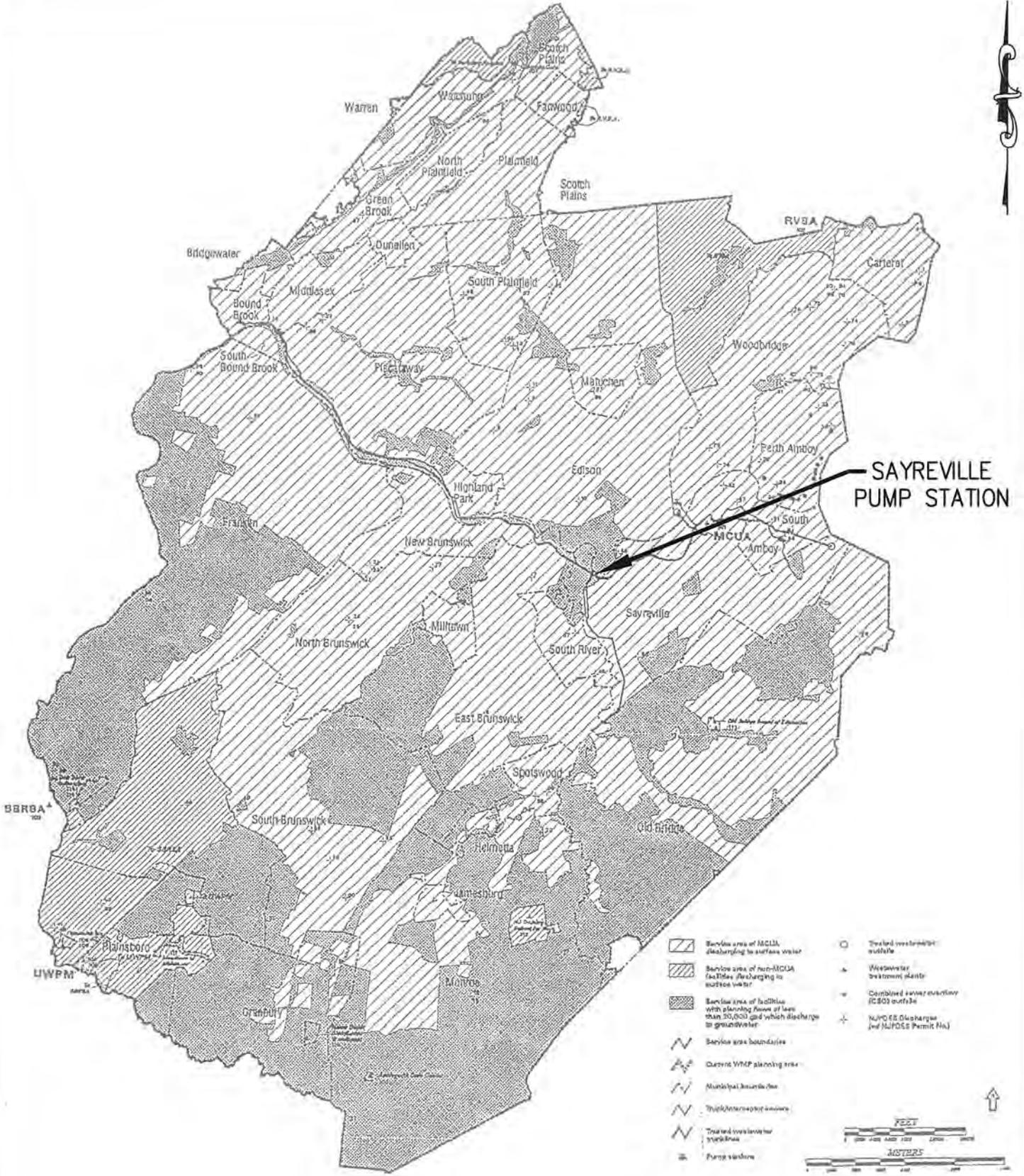


## **Appendix A: Maps and Figures**

- FIGURE 1: Service Area and Location Plan
- FIGURE 2: U.S.G.S. Location of Conveyance Facilities
- FIGURE 3: Location of Project
- FIGURE 4: Advisory Base Flood Elevation Map South Amboy NW Map issued December 7, 2012
- FIGURE 5: Middlesex County Preliminary Work Map Panel 0151 issued June 2013
- FIGURE 6: Sayreville Pump Station Existing and Proposed Site Plan
- FIGURE 7: Site Survey with Wetlands Delineation
- FIGURE 8: Flooding from Northeaster of March 1993 at Frances ST and Weber AVE, Sayreville, NJ



