



Sewer Works

Newsletter of the Hull Sewer Department Spring 2021

Operations Message

I've talked for some time now about **Reliability** - making sure equipment is operable, **Redundancy** - having additional equipment available in the event of breakdowns and **Resiliency** - being able to recover quickly in the event of an emergency. These factors were all major concerns and the wastewater facility and collection system were very vulnerable four years ago when I took over this position. Today, I am pleased to report that major improvements have been made as a result of investments made in our system infrastructure.

To improve **Reliability**, we completed the structural lining system for the largest and most vulnerable pipeline in our system, the Nantasket Avenue interceptor sewer. We also completed the sewer improvements along Atlantic Avenue significantly reducing the amount of infiltration and inflow into that part of the system. We've replaced piping and valves at many of our remote pumping stations and at the treatment facility. These changes will allow greater flexibility in diverting flows and maintaining/repairing/replacing equipment and pumps.

To increase **Redundancy**, all major equipment is operable which allows flexibility to use the most efficient operating sequence based on flow conditions. We now can divert influent and effluent flows if needed. By recently installing effluent gates, we now have replaced previously inoperable valves which now allow us to isolate and service the effluent pumps. Other redundancy measures include replacing equipment in the secondary clarifiers and replacing transfer and sludge pumps throughout the facility.

Resiliency measures include plant upgrades of relocating the facility's mechanical and electrical rooms to the second floor of the treatment facility control building. The HVAC project is out for bids and the electrical project will be part of other facility upgrades planned for construction late this year/early next year. Another project in this category is completing the design of the earthen berm and concrete wall project around the perimeter of the facility. A public meeting was held in March and permit applications are being filed as the final design is completed over the next several months.

Due to the nature of our work, all operations continued as usual with many adjustments necessary to address COVID-19 work guidelines. Thank you for your continued support and understanding as our major focus is now on treatment facility improvements.

John J. Struzziery, P.E., Director of Wastewater Operations

Hull Sewer Department COVID-19 Protocol:

The Sewer Department is open during normal business hours during the COVID-19 pandemic however please note that our office and treatment facility currently remains CLOSED TO THE PUBLIC. To contact the Sewer Department please use:

Office Phone: 781-925-1207
Email: sewer@town.hull.ma.us

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Retirement News

Carol O'Connor, the Sewer Department Clerk/Bookkeeper (i.e., Financial Manager), will retire at the end of April after 16 years of service in Hull. Carol has been an excellent resource in budget development and tracking, debt planning and expenditure tracking, and rate development. We wish Carol continued success.

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Sewer Commission Vacancies

As a result of recent resignations by Lou Collins and Richard Booth, there are two vacancies on the Commission. Anyone interested in serving on the Commission, whose primary functions are rate setting and policy development/review. The only requirements is to have an interest in our operations, be open-minded and fair, and be available for what is currently quarterly virtual meetings. Posting is on Town website and letters of interest should be sent to the Town Clerk. Members of the Sewer Commission are appointed by the Board of Selectmen.

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Reminder: No grease down the drain!



Grants Update:

- **CZM Coastal Resiliency Design:** The vegetative berm project funded by CZM aims to protect the WWTF from coastal storm flooding. We held a virtual public information workshop and received an Order of Conditions from the Hull Conservation Commission. We are currently advancing Chapter 91 permitting efforts while moving toward 100% design completion.
- **FEMA:** Design is underway on our electrical retrofit project funded by a FEMA grant in the amount of \$414,000. The project will relocate essential electrical components to the second floor of the treatment facility to maintain treatment system functionality during a major storm event.

Projects Update: We are advancing projects at the treatment facility and pump stations while also supporting the Town's roadway improvements program by inspecting, repairing or upgrading sewers within roadways to be repaved. Several projects are in progress at various stages of planning, design, or construction:

- **Planning**

- Collection system rehabilitation projects recommended from our Town-wide Sanitary Sewer Evaluation Survey
- UV Disinfection, Effluent Pump Station, and Odor Control Upgrades recommended in our Facilities Plan
- SCADA Upgrades to improve remote communication of pump station and treatment facility instrumentation and equipment
- Pump Station 4 rehabilitation, this is the pump station on Marginal Road
- Solids Handling Upgrades to head off projected future challenges of solid waste management due to decreasing availability of suitable landfills and increased regulation of PFAS (Per- and Polyfluoroalkyl Substances) by the EPA

- **Design**

- CZM Coastal Resiliency Berm and FEMA Electrical Retrofit, discussed in the Grants Update section above
- Pump Station 9 full replacement at Pemberton Point
- Influent Process, Secondary Treatment, and Control Building Upgrades at the treatment facility

- **Construction**

- HVAC Upgrades Project at the treatment facility is out to bid with construction projected to start in early summer
- Allerton Hill sewer repairs to prepare for roadway paving
- Effluent Pump Station and Pump Station 5 (Draper Avenue) Upgrades project is in construction to be complete late spring



New valves in the Effluent Pump Room. The red valve is a check valve and the blue is an isolation valve. See below Sewerology section to learn more about the functions of these different types of valves.

Sewerology: Valves used in the wastewater treatment facility can be buried or installed inside a building. There are specialized uses for different valves and depending on the valve size, smaller ones are manually operated while larger ones have mechanical or hydraulic actuators to assist in opening or closing the valves.

- **Gate Valve:** a mechanism that attaches to sections of pipe to control the flow of wastewater in typically one direction. Gate valves are typically used after check valves (see below) as a means to isolate a section of pipe or pump for service or removal, or to allow drawdown of wastewater in piping upstream of the valve in order to inspect or service that section of piping.
- **Check Valve:** a mechanism that is used typically on the discharge side of a pump to prevent backwater of flow in the reverse direction. When a pump operates, the check valve opens to allow flow through the discharge piping. Once the pump shuts off, the check valve closes automatically.
- **Isolation Valve:** Specialized mechanisms that help throttle or stop forward flow through a pipe or channel. We now have an influent isolation gate that we use during high flow events to regulate flow through the facility as well as to divert flow during maintenance activities. Recently, we installed another smaller isolation valve (a gate valve) to be able to divert flow from entering the effluent pump room. By doing this we have been able to replace the check and gate valves in the effluent pump room and eventually be able to remove the effluent pumps for service or replacement. We haven't had that capability for many years when other types of isolation were used and later became inoperable.