

**ATTACHMENT A**  
**CITY OF SAN MARCOS**  
**Bishop Street Improvements**  
**SCOPE OF SERVICES**

**Project Understanding**

The work to be performed by CobbFendley & Associates (CobbFendley) under this contract will consist of providing The Design Phase for this project with the following milestone deliverables: 40%, 60%, 90%, and 100% Plans, Specs, and Estimate, bid, and construction phase services. CobbFendley has previously delivered the Preliminary Engineering Report and 30% plans to the City of San Marcos. The project consists of the following improvements:

- Analysis and Design of approximately 3,500 linear feet of a storm drainage system.
- Analysis and Design of approximately 400 linear feet of open channel expansion design for the existing channel west of Veramendi Street.
- Relocation and Design of approximately 2,700 linear feet of 12" water line, services, and appurtenance improvements.
- Relocation and Design of approximately 2,700 linear feet of 8" wastewater line, services, and appurtenance improvements.
- Reconstruction of Streets and Sidewalk in the affected project area:
  - ~350' South Bishop Street
  - ~350' San Antonio Street
  - ~900' North Bishop Street
  - ~1,250' Belvin Street
- Drainage Area Maps and Calculations
- Drainage Plans and Hydraulic Calculations showing 25-year and 100-year HGL
- Update the 2D XP-SWMM Models
- Limited Utility Coordination – Provide resource limited oversight to the team in relocating the overhead utilities
- Environmental – Natural and Cultural Resources – Study and Reporting
- Geotechnical Borings and Reporting
- Stream Bank Restoration
- Demolition Plans
- Traffic Control Phasing and Plans
- Erosion and Sedimentation Plans
- Edwards Aquifer Plan for Veramendi Channel expansion
- Irrigation Plans for Channel Expansion
- Structural Engineering for Retaining Walls
- Cost Estimating
- Specifications – Technical, Special Provisions, and Special Specifications

Refer to **Exhibit 1** of this Scope of Services for the Project area.

**Basic Scope of Services**

**Design, Phase 1**

Design Phase (40/60/90/100%) – The below lists CobbFendley tasks to accomplish the project. Following these tasks are general subconsultant services with their respective scopes and fee breakdowns in the appendix.

1. Project Management and QA/QC: This task consists of effort associated with project administration, coordination with City staff, coordination and supervision of the project team, and quality management so that project milestones and deliverables meet schedule and budget constraints. This assumes the project Design phase is 13 months. See the design schedule in the appendix.
2. Meetings

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- a. Project Review Meetings: Four (4) project meetings have been budgeted for the Design Phase, following each milestone submittal (40/60/90/100%).
  - b. Public Meetings: One (1) public meeting has been budgeted which consists of preparing exhibits and attending the meeting. This meeting is anticipated to be during the 60% or 90% phase.
  - c. Internal Project Team Coordination Conference Call Meetings, Biweekly for 12 months.
  - d. Monthly Status Report: CobbFendley will provide a monthly status report, including a brief summary of work completed as well as a status plan set. This assumes a 12-month duration.
3. 40% Deliverable:
- a. 40%: The 40% plan set is a revision to the 30% plan submission that was submitted on October 31<sup>st</sup>, 2019. The revised 40% will remove the underground dry utility conversions, water quality pond, and concrete pipe to Purgatory Creek which will be replaced with an open drainage channel. This design will also incorporate the outcome of the public meeting to be held early 2020. The plans will include plan and profile with existing utilities and existing ground showing (not proposed utilities). This review set is to allow a sequential review for the City of San Marcos to evaluate horizontal alignments before progressing the design further. CobbFendley will provide two (2) hard copies of 11" x 17" plan sets and one (1) pdf electronic copy. This assumes 45-day duration for 40%. At a minimum, the plan set will contain the following:
    - i. Cover Sheet – 1 Sheet
    - ii. General Notes – 2 Sheets
    - iii. Project Layout Sheet: CobbFendley will provide a layout of the project with plan sheet references. 1 Sheet
    - iv. Overall Quantity Sheet: CobbFendley will provide a quantity table that includes individual sheet quantities and the overall project quantities. 2 Sheets
    - v. Traffic Control Notes and Narrative – 1 Sheet
    - vi. Traffic Control Plan – 7 Phases, 7 Sheets. Will include an overall plan with brief description of layouts
    - vii. TCP Details – As required
    - viii. Demolition Sheets – 4 sheets
    - ix. General Water Layout – 1 Sheet
    - x. Water P&P Sheets– Assumes 7 Sheets – (Main only, doesn't include cross connections until 60%)
    - xi. Water Details – As required
    - xii. General Wastewater Layout – Assumes 1 Sheet
    - xiii. Wastewater P&P Sheets– Assumes 7 Sheets - (Main only, doesn't include cross connections until 60%)
    - xiv. Wastewater Details – As Required
    - xv. Drainage Area Map, Offsite Ex. & Prop – Assumes 2 Sheets
    - xvi. Drainage Area Map, Onsite, Ex & Prop – Assumes 2 Sheets
    - xvii. Drainage Calculations – Assumes 2 Sheets
    - xviii. Drainage Layout – 1 Sheet
    - xix. Drainage Channel at Outfall P&P – 3 Sheets
    - xx. Storm P&P – Assumes 9 Sheets/Main only, doesn't include cross connections or laterals until 60%)
    - xxi. Drainage Channel Expansion at Veramendi Street – See EPR Scope and Fee
    - xxii. Storm Drainage Details – As required
    - xxiii. General Street Layout
    - xxiv. Typical Pavement Sections – Assumes 8 sheets
    - xxv. Street P&P Sheets– Assumes 9 Sheets

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- xxvi. Street Details – As required
  - xxvii. List of Standard Specifications in a Table of Contents: City of San Marcos Division 1 specifications will be used. City of Austin standard specifications will be used.
  - xxviii. Engineer's Opinion of Probable Construction Costs (OPCC).
  - xxix. Construction Project Schedule: CobbFendley will develop a Construction Schedule for the project consisting of design, bid and construction phases. The schedule will be updated during design.
  - b. Submit 40% Plan Package; including Plans, Estimate, Drainage Models as needed by the City of San Marcos
  - c. 30% Comment Response Letter.
4. 60% Deliverable:
- a. 60%: CobbFendley will provide two (2) hard copies of 11" x 17" plan sets and one (1) pdf electronic copy. This assumes 120-day duration for 60%. The plan set will contain the following:
    - i. Cover Sheet – 1 Sheet
    - ii. General Notes – 2 Sheets
    - iii. Project Layout Sheet: CobbFendley will provide a layout of the project with plan sheet references. 1 Sheet
    - iv. Overall Quantity Sheet: CobbFendley will provide a quantity table that includes individual sheet quantities and the overall project quantities. 2 Sheets
    - v. Survey – 2 sheets
    - vi. SW3P Plans – 1 Sheet
    - vii. Erosion and Sedimentation (E&S) Control Plans – 4 Sheets – Tree removals to be shown on EPR plans
    - viii. E&S Details – As required
    - ix. Traffic Control Notes and Narrative – 1 Sheet
    - x. Traffic Control Plan – 16 Sheets. Assumes 7 Phases with 2 Sheets per phase, with an additional 2 sheets at the Hopkins Intersection.
    - xi. TCP Details – As required
    - xii. Demolition Plan – 4 Sheets
    - xiii. General Water Layout – 1 Sheet
    - xiv. Water P&P – Assumes 12 Sheets (7 Main Sheets, 5 intersection connections sheets)
    - xv. Water Services – Assumes 2 sheets – Details for complex service connection
    - xvi. Water Details – As required
    - xvii. General Wastewater Layout – Assumes 1 Sheet
    - xviii. Wastewater P&P – Assumes 12 Sheets (7 Main Sheets, 5 intersection connections sheets)
    - xix. Wastewater Services – Assumes 2 Sheet – Details for complex service connections
    - xx. Wastewater Details – As Required
    - xxi. Drainage Area Map, Offsite Ex. & Prop – Assumes 2 Sheets
    - xxii. Drainage Area Map, Onsite, Ex & Prop – Assumes 2 Sheets
    - xxiii. Drainage Calculations – Assumes 2 Sheets
    - xxiv. Drainage Channel at Outfall – Assumes 3 Sheets
    - xxv. Drainage Channel Expansion at Veramendi Street – See EPR Scope and Fee
    - xxvi. Storm P&P – Assumes 12 Sheets (9 Trunk Sheets, 3 Cross Connection and Lateral Profiles)
    - xxvii. Lateral Inlet Profiles – Assumes 6 sheets
    - xxviii. Storm Drainage Details – As required

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- xxix. Street Layout – Assumes 1 Sheet
  - xxx. Typical Pavement Sections (Ex and Prop) – Assumes 8 sheet
  - xxxi. Street P&P – Assumes 9 Sheets
  - xxxii. Street Cross Sections – Assumes 20 Sheets
  - xxxiii. Driveway Detail Plan Sheets (Grading, assumes 60 driveways) – Assumes 30 sheets. Will include plan and profile of the driveways and proposed contours with spot grades as required
  - xxxiv. Signage and Striping – Assumes 4 Sheets
  - xxxv. Street Details – As required
  - xxxvi. List of Standard Specifications in a Table of Contents: City of San Marcos Division 1 specifications will be used. City of Austin standard specifications will be used.
  - xxxvii. Project Specific/Special Specifications
  - xxxviii. Project Specific/Special Details
  - xxxix. Engineer's Opinion of Probable Construction Costs (OPCC).
  - xl. Construction Project Schedule: CobbFendley will develop a Construction Schedule for the project consisting of design, bid and construction phases. The schedule will be updated during design.
  - b. Update StormCAD Hydraulic Model – keep the 1D model current for plan related information
  - c. Submit 60% Plans, Specs, Estimate, and models as required by the City of San Marcos.
  - d. 40% Comment Response Letter.
5. 90% Deliverable
- a. 90% CobbFendley will provide two (2) hard copies of 11" x 17" plan sets and one (1) pdf electronic copy. This assumes a 90-day duration for 90%. The plan set will also contain the following:
    - i. Update plans as listed in the 60% to 90% level per the comments from 60% review. See fee spreadsheet for breakdown. This is assumed the same sheet counts will remain other than those necessary for additional clarity or detail in the overall 60% design.
    - ii. Standard Specifications: City of San Marcos Division 1 specifications will be used. City of San Marcos standard specifications will be used and will be supplemented with City of Austin or TxDOT as needed.
    - iii. Project Specific/Special Specifications
    - iv. Project Specific/Special Details
    - v. Engineer's Opinion of Probable Construction Costs (OPCC).
    - vi. Construction Project Schedule: CobbFendley will develop a Construction Schedule for the project consisting of design, bid and construction phases. The schedule will be updated during design.
  - b. Update StormCAD model – keep the 1D model current for plan related information
  - c. Submit 90% Plans, Specs, and Estimate, and models as required by the City of San Marcos.
  - d. 60% Comment Response Letter.
6. 100% Deliverable:
- a. 100% CobbFendley will provide two (2) hard copies of 11" x 17" plan sets and one (1) pdf electronic copy. This assumes a 30-day duration for the 100%. The plan set will also contain the following:
    - i. Update plans as listed in the 90% level per the comments from 90% review. See fee spreadsheet for breakdown.

