Board of Selectmen

Water Quality and Wastewater Planning

Aquifer Recharge

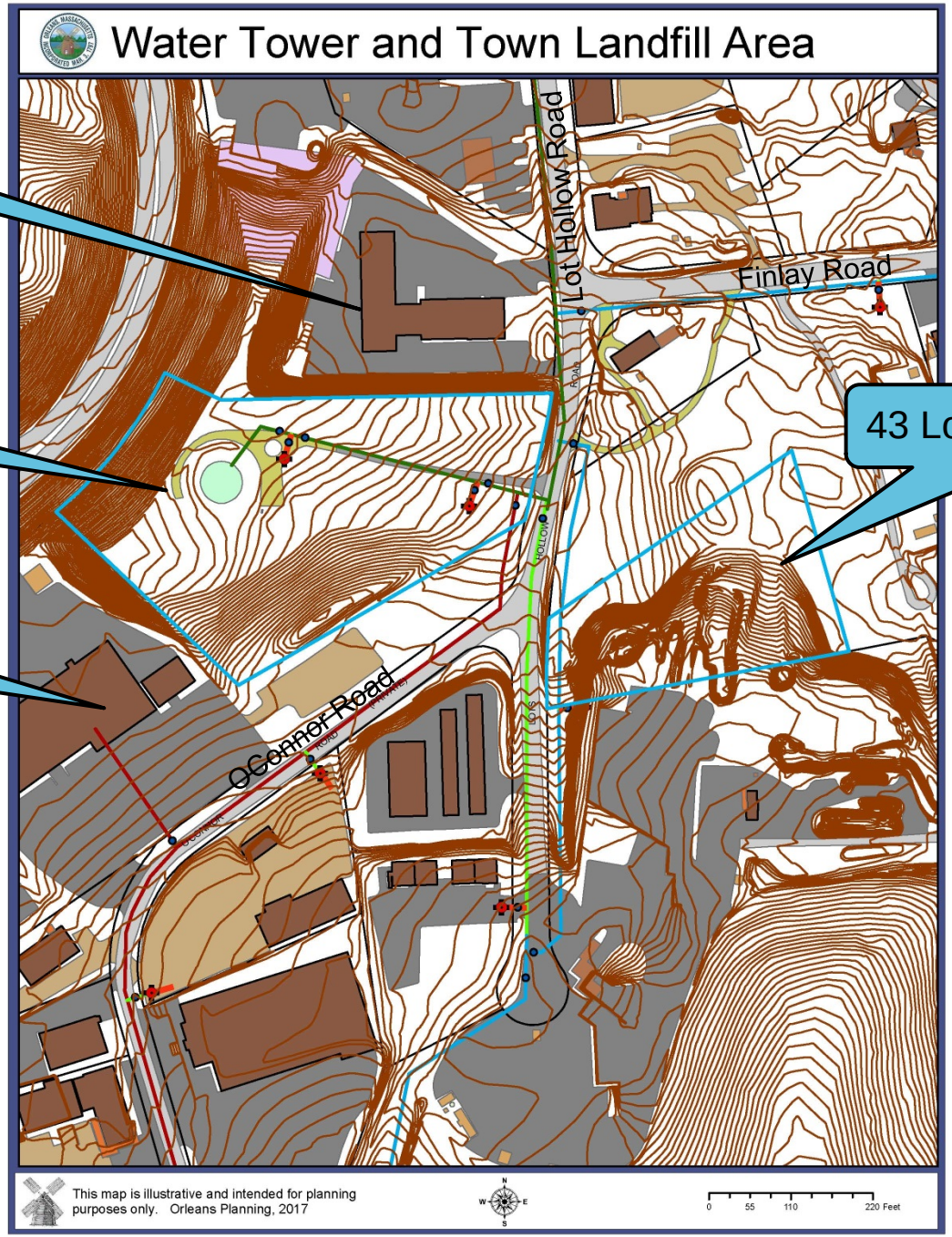
December 13, 2017

Aquifer Recharge
Route 6 Exit 12 - Status

- **Completed Original Scope of Work**
  - Field Testing
  - Soil and Water Analysis
  - Modeling
- **Hydrogeologic Evaluation Report**
  - Submitted to MassDEP on 11/06/17
- **Anticipated Action Item(s)**
  - Perform a Pumping Test

Aquifer Recharge
32 Lots Hollow Road and 43 Lots Hollow Road

- **Location Map**
- **Summary of the Testing Performed**
- **Summary of the Testing Required**
- **Project Schedule**



Board of Selectmen Workshop
Aquifer Recharge

AECOM

Summary of the Testing Performed
43 Lots Hollow Road

- **Installation of Several Soil Borings and Monitoring Wells (Depths to 248 Feet Deep)**
- **Installation of Several Soil Borings and Monitoring Wells on Adjacent Properties**
- **Soils Appear to be Favorable for Wick Discharge – Fine to Coarse Sand**
- **Depth to Water Table Favorable for Wick Discharge – 40 to 85 Feet**
- **Several Pumping Tests Performed In the Area of a Potential Wick Discharge**
- **Water Quality Collected and Analyzed from Several Well Locations over Several Year**

Summary of the Testing Performed (cont.)
32 Lots Hollow Road

- **Installation of One Soil Borings to 45 Feet Deep**
- **Installation of Several Soil Borings and Monitoring Wells on Adjacent Properties**
- **Soils to 45 feet Appear to be Favorable for Wick Discharge – Fine to Coarse Sand**
- **Depth to Water Table Favorable for Wick Discharge – 100 to 105 Feet**

