"Defining Odor Control Engineering"

WEBSTER ENVIRONMENTAL ASSOCIATES, INC.
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AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES

This Agreement made and entered into this _____ day of _____, 2026, by and between the City of Dickinson, ND (City) and Webster Environmental Associates, Inc. (WEA) is for the services described in Exhibit A (Scope of Work) of this Agreement.

Purpose

The purpose of this Agreement is for WEA to provide odor control services to the City, as described in the attached Exhibit A (Scope of Work).

Compensation

Compensation for engineering services performed will be a lump sum fee of $139,800, that will be billed monthly based on percentage completion of each task. There will also be a not-to-exceed value of $19,200 for monitoring equipment. WEA shall submit monthly invoices describing the work performed during the billing period.

Payment shall be made by the City within 30 days from receipt of the WEA invoice.

Legal Relations

WEA is for all purposes an independent contractor. In no event shall WEA be deemed to be an agent or employee of the City. Full control of means and methods of work including provisions for required safety precautions shall be the responsibility of WEA.

Insurance

WEA shall always maintain in effect during performance of the services described in this Agreement at least the coverage and limits of insurance with insurers in the following amounts and coverage:

1. Worker's Compensation, with Employer's Liability limits not less than $2,000,000 each accident.
2. Comprehensive General Liability Insurance with limits not less than $2,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage.
3. Comprehensive Automobile Liability Insurance with not less than $2,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage.
4. Professional Liability Insurance with not less than $2,000,000 aggregate.

Required Provisions

WEA shall in the performance of this Agreement comply with all federal, state and local laws; and all regulations and orders issued under any applicable law.

This Agreement is to be governed and construed in accordance with the laws of the State of North Dakota.

IN WITNESS HEREOF, duly authorized representatives of the parties have signed in confirmation of this Agreement, with effective date the day and year first above written.

City of Dickinson, ND
38 1st St. W
Dickinson, ND 58601

By: _____

Title: _____

Date: _____

Webster Environmental Associates, Inc.
13121 Eastpoint Park Blvd., Suite E
Louisville, KY 40223

By: _____

Title: _____

Date: _____

SECTION 1 – PROJECT UNDERSTANDING AND APPROACH

Project Understanding

Treating wastewater is a service that communities cannot go without; and while treating wastewater to meet the requirements of discharge permits can be difficult, mitigating odors and corrosion from wastewater treatment processes can be just as, or more difficult. Wastewater treatment plant operators generally strive to be "good neighbors" but controlling odor and corrosion can be a challenge for many reasons including the subjectivity of odor, capital and operating costs, lack of understanding, proximity to sensitive neighbors and unpredictable/inconsistent process conditions.

The City of Dickinson, ND has found elevated hydrogen sulfide (H_2S) concentrations in various locations throughout the collection system, resulting in nuisance odors, accelerated infrastructure corrosion, and potential health and safety risks to personnel and the public.

This study will involve an investigation of the collection system to determine where and under what conditions H_2S is being generated. The selected consultant will conduct field monitoring, including gas and liquid-phase sampling at key points such as manholes, lift stations, and force mains. Data on dissolved oxygen, temperature, pH, flow rates, retention times, and other parameters will be collected to assess the physical and chemical conditions that promote H_2S formation.

The scope of work requires the successful team to evaluate the collection system, including pump station configurations, force main discharge points, measure H_2S levels, reduced sulfur compound (RSC) levels, research odor and corrosion mitigation methods, and recommend the most cost-effective odor control technologies for the collection system (pump stations and force mains). Webster Environmental Associates (WEA) prides itself on staying current with the latest odor control technologies and manufacturers. With over 800 odor control studies and designs completed, WEA knows which technologies work best in each application, how to select the most appropriate design criteria, and which manufacturers can be relied upon to provide reliable, cost-effective, low maintenance odor control.