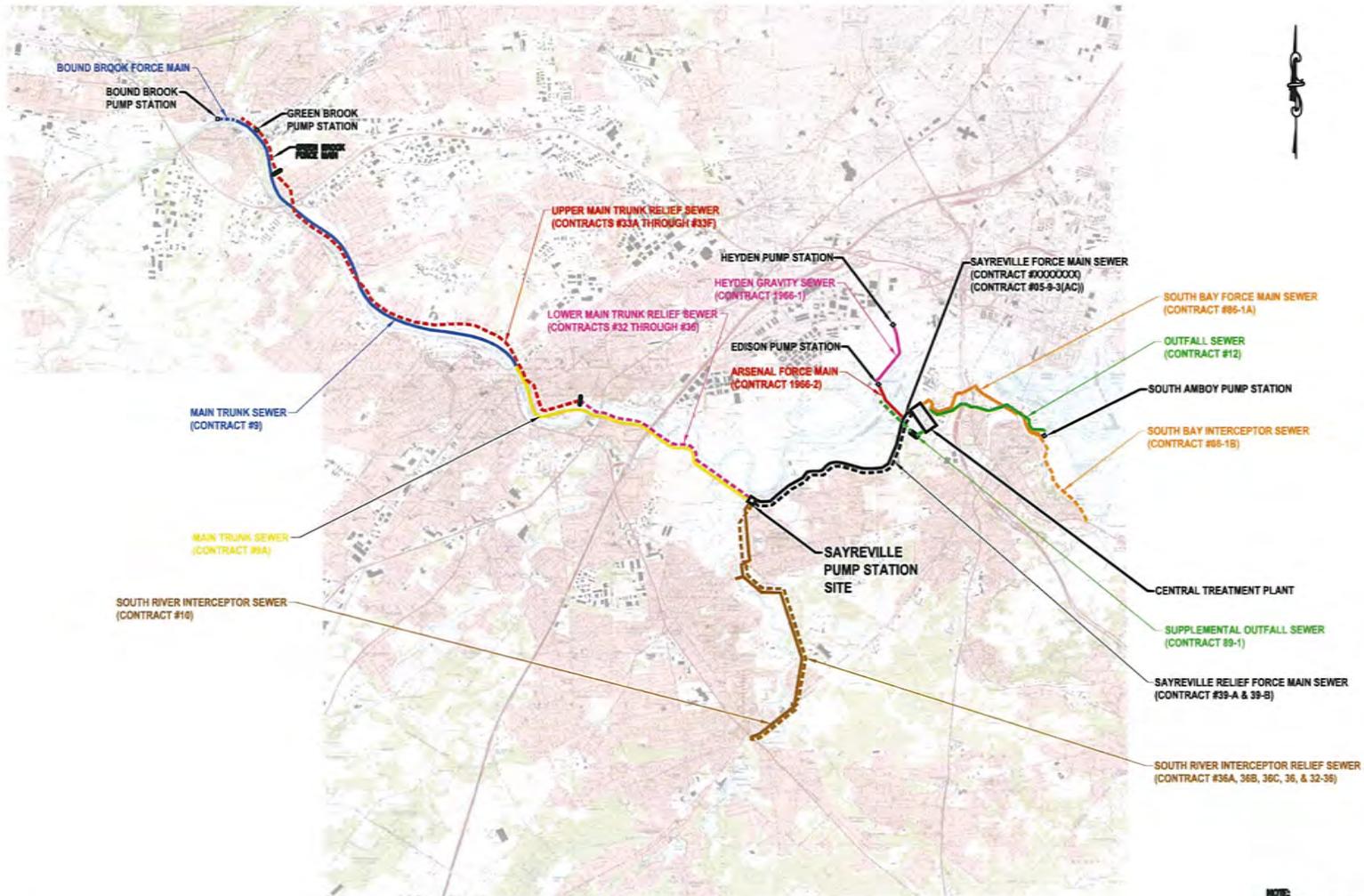
**SAYREVILLE  
PUMP STATION**

- Service area of MCUA discharging to surface water
- Service area of non-MCUA facilities discharging to surface water
- Service area of facilities with planning flows of less than 30,000 gpd which discharge to groundwater
- Service area boundaries
- Current WMP planning area
- Municipal boundaries
- Thick/interwater owners
- Treated wastewater outfalls
- Pump station
- Treated wastewater outfall
- Wastewater treatment plant
- Combined sewer overflow (CSO) outfall
- NJPDES Discharge (or NJPDES Permit No.)

