

MEMORANDUM

TO: Ben Pirri and Amy Pirri

FROM: Weston & Sampson

DATE: October 13, 2026

SUBJECT: Carlisle Town Center Wastewater Distribution System Process and Considerations: Feasibility Study, Design, and Construction

Weston & Sampson was retained by Ben Pirri and Amy Pirri (Proponent), project leaders and future operators of the historic Ferns Country Store (The Ferns, 8 Lowell Street) to perform a Feasibility Study to evaluate options to install wastewater infrastructure in Carlisle Town Center to transport sewage flows from the Fern's and the Gleason Public Library (22 Bedford Road) for treatment at the existing wastewater treatment facility (WWTF) located at Banta-Davis field (304 Bedford Road) and currently serving the Carlisle Public Schools. The facility is currently operating under Groundwater Discharge Permit #783-3, issued by the Massachusetts Department of Environmental Protection (MassDEP). The Carlisle Public School WWTF is permitted to discharge a maximum flow of 13,500 gallons per day (GPD) of treated effluent to the subsurface disposal fields located north-east of the WWTF.

The Proponent is proposing to renovate and reopen the Ferns. The existing septic was designed for a flow of 970 GPD. At minimum, the renovation would include the original design flow, plus that attributed to a 2-bedroom apartment, giving an estimated design flow of 1,300 GPD. Depending on the final layout of the café and final renovation plans, design flow could be higher, and could include a 2-bedroom apartment, a 49-seat full-service café, and a 2,000 square foot retail store. Maximum buildout will be subject to the same approvals as lower estimates. For this maximum use case, a recent study by Beals Associates, Inc. puts the design flow for this development at 2,145 GPD, based on Title 5 regulations and Town of Carlisle requirements. The existing septic system was found to be inadequate for both scenarios, thus requiring significant improvements to the system or a separate wastewater connection, regardless of any significant increase in flow. Improvements or a separate connection will be required for even a relatively modest renovation of the property, which is needed to reopen this historically important landmark.

The Town of Carlisle has also expressed a desire to provide wastewater connections to public buildings within the area, beginning with the Gleason Public Library. Water use data obtained for the period between January 29, 2021 and July 24, 2026 shows average daily usage of 100 GPD and a peak of 395 GPD on February 6, 2023. The observed peak usage is an outlier but has been considered as a conservative estimate.

With the shared interests of the Fern's and the Town of Carlisle, the feasibility study is primarily focused on providing wastewater infrastructure from the selected properties to the existing WWTF.

Feasibility Considerations

Weston & Sampson's analysis of the many factors involved is well underway. Among these factors, the following two are top of mind when determining a path forward.

WWTF Treatment Capacity

The feasibility of any proposed additional connections to the WWTF will primarily depend on the determination of existing treatment capacity. Preliminary analysis of effluent flows from December 2024 from the treatment plant to the leaching fields found an average of 2,208 GPD for this period, with a maximum daily flow observed on December 11 of 4,220 GPD. Water use records for the Carlisle Public Schools during this period were also reviewed and support the same flow values.

Effluent flows from the plant and water use data from the school have been obtained for the period from April 1, 2020 through April 30, 2026 and are currently being evaluated to further reinforce estimates of existing flows to/from the WWTF. Preliminary analysis for this overall time period shows similar average and peak flows. A comprehensive analysis of flows is underway and will be necessary for required MassDEP permitting, as described later in this memo.

As stipulated in the Groundwater Discharge Permit, average annual flows above 80% of the WWTF's design capacity require additional reporting and potential modifications to the plant. In order to stay below this limit, acceptable flow to the WWTF is approximately 10,800 GPD.

As previously stated, review and analysis of recent effluent flows, recent water use data, and future projected flows from the school are needed, but at this stage of the study and using analysis of data up to April 30, 2026, a cap of 80% WWTF design flow, reported design flow for the Ferns at maximum buildout, and the observed peak water usage from the library, it appears that adequate capacity exists at the WWTF to treat flows from the Ferns at maximum buildout, the Gleason Public Library, and Carlisle Public Schools (10,800 GPD – 2,145 GPD – 395 GPD – 4,220 GPD = 4,040 GPD).

MassDEP Approval and Permitting

As stated above, approvals from MassDEP are required when adding additional connections or making modifications to existing WWTFs governed by a groundwater discharge permit. Analysis of wastewater flows from April 2026 to present, and the wastewater components of those flows will be necessary in order to move forward. Ben Pirri and representatives from the Town of Carlisle have been in discussions with representatives from MassDEP, and they have overall been receptive to potentially adding additional connections to the system and have stated that a BRP WP 11 – Groundwater Discharge Renewal with Plan Approval is required. The completed wastewater analysis and preliminary plan will be a major component of this submittal and subsequent approval.

