

Amendment 1
To
AGREEMENT FOR ENGINEERING SERVICES
WEBB COUNTY - ARDURRA GROUP, INC.
WATER/WASTEWATER MASTER PLAN

The original contract, dated **September 28, 2022** and effective October 1, 2022, by and between **Webb County**, a political subdivision of the State of Texas (hereinafter called "County") and **Ardurra Group, Inc.**, (hereinafter called "Consultant") to provide Services is hereby amended in the following respects:

Paragraph 1: Additional Scope of Work Amendment No. 1 – Model Development and Calibration Exhibit A attached hereto and incorporated herein as if set out in full for all intents and purposes at an additional cost not to exceed Fifty Thousand Eight Hundred Seventy-Six dollars (\$ 50,876).

Paragraph 2: The parties agree that the foregoing amendment shall be hereinafter considered a part of the contract referred to above and incorporated by reference therein for all purposes. The amendments shall be subject to any and all other provisions of the contract which are hereby ratified by the parties and remain in full force and effect, with the exception of the parts or provisions of the contract which have been modified by this amendment or prior amendments.

This Agreement becomes effective when signed by the last party whose signing makes the Agreement fully executed.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment 1 on the dates set forth below.

Webb County

Ardurra Group, Inc.

Tano E. Tijerina
Webb County Judge

Dan S. Leyendecker, P.E.
Owner

Date: _____

Date: _____

ATTEST:

Margie Ramirez Ibarra
Webb County Clerk

Approved as to Form:

Nathan R. Bratton
General Counsel
Civil Legal Division*

*The General Counsel, Civil Legal Division's office, may only advise or approve contracts or legal documents on behalf Webb County, its client. It may not advise or approve a contract or legal document on behalf of other parties. Our review of this document was conducted solely from the legal perspective of our client. Our approval of this document was offered solely for the benefit of our client. Other parties should not rely on this approval, and should seek review and approval of their own respective attorney(s).

Scope of Work
2022 Comprehensive Water and Wastewater Master Plan
Amendment No. 1 – Model Development and Calibration

GOALS/OBJECTIVES:

- Provide a tool to assist Webb County to strategically plan and budget for future water and wastewater expansion based on projected growth and current regulations.
- Provide recommendations for water and wastewater system improvements in a phased approach.
- Complete the project under an expedited time frame.

BACKGROUND:

- Webb County currently consists of approximately 2,000 connections and serves the communities of Rio Bravo, El Cenizo, Core Civic (Detention Center), G.E.O. (Detention Center), three UISD schools, and Step Academy for approximately 6,600 customers.
- Webb County (Rio Bravo) WWTP was placed in service in 2006 with a TCEQ permitted discharge of 1.5 million gallons per day (MGD) average annual flow and a 3.45 MGD 2-hr peak flow. Current daily average discharge flows are approximately 0.51 (MGD). The WWTP was built with a complete SCADA system that is currently out of service, requiring the plant to be operated manually. Garver Engineering is currently working on a project to address and restore deteriorated processes/equipment.
- Owner of Laredo is currently undergoing a major subdivision development north of Rio Bravo and is projecting 1,500 new lots and it is anticipated that development will take place in multiple phases. This development may require future water and wastewater plant expansions.
- Certificates of Convenience and Necessity (CCN) areas, CCN #12704 (water) and CCN #20807 (sewer), to include projections for a five (5), ten (10), twenty (20) and fifty (50) year growth plan.

KEY ASSUMPTIONS:

- Growth projections will be based on the Texas Water Development Board (TWDB) Region M plan, the most up to date census data, as well as staff input on local growth areas.
- Existing models for both the water and wastewater systems have been previously developed by Porras-Nance and will be used as the basis for the updated models.
- All modeling infrastructure needed such as waterlines, valves, hydrants, wastewater lines, manholes, lift stations and force mains are currently available in GIS format and/or the existing models.