**MIDDLESEX COUNTY UTILITIES AUTHORITY  
RESTORATION AND FLOOD MITIGATION PROJECT  
AT THE SAYREVILLE PUMP STATION**

**FIGURE 1  
SERVICE AREA AND LOCATION PLAN**

SOURCE:  
LOWER RARITAN/MIDDLESEX COUNTY WASTEWATER  
MANAGEMENT PLAN, FEBRUARY 18, 2000 PREPARED BY  
CAMP, DRESSER AND MCKEE



- LEGEND**
- MAIN TRUNK SEWER (CONTRACT #9)
  - MAIN TRUNK SEWER (CONTRACT #9A)
  - - - UPPER MAIN TRUNK RELIEF SEWER
  - - - LOWER MAIN TRUNK RELIEF SEWER
  - - - SOUTH BAY FORCE MAIN SEWER
  - - - SOUTH BAY INTERCEPTOR SEWER (GRAVITY)
  - - - OUTFALL SEWER
  - - - SUPPLEMENTAL OUTFALL SEWER
  - - - SOUTH RIVER INTERCEPTOR SEWER
  - - - SOUTH RIVER INTERCEPTOR RELIEF SEWER
  - - - SAYREVILLE FORCE MAIN SEWER
  - - - SAYREVILLE RELIEF FORCE MAIN SEWER
  - - - ARSENAL FORCE MAIN
  - - - HEYDEN GRAVITY SEWER
  - - - BOUND BROOK FORCE MAIN

**NOTES:** DIMENSIONS SHOWN ON THIS PLAN ARE THE FOLLOWING: BOUND BROOK TOPOGRAPHIC MAP, DATED 1995; NEW BRUNSWICK TOPOGRAPHIC MAP, DATED 1995; PLAINFIELD TOPOGRAPHIC MAP, DATED 1995; SOUTH AMBOY TOPOGRAPHIC MAP, DATED 1995.

**NOTE:** THE SCHEMATIC MAP PRESENTS THE GENERAL LOCATIONS OF ALL PIPELINES WHICH MAY BE IDENTIFIED IN A WORK ORDER FOR REPAIR OR REPLACEMENT BY THE CONTRACTOR. THE MGA MAINTAINS RECORD DOCUMENTS WHICH PROVIDE ADDITIONAL INFORMATION TO BE MADE AVAILABLE TO THE CONTRACTOR FOR A SPECIFIC WORK ORDER.

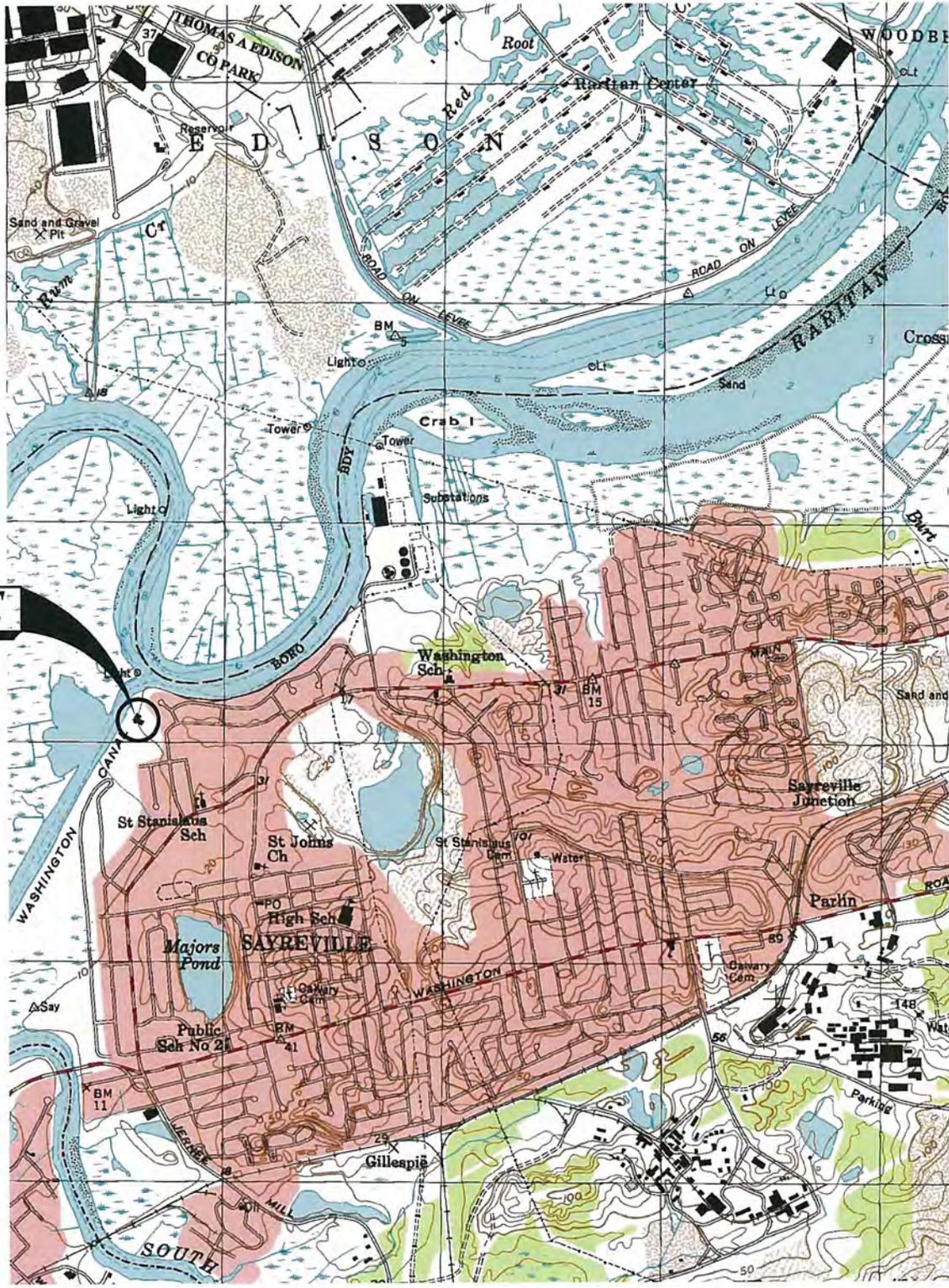
MIDDLESEX COUNTY UTILITIES AUTHORITY  
RESTORATION AND FLOOD MITIGATION PROJECT  
AT THE SAYREVILLE PUMP STATION