Preliminary Feasibility Conclusions

It is important to stress that a complete review by MassDEP of the factors that will determine feasibility not yet complete. Additionally, any discussion of feasibility hinges on MassDEP approvals, including but not limited to the BRP WP-11 permit. Both tasks will be within the design scope.

At this stage, based off the preliminary analysis it appears that a connection to the WWTF is feasible based on flow data as described above and the outcome of discussions held between MassDEP, the

Town of Carlisle, and the Proponent. It is also our opinion that a low-pressure sewer option is the best method for the new connections. This method bypasses the need for additional new pump stations which are large and costly to build and operate, avoids construction through nearby wetland resources, eliminates the need to obtain easements, minimizes/eliminates infiltration/inflow, is easier to construct, and allows for a simpler approach to additional future connections to the system.

Once approvals are obtained from MassDEP, the next step in determining feasibility of this effort is availability of funding for final design, construction, etc. In addition to Town funding, SRF loan, grant opportunities, and other funding sources are available for both design and construction and will be evaluated as a part of the ongoing feasibility study.

Design Process and Considerations

Final design will encompass the shared wastewater infrastructure in the public right-of-way, stub connections for potential future expansion to additional public buildings, paving, restoration, the service connection to the Gleason Public Library, including piping, grinder pump, and electrical evaluation, and other related construction. Please see the attached Figure 1 for a preliminary layout of the routing for public wastewater infrastructure. Any costs or design for the private Ferns connection are not included and shall be completed under a separate, privately funded effort. Funding for the design is the next hurdle in moving the project forward and has been estimated to be between \$225,000 and \$300,000. In addition to Town funding, SRF loan, grant opportunities, and other funding sources are available for final design. These additional funding sources will be explored as a part of the ongoing feasibility study. Preparation and submittal of suitable grant applications for design is not included in the current feasibility scope.

Once funding is approved, analysis performed during the feasibility study, along with any needed preliminary plans, will be used to obtain approvals and submit permit applications required by MassDEP for the proposed connections. As previously stated, MassDEP approval is required for completion of the project.

Concurrent to the permitting effort, the Final Design phase will involve investigations into the existing conditions of the proposed project route, including subsurface and environmental investigations and site survey. These tasks are essential to providing insight into many factors affecting design and eventual construction costs, including but not limited to depth to bedrock, soil and groundwater conditions, proximity to wetland resources, and conflicts with existing utilities.

All information collected to date will then be utilized in preparing contract plans and specifications. These documents are used first to obtain additional permits and approvals, including from local boards such as the Carlisle Conservation Commission. Once all approvals are obtained, the documents will constitute a complete package of contract documents, ready for bid and award of construction. Costs for assistance for bid and award have been included in the Final Design scope.

While preparing the contract documents, an opinion of probable construction costs will also be determined and provided, along with an estimate of operations and maintenance costs for the new system. With a final cost estimate laid out, the final step to project construction will be that of construction funding. Loan and grant opportunities are also available for construction. The scope of the design task includes research, preparation, and submittal of up to two (2) grant applications.

With all data and contract documents in hand, the Town will also need to determine how they wish to administer and manage this new infrastructure. This may include items such as connection processes and fees, sewer use rules and regulations, usage fees, and/or any needed legal agreements between parties.

Construction Process and Considerations

As previously stated, obtaining funding for project construction and completion will be the next step. Currently, the estimate for construction is between \$460,000 and \$1,100,000. This construction cost range does not include any costs associated with the private Ferns connection. The tasks completed under the Final Design phase will narrow this range considerably and give a better understanding of construction costs. In addition to physical construction of the new system, it is important to note that the given estimate includes full-time construction administration services and police details.

Conclusion

The privately funded feasibility study is well underway and, to date, results have been promising, but analysis and approval from regulators is required throughout the Final Design phase of work. At this stage, progress has shown us that there is capacity for the proposed connections at the WWTF and that a low-pressure sewer system will allow for a cost effective and expandable system to transport wastewater. Discussions with MassDEP have also demonstrated their willingness to consider these additional connections.

It is our opinion that permanent wastewater connections to the existing WWTF are the most feasible approach for treatment of wastewater in the study area. Demonstrated excess capacity at the plant will immediately eliminate the need for septic systems at the Ferns and the Gleason Public Library. Additionally, the proposed system is highly modular and will allow for future connections from additional public buildings and businesses, providing treatment capacity exists and regulators approve. If connected, septic systems, and their associated footprint, will be eliminated from these properties as well.