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- ii. Standard Specifications: City of San Marcos Division 1 specifications will be used. City of Austin standard specifications will be used.
  - iii. Project Specific/Special Specifications
  - iv. Project Specific/Special Details
  - v. Engineer's Opinion of Probable Construction Costs (OPCC).
  - vi. Construction Project Schedule: CobbFendley will develop a Construction Schedule for the project consisting of design, bid and construction phases. The schedule will be updated during design.
  - b. Submit Final 100%: CobbFendley will provide two (2) hard copies of 11" x 17" plan sets and one (1) pdf electronic copy. Upon approval by the City, two (2) hard copies of 11" x 17" plan sets, one (1) pdf copy, and one (1) CAD copy of the sealed plans will be provided
  - c. 90% Comment Response Letter.
7. Tasks
- a. Permitting efforts – City of San Marcos - City of San Marcos Permits: CobbFendley will prepare the tree counts, floodplain permit (not FEMA modeling or Floodplain mapping), and street cut permits for contractor use during construction and submit to the City prior to construction.
  - b. TCEQ WPAP – CobbFendley will coordinate the channel expansion with TCEQ for the water pollution abatement plan in the area that the channel expansion overlaps with the Edwards Aquifer Recharge Zone. This assumes two meetings with TCEQ.
  - c. Temporary Construction Easements Exhibits – 72 exhibits. The temporary construction easement exhibits will not be required to be provided by an RPLS. The CobbFendley team will create individual exhibits showing the boundary line and required offset for each property for the temporary construction easement and deliver to the City of San Marcos for obtaining.
8. Subconsultant Scope and Fees Summary (Breakdown attached in the appendix)
- a. CobbFendley, 2D H&H – Update the 2D XPSWMM models to accurately evaluate design changes by milestone. This includes incorporating horizontal or vertical changes that can occur throughout the design to check for unforeseen changes to the 2D modeling output. This task does not include any additional 2D analysis scenarios or alternatives to be run.
  - b. CobbFendley, Structural – Cantilever Retaining wall design in the drainage channel expansion adjacent to Veramendi. Includes the retaining wall design, plans, specifications, cost estimate for the retaining walls on the east and west side of the drainage channel next to Veramendi Street. If the retaining wall is a vendor product, this could change the scope of services and will need to be evaluated.
  - c. CobbFendley, Survey Metes and Bounds, ROW Metes and Bounds takes (11 parcels), and Easement Metes and Bounds (9 parcels).
  - d. CobbFendley, Utility Coordination (UC) – Resource to the design team and City as needed for utility coordination process. This is assumed that UC will be coordinated with the City and San Marcos and CobbFendley design team. This scope is associated with assistance related to coordinating with SMEU power poles.

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- e. Arias, Geotech – Additional boring in the channel expansion and foundation recommendation for the retaining walls.
- f. Cox McLain, Environmental – Natural, Cultural, and Historic Resources by milestone for project acceptance.
- g. EPR, Streambank – Channel Design Plans, Specs, and Estimates and tree plans.
- h. JAS, Irrigation – Irrigation plans for the channel expansion
- i. ETC Accessibility – ADA compliance review and inspection. Due to the unknowns, the budget of \$1,848 was included in this for review and site visits, based on ETC's fee structure. The fee could vary from this and will be evaluated as the project progresses to the submission to TDLR.

**Bid and Construction, Phase 2**

The bid phase assumes the use of electronic bidding and excludes distribution of plans and addenda to the bidders. These will be handled through the bidding website platform that the City of San Marcos chooses to use.

- 1. Project Management: This task consists of routine communication with the City and other activities associated with managing the project.
- 2. Attend Pre-Bid Meeting: CobbFendley will assist the City in conducting pre-bid meeting. The agenda and meeting minutes will be provided by the City of San Marcos.
- 3. Answer Questions: CobbFendley will assist the City for issuing responses for technical questions. Assumes 10 questions from contractors.
- 4. Addenda: CobbFendley will assist with the preparation of addenda required to clarify, correct or change the bid documents. Addenda will be provided in Adobe .pdf (searchable) format and sealed by responsible engineer(s). Addenda will be issued to bidders through the City's Purchasing Department. Assumes 4 addenda.
- 5. Bid Tabulation and Recommendation of Award: CobbFendley will assist the City in review of all bids and evaluate them for responsiveness and bid amount. CobbFendley will also check references, by telephone, of the low bidder and second low bidder. CobbFendley will prepare a letter summarizing the review and evaluation and include recommendations for award of the contract for construction, or other action as may be appropriate. The City will make the final decision on the award of the contract for construction and the acceptance or rejection of all bids. CobbFendley will not attend the bid opening.
- 6. Prepare conformed documents integrating addenda items in the Construction Plans and issue a "Conformed" set of plans for construction. CobbFendley will provide one (1) electronic copy of Construction Plans in pdf, one (1) CAD copy, and two (2) 22" x 34" plan set, three (3) 11" x 17" plan sets.

**Construction Phase – Assumes ~2 years of construction**

- 7. Project Management: This task consists of routine communication with the City; managing, manpower, budgets, and schedules; invoicing; and other activities associated with managing the project.



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8. Attend Pre-Construction Conference: CobbFendley will attend a Pre-Construction Conference prior to commencement of work. Agenda and Meeting Minutes will be provided by the City of San Marcos.
9. Submittal Review: CobbFendley will review and approve or take other appropriate action in respect to Shop Drawings and Samples and other data which the Contractor is required to submit, but only for conformance with the information given in the Contract Documents. Such review and approvals or other action will not extend to means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction or to related safety precautions and programs. Fifty (50) submittals have been assumed, reviewed no more than 2 times. CobbFendley will maintain a submittal log throughout construction.
10. Response to Requests for Information/Modifications: CobbFendley will respond to reasonable and appropriate Contractor requests for information (RFI's) and issue necessary clarifications and interpretations of the Contract Documents to the City as appropriate to the orderly completion of Contractor's work. Twenty-five (25) RFI's have been assumed.
11. Construction Observation and Monthly Construction Meetings: CobbFendley will provide on-site construction observation services during the construction phase. Agendas and meeting minutes will be provided by the City of San Marcos. CobbFendley will make visits at intervals as directed by Client to observe the progress of the Work. Such visits and observations by CobbFendley are not intended to be exhaustive or to extend to every aspect of Contractor's work in progress. Observations are to be limited to spot checking, selective measurement, and similar methods of general observation of the Work based on CobbFendley's exercise of professional judgment. Based on information obtained during such visits and such observations, CobbFendley will evaluate whether Contractor's work is generally proceeding in accordance with the Contract Documents, and CobbFendley will keep Client informed of the general progress of the Work.

The purpose of CobbFendley's site visits will be to enable CobbFendley to better carry out the duties and responsibilities specifically assigned in this Agreement to CobbFendley, and to provide Client a greater degree of confidence that the completed Work will conform in general to the Contract Documents. CobbFendley will not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work, nor will CobbFendley have authority over or responsibility for the means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's work, nor for any failure of Contractor to comply with laws and regulations applicable to Contractor's furnishing and performing the Work. Accordingly, CobbFendley neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

Two (2) site visits or construction meetings per month for a duration of twenty (24) months are assumed, which equates to 48 site visits. If a construction meeting is necessary for the client, and contractor, then the meeting can take the place of one of the construction site visits.

12. Pay Application Review: Based on its observations and on review of applications for payment and accompanying supporting documentation as well as coordination with the City Inspector on conformation of units completed, CobbFendley will determine the amounts that CobbFendley recommends Contractor be paid. Such recommendations of payment will be in writing and will constitute CobbFendley's representation to Client, based on such observations and review, that, to the best of CobbFendley's knowledge, information and belief, Contractor's work has progressed to the point indicated and that such work-in-progress is generally in accordance with the Contract Documents subject to any qualifications stated in the recommendation. In the case

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of unit price work, CobbFendley's recommendations of payment will be based on the recommendations by the City and inspector. Review of twenty-four (24) Pay Applications has been assumed.

13. Review of Change Orders: CobbFendley may recommend Change Orders to Client and will review and make recommendations related to Change Orders submitted or proposed by the Contractor. Four (4) change orders are assumed.
14. Substantial Completion: CobbFendley will, promptly after notice from Contractor that it considers the entire Work ready for its intended use, in company with Client and Contractor, conduct a site visit to determine if the Work is substantially complete. Work will be considered substantially complete following satisfactory completion of all items except for those identified on a final punch list. If after considering any objections of Client, CobbFendley considers the Work substantially complete, CobbFendley will notify Client and Contractor.
15. Final Notice of Acceptability of the Work: CobbFendley will conduct a final site visit to determine if the completed Work of Contractor is generally in accordance with the Contract Documents and the final punch list so that CobbFendley may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, CobbFendley will also provide a notice that the Work is generally in accordance with the Contract Documents to the best of CobbFendley's knowledge, information, and belief based on the extent of its services and based upon information provided to CobbFendley upon which it is entitled to rely.
16. Record Drawings: CobbFendley will review the Contractor's redline as-built drawings and the survey as-builts and incorporate deviations from the construction drawings as appropriate. Record drawing information will be based solely on the provided marked-up drawings and appropriate field documentation received from the contractor and surveyor. CobbFendley will deliver one (1) set of full-size bond drawings and one (1) set of half size plan set for review, as well as pdf and electronic CAD copy.
17. Subconsultant Services
  - a. CobbFendley As-Built Survey
  - b. EPR – See appendix for Bid and Construction Phase Services

**Supplemental Scope of Services**

**Schedule**

The following project milestones are estimated and may require modification pending preliminary engineering results and construction timeframe constraints:

- 40% Design Documents (45 days)
- 60% Design Documents Submittal (120 days)
- 90% Design Documents Submittal (90 days)
- 100% Design Documents Submittal (30 days)

The estimated timeframes identified do not include time for City review of submittals.

**City Responsibilities**



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1. The City will provide to CobbFendley all data in the City's possession relating to CobbFendley's services on the Project. CobbFendley will reasonably rely upon the accuracy, timeliness, and completeness of the information provided by the City.
2. The City will give prompt notice to CobbFendley whenever the City observes or becomes aware of any development that affects the scope or timing of CobbFendley's services.
3. The City will examine information submitted by CobbFendley and render in writing or otherwise provide comments and decisions in a timely manner.
4. The City will obtain all necessary right-of-entries from required landowners. Parcel access expected to be all landowners along Belvin Street, North Bishop Street, West San Antonio Street, South Bishop Street, the ditch running north and south between Belvin and West San Antonio, Parcel R43610, Parcel R111254, Parcel R136050 and Purgatory Creek.
5. The City will provide Title Reports for properties with proposed easements.
6. The City will obtain all permanent sanitary sewer line, access, and temporary construction easements, including services such as appraisal of properties, negotiations with the property owners, and actual purchase of the easements.

