

New Source Development for Municipal Wells

**Presented by:
Matthew Barry, Project Engineer**



TATA & HOWARD

www.tataandhoward.com



Groundwater Exploration Program

- Review available hydrogeological data (maps, reports, etc.)
- Obtain permission from landowner
- Perform site visits, determine need for permitting
- Contract with a drilling company to install test wells
- Perform short duration pump test at favorable locations
- Collect preliminary water quality samples
- Prepare report including estimate of yield



Water Management Site Screening

- Early Notice
- Water Conservation Plan
- Site Screening Work Sheet
- Alternative Analysis



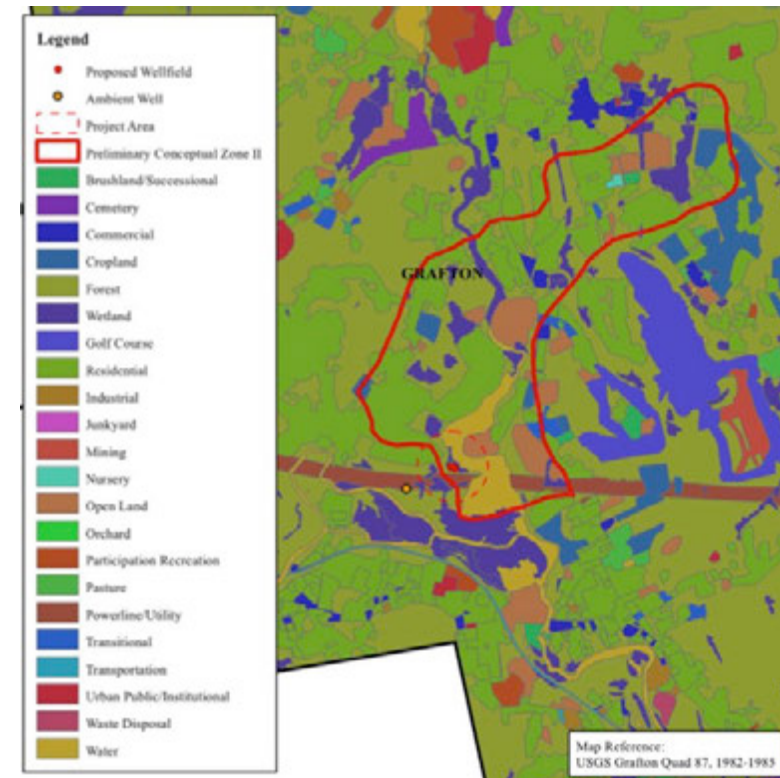
Request for Site Exam

- Summarize previous work (well locations, as-builts, yield, water quality results)
- Prepare preliminary conceptual model of aquifer and preliminary Zone II delineation
- Provide location and type of potential contamination sources, zoning & land uses
- Contract with a surveyor to prepare a surveyed site plan
- Provide wellhead protection plan

Conduct Site Exam

Meet DEP onsite to perform Site Exam which includes:

- Land use/sanitary survey of Zone II
- Identify surface water features and potential hydraulic connection to aquifer
- Special conditions for pumping test
- Observation well locations
- Identify Zone I



Pumping Test Proposal

- Discuss planned pumping rate, need for step test & duration (5-15 day surficial, 10 day bedrock)
- Location of observation wells, piezometers, staff gauges & frequency of level readings
- Discharge location and flow measuring device
- WQ testing parameters & frequency
- Methodology for Zone II delineation



Perform Pump Test

- Record ambient water levels 5 days prior to start of pump test
- Start test and record water levels & precipitation
- Conduct water quality sampling as required
- Determine stabilization or project 180 day drawdown without recharge
- Obtain DEP permission to end test
- Record recovery readings



Extended Pump Test Report

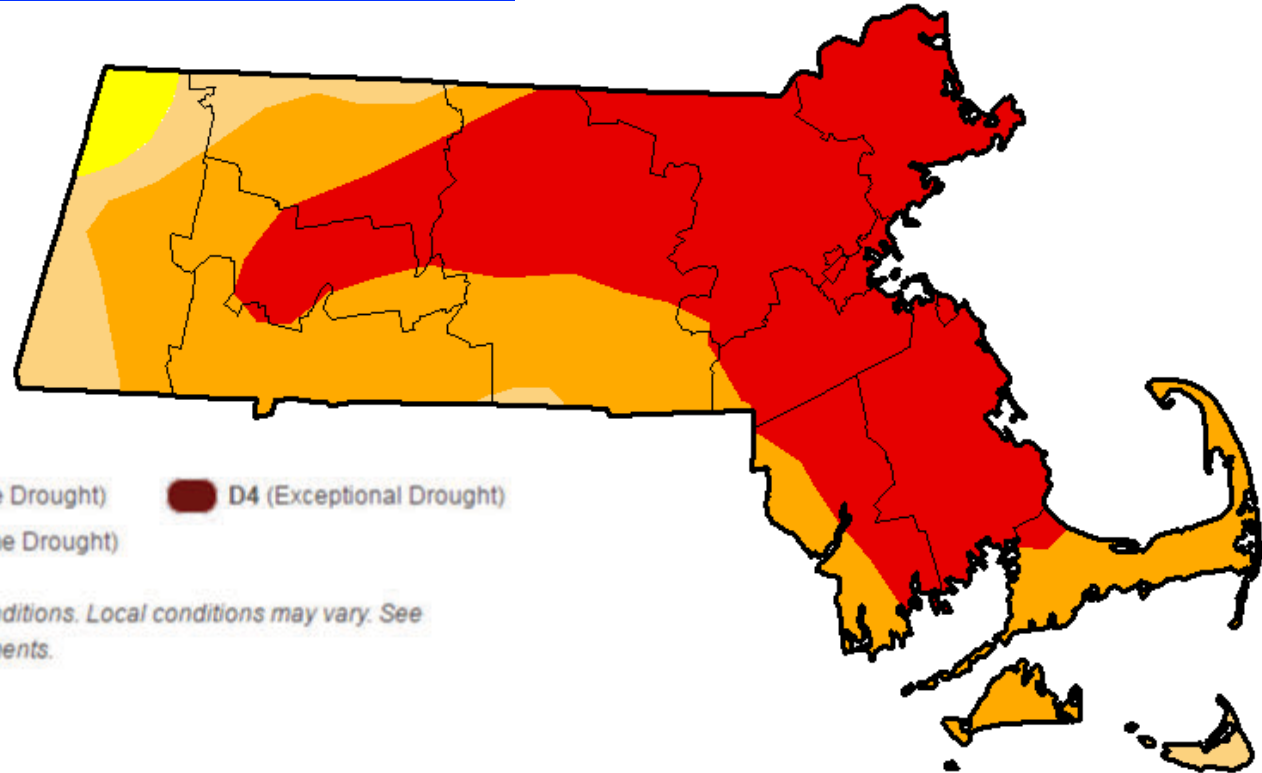
- Analyze water quality results & determine need for treatment
- Analyze pump test data and determine safe yield
- Determine Zone II & Zone III
- Prepare groundwater monitoring program
- Present wellhead protection zoning & non-zoning controls
- Prepare ENF
- Prepare Water Management Act application

