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March 23, 2026

Will Stallard  
Water Services Division  
City of Kingsport  
1113 Konnarock Road  
Kingsport, TN 37664

Subject: Proposal for Professional Services for the Wastewater Treatment Plant Aeration Blower Improvements

Dear Mr. Stallard:

CDM Smith is pleased to present our proposal for Professional Engineering services for the Wastewater Treatment Plant Aeration Blower Improvements project. This proposal includes engineering services to assess alternatives and provide the basis of design for upgrading the plant's aeration blowers.

## Background

The City of Kingsport (City) owns and operates the Kingsport Wastewater Treatment Plant (WWTP). The aeration blowers are vital parts of the Kingsport wastewater treatment system. As described in the recent *Kingsport WWTP Master Plan*, the installed blowers are approaching the end of their useful lives and are in need of replacement. This project generally consists of the replacement of the aeration blowers and associated electrical equipment.

The project will be implemented in a phased approach with tasks as follows:

- Task 1 – Alternatives Analysis and Improvements Selection (Basis of Design)
- Task 2 – Final Design
- Task 3 – Permitting
- Task 4 – Bidding Services
- Task 5 – General Services During Construction

This proposal is for Task 1 services and can be amended for future phase services based on the final recommended scope of improvements. A detailed description of the Task 1 scope of services is as follows.



## Scope of Services and Schedule

### ***Task 1 – Alternatives Analysis and Improvements Selection (Basis of Design)***

**Task 1.1 – Project Kick-off Meeting** – CDM Smith will conduct an in-person meeting with City staff to finalize project goals and critical success factors, develop project alternatives, define project constraints, and establish the project schedule. A site visit to the WWTP will take place following the meeting. Other topics to be discussed include, but are not limited to:

- Design Criteria
- Sources and availability of data/information
- Initial risk discussion
- Permitting
- Future permit limits and future flows/loadings

**Task 1.2 – Data Collection and Review** – Available data and information will be obtained and distributed to the project team for review. Information will include, but not be limited to:

- Existing Drawings
- Influent and effluent flows and wastewater characteristic data

**Task 1.3 – Alternatives Definition** – CDM Smith will define alternatives and then proceed with the alternatives evaluation. Alternatives definition will include:

- Land/building use and location of new facilities
- Preliminary sizing of major mechanical equipment
- Horizontal and vertical alignment of new aeration piping
- Connections to new and existing facilities
- Power Supply requirements
- System Controls
- Redundancy/reliability provisions
- Building or structural modifications necessary for new equipment
- Construction methods

**Task 1.4 – Existing System Aeration Evaluation** – CDM Smith will evaluate the existing diffuser and aeration blower system under current and future flow and loading scenarios. Key considerations include the reuse of the existing diffusers, possible permit changes, and the desire to reduce the aeration blower voltage to 480V. The Biowin model previously developed by CDM Smith will be updated for current flows and loadings and utilized for this project.

**Task 1.5 – Basis of Design** – CDM Smith will document the basis of design for the new and/or rehabilitated facilities. These facilities will include the aeration blower and diffuser system.

*Task 1.5.1 (Aeration Blower System)*

The existing aeration system is supplied air with a single high speed turbo blower and three (3) multistage centrifugal blowers. The turbo blower performs well but is not sized to handle current peak demands. The multistage centrifugal blowers are beyond their useful life, are not all fully operational, and are powered with medium voltage motors. The City desires to replace the existing blower system with a solution that will provide long-term reliability while also reducing the motor voltage to 480V. The City also desires to consider options for blower replacement that consider the potential for future nutrient limits.

This task will include a review of blower technologies and the costs and benefits of each, with the replacement blowers included in conceptual layouts. Blower technologies that will be evaluated include multistage centrifugal, single-stage centrifugal with variable-vane control, positive displacement, and high-efficiency “turbo” blowers. Blower technologies will be compared based on their relative ability to meet the design conditions, relative operations and maintenance requirements, predicted energy efficiency, and equipment costs. It is assumed that an in-person meeting to discuss blower technologies will be held to reduce the number of alternatives to two (2).