**Additional Services**

Additional Services to be performed, if authorized in writing by the City, but which are not included in the above-described Basic and Supplemental Scope of Services, and once a mutually agreed upon fee is negotiated are as follows:

1. Performing Subsurface Utility Engineering (SUE). If additional SUE Level B or Level A is required as the design advances, then this can be handled by a separate authorization in the future.
2. It is assumed the CLOMR and LOMR applications are not required on this project.
3. It is assumed that USACE permitting efforts are not required for this project.
4. Alignment Changes after 60% to the storm sewer, water, or wastewater that add linear feet to the project or significantly alter the design after 60%.
5. Water Quality improvements were removed from this Scope of Services after the 30% design.
6. All dry utilities shall remain overhead.
7. Illumination services will be handled by San Marcos Electric Utility
8. The gas line alignment will be drawn horizontally by CobbFendley and coordinated with the gas company. The gas company is responsible for the vertical design of the gas line, and service connections to the existing homes. This assumes that the gas line relocation will be handled by the gas company and not part of this project.
9. Temporary construction easements do not include more than one submittal. If there are comments or revisions requested to the exhibits, then this will be additional services dependent on the scope of the resubmittal.

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10. Retaining wall services are for Cantilever structural retaining wall design. If a different, or proprietary, retaining wall is presented, then this could impact the current scope.
11. This scope does not include structural headwall design or junction box design. It is assumed that City or TxDOT standards can be used in conjunction with manufacturer recommendations.
12. Performing title searches for easement or joint-use agreement preparation.
13. Preparation of additional easement/ boundary exhibits beyond the number identified in the Scope of Services. Refer to the language above and the appendix for the numbers of temporary and permanent easements.
14. Acting as an agent of the City in the acquisition of permanent or temporary easements. ROW and Easement acquisitions are to be handled by the City of San Marcos. Additional services are required if CobbFendley is to provide services in this area.
15. Preparation of platting documents and/or real property survey for site acquisition.
16. Accompanying the City when meeting with the TCEQ, U.S. Environmental Protection Agency, or other regulatory agencies during the Project, beyond those meetings identified above.
17. Preparing applications and supporting documents for government grants, loans, or planning advances.
18. Appearing before regulatory agencies or courts as an expert witness in any litigation with third parties or condemnation proceedings arising from the development or construction of the Project, including the preparation of engineering data and reports for assistance to the City.
19. Providing professional services associated with the discovery of any hazardous waste or materials in the project site.
20. Logistics associated with hosting the public meetings. CobbFendley's involvement is defined in the sections above. Mailers, website development, public signage placement, and other outreach efforts are not included in this scope.
21. Traffic counts are not included in this scope of services.
22. Traffic signal design is not included in this scope of services.
23. Dry utility design is not included in this contract and will be designed by SMEU or another party.
24. TCEQ permitting for WPAP is only included for the drainage channel expansion west of Veramendi drive in the area that overlaps the Edwards Aquifer Recharge Zone. It is assumed that TCEQ permitting is not required for the roadway and storm sewer portion of this project. Due to most of the project limits being located within the Transition Zone of the Edwards Aquifer, and the runoff draining away from the Edwards Aquifer Recharge Zone, based on the TCEQ flowchart, WPAP and SCS permitting is not required by the TCEQ for the Bishop street roadway and drainage improvements.
25. It is assumed that detention pond or regional storm water management is not required in this project.

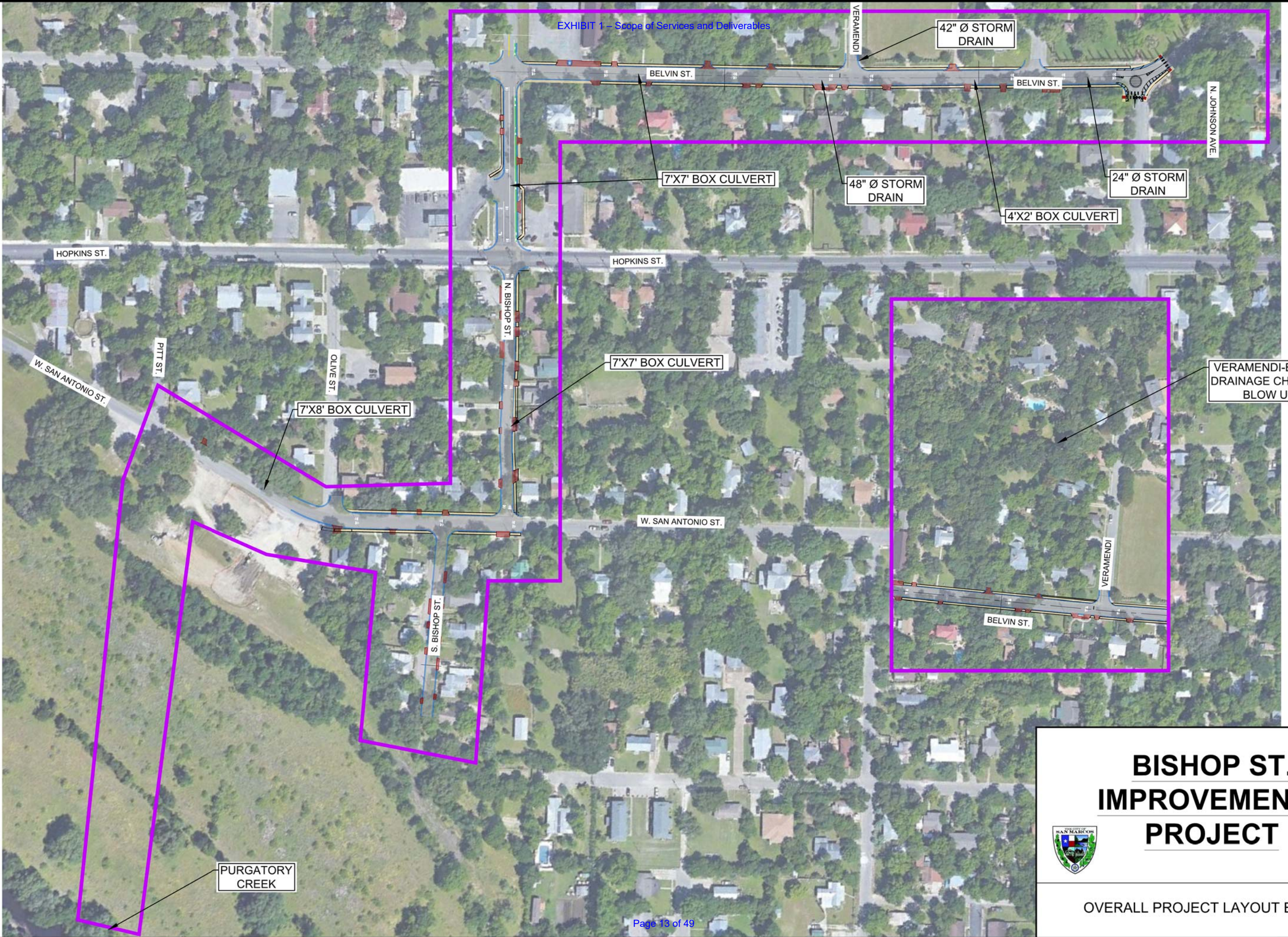
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26. 2D modeling will only be performed to analyze the changes to the current approved design of the channel expansion, and storm sewer throughout the project area. Additional scenarios or alternatives are not included in this scope of services.

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**Exhibit 1 – Project Area**





# BISHOP ST. IMPROVEMENTS PROJECT



**CobbFendley**  
SAN MARCO, TEXAS  
314.244.4774 FAX 314.244.7727  
WWW.COBBFENDLEY.COM

OVERALL PROJECT LAYOUT EXHIBIT



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**Subconsultant Scopes:**

**CobbFendley – 2D Modeling – In Main Scope Above**

**CobbFendley Structural**

**CobbFendley Survey Metes and Bounds and As-Builts – In Main Scope Above  
and in Fee Spreadsheet notes**

**CobbFendley Utility Coordination**

**Geotechnical - Arias**

**Environmental – Cox McClain**

**Stream Restoration - EPR**

**Irrigation – JAS**

**ETC Accessibility – In Main Scope Above**



## EXHIBIT 1 – Scope of Services and Deliverables

a. CobbFendley 2D  
Drainage Modeling  
updates

EXHIBIT 3 - FEE ESTIMATE														
City of San Marcos, Texas														
Bishop Street Improvements														
				Staff								Civil Subconsultants	Total Expense	Mileage
				Principal	Project Manager	Senior Project Manager	Senior Project Engineer	Project Engineer II	Project Engineer I	Senior Technician	Clerical	Sub 1		per mile
			Total Task Hours	Total Task Cost										per sf
		Professional Service Description										Fee		
		<b>Preliminary Engineering</b>	<b>66.00</b>	<b>\$ 10,510.00</b>	\$225.00	\$210.00	\$215.00	\$185.00	\$135.00	\$115.00	\$135.00	\$75.00		
		1 Project Management	0.00	\$ -									\$ -	
		QA/QC - PER	0.00	\$ -									\$ -	
	2	Meetings	0.00	\$ -									\$ -	
	a	Project Coordination Meetings - 4	0.00	\$ -									\$ -	
	b	Public Meeting - Preparation	0.00	\$ -									\$ -	
	3	Data Collection and Review	0.00	\$ -									\$ -	
	a	Review Reports, Studies, and Drawings	0.00	\$ -									\$ -	
	b	Site Visits	0.00	\$ -									\$ -	
	c	Staff Coordination	0.00	\$ -									\$ -	
	4	Survey	0.00	\$ -									\$ -	
	5	Geotechnical	0.00	\$ -									\$ -	
	6	Environmental	0.00	\$ -									\$ -	
	7	<b>Offsite - 2D Drainage</b>	<b>0.00</b>	<b>\$ -</b>									\$ -	
	a	Project Startup	2.00	\$ 270.00				2.00					\$ -	
	b	Proposed Conditions Analysis - 2 year	12.00	\$ 1,940.00			4.00	8.00					\$ -	
	c	Update Models for 30% Plans (2-, 25- and 100-year models)	16.00	\$ 2,480.00			4.00	12.00					\$ -	
	d	Update Models for 60% Plans (2-, 25- and 100-year models)	16.00	\$ 2,480.00			4.00	12.00					\$ -	
	e	Update Models for 90% Plans (2-, 25- and 100-year models)	16.00	\$ 2,480.00			4.00	12.00					\$ -	
	f	QA/QC	4.00	\$ 860.00			4.00						\$ -	
	8	On-site Hydrology and Hydraulics	0.00	\$ -									\$ -	
	a	On-Site Hydrology	0.00	\$ -									\$ -	
	b	On-Site Hydraulics	0.00	\$ -									\$ -	
	c	Update Existing HEC-RAS Sections	0.00	\$ -									\$ -	
	e	LID/Water Quality - Crespo	0.00	\$ -									\$ -	
	f	Drainage Report	0.00	\$ -									\$ -	
	9	<b>Photometric Analysis</b>	<b>0.00</b>	<b>\$ -</b>									\$ -	
	10	Determine Easement and Land Acquisition	0.00	\$ -									\$ -	
	a	Prepare Exhibits	0.00	\$ -									\$ -	
	11	Determining Project Permitting/Design Requirements	0.00	\$ -									\$ -	
	a	TxDOT, County ROW, Floodplain, TCEQ Transition Zone, TPWD, UPRR (if necessary), USACE, and USF&W	0.00	\$ -									\$ -	
	14	Construction Cost Estimates	0.00	\$ -									\$ -	
	15	Deliverables	0.00	\$ -									\$ -	
	a	Monthly Status update	0.00	\$ -									\$ -	
	b	Public Meeting - 1	0.00	\$ -									\$ -	
	c	Public Meeting Roll Plots	0.00	\$ -									\$ -	
	d	Design Summary Report	0.00	\$ -									\$ -	
	e	PER Report - Draft	0.00	\$ -									\$ -	
	f	PER Report - Final	0.00	\$ -									\$ -	
		<b>30% Plans</b>	<b>0.00</b>	<b>\$ -</b>									\$ -	
	1 a	Project Management	0.00	\$ -									\$ -	
	b	QA/QC	0.00	\$ -									\$ -	
	2	Meetings	0.00	\$ -									\$ -	
	a	Project Coordination Meetings - 2	0.00	\$ -									\$ -	
	3	Develop Design Summary Report	0.00	\$ -									\$ -	
	4	30% Plans	0.00	\$ -									\$ -	
	a	Cover Sheet - 1 Sheet	0.00	\$ -									\$ -	
	b	General Notes - 2 Sheets	0.00	\$ -									\$ -	
	c	Survey - 2 Sheets	0.00	\$ -									\$ -	
	d	General Layout - 1 Sheet	0.00	\$ -									\$ -	
	e	Water - 9 Sheets	0.00	\$ -									\$ -	
	f	Wastewater - 9 Sheets	0.00	\$ -									\$ -	
	g	Drainage Area Maps, Offsite - 2 Sheets	0.00	\$ -									\$ -	
	h	Drainage Area Maps, Onsite - 2 Sheets	0.00	\$ -									\$ -	
	i	Storm Drainage Calcs - 1 Sheet	0.00	\$ -									\$ -	
	j	Storm Plans - 9 Sheets	0.00	\$ -									\$ -	
	k	Street Plans - 9 Sheets	0.00	\$ -									\$ -	
	5	<b>Utility Coordination</b>	<b>0.00</b>	<b>\$ -</b>									\$ -	
	6	Construction Cost Estimates	0.00	\$ -									\$ -	
	7	Deliverables	0.00	\$ -									\$ -	
	a	Monthly Status update - Assumes 2 months for 30%	0.00	\$ -									\$ -	
	b	30% Plans	0.00	\$ -									\$ -	
	c	Design Checklist - Per COSM Requirements	0.00	\$ -									\$ -	