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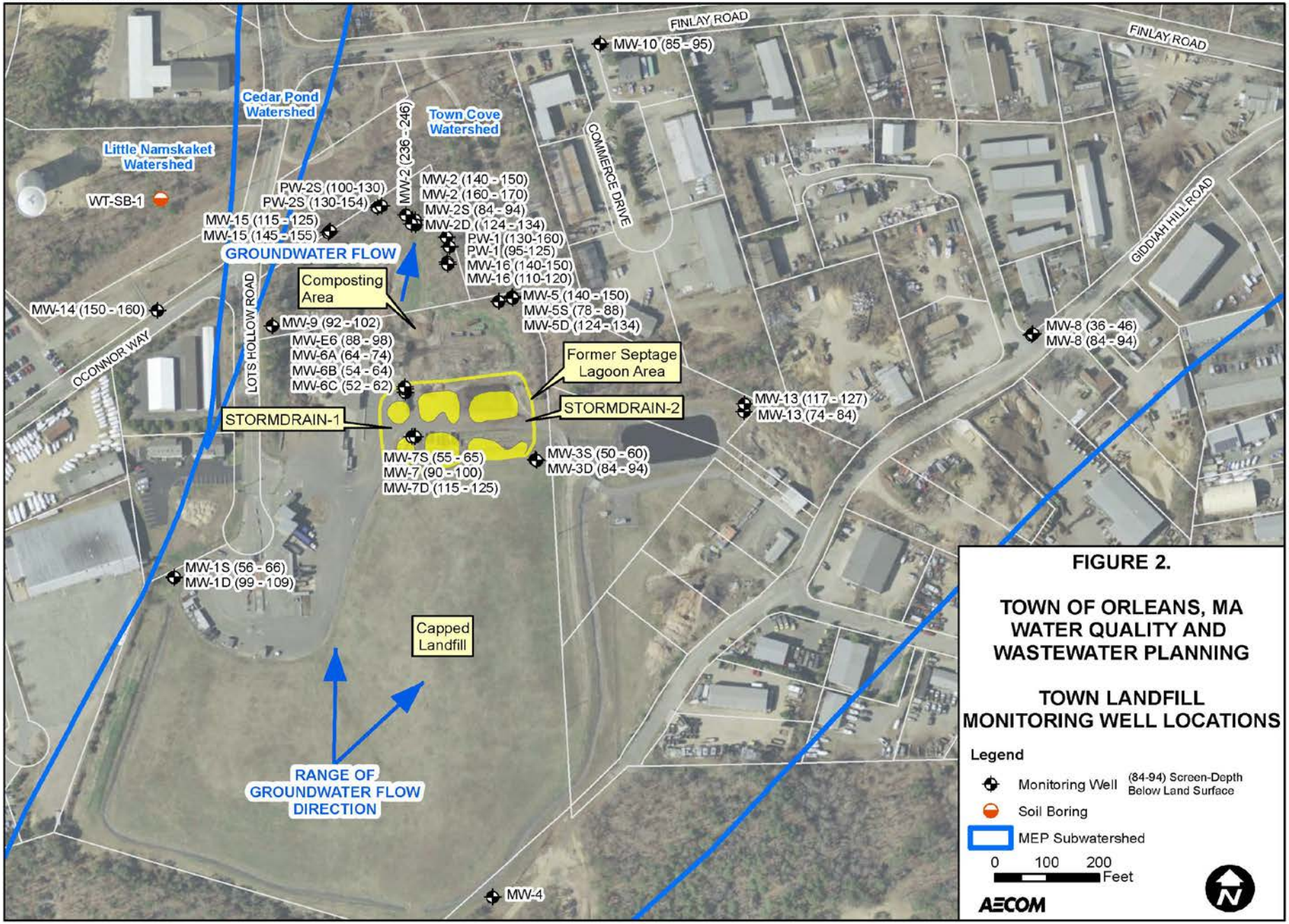

Summary of the Proposed Work

- **Confirm Field Investigation Requirements with MassDEP**
- **Prepare and Submit a Hydrogeologic Evaluation Proposal**
- **Conduct Field Investigations**
  - Oversee Drilling and Test Pit Excavation.
  - Install Soil Borings and Several Observation Wells
  - Collect and Analyze Groundwater and Soil Samples
  - Perform Soils Conductivity Testing
  - Analyze and Summarize Field Data
- **Perform Loading Tests on Test Wick**
  - Coordinate with Board of Water and Sewer Commissioners on Placement
  - Install Test Wick
  - Perform Step Test
  - Perform Long-Term Loading Test

Summary of Proposed Work (cont.)

- **Wick Testing Evaluation and Report**
  - Evaluate Discharge Capacity of Test Wick
  - Estimate Capacity and Number of Final Wicks
- **Conduct Groundwater Modeling**
  - Modify the existing USGS Monomoy Lens Groundwater Model for Site Specific Conditions
  - Perform and Evaluate Groundwater Modeling Scenarios/Results
  - Evaluate Impacts of Groundwater Discharge to Existing Groundwater Flow and Quality
- **Submit Hydrogeologic Evaluation Report to MassDEP**
  - Preliminary Wick Design
  - Estimate Number, Location and Capacity of Wicks
  - Discuss O&M of Final Wicks
  - Identify Reserve Discharge Area(s)

Proposed Schedule
32 Lots Hollow Road and 43 Lots Hollow Road

- **Confirm Field Investigation Requirements with MassDEP (Completed)**
- **Prepare and Submit a Hydrogeologic Evaluation Proposal (Completed)**
- **Conduct Field Investigations (December 2017 to January 2018)**
- **Perform Loading Tests on Test Wick (January 2018)**
- **Wick Testing Evaluation and Report (January 2018)**
- **Conduct Groundwater Modeling (January – February 2018)**
- **Submit Hydrogeologic Evaluation Report to MassDEP (February 2018)**

Town of Orleans Massachusetts

Thank You