FIGURE 2  
U.S.G.S. LOCATION OF CONVEYANCE FACILITIES

**SOURCE:** BASE MAP IMAGE TAKE FROM THE FOLLOWING:  
BOUND BROOK TOPOGRAPHIC MAP, DATED 1995;  
NEW BRUNSWICK TOPOGRAPHIC MAP, DATED 1995;  
PLAINFIELD TOPOGRAPHIC MAP, DATED 1995;  
SOUTH AMBOY TOPOGRAPHIC MAP, DATED 1995.

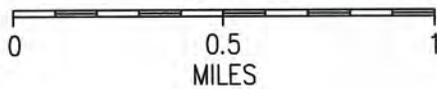


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**SITE**

SCALE



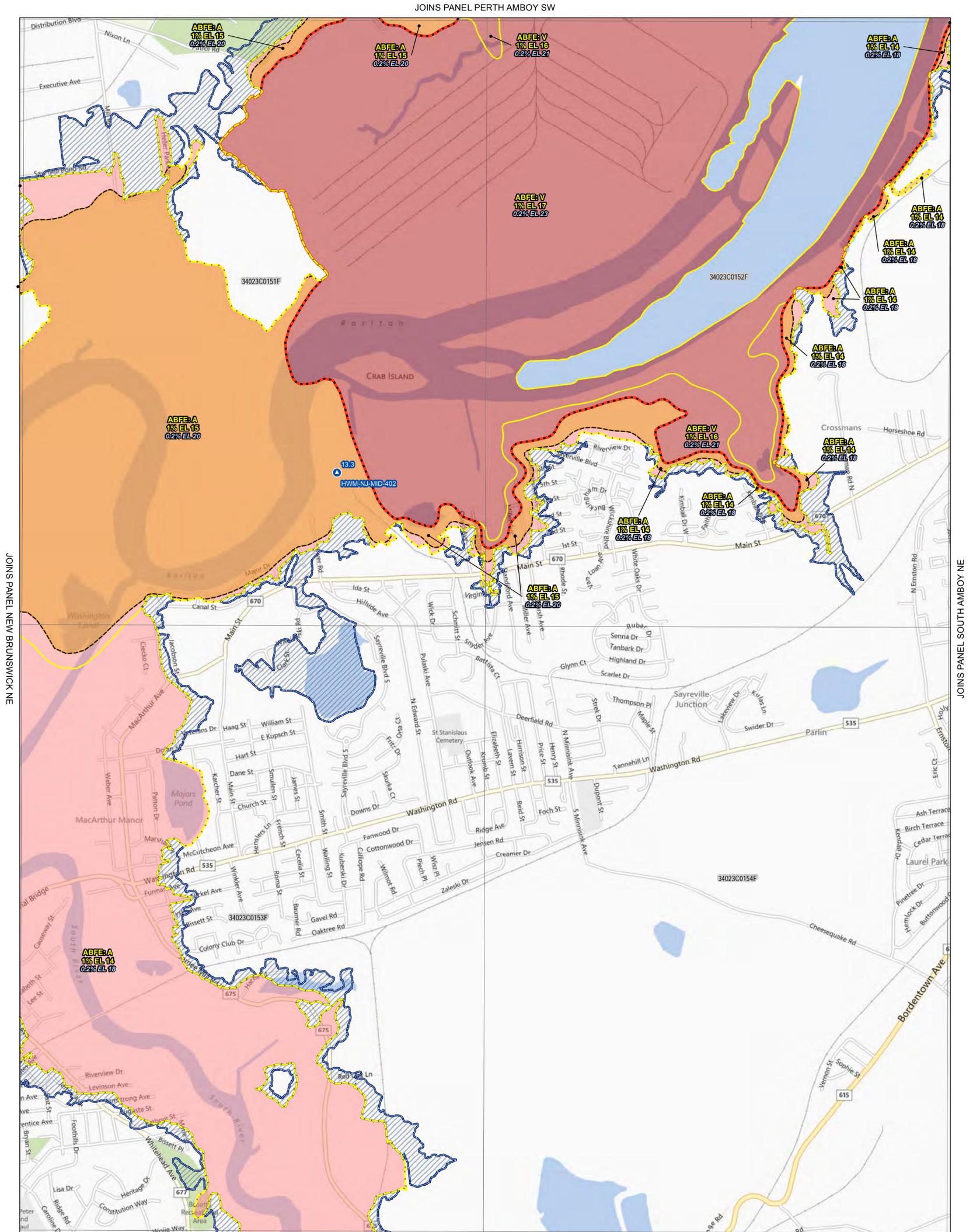
MIDDLESEX COUNTY UTILITIES AUTHORITY  
 RESTORATION AND FLOOD MITIGATION PROJECT  
 AT THE SAYREVILLE PUMP STATION

FIGURE 3  
 LOCATION OF PROJECT

SOURCE:  
 USGS, South Amboy Quadrangle,  
 New Jersey, 7.5-Minute Series (Topographic)

**R<sup>3</sup>m**  
 engineering, inc.

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 Old Bridge, New Jersey 08857  
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### ADVISORY BASE FLOOD ELEVATIONS

This map shows Advisory Base Flood Elevations (ABFEs) developed by FEMA. Use the QR code to the right, or navigate to <http://www.region2coastal.com/> for more information on how they were determined.