## EXHIBIT 1 – Scope of Services and Deliverables

EXHIBIT 3 - FEE ESTIMATE																		
City of San Marcos, Texas																		
Bishop Street Improvements																		
					Staff								Civil Subconsultants	Total Expense	Mileage	Printing 8.5x11	Printing Full Size	
			Total Task Hours	Total Task Cost	Principal	Project Manager	Senior Project Manager	Senior Project Engineer	Project Engineer II	Project Engineer I	Senior Technician	Clerical	Sub 1		per mile	per each	per sf	
		Professional Service Description																
					\$225.00	\$210.00	\$215.00	\$185.00	\$135.00	\$115.00	\$135.00	\$75.00	Fee		\$0.55	\$0.15	\$3.00	
END BASIC SERVICES																		
		Total Basic Service Hours:	66.00		0.00	0.00	20.00	0.00	46.00	0.00	0.00	0.00						
Total Basic Services			\$	10,510.00														
Total Expenses			\$	-														
Overall Total - Basic Services			\$	10,510.00														
Supplemental Services				\$	-													
END																		
Total Supplemental Services			\$	-														
Total Fee Basic + Supplemental Services				\$	10,510.00													

The hours listed above are an estimate. The hours assigned to the Phase are not exclusive to the Phase which they are assigned. The total fee will not exceed the total contract amount as discussed in Article 2. The hourly rates of this contract shall apply throughout the remainder of this contract and to all change in services.

**Payment to the ENGINEER will be made as follows:**

1. Basic Services - The amounts of these invoices will be based upon the extent of work completed by the Engineer on an hourly basis.
2. Supplemental Services - The Engineer will receive approval in writing before performing supplemental services. The amounts of these invoices will be based upon the extent of work completed by the Engineer on a lump sum basis.
3. Reimbursable Expense - Reimbursable expenses including such things as expenses for plotting, reproduction of documents, auto travel mileage (current IRS approved mileage rate), delivery charges, long distance communications, freight, and state accessibility will be invoiced with appropriate backup documentation.

**Invoice and Time of Payment**

Invoices will be prepared in a format approved by the City prior to submission of the first monthly invoice. Invoices shall be submitted monthly and paid within 30 days.

**Scope of Services for Design of Cantilever Retaining Wall**

The Engineer shall design the retaining walls within the limits specified using the geometry provided and geotechnical information supplied by the Geotechnical Engineer. The engineer shall **not** be responsible for soil borings, testing or any geotechnical related work.

The approximate limits of each retaining wall shall be based on Station or length. The Engineer shall prepare the retaining wall layouts showing plan and profile. **An approved vendor may provide a different retaining wall option to that provided by the Engineer.** The Engineer shall provide layouts (scale 1"=40' ), elevations, quantity estimate, summary of quantities, typical cross sections and structural details of all retaining walls within the project.

The specific requirements for each item are as follows:

1. Layout Plan
  - (a) Designation of reference line
  - (b) Beginning and ending retaining wall stations
  - (c) Offset from reference line
  - (d) Horizontal curve data
  - (e) Total length of wall
  - (f) Indicate face of wall
  - (g) All wall dimensions and alignment relations (alignment data as necessary)
  - (h) Soil boring locations
  - (i) Drainage, signing, lightning, etc. that is mounted on or passing through the wall.
  - (j) Subsurface drainage structures or utilities which could be impacted by wall construction.
2. Elevation:
  - (a) Top of wall elevations
  - (b) Existing and finished ground line elevations
  - (c) Vertical limits of measurement for payment
  - (d) Type, limits and anchorage details of railing (only if Traffic Railing foundation standard is not being used on this project)
  - (e) Top and bottom of wall profiles plotted at correct station & elevation.
  - (f) Underdrains
  - (g) Any soil improvement, if applicable.
  - (h) Drainage, signing, lighting etc. as noted above
  - (i) Drainage structures and utilities as noted above

3. Sectional View:
  - (a) Reinforced volume
  - (b) Underdrain location
  - (c) Soil improvements, if applicable.
4. General Guidelines for Retaining Walls
  - (a) The Engineer shall perform design calculations to check the stability of the walls, including bearing, sliding and overturning, and produce detail drawings as required.
5. The deliverables shall be:
  - (b) Design Calculations
  - (c) Plan Details with Quantities
  - (d) QC of Calculations and Plans

## EXHIBIT 1 – Scope of Services and Deliverables

EXHIBIT 3 - FEE ESTIMATE															
City of San Marcos, Texas															
Bishop Street Improvements															
					Staff						Civil Subconsultants	Total Expense	Mileage	Printing 8.5x11	Printing Full Size
					Principal	Senior Project Manager	Project Engineer I	Project Engineer II	Senior Technician	Clerical	Sub 1		per mile	per each	per sf
		Professional Service Description	Total Task Hours	Total Task Cost											
					\$225.00	\$215.00	\$115.00	\$135.00	\$145.00	\$75.00	Fee		\$0.55	\$0.15	\$3.00
		Design Phase (40/60/90/100%)	177.00	\$ 29,775.00								\$ 75.60			
		Tasks	0.00	\$ -								\$ -			
1-4	a	Design wall	16.00	\$ 3,440.00		16.00						\$ 0.90		6	
	b	Detail wall (6 shts)	42.00	\$ 6,530.00		8.00	4.00		30.00			\$ 18.00			6
	c	QC wall design	12.00	\$ 1,380.00			12.00					\$ -			
	d	QC wall detail (6 shts)	18.00	\$ 3,450.00		12.00			6.00			\$ -			
1-6	a	Design wall	8.00	\$ 1,720.00		8.00						\$ 0.90		6	
	b	Detail wall (6 shts)	22.00	\$ 3,410.00		4.00	2.00		16.00			\$ 18.00			6
	c	QC wall design	6.00	\$ 690.00			6.00					\$ -			
	d	QC wall detail (6 shts)	12.00	\$ 2,300.00		8.00			4.00			\$ -			
			0.00	\$ -								\$ -			
1-9	a	Design wall	4.00	\$ 860.00		4.00						\$ 0.90		6	
	b	Detail wall (6 shts)	12.00	\$ 1,820.00		2.00	2.00		8.00			\$ 18.00			6
	c	QC wall design	2.00	\$ 230.00			2.00					\$ -			
	d	QC wall detail (6 shts)	8.00	\$ 1,440.00		4.00			4.00			\$ -			
			0.00	\$ -								\$ -			

## EXHIBIT 1 – Scope of Services and Deliverables

EXHIBIT 3 - FEE ESTIMATE															
City of San Marcos, Texas															
Bishop Street Improvements															
					Staff						Civil Subconsultants	Total Expense	Mileage	Printing 8.5x11	Printing Full Size
			Total Task Hours	Total Task Cost	Principal	Senior Project Manager	Project Engineer I	Project Engineer II	Senior Technician	Clerical	Sub 1		per mile	per each	per sf
		Professional Service Description													
					\$225.00	\$215.00	\$115.00	\$135.00	\$145.00	\$75.00	Fee		\$0.55	\$0.15	\$3.00
1-10	a	Design wall	2.00	\$ 430.00		2.00						\$ 0.90		6	
	b	Detail wall (6 shts)	7.00	\$ 1,125.00		2.00	1.00		4.00			\$ 18.00			6
	c	QC wall design	2.00	\$ 230.00			2.00					\$ -			
	d	QC wall detail (6 shts)	4.00	\$ 720.00		2.00			2.00			\$ -			
			0.00	\$ -								\$ -			
END BASIC SERVICES															
		Total Basic Service Hours:		177.00		0.00	72.00	31.00	0.00	74.00	0.00				
Total Basic Services															
Total Expenses															
Overall Total - Basic Services															

The hours listed above are an estimate. The hours assigned to the Phase are not exclusive to the Phase which they are assigned. The total fee will not exceed the total contract amount as discussed in Article 2. The hourly rates of this contract shall apply throughout the remainder of this contract and to all change in services.

**Payment to the ENGINEER will be made as follows:**

1. Basic Services - The amounts of these invoices will be based upon the extent of work completed by the Engineer on an hourly basis.
2. Supplemental Services - The Engineer will receive approval in writing before performing supplemental services. The amounts of these invoices will be based upon the extent of work completed by the Engineer on a lump sum basis.
3. Reimbursable Expense - Reimbursable expenses including such things as expenses for plotting, reproduction of documents, auto travel mileage (current IRS approved mileage rate), delivery charges, long distance communications, freight, and state accessibility will be invoiced with appropriate backup documentation.