Plan and Method of Approach

Overview – Our team's project approach for the collection system study and evaluation will be centered around our project management plan followed by our technical approach, which will consist of the following steps:

1. Project Management Plan: Establish clear communication with the City, schedule regular meetings, and maintain documentation through agendas and minutes.
2. Technical Approach: Review existing information and develop a sampling and testing protocol for the collection system, including the pump stations and force main discharge points.
    - Pump Stations: Sample for RSCs and monitor H_2S at the pump stations; evaluate all viable mitigation alternatives based on results
        - Conduct spring and summer sampling and testing programs for the odor sources at the pump stations, discharge points, or other potential odor sources within the collection system
        - Evaluate different odor control technologies based on testing results. Technologies could include vapor phase odor control system to capture and treat odors, chemical dosing to prevent odor formation and corrosion within the collection system, or a combination of the two.
    - Force Mains: Continuously monitor H_2S at pump stations and discharge points, collect liquid samples for sulfides, pH, temperature, oxidation reduction potential (ORP), and dissolved

oxygen (DO); meet with odor control vendors to review chemical dosage and adjustment methods. Develop tracking graphs for force mains to optimize monitoring locations and dosing strategies.
    - Prioritization: Use WEA's prioritization system, considering sensitivity, corrosion potential, and H_2S data, to guide resource allocation and optimize liquid phase odor control based on new and existing data.
3. Reporting: Compile findings, conclusions, and recommendations in a comprehensive odor and corrosion control report for the City.

Collection System Evaluation – Gathering as much data as possible will be very important to fully understand the odors within the collection system and to recommend the right solutions. ***Data driven decisions allow the most efficient use of resources.*** Without it, you are at great risk of installing a system and feeding chemicals that are inappropriate for the application, and ultimately wasting money and not achieving the desired results.

Our project team will have a very complete and thorough approach to collecting data within the collection system. Data collection for this evaluation will include:

- Continuous monitoring of H_2S at the pump stations
- Identifying appropriate control points for each force main and monitoring of H_2S
- Collect information regarding materials of construction of force mains and apparatus and regarding odor sensitivities
- Air sample collection at the pump stations and discharge locations to evaluate which odorous compounds are present and what their concentrations are
- Performance testing of the existing vapor phase odor control system to determine their effectiveness and fit for the application
- Collection of liquid samples to test sulfides, pH, temperature, ORP, and DO
- Analysis of existing chemical feed systems, including locations, dosage rates and how dosage rates are adjusted
- Discussions with the City Engineering, Operations, and Maintenance staff to understand their preferences and observations
- Evaluation of viable odor control solutions

Recommended Solutions – Our project team will compile and summarize all the data that was gathered during the collection system study and evaluation and will prepare draft and final versions of the Dickinson Hydrogen Sulfide Mitigation report. The report will include the following:

- Summary of the sampling and testing completed as part of the evaluation
- Summary of all new and existing testing results
- Summary of all communication with odor control vendors
- Development and evaluation of odor control alternatives
- Listing of advantages and disadvantages of each alternative
- Capital and operating cost estimates for each alternative including vendor quotations
- Conclusions and recommendations

SECTION 2 – PROJECT SCOPE

Phase 0 – Study Design & Technical Work Flow

WEA will review any existing data that the City may have related to the collection system, including pipe diameters, flow rates, H_2S data, current chemical dosage rates & locations, and current vapor phase odor control systems. Based on this, WEA will develop a study methodology, which will include:

- Sampling and monitoring plan for Spring and Late Summer to capture data in differing conditions
- Define sampling methods, monitoring equipment, locations for sampling & monitoring and duration of sampling & monitoring
- Define sampling and monitoring frequency
- Define laboratory analysis methods

In addition to the study methodology, WEA will prepare QA/QC procedures and establish a prioritization system. As part of the QA/QC procedures and workflow, WEA will establish regular meetings with the project team once the work has begun.

WEA will develop a technical work plan document to outline study methodology, objectives, requirements and workflow.