These ABFEs can serve as a guide to understanding current coastal flood hazard risk and the elevations that communities should build to in order to protect themselves from future flood events. As part of the long term recovery effort, the ABFEs are a tool for Federal, State, and local officials, building officials, builders and architects, insurance professionals, and property owners to make informed decisions during rebuilding and to mitigate losses from future flood events, safeguard lives, and protect the private and public investment in rebuilding.

**NOTES**

<sup>1</sup> Measured in feet relative to the North American Vertical Datum of 1988 (NAVD88). To convert from NAVD88 to the National Geodetic Vertical Datum of 1929, add the following county-wide value(s): Middlesex (1.1 ft)

<sup>2</sup> Each whole-foot 1% annual chance Advisory Base Flood Elevation shown applies to all properties located in the mapped zone, with zone boundaries outlined in yellow.

<sup>3</sup> Each whole-foot 0.2% annual chance Advisory Base Flood Elevation shown applies to all properties located in the mapped zone, with zone boundaries outlined in yellow.

<sup>4</sup> Depicts the extent of the "Coastal A Zone" or area of moderate wave action where wave heights are between 1.5 and 3 feet. The FEMA Coastal Construction Manual, American Society of Civil Engineers, and the 2012 International Residential Building Code recommend Zone VE construction practices in this area.