**Invoice and Time of Payment**

Invoices will be prepared in a format approved by the City prior to submission of the first monthly invoice. Invoices shall be submitted monthly and paid within 30 days.



c. CobbFendley Survey Metes  
and Bounds, Easements, and  
Survey As-builts

## Summary of Survey Fees

**Design Phase**

Boundary ROW Takes	\$31,336.80
Drainage Easements	\$22,143.00
Total	\$53,479.80

**Construction Phase**

Construction As-Built	\$18,176.00
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Total Survey	\$71,655.80
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**EXHIBIT 1 – Scope of Services and Deliverables**

Rate per hour			\$ 170	\$ 126	\$ 165	\$ 170			
TASK	<b>San Marcos - Bishop Street Improvements - ROW Takes</b>		RPLS	Survey Tech	2-Man Field Crew	3-Man Field Crew	Total Unit Hours	cost per task	man-hours per task
Pre-field Office Work									
	Owner Research - Deed Plot		1	9			10	\$ 1,304.00	10
	ROE - By SM							\$ -	0
								\$ -	0
Primary Field Work									
	Verify Horizontal Control is still in place		1		4		5	\$ 830.00	449
	Boundary Recovery		2		10		12	\$ 1,990.00	1122
								\$ -	0
								\$ -	0
Office Work									
	Process Field Work		1	10			11	\$ 1,430.00	11
	Prepare Boundary File		1	10			11	\$ 1,430.00	11
	Prepare Sketches & Descriptions & Cal		11	88			99	\$ 12,958.00	99
								\$ -	0
Secondary Field Work									
	Set IR. For ROW Takes		3		30		33	\$ 5,460.00	3363
								\$ -	0
QA / QC			6	11			17	\$ 2,406.00	17
Project Management			4				4	\$ 680.00	4
Total			30	128	44	0	202		5086
Cost			\$ 5,100	\$ 16,128	\$ 7,260	\$ -			
								\$ 28,488.00	
	Crew members:	112							
	Days:	0							
Per Diem (\$46/ Crew Member/ Day)								\$ -	
Lodging (Averaged \$97/ Crew Member/Day)								\$ -	
Reimbursable Cost									
Sub Total								\$ 28,488.00	
	10 % Contingency	=	\$ 2,848.80					\$ 2,848.80	
<b>Total Cost</b>								<b>\$ 31,336.80</b>	
Budget Summary			Hours	Cost		Unit Hours			
	Labor	5086	\$ 21,228.00		Office =	158			
	Direct Expense		\$ -		Field =	44			
	Reimbursable Expense	44	\$ 7,260.00						
	Contingency		\$ 2,848.80						
Total			\$ 31,336.80						
Notes: Right-of-Way Takes and TCEs = 11 Parcels									
Establish Boundary along Blevins Streets and obtain back corners for ROW Takes.									
Plats and metes and bounds for 11 right-of-way takes. Show TCEs on plats, no description.									
Set a total of 20 right-of-way corners.									

**EXHIBIT 1 – Scope of Services and Deliverables**

Rate per hour			\$ 170	\$ 126	\$ 165	\$ 170			
TASK	San Marcos - Bishop Street Improvements - Drainage Easements		RPLS	Survey Tech	2-Man Field Crew	3-Man Field Crew	Total Unit Hours	cost per task	man-hours per task
Pre-field Office Work									
	Owner Research - Deed Plot		2	9			11	\$ 1,474.00	11
	ROE - By SM							\$ -	0
								\$ -	0
Primary Field Work									
	Verify Horizontal Control is still in place		1		4		5	\$ 830.00	449
	Boundary Recovery		2		10		12	\$ 1,990.00	1122
								\$ -	0
								\$ -	0
Office Work									
	Process Field Work		1	4			5	\$ 674.00	5
	Prepare Boundary File		4	10			14	\$ 1,940.00	14
	Prepare Sketches & Descriptions & Cal		9	72			81	\$ 10,602.00	81
								\$ -	0
Secondary Field Work									
	Set IR. For ROW Takes							\$ -	0
								\$ -	0
QA / QC			4	10			14	\$ 1,940.00	14
Project Management			4				4	\$ 680.00	4
Total			27	105	14	0	146		1700
Cost			\$ 4,590	\$ 13,230	\$ 2,310	\$ -			
								\$ 20,130.00	
	Crew members:	112							
	Days:	0							
Per Diem (\$46/ Crew Member/ Day)								\$ -	
Lodging (Averaged \$97/ Crew Member/Day)								\$ -	
Reimbursable Cost									
Sub Total								\$ 20,130.00	
	10 % Contingency	=	\$ 2,013.00					\$ 2,013.00	
Total Cost								\$ 22,143.00	
Budget Summary			Hours	Cost		Unit Hours			
	Labor	1700	\$ 17,820.00		Office =	132			
	Direct Expense		\$ -		Field =	14			
	Reimbursable Expense	14	\$ 2,310.00						
	Contingency		\$ 2,013.00						
Total			\$ 22,143.00						
Notes: Drainage Easements = 9 Parcels									
Establish Boundary along back corners for Drainage Easements.									
Plats and metes and bounds for drainage Easements and TCEs for 9 parcels.									

**EXHIBIT 1 – Scope of Services and Deliverables**

Rate per hour			\$ 170	\$ 126	\$ 165	\$ 170			
TASK	San Marcos - Bishop Street Improvements - As-Builts		RPLS	Survey Tech	2-Man Field Crew	3-Man Field Crew	Total Unit Hours	cost per task	man-hours per task
Pre-field Office Work									
	Work Order Preparation		1	1			2	\$ 296.00	2
								\$ -	0
								\$ -	0
Primary Field Work									
	Verify Control		1		4		5	\$ 830.00	13
	As-Built All new Improvements		3		40		43	\$ 7,110.00	123
	Obtain Inverts of All inlets - MH		1		10		11	\$ 1,820.00	31
								\$ -	0
Office Work									
	Verify Control		1	1			2	\$ 296.00	2
	Process Field data		1	8			9	\$ 1,178.00	9
	Prepare Deliverables		1	40			41	\$ 5,210.00	41
								\$ -	0
Secondary Field Work									
	Add Sections - Set Monuments							\$ -	0
								\$ -	0
QA / QC			2	6			8	\$ 1,096.00	8
Project Management			2				2	\$ 340.00	2
Total			13	56	54	0	123		231
Cost			\$ 2,210	\$ 7,056	\$ 8,910	\$ -			
								\$ 18,176.00	
	Crew members:	3							
	Days:	0							
Per Diem (\$46/ Crew Member/ Day)								\$ -	
Lodging (Averaged \$97/ Crew Member/Day)								\$ -	
Reimbursable Cost									
Sub Total								\$ 18,176.00	
	0 % Contingency	=	\$ -					\$ -	
<b>Total Cost</b>								<b>\$ 18,176.00</b>	
Budget Summary		Hours	Cost			Unit Hours			
	Labor	231	\$ 9,266.00		Office =	69			
	Direct Expense		\$ -		Field =	54			
	Reimbursable Expense	54	\$ 8,910.00						
	Contingency		\$ -						
Total			\$ 18,176.00						
<b>Notes:</b> As-Built Information to include All Proposed Routes. As-built information to include shooting in all of the water valves, hydrants, manholes, inverts, etc for the water, storm, sanitary in the project area after construction. You can count on a sanitary sewer and storm sewer manhole every 500' (which will need inverts) and water valves at every intersection and fire hydrants on every block. below are the lengths of the project. Does not include drainage improvements to channel adjacent to Veramendi Street. <ul style="list-style-type: none"> <li>• ~350' South Bishop Street</li> <li>• ~350' San Antonio Street</li> <li>• ~900' North Bishop Street</li> <li>• ~1,250' Belvin Street</li> </ul>									

EXHIBIT 1 – Scope of Services and Deliverables

Rate per hour				\$ 170	\$ 126	\$ 165	\$ 170	\$ 100			
TASK	<b>San Marcos - Bishop Street Improvements</b>			RPLS	Survey Tech	2-Man Field Crew	3-Man Field Crew	Administrative Assis	Total Unit Hours	cost per task	man-hours per task

## **SCOPE OF SERVICES**

### **1.0 Major Task- Utility Coordination**

Utility adjustment coordination includes utility coordination meetings with individual utility companies, communication and coordination with utilities. All utility coordination activities will be in accordance with the City of San Marcos Guidelines and TxDOT UAR, where applicable.

#### **General Services for Each Project:**

*It is CobbFendley's assumption that no conflict assessments would be necessary, as utilities that are being affected are planning to relocate out of the area by themselves prior to the project.*

#### **1.2 60% Design:**

1. Individual Utility Coordination Meetings. CobbFendley will set-up utility coordination meetings with individual Telecom Utility Owners to coordinate pole transfers. For utilities other than telecoms needing pole transfers, CobbFendley will set-up, on a as needed basis individual meetings to coordinate relocation at the request of the City. Individual utility coordination meetings include meeting preparation, travel time, meeting and follow-up meeting minutes.

#### **1.3 90% Design:**

1. Individual Utility Coordination Meetings. CobbFendley will set-up utility coordination meetings with individual Telecom Utility Owners to coordinate pole transfers. For utilities other than telecoms needing pole transfers, CobbFendley will set-up, on a as needed basis individual meetings to coordinate relocation at the request of the City. Individual utility coordination meetings include meeting preparation, travel time, meeting and follow-up meeting minutes.

#### **1.4 99%, 100% Design:**

1. Individual Utility Coordination Meetings. CobbFendley on a as needed basis individual meetings to coordinate relocation at the request of the City. Individual utility coordination meetings include meeting preparation, travel time, meeting and follow-up meeting minutes.



## EXHIBIT 1 – Scope of Services and Deliverables

EXHIBIT 3 - UTILITY COORINDATION -FEE ESTIMATE																
City of San Marcos, Texas																
Bishop Street Drainage																
		Professional Service Description	Total Task Hours	Staff												Task Budget
				Project Manager	Senior Engineer	Engineer III	Engineer II	Engineer I	Senior Utility Specialist	Utility Specialist	Senior Technician	Technician III	Technician II	Technician I	Clerical Staff	
				\$275.00	\$215.00	\$160.00	\$135.00	\$115.00	\$165.00	\$140.00	\$145.00	\$120.00	\$110.00	\$90.00	\$75.00	Fee
		<b>Design Phase (40/60/90/99/100%)</b>	<b>101</b>													<b>\$14,850.00</b>
<b>1</b>		<b>60% Design Phase</b>														
		<b>2 Utility Coordination</b>														<b>\$6,200.00</b>
		1.2. Project Management	1	1												\$275.00
		1.2.1 Individual Utility Meetings (Up to 3)	42				6	9		27						\$5,625.00
		2.1 Misc Expenses	0													\$300.00
<b>1</b>		<b>90% Design Phase</b>														
		<b>3 Utility Coordination</b>														<b>\$6,200.00</b>
		1.3 Project Management	1	1												\$275.00
		1.3.1 Individual Utility Meetings (up to 3)	42				6	9		27						\$5,625.00
		2.1 Misc Expenses	0													\$300.00
<b>1</b>		<b>99% and 100% Design Phase</b>														
		<b>4 Utility Coordination</b>														<b>\$2,450.00</b>
		1.4 Project Management	1	1												\$275.00
		1.4.1 Individual Utility Meetings (up to 1)	14				2	3		9						\$1,875.00
		2.1 Misc. Expenses	0													\$300.00
		<b>END BASIC SERVICES</b>														



13581 Pond Springs Road, Suite 210, Austin, Texas 78729 • Phone: (512) 428-5550 • Fax: (512) 428-5525

January 17, 2020  
Arias Job No. 2018-110-2

VIA Email: [lparisher@cobb fendley.com](mailto:lparisher@cobb fendley.com)

Mr. Lance Parish, P.E.  
Cobb Fendley & Associates, Inc.  
505 E. Huntland Drive, Suite 100  
Austin, Texas 78752

**RE: Proposal for Geotechnical Engineering Services**  
Bishop Street Improvements  
San Marcos, Texas

Dear Mr. Parish,

Arias & Associates, Inc. (Arias) is pleased to provide this proposal for Geotechnical Engineering Services for the above-referenced project. Our understanding of the project is based on the information provided by you. The following sections present our understanding of the project, proposed scope of services, fee compensation requirements and proposed schedule.