Phase 1 – Technical Oversight of Monitoring

WEA will attend a kickoff meeting with the City of Dickinson and Apex Engineering to discuss the sampling & testing plan that was developed as part of Phase 0. As part of the kickoff meeting held in Dickinson, WEA will spend time with the City and Apex going to each of the collection system locations to assist and oversee the following:

- Installation of monitoring equipment. WEA will provide the Acrulog H_2S monitors for Apex to install. The monitors will need to be retrieved and shipped back to specified address for downloading.
- Collection of air samples for RSC concentrations
- Collection of air samples for existing odor control performance evaluations
- Collection of liquid samples for pH, temperature, ORP, and total sulfides
- Collection of liquid samples to be analyzed for DO

While at each site, WEA will take pictures and collect information that may be important to the success of the study.

As part of the technical oversight and monitoring, WEA will schedule progress meetings after specific project milestones, will develop meeting minutes for each of the project meetings, and will develop progress reports after specific project milestones. Project milestones may include spring sampling & testing, summer sampling & testing, and odor control alternatives evaluations.

Phase 2 – Data Analysis and Source Identification

Apex Engineering will collect all the data outlined in Phase 0 and Phase 1 of this scope and send the results to WEA. WEA will organize the data based on location, section of the collection system, data type (i.e. pump station, discharge point, liquid sample, air sample, etc.), and by season. WEA will analyze all the data collected. Based on the data, WEA will complete the following tasks:

- Model sulfide generation and kinetics
- Conduct corrosion risk evaluation
- Evaluate detention times and hydraulic drivers
- Identify force main/lift stations susceptible to H_2S formation along with commercial & industrial loading impacts
- Rank system segments by H_2S Severity
- Distinguish persistent sources from seasonal sources

WEA will prepare a Preliminary Findings Report to summarize the data, collection types, what it all means, and identify H_2S, or odor, sources.

Phase 3 –Mitigation Alternatives Development

WEA will develop odor mitigation alternatives based on the steps taken in Phase 2. In Phase 2, WEA will identify locations within the collection system that will be a priority for H_2S mitigation. For each location, WEA will develop the following:

- Develop technically appropriate mitigation strategies
- Prepare conceptual process design criteria
- Develop capital and O&M costs for each alternative
- Provide technical recommendations

WEA will prepare a draft report and provide alternatives evaluation matrix & recommendation. WEA will then hold a virtual meeting with the City and Apex to review the draft report.

Task 4 – Final Reporting & Presentation

A final report will be prepared for the City. The final report will include comments from the meeting held in Phase 3, along with any discussions had with the City and Apex. The final report will include the following:

- Incorporate Apex's constructability review
- An executive summary suitable for City leadership

WEA will then prepare a presentation to present the findings of the project to City staff and/or Commission. WEA will travel to Dickinson to present the final report & presentation.

SECTION 3 – PROPOSED SCHEDULE AND COST OF SERVICES

WEA proposes a total **Lump Sum Fee of $139,800**, which includes all professional time and expenses as detailed in the table below. The table below also includes a proposed, tentative schedule, but it can be modified depending on the City's requirements.

Task Description	Schedule	Cost
Phase 0 – Study Design & Technical Framework	April 2026	$13,600
Phase 1 – Technical Oversight of Monitoring	April/May 2026	$21,600
Phase 2 – Data Analysis and Source Identification	June – September 2026	$28,800
Phase 3 – Mitigation Alternatives Development	September – October 2026	$31,900
Phase 4 – Final Reporting & Presentation	November 2026	$43,900
	Total	**$139,800**

WEA will provide up to twenty (20) Acrulog H_2S monitors for this study. The monitors will be used to continuously monitor H_2S within the collection system for two 2-week periods. One 2-week monitoring period will take place in the spring and the other 2-week period will take place in late summer or early fall. The estimated Not-To-Exceed budget for the monitoring equipment, including rental fees, coordination, and shipping is **$19,200**.