<sup>5</sup> Depicts the extent of the Coastal Barrier Resources Act (CBRA). CBRA System Units are shown on this map to advise users where Federal funding is unavailable for repairing or rebuilding substantially damaged structures. For official delineations of the CBRA, please refer to the U.S. Fish and Wildlife Service at <http://www.fws.gov/cbra/>

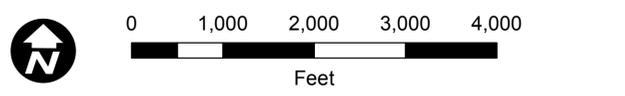
**Data Sources:**

<sup>6</sup> Sandy Surge Elevations: U.S. Geological Survey Rapid Deployment Gauges and High Water Marks (Provisional data retrieved on 11/27/2012). Current data can be found at: <http://water.usgs.gov/floods/events/2012/sandy/>; Base Map: Bing Maps Road; Stillwater Elevations: Preliminary Coastal FEMA Flood Insurance Study Update for New York City and New Jersey, 2012; Storm Track: NOAA National Weather Service

### USAGE

The elevations shown on this map are considered best available data until issuance of updated Flood Insurance Rate Maps.

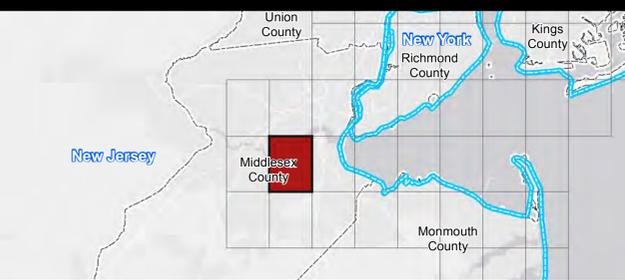
**OBSERVED SANDY SURGE ELEVATIONS<sup>1,6</sup>**  
Approximately 13-14 ft on this Panel



### LEGEND

- |   |   |
|---|---|
| Advisory Base Flood Elevation Zone (ABFE) <sup>2</sup>  | Advisory Limit of the 1% Annual Chance Flood Hazard Area <sup>3</sup>   |
| 1% Advisory Base Flood Elevation, feet <sup>1,2</sup>   | Advisory Limit of the 0.2% Annual Chance Flood Hazard Area <sup>3</sup> |
| 0.2% Advisory Base Flood Elevation, feet <sup>1,3</sup> | Advisory Shaded Zone X  |
| Advisory Flood Hazard Zone V                            | Effective FIRM Panel Boundary   |
| Area of Moderate Wave Action <sup>4</sup>               | <b>Hurricane Sandy Related Data</b>                                     |
| Advisory Flood Hazard Zone A                            | Provisional Hurricane Sandy Surge Elevation <sup>6</sup>                |
| <b>Geographic Boundaries</b>                            | CBRA <sup>5</sup>   |
|   | County  |
|   | State   |

(See Index Map for Additional Information)  
**OVERVIEW MAP**



**MAPS FOR ADVISORY PURPOSES ONLY - NOT FOR INSURANCE RATING PURPOSES**  
For insurance rating purposes refer to the effective Flood Insurance Rate Map (FIRM), available from your local floodplain administrator or the FEMA Map Service Center (<http://msc.fema.gov>)

Figure 4 -

# Middlesex County, NJ Preliminary Work Map



Figure 5 -

0 0.125 0.25 0.5 0.75 1 Miles

**Flood Hazard Information**

- 0.2% Annual Chance Boundary
- 1% Annual Chance Boundary
- Gutter Line
- LiMWA
- AE
- VE
- AO
- Shaded X (0.2% Floodplain)
- Hurricane Sandy High Water Mark (HWM)

**Transect Station**

- AE
- VE
- X

**Published Transects**

- Published Transects
- Mapping Transects

**Shoreline**

- Shoreline
- Political Boundary

**Elevation**

- 4
- 8
- 12
- 16

Elevation information is provided in feet NAVD88.  
High water marks are provided for reference to a historical storm event.  
They are not intended to be used for validation of the coastal mapping  
and are not expected to match the coastal BFEs.

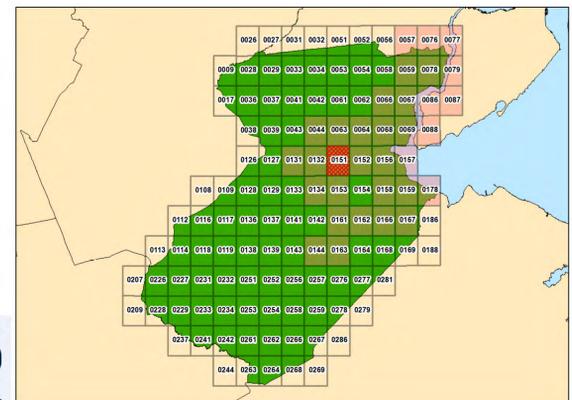
## Panel 0151

This preliminary work map contains coastal flood hazard information only, riverine flood hazard information not included