AMENDMENT NO. 1

- During the data collection phase of the County's 2022 Comprehensive Water and Wastewater Master Plan, it was found that there are no existing models for either water or wastewater systems.
- Ardurra has developed an additional scope of work to complete the model development for the County.
- Upon completion of the model development, Ardurra will complete a model development technical memorandum for both water and wastewater. Ardurra will submit an electronic copy of both models to the County for records and future use.
- Models will be based on GIS Data collected by Porras-Nance and recently submitted to Webb County.
- All modeling infrastructure needed such as waterlines, valves, hydrants, wastewater lines, manholes, lift stations and force mains are currently available in GIS format.

TASK 9: MODEL DEVELOPMENT

This task will replace Tasks 4.4 and 5.4 of the original contract. The original scope included an update to the existing models; however, no existing models were available. Therefore, Ardurra will be developing a water and wastewater models.

9.1.1. Develop model by utilizing any data gaps, opportunities for refinement, and to identify the required model updates. Determine whether existing scenarios are appropriate. Using the information collected in the previous tasks, input any missing, inaccurate or updated data into the model with a focus on pump curves, controls, flow lines, pipe slopes and new infrastructure. The models shall be an "all pipes model" which means that all gravity sewer lines, and water distribution and transmission lines will be included in the model. Where record drawings or data are unavailable, pipes will be assigned assumed slopes and depths based on TCEQ minimums. The Engineer shall use LIDAR data or topographic data for all rim elevations, as available. The hydraulic model shall incorporate a unique identifier for each asset, which the Engineer shall link with the County's existing GIS mapping and data storage.

9.1.2. Ardurra has developed this scope to provide Webb County Water Utilities with a Hydraulic Model for both the Water and the Wastewater System. SewerGEMS and WaterGEMS software will be utilized to develop the models. The existing water model was unable to be retrieved from the previous consultant and the wastewater model has not been developed, previously. This scope provides the written engineering basis for

model development. Our hydraulic model will be developed to accomplish the following goals:

- Provide a tool for consistent capacity assessment,
- Aid Ardurra's Master Plan Team and Webb County Staff in decision making while assessing the impacts of future growth, and
- Assist with developing and prioritizing capital improvements required for current and future conditions.
- The hydraulic model will also provide Webb County with pertinent data to assess system impacts to various wet weather and high demand events and facilitate evaluation of cost-effective strategies and alternatives.
- It will also consider maintenance and personnel needs, budget, planned growth, and capacity issues.
- Finally, the model will also be developed to optimize replacement lines sizing and system rehabilitation.

TASK 10: MODEL CALIBRATION

This task will provide the necessary model calibration to ensure that the Water and Wastewater models are representative of the behavior of the system on a day-to-day basis and to ensure model outputs are as accurate as possible.

10.1. Water Model Calibration

10.1.1. For water, calibration will be completed as per Chapter 4 of the AWWA Manual of Water Supply Practice – M32 - Computer Modeling of Water Distribution Systems - Specifically, section 4.2.4.2.:

- HGL predicted by the model should be within 5 to 10 ft (2.2 to 4.3 psi) of that recorded in the field.
- Water level fluctuations predicted by the model should be within 3 to 6 ft (10.9 to 1.8 m) of those recorded in the field.

10.1.2. Water Pressure Loggers installations for field calibrations have been coordinated with County Water Utilities Staff. A total of 7 Pressure Loggers will be installed via fire hydrants for a period of 30 days throughout the distribution system. The scope of work will include:

- Data collection and review.
- Coordination with Water Utilities Staff to remove Pressure Loggers.

10.2. Wastewater Model Calibration

10.2.1. The calibration methodology included two distinct elements:

- Dry weather calibration
- Wet weather calibration

Each of the steps requires different types of flow metering data for the selected dry and wet weather events.

10.2.2. Model calibration is a repetitive process consisting of the adjustment of modeling parameters within reasonable limits to obtain simulated results that recreate the actual behavior of the wastewater collection system. The process of adjusting both hydrologic and hydraulic variables to best match actual measured dry and wet weather flow data was adopted in this model.