We acknowledge that the tasks listed above, and their associated costs, are significant but the potential benefits need also be taken into consideration. Business development, Town Center modernization, and community preservation are most visible. Less visible are the potential risks associated with failing septic systems, including repair/replacement costs and risks to groundwater, drinking water, and natural resources. The cost/benefit determination and funding options are the most significant decisions involved with project completion.

The next step in this process will be allocating funds for the design and permitting of the proposed system. It will be determined at the Fall 2026 Special Town Meeting, with debate and votes by the residents of the Carlisle, whether or not Town funds will be used for the design phase of the project.

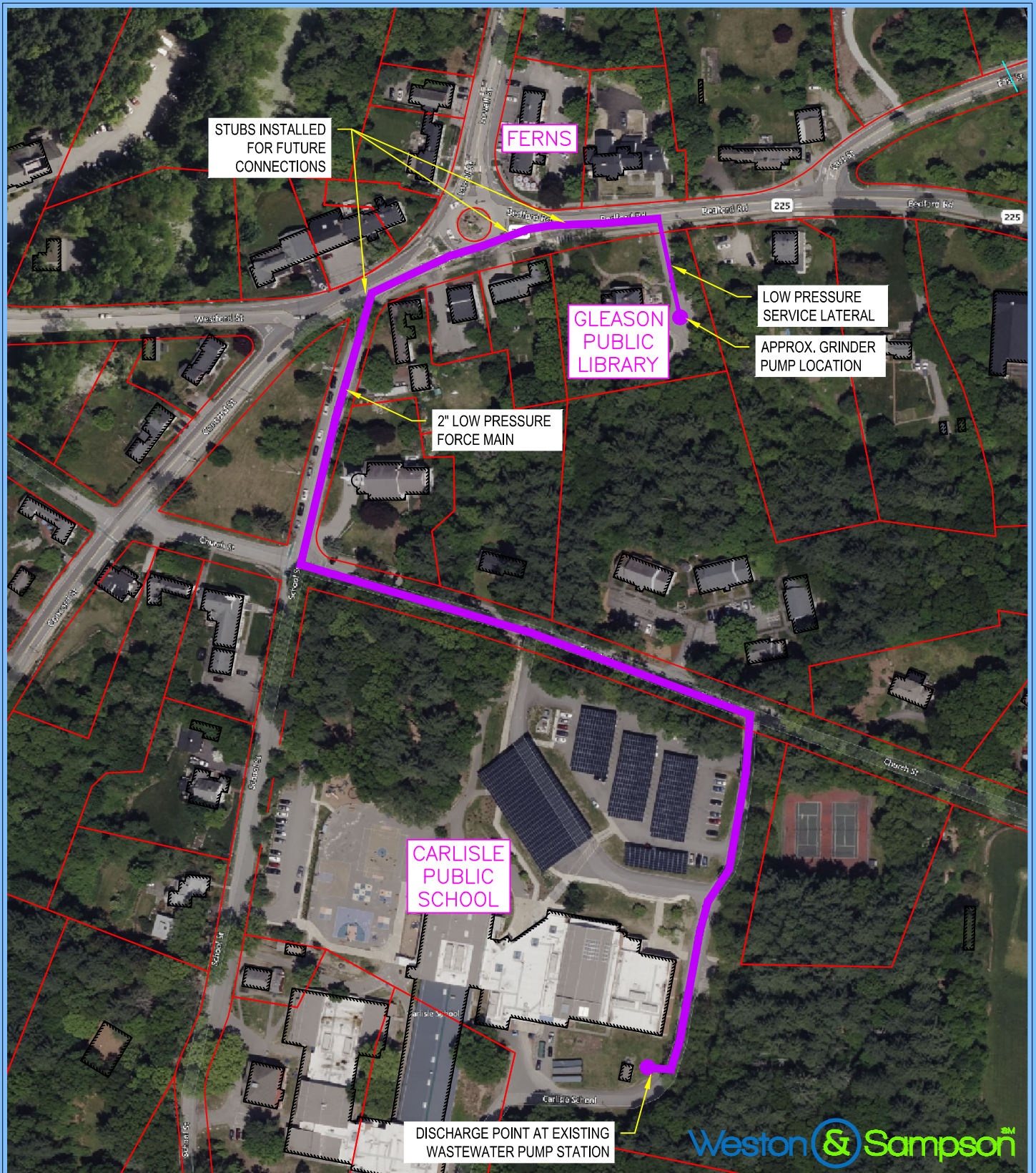


FIGURE 1
CARLISLE, MA
CARLISLE CENTER SEWER EXTENSION
PRELIMINARY SEWER ROUTE
NOT TO SCALE