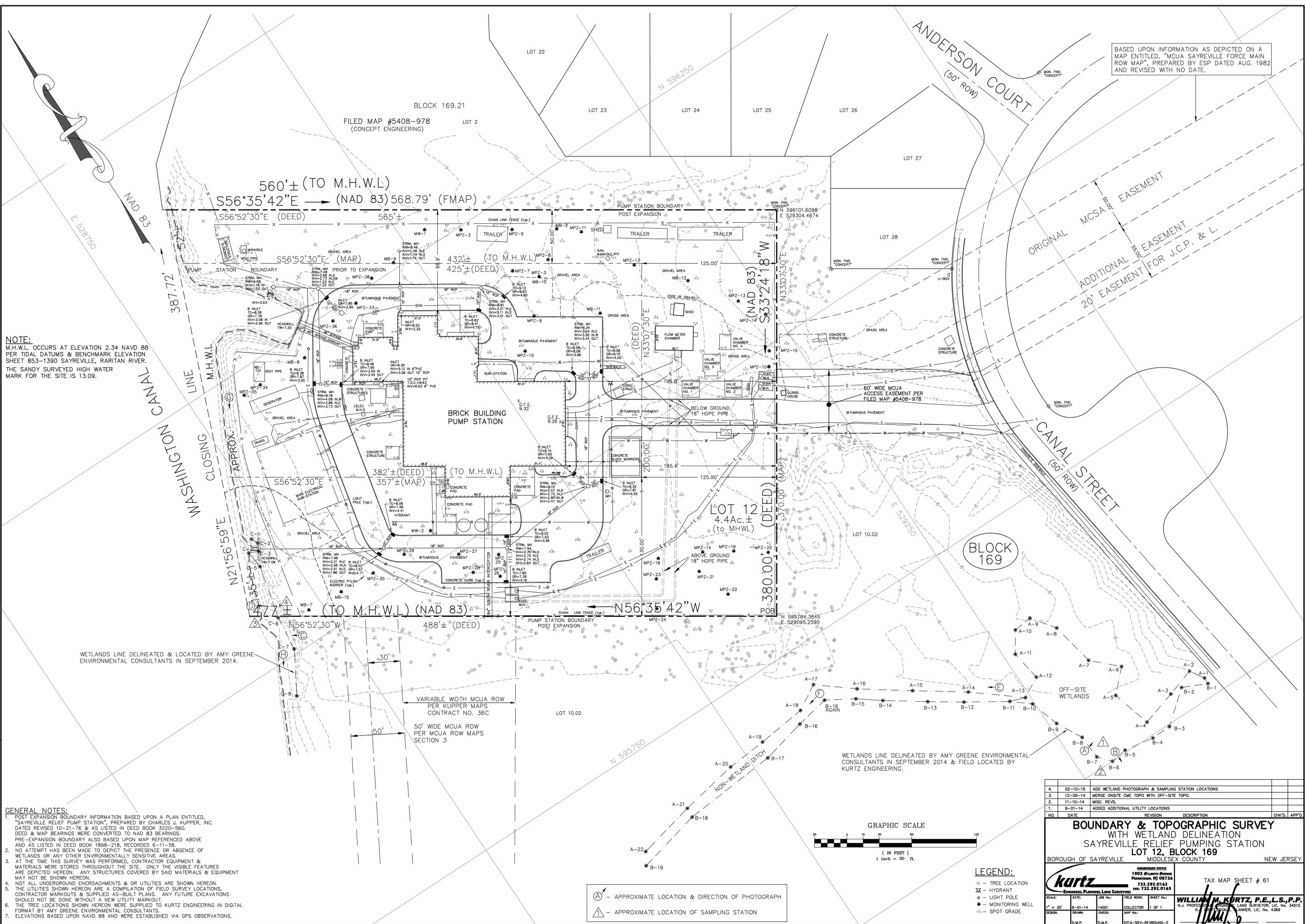


FEMA

A JV of Dewberry, URS and ESP  
**RAMPP**  
Risk Assessment, Mapping, and Planning Partners





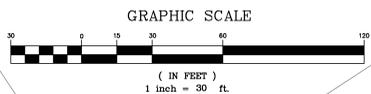


**NOTE:**  
 M.H.W.L. OCCURS AT ELEVATION 2.34 NAVD 88 PER TIDAL DATUMS & BENCHMARK ELEVATION SHEET 853-1390 SAYREVILLE, RARITAN RIVER. THE SANDY SURVEYED HIGH WATER MARK FOR THE SITE IS 13.09.

