



June 16, 2020

David Hawes  
Economic Development Director  
9610 Long Point Drive, Suite No. 150  
Houston, TX 77055

**Re: Proposal for Mineral Wells Drainage Study**

Dear David,

Gauge Engineering, LLC (Gauge) is pleased to submit this proposal for professional engineering services to develop a Drainage Study for the City of Mineral Wells (City) and Tax Increment Reinvestment Zone No. 2. Our objective is to develop a firm understanding of the causes of flooding within the City and to begin the process of identifying effective solutions.

We propose to perform this work for a Lump Sum amount of \$21,640. A detailed breakdown of the scope items and fee can be found under exhibits "A" and "B" respectively. We are prepared to begin this work immediately. Please feel free to contact me at (713) 318-8801 if you have any questions.

Sincerely,

Pen M. Jones

Derek St. John, P.E.  
Principal

Accepted For  
Tax Increment Reinvestment Zone No. 2

Signature

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Date

MIKE AHLEN  
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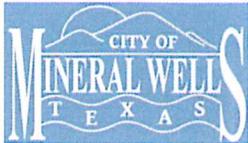
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Attachments: Exhibit A - Scope of Services  
Exhibit B - Level-of-Effort

Accepted for  
City of Mineral Wells

Jimmy Yndurazn 07-14-2020  
Signature Date

Tammy Underwood  
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## EXHIBIT A

### SCOPE OF SERVICES

This Scope of Services outlines the professional engineering services to be performed by **Gauge Engineering, LLC (Gauge)** for the preparation of a Drainage Study to better understand and define the causes of flooding around in Mineral Wells. This effort will include the determination of the various sources of flooding including insufficient channel capacity, and overland/overflow.

The scope of work for the project includes hydrologic and hydraulic analysis of the open channel network within the City and an overland flow analysis of the areas that contribute to the channels. This effort will provide a starting point for the identification of stormwater specific capital improvement projects and will also support future grant and funding opportunities.

Gauge will accomplish the following Tasks:

#### **DRAINAGE STUDY – BASIC SERVICES**

##### **1. MANAGEMENT AND COORDINATION:**

###### **a) General Project Management:**

General Project Management/Project Controls activities are ongoing throughout the period of the contract. This effort includes managing the project schedule, developing and managing the project work plan, and general project communication.

###### **b) Project Coordination Meetings:**

Monthly project meetings will be conducted virtually for the duration of the study which is expected to be 4 months. This effort includes one trip to Mineral Wells to present the study and the findings.

##### **2. DATA COLLECTION:**

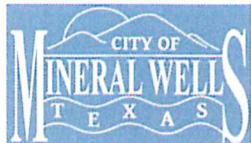
Research and collect available LiDAR data, rain gauge data, GIS base map data, repetitive flood loss claims, record drawings (limited/as-needed) and other relevant information for the study. The FEMA models for Crystal Creek will be obtained and used as a starting point for the analysis.

##### **3. HYDROLOGIC AND HYDRAULIC ANALYSIS:**

Gauge will utilize 2-dimensional modeling with rainfall applied directly to the 2D surface (created from LiDAR) to efficiently assess the study area. Rainfall hyetographs and other hydrologic parameters will be developed for the different flood frequency events.

###### **a) Develop and Analyze Existing Conditions Model:**

Gauge will build an existing conditions hydraulic network including modeling open channels, and bridges within the City. Gauge will analyze the region for the 2-, 10-, and 100-year, 24-hour storm events. Gauge will utilize analysis tools and custom templates to evaluate and analyze the results. A summary writeup will be developed to document our approach, methodology, key parameters,



and results. Exhibits and simulation videos will be developed to depict the water flow path and flooding causes.

b) Summary of Understanding and Problem Area Description:

Gauge will define discrete problem areas based on flooding patterns and logical infrastructure zones. The specific cause(s) of flooding for each problem area will be identified and documented. Defining the causes of flooding is the key step in developing effective solutions.

c) Initial Solution Concept Development:

Initial solution concepts to the drainage problems will be developed but not modeled. This generally involves laying out solution alternatives without sizing the improvements or modeling to test their effectiveness. Solution concepts that are anticipated to be explored include improved open channel conveyance, improved overland conveyance, and surface detention.

#### **4. STUDY REPORT AND RESULTS SUMMARY:**

Gauge will develop a summary report that will consist of a discussion of the work accomplished, general methodology, assumptions applied during the course of study, study goal, the reported drainage problems, structural flooding, system capacity issues, findings & recommendations.



**EXHIBIT B**  
**DRAINAGE STUDY**  
**LEVEL-OF-EFFORT**

DESCRIPTION OF WORK TASKS		SR. PROJ MGR	PROJ ENGINEER	GRAD ENGINEER	CADD TECH	ADMIN ASST	TOTAL HOURS	LABOR COSTS
A	Drainage Study - Basic Services							
1	Management and Coordination	4				2	6	\$1,070.00
	a. General Project Management (4 months)	8	2		2		12	\$2,370.00
	b. Virtual Project Coordination Meetings and in Person Results Meeting (4)		3	4			7	\$975.00
2	Data Collection							
3	Hydrologic and Hydraulic Analysis							
	a. Develop and Analyze Existing Conditions Model	3	20	40			63	\$8,775.00
	b. Summary of Understanding and Problem Area Descriptions	1	4	4			9	\$1,365.00
	c. Initial Solution Concept Development	2	6	6			14	\$2,160.00
4	Study Report and Results Summary	6	8	12		3	29	\$4,365.00
	<b>TOTAL HOURS</b>	<b>24</b>	<b>43</b>	<b>68</b>	<b>0</b>	<b>5</b>	<b>140</b>	
	Contract Labor Rate	\$225.00	\$165.00	\$120.00	\$90.00	\$85.00		
	<b>TOTAL LABOR COSTS BASIC ENGINEERING SERVICES</b>	<b>\$5,400.00</b>	<b>\$7,095.00</b>	<b>\$8,160.00</b>	<b>\$0.00</b>	<b>\$425.00</b>		<b>\$21,080.00</b>
	<b>EXPENSES/SUBCONTRACTS</b>							
	1	Printing and Reproduction/Deliveries		\$200.00				
	2	Mileage		\$360.00				
	<b>TOTAL REIMBURSABLE EXPENSES</b>			<b>\$560.00</b>				
						<b>PROJECT TOTAL</b>		<b>\$21,640</b>