

WATER CONSERVATION ADVISORY: IRRIGATION ALTERNATIVES, April 2020

The Cotuit Water Commission believes that approximately half (50%) of the summer water usage in Cotuit is delivered for lawn irrigation. Utilizing the public drinking water supply for lawn irrigation places stresses on both the physical water infrastructure system and the environment. We pump four times more water in the summer than in the winter. While some of this increase is attributed to the summer resident influx, most of it is driven by irrigation. During the summer peak pumping period, our wells are pushed close to their capacity. This peak pumping lowers groundwater levels (called drawdown) around the main wellfield and may be reducing flow in the Little River. Reduced flow in the Little River can impair ecosystem health within the river. Little River is also the primary freshwater tributary to Cotuit's renowned oyster beds. There have been instances of the river being bone-dry west of Putnam Avenue in the summer.



Little River is waterless in 2007 following a very dry summer as it crosses under Sampsons Mill Road. A spike in well pumping related to irrigation may have been the cause of the elimination of flow. (Source: CWD well pumping records, August 2007)

Photo by Mark Robinson



Same view of Little River in March 2020 during a high water table period. The stream runs full and fast during the time of year when there is no irrigation demand in Cotuit.

Photo by Mark Robinson



The bed of Little River was completely dry in summer/fall 2007 near Sampsons Mill Road.

Photo by Mark Robinson



Same view looking downstream near Sampsons Mill Road crossing of Little River in March 2020 during high water table period.

Photo by Mark Robinson

There are options available to avoid these issues. First, homeowners can elect to reduce irrigation – by either settling with

a more historic not-so-green “Cape Cod lawn” or by adopting ecological landscaping designs. Ecological landscaping can include reduced lawn areas by substituting more native and natural vegetation.

A second option is to install an on-site irrigation well on your property. If you are located in a developed area with elevated nitrogen concentrations in the groundwater, the well may provide double benefits as a “fertigation well”. Fertigation wells were identified by the Cape Cod Commission in their “Cape Cod 208 Water Quality Plan” as a way to recycle nitrogen in groundwater and re-use it as a locally-available nutrient/fertilizer thereby reducing the amount of nitrogen flowing to Cotuit Bay (where it causes a water quality problem called “eutrophication”).

The new water rates for Cotuit include significant graduated steps for the highest volume users, presumably those who rely on heavy irrigation systems during the summer for their extensive lawns. Conserving our drinking water supply will save money, reduce our well pumping, and preserve ecological health of our streams and wetlands near the wellfields.

For more specific information about fertigation wells, please contact Cotuit Water Commissioner Scott Horsley at scotthorsley208@gmail.com.

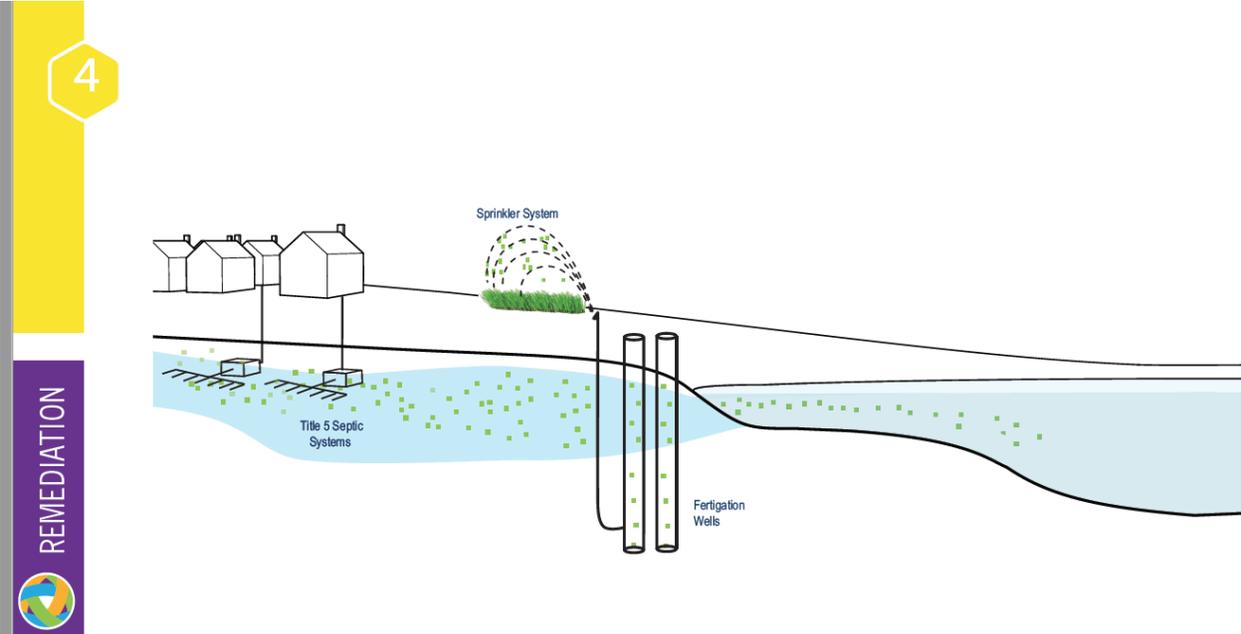


Figure 4-11

Fertigation Wells



SCALE: NEIGHBORHOOD/WATERSHED
APPROACH: REMEDIATION

SCENARIO PLANNING: SELECTED FOR USE
IDENTIFIED FOR PILOTING

DESCRIPTION

Fertigation consists of capturing nitrogen enriched groundwater via wells and using it to irrigate plants that use the nutrients. Fertigation wells can capture nutrient enriched groundwater and recycle it back to irrigate and fertilize turf grass areas, and to irrigate crops. Irrigated turf grass areas include golf courses, athletic fields and lawns, while irrigated crops typically include cranberry bogs. Fertigation can reduce nutrient loads to down gradient surface waters while reducing fertilizer costs to the irrigated areas.