

Proposed Groundwater Ordinance For Durham Meadows Superfund Site

BACKGROUND INFORMATION

Groundwater Contamination:

The Durham Meadows Superfund Site (“Site”) includes an area of groundwater contamination generally centered on Main Street in the Town of Durham, Connecticut. The Site is centered around the Durham Manufacturing Company, an operating manufacturer, and the former location of Merriam Manufacturing Company, both located on Main Street. Both companies manufactured metal cabinets, boxes and other items. The companies’ past disposal of wastewater to the soil and inadequate drum storage practices at Merriam Manufacturing Company, among other things, contributed to the contamination at each facility and in the overall area of groundwater surrounding both facilities.

In 1982, the Connecticut Department of Environmental Protection, now known as the Connecticut Department of Energy & Environmental Protection (CT DEEP), detected volatile organic compounds (VOCs - commonly found in solvents, paints and degreasers) in private drinking water wells in the Durham area, including trichloroethylene (TCE). **See Connecticut Department of Public Health fact sheet regarding TCE in private well water for potential health effects.** Under a state order, the companies installed granular activated carbon (GAC) filtration units on impacted residential wells.

In 2005, EPA issued a Record of Decision outlining the cleanup remedy for the Site, including the extension of an alternate water supply from the City of Middletown Water Distribution System to address the overall area of Site-wide groundwater contamination. The water supply design effort, which includes the substantial involvement of the Town of Durham, City of Middletown, CT DEEP, and the Connecticut Department of Public Health, will be completed in 2015.

Water Supply Contamination:

In 2004, 38 water supply wells at the Site were being treated to remove contamination. The discovery of 1,4-dioxane in certain wells in 2003 and 2004 created a significant challenge because this chemical is not effectively removed using GAC filtration units. Residences with elevated levels of 1,4-dioxane in their supply wells are supplied with bottled water. **See Connecticut Department of Public Health fact sheet regarding 1,4-dioxane in well water for potential health effects.** Since 2004, additional water supply wells in the area have been found to contain Site-related contamination and some of these wells have been equipped with GAC filtration units.

In 2013, sampling documented that VOC contamination had spread south of Allyn Brook resulting in two additional contaminated water supply wells. The bedrock in the area is highly fractured, and the agencies believe regional groundwater flows along these fractures, including the Ball Brook Fault. In addition, the agencies believe that the pumping influence of water supply wells has caused the spread of groundwater contamination.

Currently, there are 54 locations where GAC filtration units and/or bottled water are necessary due to groundwater contamination. Regular monitoring occurs at 17 additional locations, where filtration and/or bottled water are not yet needed.

For more information about the Durham Meadows Superfund Site, please visit the EPA website:
www.epa.gov/ne/superfund/sites/durham.

QUESTIONS AND ANSWERS

What is the purpose of the Groundwater Ordinance?

The purpose of the proposed Groundwater Ordinance is to ensure that residents within the Durham Meadows Superfund Site area have a clean water supply. Once the new water line has been installed, a clean source of water that is not at risk from the groundwater contamination will be available for use. If passed, the Groundwater Ordinance will generally become applicable after the water supply line becomes available for connection. The water line is the physical measure to make clean water available, whereas the Groundwater Ordinance is the administrative measure necessary to make sure current and future property owners connect to the water line and do not consume contaminated groundwater.

Why is the water line and Groundwater Ordinance needed?

The water line and Groundwater Ordinance are needed to provide residents with a permanent supply of clean water. The current water supply GAC filtration units and provision of bottled water are short-term measures to provide useable drinking water. These measures, however, require intensive monitoring and maintenance, and certain contaminants, such as 1,4-dioxane, are not adequately treated with the GAC filtration units. An engineering study conducted in the Superfund Site area concluded that providing public water is the most effective permanent solution to address the contaminated groundwater in this area.

Can I keep my well for non-potable uses to water my lawn or wash my car?

