



June 17, 2019

Rey Garcia, PE
Senior Engineer | Capital Improvements/Engineering
630 E Hopkins
San Marcos, TX 78666

**Subject: Briarwood and River Ridge Improvements Project
Scope & Fee Proposal for Engineering Services**

Dear Mr. Garcia:

BGE, Inc. is pleased to submit a proposal to the City of San Marcos (City) for engineering services for the Briarwood and River Ridge Improvements Project (Project). Engineering services will be conducted for the Preliminary Engineering Phase, which will analyze the drainage area and the feasibility of a water main relocation located within the Briarwood and River Ridge roadways.

The scope of services in Exhibit 1 includes tasks necessary to perform Preliminary Engineering. Exhibit 2 includes a breakdown of hours and the associated fee proposal anticipated for the execution of the Project. Exhibit 3 shows the proposed Project schedule.

The proposed fee for this project is \$124,035.00 in basic services.

Thank you very much for this opportunity and we look forward to the successful completion of your Project. Please feel free to contact me should you have any questions or would like to discuss in more detail.

Sincerely,

A handwritten signature in blue ink, appearing to read "Roman D. Grijalva".

Roman D. Grijalva, P.E.
BGE, Inc.

EXHIBIT 1

Scope of Services

PROJECT BACKGROUND

BGE will develop a preliminary engineering report for the City of San Marcos' (City) Briarwood and River Ridge Neighborhood Improvements Project (Project). Current jurisdictional limits indicate that the Briarwood Ct. roadway and water main is within Hays County's purview and will require coordination and permitting through Hays County, in addition to permitting necessary through the City. Anticipated significant engineering services include the following:

- Feasibility of the replacement of approximately 5,100 LF of 2-inch water main with an 8-inch water main.
- 2-D model, analysis, study, and design recommendations of the drainage area roughly encompassing the following boundaries: Post Road to Encino Point apartments (to the northwest), River Ridge Parkway (to the northeast), the Blanco River (to the southeast), and Telluride St./ROW/Crepe Myrtle St. (to the Southwest).

SCOPE OF SERVICES

Task 1 – Project Management

- a. Project coordination: Includes general coordination and correspondence with the project team regarding project scope, schedule, and budget.
- b. Monthly invoices, schedule, budget, and progress updates to the City's project manager.

Task 2 – Preliminary Engineering

Upon written Notice To Proceed from the City, BGE will commence with the Preliminary Engineering Phase; the primary goal of which is to evaluate existing infrastructure and provide recommendations, including estimated costs, on appropriate long-term improvements for the project area. Detailed tasks are as follows:

- a. Data Collection: includes, but is not limited to the following,
 - i. Existing City hydrologic and hydraulic models;
 - ii. Available GIS data consisting of existing aerial photography, one-foot topography, road centerlines, and information relating the existing hydrologic and hydraulic models.
 - iii. City standards including typical street sections and standard drainage details.
 - iv. As-built plans for the detention facilities (private and public), street, and utilities within identified study areas.
 - v. Flooding reports.
 - vi. Conduct two (2) site visits.
 - vii. Survey of miscellaneous topographic elevations and/or ROW boundaries. (Assume 3 days of a survey crew. Survey is for validation/acquisition of data within the project area for the purposes of creating a hydraulic model, future topographic survey for design services will be included in a future design scope and fee proposal.)

b. Water Main Feasibility

- i. BGE will physically locate existing infrastructure along Briarwood Ct., including water meters and associated infrastructure.
- ii. Staff will determine potential alignments, corresponding property connections, and final connection to existing City infrastructure.
- iii. In coordination with the County, BGE will identify the existing Briarwood Ct. plat to determine ROW limits, and if none exists create a re-tracement map in order to clarify the limits of the ROW. BGE will coordinate with the County regarding ROW and/or easement dedications for the upgraded water main along Briarwood Ct.
- iv. Currently, water meters exist at the rear of each individual property. Recommendations will be made with consideration of installation and reconnection of new water meters at the rear portions of the structure.

c. Hydraulic and Hydrologic Engineering

i. Flood Risk Reduction Review

1. Channel Capacity - Review of channel capacity within the existing easements leading to River Ridge Park. There is no apparent modeled channel in this sub-basin leading to I-35. BGE will investigate benefits of further channel excavation within easements, leading to and beyond I-35 toward the Blanco River.
2. Constrictions - Review of constrictions at the drainage crossings of the Union Pacific Railroad and Interstate 35.
3. Review Hydrologic and Hydraulic Models – Review the current HEC-HMS and HEC-RAS models obtained from the City and provide enhancements/updates based on updated City Stormwater Technical Manual flood criteria.
4. A 2-D hydraulic model will be prepared to determine irregular flow patterns and potential flooding within the sub-basin. A model run from the I-35 outlet to the Blanco River will be conducted with consideration to the 100-year flood NOAA Atlas 14 precipitation frequency to determine conveyance issues and possible relief options. The City will provide rainfall data for this analysis.