### **Project Information**

Arias previously conducted a field study and issued geotechnical recommendations in our Report 2018-110 dated September 14, 2018. This previous scope consisted of various drainage and pavement improvements along Belvin Street and N Bishop Street in San Marcos, Texas. Since the release of that report, the project now is expanding to improve the existing drainage channel north of Belvin St, between Veramendi St and Bishop St. Retaining wall is anticipated to be designed and constructed along the proposed drainage channel.

### **Proposed Investigation**

Based on published geologic mapping and nearby experience, the site is likely partially underlain by Quaternary aged alluvial deposits consisting of clay, silt sand, and gravel; and shale of the Del Rio formation and limestone Georgetown formation. Additionally, a fault is mapped in the general vicinity of the site; while faults are seismically inactive in central Texas, their presence often contributes to highly variable subsurface conditions and often provide preferential pathways for groundwater. Based on our understanding of the project, we propose the following drilling scope.

<b>Borings</b>	<b>Boring depth, ft</b>	<b>No. of Borings</b>	<b>Drilling Footage</b>
Drainage Channel	20	1	20
		<b>Total</b>	<b>20</b>

The boring will be drilled using a truck-mounted rig in areas clear of underground and overhead utilities. The boring will be advanced using augering and sampling techniques. Arias personnel will locate the boring, direct the sampling efforts, and visually classify recovered samples. Soils will be sampled by either pushing a thin-walled tube (ASTM D1587) of cohesive soils, or split barrel sampler while performing the Standard Penetration Test (ASTM D1586) for cohesionless (sandy) soils. Rock coring (ASTM D2113) of the rock stratum will be performed where intact limestone or shale is encountered.

If groundwater is encountered, the groundwater levels within the open borehole will be recorded at the time of drilling and immediately following drilling. The boreholes will be backfilled with cuttings generated by drilling operations after completion of drilling.

Laboratory testing will be performed on recovered samples selected by the geotechnical engineer to aid in soil classification and to measure engineering properties. Laboratory testing is expected to include moisture content, Atterberg limits, fines content (percent passing the No. 200 sieve), and scour testing (hydrometer tests), and unconfined compressive strength testing. The actual laboratory program will depend upon the type of soils and rock encountered.

### **Reporting**

We will issue an electronic copy of our formal engineering report prepared by a licensed professional engineer in the State of Texas that will include:

- Description of the field exploration program;
- Description of the laboratory testing program;
- Soil boring plan that depicts borehole locations on a base map provided by Client;
- Soil boring logs with soil classifications based on the Unified Soil Classification System (ASTM D 2487);
- Generalized site stratigraphy and engineering properties developed from field and laboratory data at the explored locations;
- Depth to groundwater, if encountered, and potential impact on construction;
- Foundation recommendations for proposed retaining walls including allowable bearing pressures and bearing elevations, and associated settlement;

- Recommendations for slope configurations.
- Recommendations for below grade walls including equivalent fluid earth pressures, and sliding coefficient(s) for the design conditions imposed on the walls; and
- General comments for earthwork and construction.

### **Proposed Fee**

We propose that the fee for the performance of the scope of work for this project as described in this proposal be **\$4,010.00**. The work will be performed as outlined in the General Conditions included with this proposal. A Geotechnical Cost Breakdown is summarized in the following table.

<b>Scope Item</b>	<b>Cost</b>
Mobilization and Drilling (Truck Mounted Rig) (20 feet total drilling footage)	\$1,955
Laboratory Testing (soil classification, scour)	\$770
Engineering and Reporting	\$1,285
<b>TOTAL</b>	<b>\$4,010</b>

We will invoice on a monthly basis. We have assumed that the borings can be drilled during normal business hours, and that no site clearing or grading will be required to access the boring locations. We understand that Right of Entry access to the boring location will be obtained by others prior to our mobilization.

### **Schedule**

Upon receiving written authorization, and weather and site conditions permitting, we can initiate our field investigation within 1-2 weeks. Drilling of the boreholes will take 1/2 day. Laboratory testing and reporting will take another 2 to 3 weeks. We will keep you verbally informed of our findings as they become available.

Delays sometime occur due to adverse weather, utility clearance requirements, site clearing requirements for drill rig access, obtaining drilling permits, obtaining Right of Entries and other factors outside of our control. In this event, we will communicate the nature of the delay with you and provide a revised schedule at the earliest possible date.

### **Proposal Acceptance**

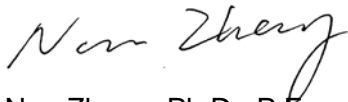
Please let us know if this proposal meets your expectations. If acceptable, the authorization table at the end of this proposal should be completed as applicable. We will begin work upon receipt of a signed copy of the proposal by an authorized representative. Please return the entire signed proposal to us by fax, mail or email to [nzhang@ariasinc.com](mailto:nzhang@ariasinc.com). If the billing address is different, include that information as well.

Should you have any questions, please do not hesitate to contact us. The undersigned will manage and perform the work. Thank you for this opportunity.

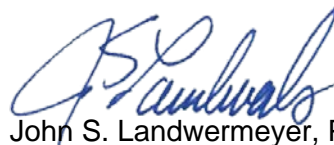
Sincerely,

#### **ARIAS & ASSOCIATES, INC.**

TBPE Registration No: F-32



Nan Zhang, Ph.D., P.E.  
Project Geotechnical Engineer



John S. Landwermeyer, P.E.  
Managing Principal, Austin Operations

#### Attachment

Exhibit A – Geotechnical Cost Estimate

Exhibit B– Boring Location Map

General Conditions (20140214R1)

**Exhibit A - Geotechnical Cost Estimate**  
**Bishop Street Improvements - January 2020**  
**San Marcos, TX**

Task	Item Description	Est. Qty.	Unit	Unit Price	Est. Total Price
<b>1 Field Exploration</b>					
<b>1.1 Planning and Coordination</b>					
	Field Coordination (Staking of Borings, One-Call, Drilling Plan)	4	hr	\$ 65.00	\$ 260.00
	Trip Charge	100	mi	\$ 0.55	\$ 55.00
	Project Management	2	hr	\$ 95.00	\$ 190.00
				<b>1.1 Subtotal</b>	<b>\$ 505.00</b>
<b>1.2 Drilling and Sampling</b>					
	Mobilization (Truck Mounted drill rig, support equipment, air compressor)	1	ea	\$ 425.00	\$ 425.00
	Rock coring setup charge	1	ea	\$ 150.00	\$ 150.00
	Drilling and Sampling (Soil Borings)	10	ft	\$ 14.00	\$ 140.00
	Rock coring	10	ft	\$ 21.00	\$ 210.00
	Drill Rig Stand-by (difficult moving)	1	hr	\$ 175.00	\$ 175.00
	Backfill boreholes	20	ft	\$ 4.50	\$ 90.00
	Field Logger	4	hr	\$ 65.00	\$ 260.00
				<b>1.2 Subtotal</b>	<b>\$ 1,450.00</b>
				<b>Field Exploration TOTAL:</b>	<b>\$ 1,955.00</b>
<b>2 Laboratory Soil Testing</b>					
	Moisture Content	2	ea	\$ 10.00	\$ 20.00
	Atterberg Limits	2	ea	\$ 75.00	\$ 150.00
	Grain Size Analysis (Includes Percent Passing #200 Sieve)	2	ea	\$ 75.00	\$ 150.00
	Hydrometer Analysis	1	ea	\$ 250.00	\$ 250.00
	Unconfined Compressive Strength (rock)	2	ea	\$ 55.00	\$ 110.00
	Lab Manager/Graduate Engineer	1	ea	\$ 90.00	\$ 90.00
				<b>Laboratory Testing TOTAL:</b>	<b>\$ 770.00</b>
<b>3 Engineering and Reporting</b>					
	Senior Geotechnical Engineer	3	hr	\$ 135.00	\$ 405.00
	Project Engineer	8	hr	\$ 95.00	\$ 760.00
	Drafting	1	hr	\$ 65.00	\$ 65.00
	Administrative (Job set-up, billing)	1	hr	\$ 55.00	\$ 55.00
				<b>Engineering TOTAL:</b>	<b>\$ 1,285.00</b>
	<b>Project Total</b>				<b>\$ 4,010.00</b>



Bishop Street Improvements  
Boring Location Map



Arias Job#: 2018-110-2



**ENVIRONMENTAL INVESTIGATIONS – SCOPE OF SERVICES**  
**Bishop Street Drainage Improvements**  
**For Cobb Fendley and Associates & the City of San Marcos**

**Project Understanding**

Cox|McLain Environmental Consulting, Inc. (CMEC) understands that the City of San Marcos (City) is developing plans for drainage improvements generally along or adjacent to Veramendi Street, Belvin Street, and Bishop Street, and that the project is anticipated to be developed using City funding (e.g., bonds). CMEC understands that project improvements would ultimately discharge to Purgatory Creek. An excerpt from the draft design schematic is attached.

CMEC assumes that Purgatory Creek would be considered a water of the U.S. and would be subject to regulations established under Section 404 of the Clean Water Act. CMEC assumes that potential impacts to Purgatory Creek would be authorized by Nationwide Permit 7, Outfall Structures and Associated Intake Structures, which requires a mandatory Pre-Construction Notification (PCN) to the U.S. Army Corps of Engineers (USACE). CMEC understands that a portion of the proposed improvements would occur within the City of San Marcos' Belvin Street Historic District and that right-of-way acquisitions are proposed in and around that area.

**Environmental Services**

CMEC assumes that the project would not require the consideration and documentation of potential environmental consequences per the National Environmental Policy Act (NEPA). However, the authorization of potential impacts to Purgatory Creek through NWP 7 requires compliance with applicable Federal regulations including the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA). In addition, state and local regulations (e.g., Edwards Aquifer Rules, Antiquities Code of Texas) would apply.

