



Hazen and Sawyer
620 Green Valley Road, Suite 101
Greensboro, NC 27408

November 12, 2020

Jay Guffey, PE
Engineering Supervisor, Dept of Water Resources
City of Greensboro
2602 S. Elm-Eugene St.
Greensboro, NC 27406

Re: Scope and Fee Proposal for the Design of the Townsend WTP Lab Upgrades

Dear Mr. Guffey:

Thank you for the opportunity to provide the enclosed proposal to the City of Greensboro for the design and construction services requested on the Townsend WTP Lab Improvements Project. The following tasks are to build on the preliminary design services previously completed for the facility.

Objectives:

The objective of this project is to develop the construction drawings and specifications for the concepts developed during the Preliminary Engineering Project. Hazen and Sawyer and our partners will work with the Townsend WTP to complete the design of the lab facility keeping in mind the original project drivers and goals noted below.

- First, and foremost, the functional objective is to create a professional working space that serves current water quality laboratory needs and is adaptable to support laboratory analysis and research for the City in the future.
 - Desk Space/Workstations for Lab Staff
 - Efficient Workflow
 - Spatial Organization and Workspace
 - Accessibility and Environment
- In respecting the existing building's aesthetics and importance to the Townsend facility, the architectural objective is to optimize the interior space; movement of employees, visitors, samples, and waste; energy usage and natural light for an efficient and sustainable workspace.
- The schedule objective is to develop a laboratory space plan that can be integrated into the compliance schedule of the lab.

The scope of work for this project consists of built-in lab equipment and casework selection support, pre-selection and preparation support of procurement packages for lab equipment and casework, detailed design and bid period services. Appendix A will include the preliminary layout of the lab design developed in the PER and is the basis for the detailed design proposal enclosed.

Task 1: Lab Detailed Design Phase

The detailed design phase for the lab will include the structural, mechanical, electrical and plumbing upgrades required to develop the final plans per the layout developed in the PER phase of the project (Appendix A).

Developing the Final Space Plan: Hazen will include considerations discussed in the scoping meeting for the Detailed Design Phase. A series of meetings will be held in smaller groups to identify any additional concerns and ideas. Some of those concerns can be found below:

- Environmental impacts on lab equipment when finalizing placement in the lab facility. For example, the mass spectrometer previously purchased by the city will need to be placed in a location out of direct sunlight.
- Lab Finishes: Finishes will be finalized during the design phase, however, the team indicated metal stud with drywall finishes were likely candidates to minimize the structural loading.

The completion of this task will include an update to the three-dimensional workspace virtual rendering and a near Class 3 cost estimate.

Detailed Design Phase 1 will include a full-scale structural evaluation to confirm the buildings superstructure is capable of handling additional loading from walls, equipment and mechanical upgrades required to modify the lab.

Detailed Design Phase 2 will include an assessment of all existing lab equipment, technological evaluations and expected life span for current lab needs and future considerations.

Detailed Design Phase 3 will include the selection and implementation support for a Lab Information Management System (LIMS). Hazen will coordinate vendor presentations, develop pros and cons for each system based on city feedback and experience, and assist in the selection and implementation of the system.

HVAC and plumbing system improvements, including DI water, will include an evaluation of the physical changes in the lab space. Due to the additional conditioned space and age of the existing equipment this scope includes the design of new roof mounted chillers and air handling units to accommodate the new space. The scope also includes humidity control, design of new ductwork where required and new dampers to properly condition spaces.

The team will locate new fume hoods with exhaust systems and blowers and work with the city to select desired manufacturers.

Work Space Concerns: Hazen will evaluate the current work space and consider options for future health and safety response for staff. Including decentralized workstations and temporary or permanent partitions in lab spaces as required to provide social distancing as required.

Constructability for Lab Upgrade: Hazen will lead planning meetings with the City staff to maintain lab operations during construction to meet compliance requirements. A temporary facility for a lab may need to be set up during this time.

It is not anticipated, based on the current building code, that a sprinkler system will be required in the renovated lab by the City Fire Marshall, therefore this scope has not been included.

The team will evaluate the existing power in the facility. Lab staff have mentioned power quality issues have been a concern in the past in the lab facility and additional UPS units may be needed to maintain lab services.

Task 2: Control Room Design

The City of Greensboro requested a new control room design in the Townsend Administration Building in addition to the lab upgrades. The team will work with the Owner to provide a functional workspace with a wall of monitors and multiple workstations. The scope will include the ergonomic design of space and physical upgrades as developed by the project team. Items identified by the city of interest during design:

- Integrate a Monitor Wall to take advantage of the recently installed Longwatch surveillance system and provide operational monitoring of water system.
- Overall goals include readily accessible compliance and operations information, better workflow, and ergonomic conditions for staff.