WETLANDS LINE DELINEATED & LOCATED BY AMY GREENE ENVIRONMENTAL CONSULTANTS IN SEPTEMBER 2014.

**GENERAL NOTES:**  
 1. POST EXPANSION BOUNDARY INFORMATION BASED UPON A PLAN ENTITLED, "SAYREVILLE RELIEF PUMP STATION", PREPARED BY CHARLES J. KUPPER, INC. DATED REVISED 10-21-76 & AS LISTED IN DEED BOOK 3220-560. DEED & MAP BEARINGS WERE CONVERTED TO NAD 83 BEARINGS. PRE-EXPANSION BOUNDARY ALSO BASED UPON MAP REFERENCED ABOVE AND AS LISTED IN DEED BOOK 1898-218, RECORDED 6-11-56.  
 2. NO ATTEMPT HAS BEEN MADE TO DEPICT THE PRESENCE OR ABSENCE OF WETLANDS OR ANY OTHER ENVIRONMENTALLY SENSITIVE AREAS.  
 3. AT THE TIME THIS SURVEY WAS PERFORMED, CONTRACTOR EQUIPMENT & MATERIALS WERE STORED THROUGHOUT THE SITE. ONLY THE VISIBLE FEATURES ARE DEPICTED HEREON. ANY STRUCTURES COVERED BY SAID MATERIALS & EQUIPMENT MAY NOT BE SHOWN HEREON.  
 4. NOT ALL UNDERGROUND ENCROACHMENTS & OR UTILITIES ARE SHOWN HEREON.  
 5. THE UTILITIES SHOWN HEREON ARE A COMPILATION OF FIELD SURVEY LOCATIONS, CONTRACTOR MARKOUTS & SUPPLIED AS-BUILT PLANS. ANY FUTURE EXCAVATIONS SHOULD NOT BE DONE WITHOUT A NEW UTILITY MARKOUT.  
 6. THE TREE LOCATIONS SHOWN HEREON WERE SUPPLIED TO KURTZ ENGINEERING IN DIGITAL FORMAT BY AMY GREENE ENVIRONMENTAL CONSULTANTS.  
 7. ELEVATIONS BASED UPON NAVD 88 AND WERE ESTABLISHED VIA GPS OBSERVATIONS.

NO.	DATE	REVISION	DESCRIPTION	CHK'D.	APP'D.
4.	02-10-15		ADD WETLAND PHOTOGRAPH & SAMPLING STATION LOCATIONS		
3.	12-05-14		MERGE ONSITE CME TOPO WITH OFF-SITE TOPO.		
2.	11-10-14		MISC. REVS.		
1.	9-01-14		ADDED ADDITIONAL UTILITY LOCATIONS		



- (A) - APPROXIMATE LOCATION & DIRECTION OF PHOTOGRAPH
- (B) - APPROXIMATE LOCATION OF SAMPLING STATION

- LEGEND:**
- - TREE LOCATION
  - ⊕ - HYDRANT
  - - LIGHT POLE
  - - MONITORING WELL
  - ⊙ - SPOT GRADE

**BOUNDARY & TOPOGRAPHIC SURVEY**  
 WITH WETLAND DELINEATION  
 SAYREVILLE RELIEF PUMPING STATION  
 LOT 12, BLOCK 169

BOROUGH OF SAYREVILLE      MIDDLESEX COUNTY      NEW JERSEY

TAX MAP SHEET # 61

**kurtz**  
 ENGINEERS, PLANNERS, LAND SURVEYORS

1903 ATLANTIC AVENUE  
 MIDDLETOWN, NJ 08736  
 TEL: 732.292.0167  
 FAX: 732.292.0165

DATE: 6-21-14      JOB NO.: 14001      FIELD BOOK:      SHEET NO.: 1 OF 1  
 DRAWN:      CHECK:      WAP NO.:      N. J. PROFESSIONAL LAND SURVEYOR, LIC. NO. 34515  
 D.M.P.      D.M.P.      2014-SRV-REBOUND-2

**WILLIAM M. KURTZ, P.E., L.S., P.P.**  
 N.J. PROFESSIONAL ENGINEER & LAND SURVEYOR, LIC. NO. 4369

Figure 7

**FIGURE 8: Flooding from Northeaster of March 1993 at Frances ST and Weber AVE, Sayreville, NJ**



*(South River, Raritan River Basin Hurricane and Storm Damage Reduction and Ecosystem Restoration: Integrated Feasibility Report & Environmental Impact Statement, cover.)*