The permanent protection of at least 232 acres in the Forest and Rural Development Areas in Buena Vista Township
- The eventual elimination of septic systems (via sewerage) at the Buena Vista Campground and the extension of sewer service along Route 40 in Buena Vista Township.

Pinelands Management Areas

- Forest Area
- Agricultural Production Area
- Rural Development Area
- Pinelands Town
- Pinelands Village



BBMUA Deed Restricted Lands
Permanently Protected Lands



Partners in the MOAs

Buena Borough Municipal Utilities Authority (BBMUA)

Buena Vista Township

The Pinelands Commission

- First MOA (March 27, 2007) To permit wastewater infrastructure (infiltration/percolation lagoons) in a Pinelands Agricultural Production Area
- Second MOA (May 26, 2011 amendment to first agreement) To permit the BBMUA to continue discharging treated effluent to the Deep Run using best available treatment technology.

Circumstances that lead the need for an MOA

1969 BBMUA's original wastewater treatment plant began operating with a permitted discharge to the Deep Run Creek, a tributary of the Great Egg Harbor River.

1988 Federal Water Pollution Control Act imposed new effluent discharge limits on all wastewater treatment plants.

Because the treatment plant couldn't meet new Federal and State discharge limits, the MUA and DEP entered into an Administrative Consent Order (ACO).

- * The ACO established a construction schedule for a new treatment plant that could meet the new (1988) State and Federal discharge limits.
- * The new plant would have a permitted flow greater than flow to the original plant.
- * Per the CMP, the increased flow triggered the need to eliminate the existing discharge to the Deep Run, a Pinelands surface water body.

Lead up to the MOAs

1990 New treatment plant capable of higher levels of nutrient removal is approved by the Commission (with conditions):

- * Completion of an effluent force main to convey effluent to a facility outside the Pinelands Area
- * Elimination of the Deep Run discharge by June 1, 1995.

1991 The new treatment system becomes operational

Three alternative methods for effluent disposal are evaluated:

- * Discharge to the Blackwater branch, outside the Pinelands Area
- * Land Application (via spray fields or infiltration lagoons)
- * Well injection (deep or shallow)

Lead up to the MOAs

1990-1995 Alternatives are evaluated

- ❖ Discharge to the Blackwater Branch (outside the Pinelands) ruled out:
 - Stream study finds insufficient flow in receiving stream

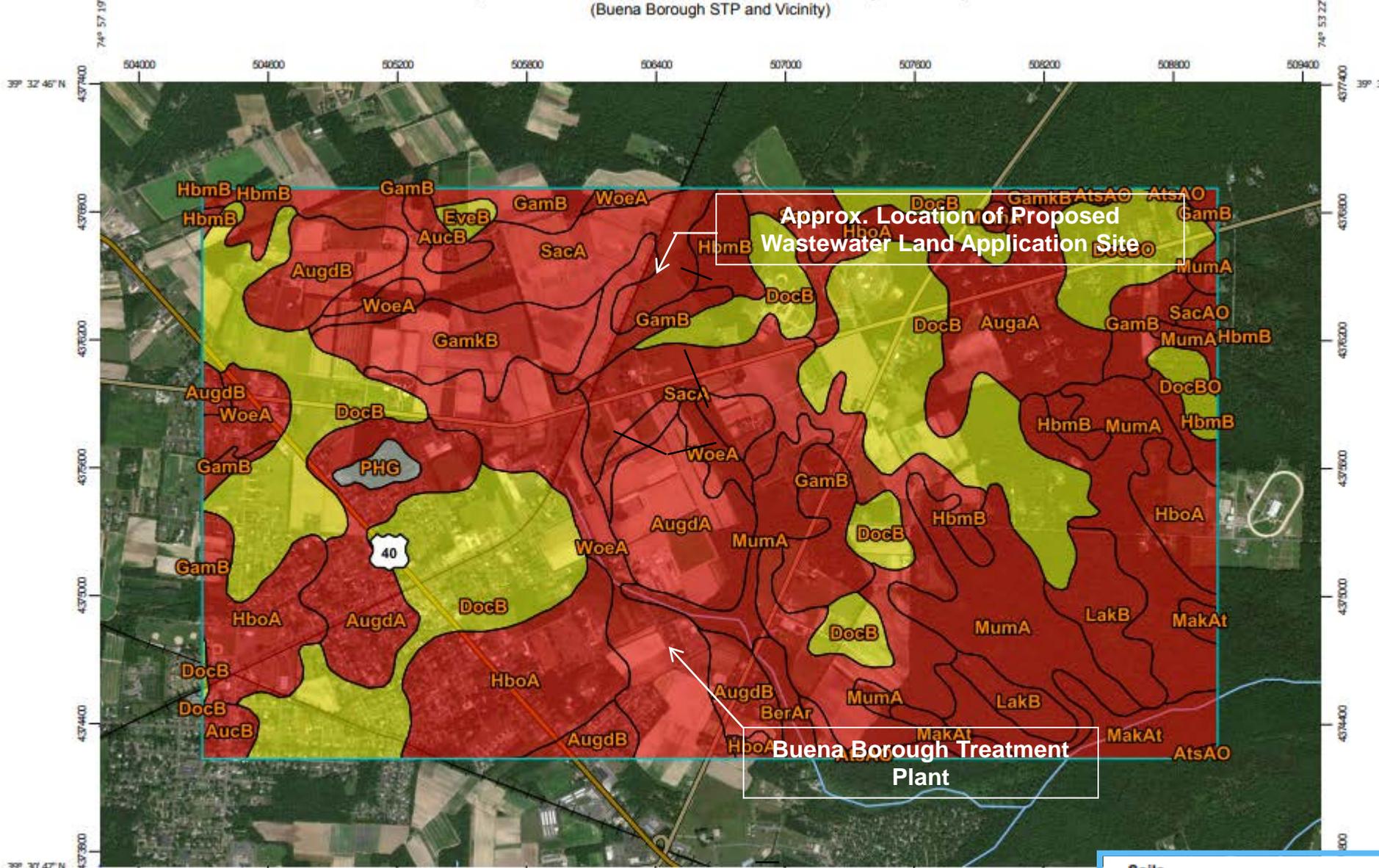
- ❖ Land application ruled out:
 - Spray irrigation would require 300 acres – nearby sites not available
 - Recharge basins (30 acres) -nearby sites are limited due shallow groundwater and/or restricted permeability.