CMEC would provide adequate investigations and documentation to support the submittal of a PCN for NWP 7 per current USACE, Fort Worth District standards, and PCN preparation and submittal are included in this scope of services. Additionally, CMEC would provide a geologic assessment per requirements of the Edwards Aquifer Rules, as administered by the Texas Commission on Environmental Quality (TCEQ). The geologic assessment would be adequate to support the submittal of an Aquifer Protection Plan (prepared by others). CMEC understands that a previous geologic assessment has been conducted in portions of the project area, and CMEC assumes that the previously assessed areas would not need to be re-assessed. Areas that would need to be assessed under this scope of services are assumed to cover approximately one acre. CMEC assumes that right-of-entry would be coordinated by others.

The findings of the required investigations will be summarized in an Environmental Technical Memorandum. Resource-specific documents, reports, and agency coordination correspondence would be included therein as appendices. Resource-specific documentation and agency coordination deliverables include the following:

- Nationwide Permit 7 Pre-Construction Notification
  - Delineation Report
  - Impact Assessment and Exhibits required by USACE Fort Worth District
- Cultural Resource Deliverables
  - Historic Resources Coordination Letter to the THC to establish an appropriate Area of Potential Effects
  - Historical Resource Survey and Report (adjacent to acquisitions and new permanent easements).
  - Texas Antiquities Permit and Archeological Survey of proposed drainage channel grading and construction.
  - Archeological Survey and Report
- Threatened and Endangered Species Habitat Assessment
- Geologic Assessment per TCEQ guidance

**Additional Clarifications and Exclusions**

The National Historic Preservation Act of 1966 and other cultural resources regulations: A search of the Texas Archaeological Resources Laboratory (TARL) and Texas Historical Commission (THC) databases will be conducted to identify known resources in the project area. CMEC assumes that archeological survey



would be required in areas of the proposed drainage channel near Veramendi Street and in areas of the proposed Outfall Channel to Purgatory Creek. CMEC assumes that the latter will require mechanical excavation to determine whether deeply buried deposits may be impacted.

CMEC historians will draft a coordination letter for submittal to the THC that will also be used to establish the APE for historic resource investigations. CMEC assumes that a Historic Resource Survey and report will be required for properties on Belvin Street, and other areas where land acquisition or new easements are proposed. Archeological field investigations such as monitoring, testing, and data recovery excavations are not included in this scope but can be provided under additional scope and fee.

Endangered Species Act: A habitat assessment would be conducted to determine whether or not proposed project activities would affect threatened/endangered species habitat. Coordination with the USFWS would be required for any potential impacts to endangered species in accordance with the Endangered Species Act. The scope does *not* include Endangered Species Presence/Absence Surveys; Endangered Species Section 7 or Section 10(a) Consultation and/or the preparation of a Biological Assessment, Habitat Conservation Plan, or assistance with a Biological Opinion. CMEC assumes that any USFWS coordination would be conducted as part of USACE inter-agency coordination related to the PCN review.

Public Involvement: It is assumed that no public involvement would be required.

**Other services not included, though available for additional scope and fee:**

- Mitigation services associated with losses of waters of the U.S.
- Right of entry coordination
- Noise barrier analysis
- Air quality modeling
- Expert witness services
- Construction phase monitoring or services
- Phase 1, Phase 2, or Phase 3 Environmental Site Assessment for Hazardous Materials
- Environmental Documentation per TxDOT requirements.

**Deliverables**

CMEC will provide the NWP PCN and the Environmental Technical Memorandum with supporting documentation (discussed above) for a fee not to exceed \$39,973.00, as detailed in **Exhibit A**.

L. Ashley McLain, AICP, Principal  
Cox|McLain Environmental Consulting, Inc.

PROVIDER NAME: Cox McLain Environmental Consulting, Inc.												CobbFendley - Bishop Street Drainage Improvements	
TASK DESCRIPTION	PROJECT MANAGER	QA/QC REVIEWER	SR ENVL SCIENTIST II	SR ENVL SCIENTIST I	ENVL PROF II	ENVL PROF I	ENVL STAFF II	ENVL STAFF I	ENVL TECH II	ENVL TECH I	ADMIN/ CLERICAL		LABOR HOURS & COSTS
<b>Environmental Services</b>													
<b>Informal Meetings and Project Communications</b>													
Project Management, meetings, communications	4		2	8							12		26
Agency Coordination - in person meetings (not included)													0
Public Involvement; Document Publication (not included)													0
<b>Resource Investigations and Supporting Documentation</b>													0
Archeology Background Study - Antiquities Permit Application	1	2	2		8		6						19
Archeology Pedestrian Survey	1	4	16	24	24		2	6	16				93
Historic Resources - THC Coordination Letter	1	1	2		6		4						14
Historic Resources Reconnaissance Survey		4	32			54	16						106
Delineation Report and NWP PCN	2	2	16	16			16	6	12	8			78
Geologic Assessment	1	4	20		8			6	1				40
Threatened/Endangered Species Habitat and Impact Assess.	2	1		12			18		10				43
Environmental Technical Memorandum Preparation		1			12				4	4			21
Comments and responses, coordination for Environmental Document		1		6	4				2	2			15
HOURS SUB-TOTALS	12	20	90	66	62	54	62	18	45	14	12		455
CONTRACT RATE PER HOUR	\$138.00	\$62.50	\$113.00	\$95.00	\$83.00	\$73.00	\$60.00	\$53.00	\$45.00	\$39.00	\$50.00		
TOTAL LABOR COSTS	\$1,656.00	\$1,250.00	\$10,170.00	\$6,270.00	\$5,146.00	\$3,942.00	\$3,720.00	\$954.00	\$2,025.00	\$546.00	\$600.00		\$36,279.00
% DISTRIBUTION OF STAFFING	3%	4%	20%	15%	14%	12%	14%	4%	10%	3%	3%		
<b>OTHER DIRECT EXPENSES</b>	<b>UNIT</b>	<b># OF UNITS</b>	<b>COST/UNIT</b>										
Lodging/Hotel	day/person	2	\$80.00										\$160.00
Lodging/Hotel Taxes/fees	day/person	2	\$20.00										\$40.00
Meals	day/person	4	\$41.00										\$164.00
Mileage (not allowed)	mile		\$0.545										\$0.00
Standard Postage	letter		\$0.49										\$0.00
Overnight Mail - letter size	each	1	\$25.00										\$25.00
Overnight Mail - oversized box	each	1	\$30.00										\$30.00
Courier Services	each	1	\$25.00										\$25.00
Photocopies B/W (8 1/2" X 11")	each		\$0.10										\$0.00
Photocopies B/W (11" X 17")	each		\$0.20										\$0.00
Photocopies Color (8 1/2" X 11")	each		\$0.50										\$0.00
Plots (B/W on Bond)	square foot		\$0.50										\$0.00
Plots (Color on Bond)	square foot		\$1.00										\$0.00
Tx Speleological Society Database Search	search	1	\$250.00										\$250.00
Geologic Assessment	report		\$3,000.00										\$0.00
Archeology Equipment - Backhoe Operator	day/person	2	\$1,500.00										\$3,000.00
CDs	each		\$1.50										\$0.00
<b>SUBTOTAL DIRECT EXPENSES</b>													<b>\$3,694.00</b>
												<b>SUMMARY</b>	
												EA LABOR	\$36,279.00
												EA NON-LABOR	\$3,694.00
												TOTAL EA	\$39,973.00



**EXHIBIT B – 30% Design Schematic Excerpt**





## SCOPE OF WORK

### Project Site Development – Bishop Street Drainage Project – Channel Design

Ecosystem Planning and Restoration (EPR) is pleased to present this scope of work to Cobb Fendley and Associates, Inc. (CLIENT) to prepare stream design and construction drawings for the proposed site:

Site Name: Bishop Street Drainage – Unnamed Tributary to Purgatory Creek  
 County: Hays County  
 Project Components: Geomorphic Assessment, Detailed Design Plans

Project Overview: As part of the Bishop Street Drainage Project, the City of San Marcos is addressing flooding along Veramedia Street and Belvin Streets primarily due to an unnamed tributary to Purgatory Creek (Unnamed Trib) overtopping its banks. Additionally, the Unnamed Trib is experiencing bed and bank erosion. The goal of the channel design portion of the project is to reduce flooding along Veramedia and Belvin Streets and address the erosion along Unnamed Trib through a natural channel design. The channel design portion of the project extends along the Unnamed Trib from Belvin Street to approximately 800-LF upstream to the end Veramendi Street. It is understood that the channel design plans will be incorporated into the Bishop Street Drainage Plan set being prepared by Cobb Fendly.

The following is a brief description of the deliverables to address each of the requirements needed to develop the site for restoration purposes.

### 1. DATA COLLECTION FOR DESIGN

- **Watershed Data Collection and Analysis** – EPR will perform an analysis of the watershed of project location, which will include delineation of stream reach watershed, evaluation of land-use, and description of area geology and soils, and identification of potential constraints that may affect the success of the project. EPR will use existing reports and information already prepared for the project site to supplement the analysis.

- **Geomorphic Channel Surveys** – EPR staff will conduct a geomorphic survey of the Unnamed Trib in order to document the existing condition to develop design criteria. EPR will survey up to 3 riffle and 3 pool cross-sections and conduct a longitudinal survey of the thalweg. EPR's geomorphic survey will include geomorphic cross-sections to identify bankfull and scour features along Unnamed Trib.

- **Soil/Substrate Collection and Analyses** - The collection and analysis of bed material samples through pebble counts (riffle and reach) and bar samples (if features are found) are included in this task item. Bed samples are necessary to evaluate existing and post-restoration shear stresses, sediment transport, and stability calculations.

- **Existing Vegetation Analyses** – EPR will develop a description of the existing dominant vegetation on the site, including riparian vegetation. This information is necessary to document the existing condition of the site and aids in determining the appropriate native species to be restored during restoration. A list of native and non-native species will be provided. The inventory of native plant species will be considered in the vegetative recommendations for the restored stream channel. A site visit will be conducted with the City to identify with trees should be marked for preservation. EPR will supplement this task with existing information provided by the City of San Marcos and the tree survey provided by Cobb Fendley.

- **Existing Condition Maps** – This task involves the development of base plan sheets that show the existing condition of the project site and will serve to document baseline conditions of the design. Existing condition maps



will show a plan view of the site, including the location of streams, property boundaries, significant structures and land features (buildings, ponds, etc.), benchmarks, topographic contours, and utilities. Survey information for the project will be provided to EPR by Cobb Fendley and will form the basis for the existing condition maps.

- **Design Criteria Development** – A reference reach survey is specifically excluded from this project as the San Antonio River Authority (SARA) has developed a reference reach database for this application. EPR will review this database and select a site that is comparable to the Unnamed Trib. EPR will then use the selected SARA site to develop the dimensionless design criteria to facilitate the design development.

- **Verification of Bankfull Stage**- This task involves the use of data from regional curve information to verify the bankfull stage identified from field indicators. The SARA has developed Regional Curves that will be used as a design tool for this project. Bankfull verification is necessary to ensure that the design channel is sized appropriately.

## **2. FORTY PERCENT (40%) DETAILED DESIGN DEVELOPMENT**

The 40% design plans will be developed to provide the general project approach and layout. The following sections list the tasks to be completed to develop the 40% design plans.