Constructability for Control Room: The plant can currently be operated from 6 different remote locations. Potentially utilizing infrastructure at one of these locations or a similar temporary setup will be required during construction

The final deliverable for Tasks 1 and 2 will be the signed and sealed construction drawings and specifications for bidding of the contract.

Opinions of Probable Costs

The project team will develop cost estimates consisting of the following:

- Preliminary cost estimating for construction budgeting to be delivered at the completion of the final layout approval
- A substantive cost estimate to be delivered at the 60% design phase at the completion of the structural evaluation, technology selection, and LIMS selection.

Quality Assurance

Hazen will utilize Christine Owen to assist with identifying the final objectives for the future laboratory and as our lead quality assurance agent. Prior to joining Hazen as Director of Water and Reuse Innovations, Dr. Owen managed laboratories for the City of Tampa and Tampa Bay Water and directed architects to design new laboratories and remodel existing laboratories. A prominent water industry leader, she has worked with water systems for more than 20 years on research projects, regulatory compliance, industry standards, and professional organization programs. We believe she will be a great addition to our team.

Meetings

For the current time, all meetings not requiring a physical investigation at the site are planned to be virtual until a time those meeting can be returned to an in-person event. This time shall be as determined by the City and discussed with the project team.

Task 3: Operations Assistance and Plant Optimization

Hazen staff will provide services as needed and determined by the Water Resources staff. These services will include, amongst other items as determined by staff:

- Training Sessions, to be provided virtually until a time determined by the city is safe to do so in person.
- Operational support and plant optimization tasks by Hazen and Sawyer staff

Task 4: Bidding

Hazen, with SAMR, PLLC, will prepare the required documents to the MWBE and Engineering and Inspections department to complete a final review of the contract and goal settings. We will then work with the City to support advertisement and bid period services for this project through the E&I group. Services will include scope for up to two rounds of bidding support. The completion of this scope of services will be at the recommendation of award for the lowest responsive Contractor to the City of Greensboro.

Future Task 5: Construction Administration

At this time, Construction Administration support is not included in this project. The project delivery of this project will be further discussed and a proposal for construction services will be delivered at that time.

Schedule:

The project team will complete the design phase in the current Fiscal Year and target construction in FY22 or FY23 as directed by the City.

Fee Schedule:

Hazen will work with our valued partners, SAMR, PLLC to deliver this project. SAMR will work with the project team on all facets of the project but will be primarily responsible for the plumbing, electrical and HVAC portions of the scope. Hazen will provide QA/QC, mentoring support and all other required services for the project including Architectural, Structural, equipment selection, major electrical and distribution upgrades if required, and overall drawing development for the Contract. The team will provide the services above at the rates found in the table below with an approximate not to exceed fee of \$380,300 with a SAMR utilization commitment of approximately 27.8%.

SAMR invoices will be submitted with a 10% markup and is included in the costs below.

Approximate distribution of tasks can be found below:

Description	Hazen	SAMR	Subtotal
Preliminary Engineering	\$19,100	\$ -	\$19,100
Detailed Design	\$182,760	\$91,000	\$273,760
Project Meetings	\$12,200	\$12,000	\$24,200
Bidding	\$9,300	\$2,940	\$12,240
Reimbursable Expenses	\$6,000	\$ -	\$6,000
Operational Support	\$45,000	\$ -	\$45,000
	\$274,360	\$105,940	\$380,300

Hazen and Sawyer		SAMR, PLLC	
Title	Rate per hour	Title	Rate per hour
Vice President	\$250	Principal Consultant/ Operation Manager	\$250
AVP/Senior Associate	\$205	Principal Engineer/PM	\$180
Associate	\$175	Senior Engineer	\$150
Senior Principal Engineer	\$150	Engineer	\$140
Senior Principal Designer	\$145	Designer	\$100
Principal Engineer/Engineer	\$135	Technician	\$100
Principal Designer	\$120	Administration/Secretarial	\$60
Technician/Intern	\$60		

Please feel free to contact us at any time if you have any questions or would like to meet to discuss the items enclosed. Thank you again for the opportunity and we look forward to continuing to work with the City of Greensboro.

Best Regards,



Aaron D. Babson, PE
Senior Associate

cc: Hazen-Barry Bickerstaff, PE, SAMR, PLLC; COG-Dell Harney