- ❖ Deep and shallow well injection ruled out:
 - Deep injection to a brackish confined aquifer is not feasible due to silty and clayey conditions to a depth of over 2,000 feet.
 - Shallow injection to wells screened between 115 ft. and 195 ft. ruled out by DEP due to concerns over well screen fouling.

With continued discharge to the Deep Run beyond the June 1, 1995 deadline, no new connections to the treatment plant were permitted.

March 27, 2007 MOA

- 2003 BBMUA proposed infiltration/percolation lagoons on a 60-acre parcel in the Pinelands Agricultural Production Area (APA). An MOA was required to authorize wastewater infrastructure in the APA.
- 2007 BBMUA, Buena Vista Township and the Pinelands Commission executed the March 27, 2007 MOA to authorize development of the I/P lagoons in the APA.
- Buena Vista Township agreed to deed restrict approximately 232 acres of land as the environmental offset to the MOA.
 - BBMUA sought and obtained approximately \$4 million from the USDA to fund construction of the I/P lagoons.
- 2011 Under contract to the Pinelands Commission, USGS determines that groundwater mounding would severely interfere with the operation of the proposed I/P lagoon facility and the BBMUA was forced to abandon its plan to build the facility.



Approx. Location of Proposed
Wastewater Land Application Site

Buena Borough Treatment
Plant

Soils

Soil Rating Polygons

- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Map Scale: 1:25,900 if printed on a landscape (11" x 8.5") sheet.

0 350 700 1400 2100 Meters

0 1000 2000 4000 6000 Feet

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

Prepared in cooperation with the New Jersey Pinelands Commission and the Town of Hammonton, New Jersey

Assessment of Physical, Chemical, and Hydrologic Factors Affecting the Infiltration of Treated Wastewater in the New Jersey Coastal Plain, with Emphasis on the Hammonton Land Application Facility