10.2.3. The parameters used in dry weather calibration were +/- 10% of recorded values for peak flow rate and flow volume. During wet weather, the parameters were increased to -15% to +25% of recorded value for peak flow rate and -10% to +20% of recorded flow volume. These parameters were applied to every flow metering point within the model. Replicating shape and timing was a goal for both dry and wet weather calibration. Replicating shape and timing entailed having similar amounts of peaks and troughs and having them occur at similar times within +/-1 hour of the recorded times.

10.2.4. Ardurra will contract Utility Systems, Science and Software, Inc to provide the County with a total of 7 Flow Meters that will be installed for a period of 30 days throughout the wastewater system. The scope of the work will include:

- Verification of equipment installation/operation. Flow meters will be installed in Wet Wells and/or Manholes.
- Data collection and review.
- Removal of Flow Meters.

Project Timeline:

Task	Duration (months)	Start Month	End Month
1. Project Management	12	0	12
2. Data Collection and Analysis	2	0	2
3. Water System Evaluation	6	2	8
4. Wastewater System Evaluation	6	2	8
5. Cost Estimating and CIP	2	7	9
6. Alt Funding Sources and Rate Impacts	2	7	9
7. Water & Wastewater Master Plan Report	3	9	12
8. Model Development (Amd No. 1)	2	5	7
9. Model Calibration (Amd No. 1)	2	5	7
TOTAL	12	0	12

Items not included in Master Planning effort:

- Deed and easement records
- Facility maintenance requirements
- Benchmarking with other utilities
- Condition assessment of existing facilities
- Topographic survey for verifying critical elevations
- Extended Period Simulation models

Fees:

A. Fee for Basic Services

The County will pay the Engineer a fixed fee for providing all “Basic Services” authorized as per the table below. The fees for Basic Services will not exceed those identified and will be full and total compensation for all services outlined in above, and for all expenses incurred in performing these services. For services provided, Engineer will submit monthly statements for basic services rendered. The monthly statements will be based upon Engineer’s estimate (and County Concurrence) of the proportion of the total services actually completed at the time of billing. For Construction Phase services, the statement will be based upon the percent of completion of the construction contract. County will make prompt monthly payments in response to Engineer’s monthly statements.

B. Fee for Additional Services

For services authorized by the County under the “Additional Services” section, the County will pay the Engineer a not-to-exceed fee as per the table below or as negotiated and approved at a later date

C. Summary of Fees

BASIC SERVICES		
TASK 9	MODEL DEVELOPMENT	
	WATER MODEL DEVELOPMENT	\$ 9,240
	WASTEWATER MODEL DEVELOPMENT	\$ 10,920
TASK 10	MODEL CALIBRATION	
	WATER MODEL CALIBRATION	\$ 3,420
	WASTEWATER MODEL CALIBRATION	\$ 27,296
	TOTAL	\$ 50,876

Method of Payment:

Payment shall be made to the Consultant based upon the several phases as described heretofore and in accordance with the following:

D. Fee and Scope Assumptions:

Fee and scope assumptions is based on the following assumptions and exclusions:

- Engineering fees included in this proposal only apply to items specifically listed in this proposal.
- Agency review fees, impact fees, permitting fees and platting fees are not included herein.
- No field surveys or SUE Level A services are included as part of this work to verify utility depths or other information.
- This proposal does not include a fee to prepare easements for drainage, construction, water, sewer, electrical, or gas services.
- Public meetings are not included.
- Platting of the property and/or recordation of any drainage and utility easements or replatting of the development are not included in this scope of work.
- Any additional services required by the County which may arise and are not outlined above shall be compensated for on an hourly basis or negotiated to a lump sum fee.

Any additional work not listed in the above Scope of Work will be performed on a time and material basis. Invoicing will be submitted monthly based on percent of completion. Payments not received within thirty (30) days of the date of invoice will cause interest at the rate of 1.5% per month to accrue on any outstanding balance.

Provider shall provide at his sole expense any and all equipment, tools and any other thing, including employees, subcontractors, or other such assistance, necessary to the performance by him of the above-described service.

This budget figure will not be exceeded without writing modification of this Agreement. The additional services must be authorized in writing by the Client.