Timeline (Optimistic)

Task	Estimated Time
Ground Water Exploration	3 months
Request For Site Exam	6 months
Pump Test Proposal	5 months
Pump Test & Report	8 months
Design	9 months
Sub-Bid, Bid & Award	3 months
Construction	18 months
Total Time	52 months

Massachusetts Drought Conditions

- September 27, 2016
- <http://droughtmonitor.unl.edu>



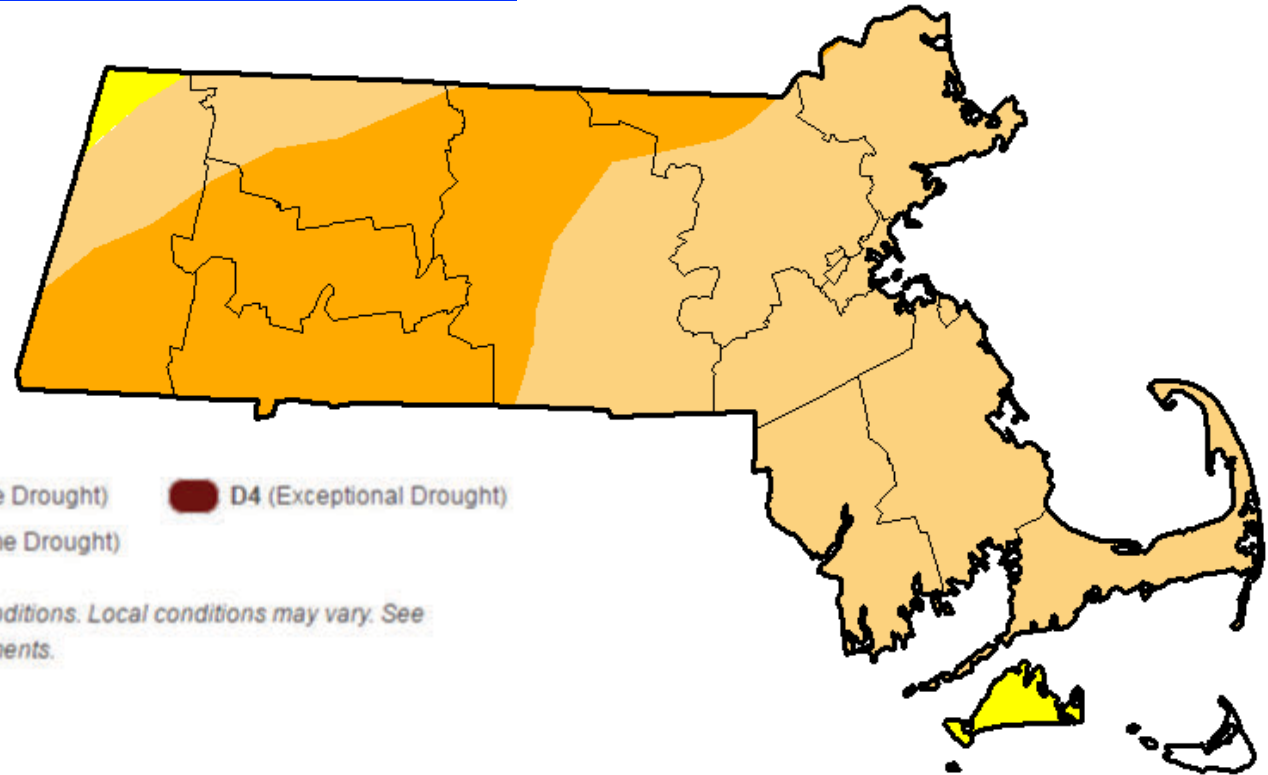
Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying [text summary](#) for forecast statements.

Massachusetts Drought Conditions

- February 14, 2017
- <http://droughtmonitor.unl.edu>



Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying [text summary](#) for forecast statements.

Impact of Drought

- Worst drought on record through August
- Three municipal clients in central and western MA with surface water sources were severely impacted by drought
- Groundwater sources were less impacted
- Recent study, 6-inch rain event needed to see one drop of water in reservoir in western MA

Questions?