Scientific Investigations Report 2010–5006

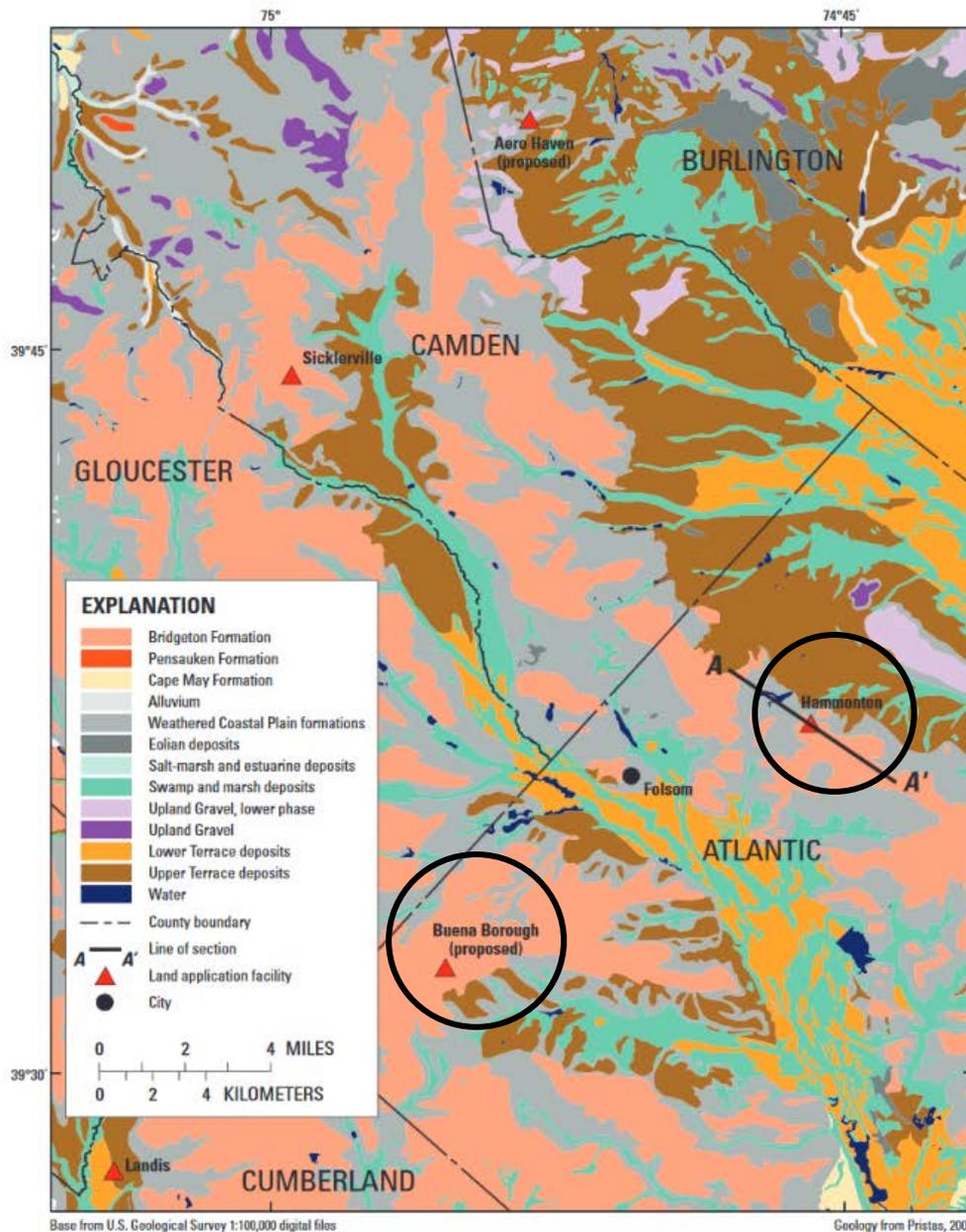


Figure 2. Surficial geology underlying existing and proposed land application facilities within and near the Pinelands National Reserve, southern New Jersey.

May 26, 2011 MOA Amendment

2011 All parties to the MOA conclude that alternatives to stream discharge are not feasible due to regional geology.

\$4 million in USDA funding presents an opportunity to upgrade the treatment plant to best available, membrane bioreactor (MBR) technology

The March 27, 2007 MOA is amended on March 27, 2007.

- Retains all of the environmental offsets of the original MOA
- Requires the plant to be upgraded to a Membrane Bioreactor
- Stipulates that there will be no increased flow to the plant until the plant achieves 24 consecutive months of significantly enhanced TN and TP discharge limits.

Membrane Bioreactor System Performance

February 2018

BBMUA satisfied the requirement for 24 consecutive months of compliance with TN and TP effluent discharge limits set forth in the amended MOA.

April 2018

Executive Director Wittenberg notified NJDEP of BBMUA's compliance, enabling :

- An amendment to the Atlantic County Water Quality Management Plan (WQMP) and an increase in the permitted flow to the plant from 400,000 gpd to 600,000 gpd.

BBMUAs Water Pollution Control Professionals

Dennis K. Yoder, P.E., Director of Engineering , Remington & Vernick Engineers

Alan Zorzi, Plant Superintendent, Buena Borough Municipal Utilities Authority, NJDEP Licensed Wastewater Treatment Plant Operator, Collection System Operator and Water Treatment System Operator