**Task 1.6 – Power Distribution and Controls Evaluation** – CDM Smith will evaluate the existing power distribution and system controls for each alternative and provide recommendations to achieve desired reliability, redundancy, and operational control for each alternative. Preliminary electrical single line diagrams and P&IDs will be developed for each alternative.

**Task 1.7 – Alternatives Evaluation** – Each alternative will be evaluated in terms of implementation feasibility, constructability, and operability to meet the City’s goals and objectives. Maintenance of plant operations during construction will be considered, as well as construction and operational phase risks for each alternative. Structural, Architectural, and HVAC considerations will be included as well.

Using the results of the aforementioned tasks, each of the feasible alternatives will be refined to enable preliminary capital cost estimating and evaluation of non-cost factors, including implementation feasibility, identified risks, and future improvements. Preliminary results will be presented to City staff in an in-person workshop-style meeting with the goal of ranking the

alternatives. The CDM Smith project team will develop preliminary life cycle cost estimates for up to two of the top ranked alternatives.

**Task 1.8 – Permitting Analysis** – CDM Smith will identify permits needed for each alternative and determine permit application requirements. Permitting agencies will be contacted to confirm and identify potential concerns.

**Task 1.9 – Basis of Design Report (BODR)/Presentation** – CDM Smith will prepare and submit a draft BODR documenting the results of Tasks 1.1 – 1.8. Key members of the team will present the results to City Staff in an in-person workshop-style meeting with the goal of selecting the recommended alternative and developing a project delivery plan, including a schedule. The document will provide a conceptual-level alternatives analysis with a recommendation of the selected alternative for upgrading the aeration blowers. CDM Smith will prepare general arrangement site plan and process mechanical drawings. Following the workshop meeting, CDM Smith will issue meeting minutes to document the selected improvement alternative for implementation of future Tasks 2-5. Comments from the workshop will be incorporated into a final BODR.

**Task 1.10 – Project Management, QA/QC, Project Meetings** – Project management tasks include:

- Internal project team communications
- Internal quality assurance/quality control reviews
- Up to two additional meetings with City staff (in addition to the workshop meeting in Tasks 1.7 and 1.9)
- Monthly project management administration, invoicing, and progress reporting

**Assumptions:**

- CDM Smith will develop up to two (2) aeration blower alternatives.
- No HVAC or Architectural Drawings are included in this phase. A structural condition assessment, along with an HVAC and architectural improvement site visit, will be completed and documented in the BODR for the blower building.
- No topographical survey or geotechnical scope is included in this proposal.
- The City shall be responsible for, and CDM Smith may rely upon, the accuracy and completeness of all requirements, programs, instructions, reports, data, and other information furnished by the City to CDM Smith pursuant to this Agreement. CDM Smith may use such requirements, programs, instructions, reports, data, and information in



Mr. Will Stallard  
March 23, 2026  
Page 5

performing or furnishing services under this Agreement. CDM Smith’s scope of work does not include verifying City Provided Information for accuracy or completeness. The City may request an independent review of City Provided Information by CDM Smith pursuant to a mutually agreed amendment to this Agreement. CDM Smith shall be entitled to an adjustment in price and schedule to the extent that any corrective action in CDM Smith’s Services arises out of inaccurate City Provided Information.

### Time of Completion

Task Description	Completion Dates
Task 1 – Alternatives Analysis and Improvements Selection	5 Months from NTP
Task 2 – Final Design	TBD
Task 3 – Permitting	TBD
Task 4 – Bidding Services	TBD
Task 5 – General Services During Construction	TBD

### Payment and Compensation

The City of Kingsport shall compensate the Engineer for providing services set forth herein in accordance with the terms of the Agreement. Invoicing for the work shall be monthly on a lump sum percentage of work completed basis. A status report will accompany each progress invoice.

The total Contract amount shall not exceed **\$279,000** without written amendment to this authorization.

On behalf of the entire CDM Smith organization, I want to express our appreciation for the opportunity to work with the City on this important project. If you have any questions about this proposal, or any matter, please do not hesitate to contact me.

Very truly yours,

Daniel Unger, P.E., PMP, Assoc. DBIA  
Principal  
CDM Smith