No, to ensure protection of public health, address cross-connection risk, and prevent pumping conditions that could cause the contaminated groundwater plume to migrate further, the water supply well at each location where a water connection is provided will be abandoned. The CT DEEP requires the abandonment of the existing well when a subsidized connection to a water line is completed. There are several reasons for this. First, it guarantees that the contaminated water is not consumed or used in the future. Second, if the plumbing remains connected, there is the potential for the well to drain into the public water supply potentially contaminating many locations. Third, the abandonment eliminates a pumping stress that could influence the migration of the contaminated groundwater.

Who pays for connection to the water line?

EPA and CT DEEP will pay for each property within the Superfund service area to be connected to public water, and the agencies will also pay for existing wells to be abandoned. The agencies will not, however, provide a water line connection unless the property owner also agrees to allow for well abandonment.

Further, the agencies will not provide continued maintenance of existing GAC filtration units or bottled water, and will not conduct additional sampling of private wells once the water line is in place. The water line is the agencies' selected remedy to address risk from contaminated groundwater, and implementation is expected to cost approximately \$20 million. Once the water line is installed, the agencies will not provide the additional resources necessary to sample remaining private wells at a frequency sufficient for an at-risk water supply. If a property owner declines to accept the agencies' offer to pay for connection to the water line and abandonment of the well, the entire cost of installing, maintaining, and sampling of any GAC filtration units, including provision of bottled water as necessary, will become the responsibility of the individual property owner once the water line is available.

Why is my property included in the Groundwater Ordinance if my water is not currently contaminated?

The area to be served by the water line and included in the proposed Groundwater Ordinance includes locations that have documented contamination and locations where there is the potential for groundwater contamination in the future due to the uncertainties in bedrock groundwater movement. It is very difficult to predict the long-term movement of groundwater in fractured bedrock. Rather than risk having additional water supplies becoming contaminated, the extent of the water line connections and Groundwater Ordinance includes a “buffer” area based on this uncertainty. Once the water line is completed and most wells are no longer in operation, it is possible that a pumping well outside the current area of contamination, but within the buffer zone, could become contaminated because the plume direction could change.

What if I do not want to connect to the public water line?

Residents are strongly advised to connect to the water line. Connection to the water line will be required by the Groundwater Ordinance if it is passed. Once the water line installation is complete and the agencies have connected all locations that agreed to allow connection, future connections to the water line will be at the cost of the property owner. The current estimate for an individual connection is approximately \$3,500, but may range higher or lower depending on property conditions. As already noted, the agencies will not provide continued maintenance of existing GAC filtration units and will not conduct additional sampling of private wells once the water line is in place.

Who pays for the public water?

Each property owner would have a water meter and pay a water bill. The amount would be determined by the water supplier. An estimate of the water cost for a typical family of four is \$25-45 per month, and is at least partially dependent on the amount of water used. This estimate assumes an approximate water use range of 200-400 gallons per day. Public water does not require electricity to pump the water in (as with a private well), and public water service continues even if power is lost.

By way of comparison, the monthly cost to maintain a private well ranges widely. For wells that are contaminated, a monthly cost of approximately \$58 provides for a contractor to change the GAC filter every two years and replace the sediment filter every two months, and conduct a minimum of one VOC and one bacteria test per year. If the well requires chlorination once a year, this adds \$18 per month to the estimate. If ultraviolet (UV) treatment is required due to excessive bacteria, the replacement parts run approximately \$48 monthly at a minimum. All estimates assume no repairs are necessary, which can run almost \$100/hour for regularly scheduled service. Estimates also do not include the cost for electricity for operation of the well pump.

When will the water line be installed?

EPA is hopeful that preliminary activity for the water line installation can begin in 2015 with substantial construction activity beginning in 2016 and extending for 2-3 years. If funding is available, the water line should be complete in 2017 or 2018.

Will this impact my property value?

The Durham Meadows Superfund Site is well documented and any future purchaser of property in the area would likely become aware of the groundwater contamination. Any property value reduction is likely to be associated with the presence of the groundwater contamination. Not having a public water supply could introduce uncertainty regarding whether a property that is currently not contaminated could become contaminated in the future. In addition, the new owner would be responsible for the cost of the water line connection or the maintenance and sampling of a GAC filtration unit. With the water line and Groundwater Ordinance, a property owner can assure a potential purchaser that a reliable source of clean water is available which should limit any adverse impact solely associated with the Groundwater Ordinance.

