

Town of Exeter, NH - Lary Lane Groundwater Treatment Plant Pressure Filtration System Design and Water Main Construction

The Town of Exeter selected Weston & Sampson Engineers to design and provide construction services for a new pressure filtration facility utilizing Greensand Plus™ filter media. The facility was designed to provide treatment of the Town of Exeter's three existing groundwater production wells and one future well for removal of iron, manganese, and arsenic. The town received a \$6.3 million loan from the Drinking Water State Revolving Fund administered by the New Hampshire Department of Environmental Services (NHDES) for construction of the plant and water main improvements. The project also includes reactivation of the existing Stadium and Gilman gravel packed water supply wells.

The Lary Lane Groundwater Treatment Plant will treat 1.56-million gallons per day (mgd) using three, nine-foot diameter greensand pressure filters. A fourth filter will be installed in the future to treat additional flow, raising the facility's treatment flow rate to 2.06 mgd. The treatment process includes ferric chloride to promote co-precipitation of arsenic, sodium hydroxide for pH adjustment of the treated water and an ortho/polyphosphate blend as a corrosion inhibitor. Sodium hypochlorite is also added for disinfection and oxidation. The plant includes a backwash supply tank and two backwash water decant/recycle tanks in which residuals will be concentrated prior to ultimate disposal.

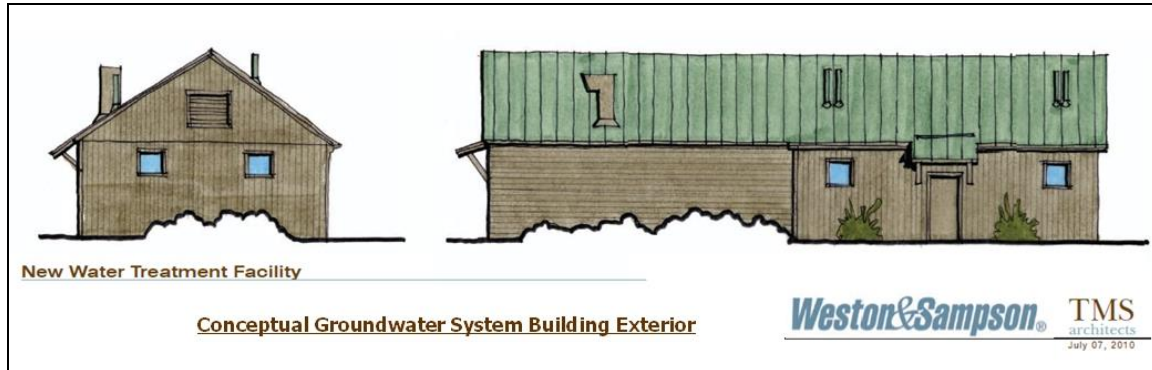
Additional design elements of the treatment facility included a bathroom, laboratory area, fully automated SCADA system integrated with the existing surface water treatment plant, site piping, and construction of a paved driveway and gravel access road along the perimeter of an emergency residuals lagoon.

The existing Gilman Pump Station will be refurbished and receive new exterior finishing to maintain the aesthetic of Gilman Park. The Lary Lane Pump Station will be renovated to allow the station to operate more effectively and with newer equipment. A new precast concrete pump station will be constructed at the Stadium Well site, including a backup generator, pump and motor, and electrical equipment. All pump stations will be outfitted with new instrumentation and controls and integrated with the town's SCADA system.

The raw water transmission main was constructed based on the results of a routing study. The water main connects the Stadium, Gilman and Lary Lane well sites to the new groundwater treatment facility. The project includes installation of a water main via horizontal directional drill methods under the Exeter River and approximately 6,200 linear feet of new pipe.

The project was extensively permitted through NHDES and received authorization to bid for construction services in January 2014. The construction of the Lary Lane Groundwater Treatment Plant is anticipated to finish in 2015.

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Architect's rendering

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