ii. Channel Stability Improvement Review

1. Stormwater Outlet Stabilization - Review energy dissipation features and proposed stabilization plan for stormwater outlets, where necessary.
2. Briarwood Ct. Improvements - Review drainage pattern within Briarwood Ct. and determine effects of improvements on overall capacity.
3. Bank Stabilization - Review bank stabilization options, including wrapped soil lifts, limestone walls, and green gabions.
4. Grade Control - Review inset pilot channel / grade control plans.

iii. Riparian Restoration Improvements: Consider the feasibility of riparian zone improvements and implementation of the preliminary inspection and maintenance plan and associated maintenance costs.

iv. Easement Review: Verification of existing easements. Review the adequacy of the existing drainage easements for the proposed channel improvements. Review and evaluate temporary easement recommendations.

- v. Constructability Review: Review the project constraints in terms of equipment access and constructability at the various improvement locations.
 - vi. Conduct Utility Relocation / Coordination Review: Review identified utility constraints and coordination.
 - vii. Phasing Review: Evaluate recommended prioritization and phasing of proposed improvements for various sections within the sub-basin reach.
 - viii. Permit Requirements Review: Review and confirm list of permit requirements.
- d. Preliminary Engineering Report (PER): BGE will develop a preliminary engineering report consisting of recommendations for infrastructure improvements within the project area. Low Impact Development and water quality features alternatives will be evaluated and if feasible and concurred by City staff, will be incorporated into the design. Aspects of the PER include:
- i. Development of drainage sub-basin map. The recommendations will be designed to convey stormwater up to the 25-year event (and 100-yr event, if feasible).
 - ii. Existing outfall ditches will be evaluated to ensure sufficient capacity to drain the 25-year storm event (and 100-yr event, if feasible).
 - iii. Development of schematics and/or maps to identify key components of the design solutions. A total of three (3) alternatives will be developed and included in the PER.
 - iv. Based on the conceptual layouts, BGE will prepare probable construction costs for each component with a margin of error of $\pm 25\%$. The City will provide BGE with approximate real estate costs including, but not limited to, property values and easement costs if necessary.
 - v. Prepare Schedule: Develop schedules for preliminary design and construction for the various reaches. The schedule will include any proposed phasing plan.
 - vi. PER Workshop: Conduct a meeting with City staff upon completion of individual reviews of PER to provide consensus on concurrence and/or alternate recommendations.

Deliverable: BGE will prepare a PER that will include the following:

- Results of the existing conditions drainage analysis, up to three (3) drainage design alternatives,
- Water main feasibility that will include up to three (3) potential alignments, property connections, final connection to the existing City water main, and ROW/easement needs,
- Permitting requirements for all recommended improvements,
- Opinion of probable construction costs,
- Real estate needs,
- An updated schedule and potential project phasing. BGE will submit an "Issued for Review PER" in a digital (.pdf) format as well as a "Final PER" with comments/responses incorporated.

ASSUMPTIONS: The following assumptions were made in preparation of this scope proposal. If a specific service is determined to be necessary for the project, BGE will provide a separate scope and fee proposal for the City's approval.

- Engineering design for of the recommended improvements is not included in this scope and fee proposal. It is assumed that final improvements will be developed at the PER stage and an

additional services proposal will be developed that will address the final design of the options identified in the PER.

- If after ROW/easement acquisition discussions with the County, it is determined that the County will require the City to connect existing septic systems along Briarwood Ct. into the City's wastewater collection system, BGE will provide the City a separate scope and fee proposal for the analysis and subsequent design of the system.
- A complete street assessment of Briarwood Ct. is not included as it is anticipated that pavement restoration is limited to hot mix overlay of areas impacted by the excavation envelope.
- A traffic control plan is assumed to be unnecessary; however, if after preparation of the drainage PER, a traffic control plan is deemed necessary, BGE will prepare an additional services proposal for said work.
- A Storm Water Pollution Prevention Plan (SW3P) will be prepared by the Contractor.
- Material testing log – NOT INCLUDED.
- BGE will not revise drawings, specifications or other documents when such revisions are 1) not consistent with approvals or instructions previously given by City, or 2) due to other causes not solely within the control of BGE.
- BGE will not assist the City preparing applications and supporting documents for government grants, loans, or planning advances and providing data for detailed applications.
- BGE will not be responsible for performing investigations, studies, and analysis of work proposed by construction contractors to correct defective work.
- BGE is not responsible for unforeseen, concealed, or differing site conditions, or changes to the project due to the presence of hazardous substances of any form.
- BGE won't provide value engineering studies or reviews of cost savings proposed by construction contractors after bids have been submitted.
- Cultural resources and archeological investigations are not included in this scope proposal, but may be necessary based on final improvement recommendations in the PER phase. A separate scope and fee proposal will be prepared and submitted to the City for approval prior to execution of said work.