If I do not live within the water line service area, why should I support the Groundwater Ordinance?

EPA, CTDEEP, and the Town of Durham believe that the water line and Groundwater Ordinance are necessary and appropriate actions to address the long-term groundwater contamination in the Superfund Site area. The water line and Groundwater Ordinance will provide for clean, reliable drinking water for a substantial area of the Town of Durham. The Groundwater Ordinance provides an administrative mechanism to prevent future use of contaminated groundwater and to limit pumping wells that could influence the migration of the contamination.

What about other areas of the Town of Durham with contaminated groundwater?

The State of Connecticut is working with the Town of Durham to address water quality issues in areas beyond the Site. The water line has been designed to support its future expansion to allow the State of Connecticut and the Town of Durham to address these areas near the Superfund Site. The installation of the Superfund water line will greatly reduce the cost of serving these areas. Please also note that for the areas that are not located near the Superfund Site, expansion of waterline may not be the most effective permanent solution to address contaminated groundwater. Rather, continuing filtration systems in these private wells may still be the most effective permanent solution. An engineering study must be conducted to determine the most effective solutions for these areas.

ADDITIONAL QUESTIONS AND ANSWERS ADDED AFTER THE DECEMBER 16, 2015 PUBLIC HEARING

Can an exception be included in the Groundwater Ordinance to allow for the use of a non-potable well?

An exception option has been added to the proposed Groundwater Ordinance. The purpose of the water line is to prevent consumption and other uses of contaminated groundwater. Therefore, the requirements of the exception that would allow the use of groundwater are intended to protect all residents, not just the owner of a particular well. It would not be appropriate to allow the use of a well that could contaminate an adjacent property or expose adjacent residents to harmful air emissions.

The exception option added to the Groundwater Ordinance includes specific criteria to determine whether to authorize the installation and use of any well subject to the exception. The Town of Durham Department of Health would have to authorize the well prior to installation and use. The use would be conditional upon testing to document that the water is free from contamination. A plan would be developed to support evaluation of the exception. The plan would have to be signed by a person qualified as a Licensed Environmental Professional (LEP) in the State of Connecticut who certifies that the location of the proposed well is not within an area of contamination and use of this new well is not reasonably likely to cause migration of the groundwater contamination plumes at the Durham Meadows Superfund Site and other areas of contamination. The documentation and burden to demonstrate that all criteria have been met would be the responsibility and expense of the person submitting the request for the exception.

A well, other than wells identified in Section VIII A and B of the Groundwater Ordinance, will not be authorized if the water extracted or to be extracted by the well is contaminated; the well must be a certain distance from the water line and residence; the well and its plumbing must be isolated from all of plumbing associated with the public water supply, including all residential plumbing for potable water and other uses, with no potential for cross-contamination of the residential or public water supply; and the well must be tested for volatile organic compounds prior to use and at least annually thereafter with reporting of all results to the Town of Durham Department of Health. There is also a requirement for the well to be abandoned at the owner's expense if the well were to become contaminated, or if EPA or CTDEEP become aware that the well is influencing the migration of the groundwater contamination or likely to become contaminated as a result of the migration of groundwater contamination.

Why is the Durham Manufacturing Company allowed the continued use of a well on their property?

The Durham Manufacturing Company will be connecting to the water line for drinking water and other non-industrial water uses. Durham Manufacturing Company does have a process water well that is used to provide water solely for the manufacturing activities. The water is not discharged to the surface water on or adjacent to the facility or back into groundwater. The water is reused or lost due to evaporation, and residual water is stored and shipped off site for disposal. As this well is located in the center of the source of the plume, the use of this well is not likely to cause the plume to migrate, but may actually help to prevent a portion of the plume from migration away from its source. In addition, the property occupied by the Durham Manufacturing Company is the subject of a legal agreement that requires a property-specific environmental land use restriction. These agreements provide EPA and CTDEEP authority to restrict the type of groundwater use on the property, as well as enforce restrictions to ensure there is no cross connection between the process water well and other plumbing.

Why do the limits of the Groundwater Ordinance appear to focus on the area northwest of the extent of contaminated groundwater along Maple Ave and not in other directions?