EXHIBIT 2**City of San Marcos - Engineering & Capital Improvements Department
FEE PROPOSAL BREAKDOWN**

Project: Briarwood and River Ridge Improvements
 Prime Consultant: BGE, Inc.
 Proposal Date: 6/17/2019
 Prepared By: Roman D. Grijalva, PE

	Principal (QC) \$250.00	Sr. Project Manager/Env. Manager \$185.00	Project Engineer \$135.00	EIT III \$110.00	CADD Tech III / Eng Tech III (GIS) \$125.00	Survey Crew \$160.00	Admin/Clerical \$100.00		
TASK CODE AND DESCRIPTION	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	TASK HOURS	TASK / PHASE FEE
Task 1 - Project Management	0	36	8	0	0	0	4	48	\$8,140.00
a. Project Coordination		12	8					20	\$3,300.00
b. Monthly invoicing, progress updates		24					4	28	\$4,840.00
Task 2 - Preliminary Engineering	5	24	169	384	318	30	6	936	\$115,895.00
a. Data Collection		8	12	20		30		70	\$10,100.00
b. Water Main Feasibility	1	4	12	12	2			31	\$4,180.00
c. Hydraulic and Hydrologic Engineering	2	4	80	176	160			422	\$51,400.00
d. Preliminary Engineering Report	2	8	65	176	156		6	413	\$50,215.00
TOTAL BASE FEE WITH HOUR BREAKDOWN	5	60	177	384	318	30	10	984	\$ 124,035.00

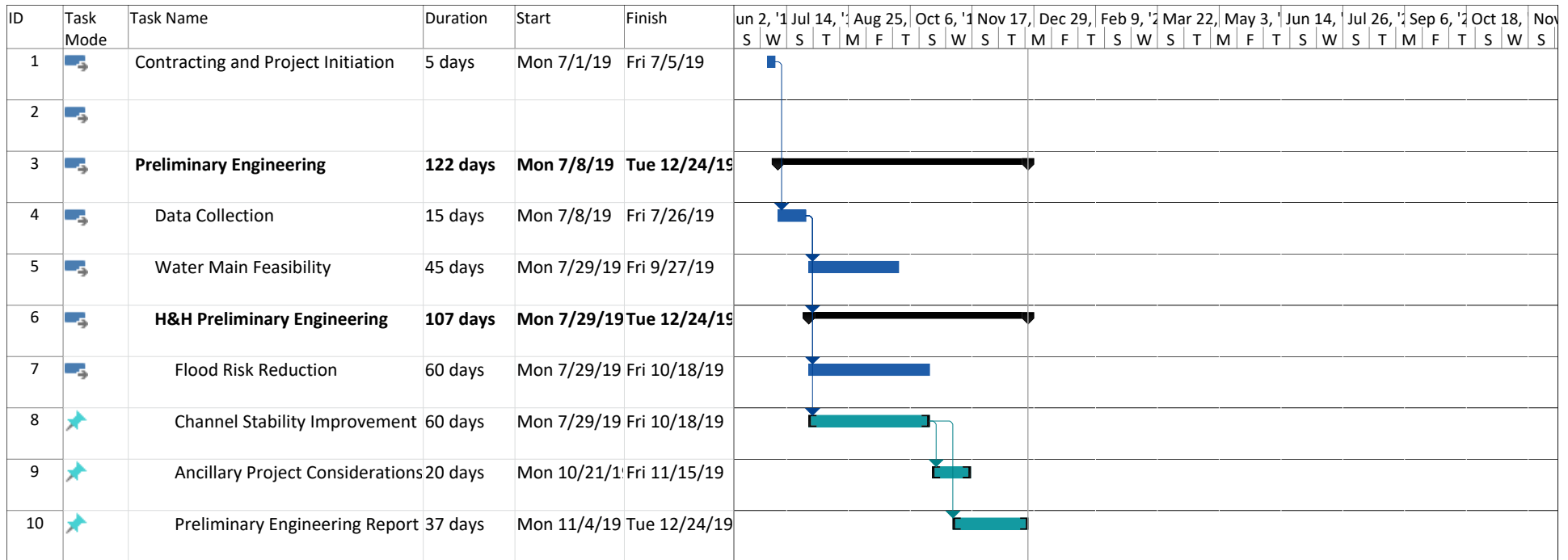


Exhibit 3 Briarwood Schedule 060

Date: Wed 6/5/19

Task

Split

Milestone

Summary

Project Summary

External Tasks

External Milestone

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

Deadline

Progress