The extent of the Groundwater Ordinance was designed to overlay the extent of the water line. The limits of both were based on the current extent of groundwater contamination along with a buffer zone. The first step in designing the extent of the water line and Groundwater Ordinance was to make sure that it included all properties within the documented presence of groundwater contamination associated with the Durham Meadows Superfund Site. The second step was to evaluate which additional properties (buffer zone) should be connected to the water line and be subject to the Groundwater Ordinance based on the potential for long-term contaminant migration due to the complex nature of the bedrock fractures and the changes that will occur once the water line is installed and many residential wells are abandoned. There is a concern that once the influence of the wells within the area of contamination is removed, groundwater contamination could be pulled towards pumping wells that remain active. Groundwater contaminant movement has been documented to flow northeast to southwest along the general alignment of the Ball Brook fault and also east and west of the predominant contaminant flow path. The area to the northwest of the groundwater contamination extending from Wallingford Road to Talcott Road was identified as “at risk” due to this concern. Including these properties in the water line and Groundwater Ordinance is a protective measure to prevent additional properties from becoming contaminated.

The area generally to the west and southwest of the Groundwater Ordinance is open land that is not currently developed. While some type of groundwater use restriction may be appropriate for this area in the future, it was not included in the Groundwater Ordinance due to the absence of current or reasonably expected future groundwater use. The potential influence of the Fairground Wells is being evaluated due to the location of the wells southwest of the contaminant plume. Most of the area to the south is currently served by the Durham Center water system and does not have the pumping stresses that could influence the groundwater contamination.

Will the Fairground Wells be connected to the water line or subject to the Groundwater Ordinance?

The water line design takes the Durham Center Water System off of the Fairground Wells and provides water via the Middletown extension. The Fairground Wells are not contaminated and the initial plan was to keep these wells available for use for the annual Durham Fair and for other events at the Fairgrounds. The current plan is to include the Fairgrounds in the water service area and to terminate the use of the Fairground wells as a source of potable water. These wells may remain as monitoring wells. The Groundwater Ordinance will reflect this change and also restrict groundwater use on the Fairground property. The detection of contamination in residential wells south of Allyn Brook suggests that the contamination may be migrating along the general trend of the Ball Brook fault. Because the Fairground wells are in the vicinity of the Ball Brook fault, connecting the Fairgrounds to the water line and including the property in the Groundwater Ordinance will prevent these wells from causing expansion of the contamination.

Will the water line and Groundwater Ordinance include Regional School District 13?

The water supply at the Frank. W. Strong Middle School was found to be contaminated in 1970. The Regional School District 13 schools were not included in the initial design for the water service area because the Frank W. Strong Middle School is now provided water via the water system servicing the Korn Elementary School and Cuginchaug Regional High School. After further evaluation, and based on objective of eliminating major pumping stresses in the vicinity of the contaminant source area at the Durham Manufacturing Company, these three Regional School District schools will be added to the water service area and the Groundwater Ordinance.

For more information about the Durham Meadows Superfund Site, the water line project, or the proposed Groundwater Ordinance:

U.S. Environmental Protection Agency

Ed Hathaway at 617-918-1372
Hathaway.ed@epa.gov

Anni Loughlin at 617-918-1273
Loughlin.anni@epa.gov

Town of Durham

Laura Francis, First Selectman, at 860-349-3625
lfrancis@townofdurhamct.org

Bill Milardo, Town Sanitarian, at 860-349-8253
wmilardo@townofdurhamct.org

Connecticut Department of Energy & Environmental Protection

Jing Chen at 860-424-3391
Jing.Chen@ct.gov

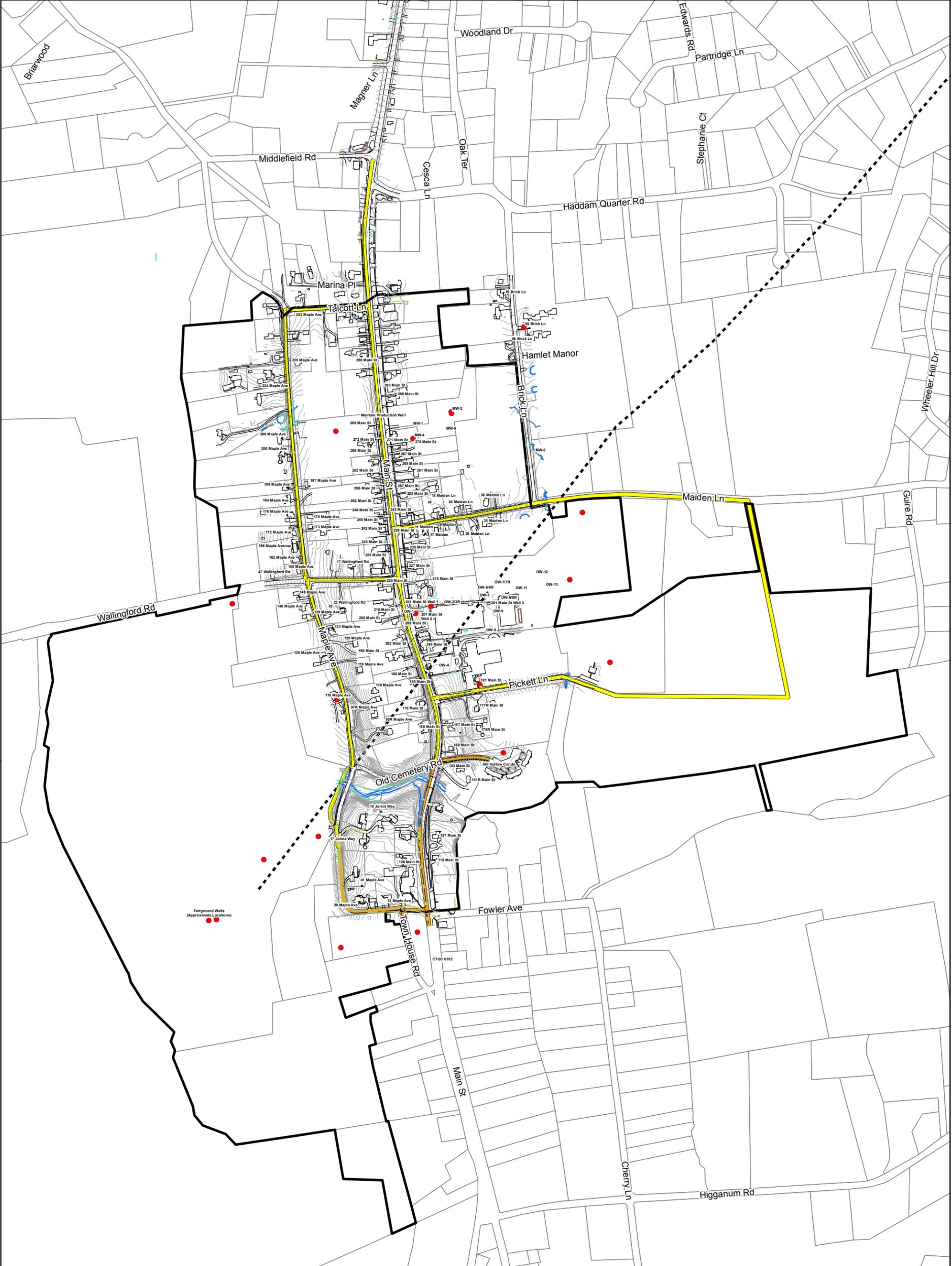
Connecticut Department of Public Health

For questions about public water systems, contact:

Vicky Carrier at 860-509-7333.
Vicky.Carrier@ct.gov

For questions about private wells, contact:

Ryan Tetreault at 860-509-7296.
Ryan.Tetreault@ct.gov



Fairground Wells
(Approximate Locations)

DURHAM MEADOWS SUPERFUND SITE GROUNDWATER MANAGEMENT ZONE

- Legend**
- Proposed LTM Wells
 - ▭ Groundwater Management Zone
 - ▭ Parcels
 - - - - Ball Brook Fault
 - Existing Water Main
 - New Water Main



Property lines are based on Town of Durham Assessor Maps.