- **40% Design** – Using the data collected in Task 1, EPR will develop typical channel dimensions, a thalweg alignment and corresponding top of banks and channel profiles.

- **Existing Tree Plan** - plan sheets and a table summarizing the number of impacted trees will be included in the plans. The table will indicate which trees will be removed, and which trees are requested to be preserved if possible.

- **40% Construction Drawings** – EPR will prepare drawings that will include plan views of the site that show the preliminary design features. The plan view drawing will show the existing stream alignments, design stream alignment, locations and types of proposed instream structures, standard structure details with limited design detail, typical sections, jurisdiction limits, existing tree plan, and a preliminary limit of disturbance. These plans will be marked preliminary and will not be sealed by an engineer.

- **Natural Channel Design Report** – EPR will prepare a natural channel design report to accompany the 40% design plan submittal. The report will document the data collection and development of the design criteria.

### ***Deliverables:***

- 40% Design Plan Sheets - At the 40% design level, EPR will submit PDF files of half-size plan sheets to CLIENT, if requested, to perform internal reviews. If hard copies of the plan sheets are required, CLIENT will be invoiced for printing charges on an at-cost basis. The plan sheets at the 40% design level will include a title sheet, details for any proposed structures, preliminary stream design and profiles, and existing tree plan. The 40% design plans will be not be sealed by a Professional Engineer and marked for review purposes only.
- Natural Channel Design Report in digital PDF format



### **3. SIXTY PERCENT (60%) DESIGN PLAN DEVELOPMENT**

The following sections list the tasks to be completed to develop the 60% design plans.

- **60% Design** – Using the data collected in Task 1, and upon approval of the alignments presented in Task 2, EPR will begin the detailed design development of the project. This will include finalizing in-stream structure location and type, sizing all materials based on a hydraulic analysis, performing preliminary grading analysis, developing the vegetation selection and layout, and refining the limits of disturbance.

- **Hydraulic & Sediment Transport Analyses** – This task includes hydraulic modeling of the proposed work. Boundary shear stress calculations and stream power calculations will be used as an aid to design the enhanced/restored channels. The sediment transport calculations will be made on the existing channel and the design channels for comparison. EPR will review and refine the existing and proposed hydrologic and hydraulic models prepared by the CLIENT using the USACE's HEC-RAS modeling program for Unnamed Trib. The hydraulic model results will also be used to refine and inform the proposed design. A Technical memo will be prepared to document the hydraulic modeling and results.

- **60% Construction Drawings** – EPR will refine the details provided in the 40% Construction Drawings by providing the following information:

- Structure locations and type will be added to the profile
- Standard details will be revised to include the correct materials
- The grading plan will be incorporated
- The vegetation plan will be incorporated
- The existing tree plan will be revised based on 60% design modifications

These plans will be marked preliminary and will not be sealed by an engineer.

- **Preliminary Estimate of Construction Costs** – At the 60% design level, EPR will provide CLIENT with a preliminary estimate of the construction costs associated with the project. This estimate will include preliminary material quantities and costs associated with earthwork, instream structures, stabilization practices, and revegetation of the site.

- **Natural Channel Design Review Checklist** – To provide a predictable and easily reviewable design plan, the Natural Channel Design Review Checklist published by the USFWS, Chesapeake Bay Field Office and USEPA, Office of Wetlands, Oceans and Watersheds, will be provided. This checklist will provide information described in the project plan, including a completed checklist identifying the location of required items in the plan, allowing a streamlined review and evaluation of the design plan.

#### ***Deliverables:***

- **60% Design Plan Sheets** - At the 60% design level, EPR will submit PDF files of half-size plan sheets to CLIENT, if requested, to perform internal reviews. If hard copies of the plan sheets are required, CLIENT will be invoiced for printing charges on an at-cost basis. The plan sheets at the 60% design level will include a title sheet, details for any proposed structures, stream design and profiles, and existing tree plan. The 60% design plans will be not be sealed by a Professional Engineer and marked for review purposes only.
- **NCD Review Checklist** - in PDF format.



- Hydraulic Model & Technical Memo – a digital copy of the hydraulic model including the HEC-RAS model, report and supporting output/results tables in PDF format.
- Preliminary Estimate of Construction Costs – a digital copy of the preliminary estimate of construction cost will be provided in PDF format.

#### **4. NINETY PERCENT (90%) DESIGN PLAN DEVELOPMENT**

The following sections list the tasks to be completed to develop the 90% design plans.

- **90% Design** – The 90% design will be revised based on comments received from client and/or agency review. All design aspects will be finalized including: alignment, profile, grading, structure type and location, erosion and sediment control features, site access, vegetation plan, and existing tree plan.

- **Construction Sequence and Special Provisions** – A construction sequence will be prepared and provided at the 90% design level. Any special provisions required due to the use of natural channel design procedures will be incorporated.

- **90% Construction Drawings** – All sheets will be updated based on any comments incorporated into the 60% Design. Additionally, the Construction Sequence will be added to the plan set.

- **Calculate Earthwork and Quantities** – Cut/fill quantity estimates will be generated and shown on the plans. The quantities of instream structures, vegetation, erosion control devices, and all other pertinent items will be finalized.

- **Revised Estimate of Construction Costs** – At the 90% design level, EPR will provide CLIENT with a revised estimate of the construction costs associated with the project. This estimate will include material quantities and costs associated with earthwork, instream structures, stabilization practices, and revegetation of the site.

- **TCEQ Water Pollution and Abatement Plan (WPA)** – EPR will prepare the WPA plan at the 90% Plan stage using the geologic data and report provided by the CLIENT. EPR will work with the CLIENT to obtain all required signatures.

#### ***Deliverables:***

- 90% Design Plan Sheets - At the 90% design level, EPR will submit PDF files of half-size plan sheets to CLIENT, if requested, to perform internal reviews. If hard copies of the plan sheets are required, CLIENT will be invoiced for printing charges on an at-cost basis. The plan sheets at the 90% design level will include a title sheet, details for any proposed structures, a construction sequence and quantities estimate, stream design, a vegetation planting plan, and erosion control plan. The 90% design plans will be not be sealed by a Professional Engineer and marked for review purposes only.
- Estimate of Construction Costs – a digital copy of the revised estimate of construction cost will be provided in PDF format.
- Specifications – Specifications will be provided in PDF format.



- TCEQ Water Pollution and Abatement Plan (WPA) – the WPA will be provided in PDF format.

## **5. ONE HUNDRED PERCENT (100%) FINAL DESIGN PLANS**

- **100% Design** – The plan set will be revised to incorporate all comments by the CLIENT, regulatory agencies, and contractor's reviews.
- **Finalize Construction Sequence and Special Provisions** – The construction sequence and special provisions will be finalized for use by the construction contractor.
- **100% Construction Drawings** – All sheets will be updated based on any comments incorporated into the 90% Design.
- **Prepare Construction Models** – Develop a 3D model for use in real time GPS enabled equipment for the purpose of construction as a means of allowing a contractor to layout the design in the field will be prepared.
- **Final Estimate of Construction Costs** – At the 100% design level, EPR will provide CLIENT with a final estimate of the construction costs associated with the project. This estimate will include material quantities and costs associated with earthwork, instream structures, stabilization practices, and revegetation of the site.

### ***Deliverables:***

- Plan Sheet Submittal (100% design) – At the 100% design level, a final sealed set of plan sheets and special provisions will be submitted to CLIENT marked as construction drawings. EPR will submit PDF files of half-size plan sheets to CLIENT to perform internal reviews. If hard copies of the plan sheets are required, CLIENT will be invoiced for printing charges on an at-cost basis.
- Final Estimate of Construction Costs – a digital copy of the final estimate of construction cost will be provided in PDF format. Additionally, a blank bid tab will be provided to facilitate in soliciting bids from contractors.
- 3D model – A 3D model will be delivered in an acceptable digital format (LandXML) containing 3D line work and a proposed surface for use in GPS enabled construction equipment.

## **6. BID SERVICES**

- **Bidding Assistance.** An EPR engineer/designer will assist with an on-site prebid meeting with potential contractors. The prebid meeting will be coordinated and facilitated by the CLIENT.

### ***Deliverables:***

- None

## **7. CONSTRUCTION SERVICES**

- **Construction Observation** – EPR will provide construction observation to document the construction is progressing consistent with the construction sequence and in accordance with the design plans and specifications. A staff construction observer will be on-site for half a day (4 hours) per week for the construction timeline (16 weeks) listed in the assumptions below to ensure that the construction proceeds according to the design plans and specifications. All on-site construction observation performed by EPR must be coordinated with CLIENT. At the



completion of the contractor's work, EPR will prepare a punch list of deficiencies that the contractor needs to repair or rework. Finally, EPR will perform a site walk to confirm the punch list items have been corrected and the site meets compliance. This scope assumes that construction stake-out and the as-built survey and subsequent drawings will be provided by the contractor.

***Deliverables:***

- Documentation of on-site reviews in the form of meeting minutes and technical memos.
- Record Drawings will be maintained as the construction progresses to document any approved deviations from the design. A final sealed set of half size (11 in x 17 in) sheets will be developed upon the project completion and delivered in PDF format.

## **8. PROJECT ADMINISTRATION & MEETINGS**

The CONSULTANT will provide general project administration including up to 28, bi-weekly calls (30-minutes each), invoices for work, and other administrative efforts to execute the project. Additionally, EPR will attend design review meetings at the 40%, 70%, and 90% Plan submittal stage.

## **ASSUMPTIONS**

The following assumptions have been used to develop the preceding scope of work:

- Existing detailed topographic information will be provided to EPR by others.
- Geologic data and report will be provided by the CLIENT.
- Except for the WPA, all permitting will be handled by others.
- FEMA submittal or review is not included.
- Any printing of final plan set will be conducted by the CLIENT.
- Construction Access/Erosion Control/SWPPP plans to be prepared by the CLIENT
- Construction timeline is assumed to be 16 weeks.
- Construction stakeout will be performed by contractor.
- As-built survey and the submittal of as-built drawings will be performed by contractor.

## **FEE**

The CONSULTANT Project Manager will provide monthly progress reports and invoices. CONSULTANT will remain on schedule and within budget to perform the requested tasks.

The estimated fee for these services is **\$128,642**. The following tables provide an estimate of the fee breakdown and billing rate schedule.



HOURS						
	Senior Water Resources Eng.	Water Resources Eng. / Senior Scientist	Project Engineer / Designer	Env. Scientist / Biologist	GIS /CADD Technician	Clerical
Task						
1. DATA COLLECTION						
Watershed Data Collection and Analysis		10				
Geomorphic Field work	16	24				
Existing Vegetation Analyses		12		10		
Existing Condition Maps		4			20	
Design Criteria Development	8	16				
Bankfull Verification		2	20			
Internal QA/QC	4	4				
2. 40% Design						
Base Plan Form/Plans set	4	20	30		30	
NCD Report	2	2	24			
Internal QA/QC	4	2				
3. 60% Design						
60% Design plans	2	10	45	10	55	
Hydraulic Analyses & Memo		45				
Internal QA/QC	4	2				
4. 90% Design						
90% Design plans	2	10	40		30	
TCEQ Water Pollution and Abatement Plan		10	19			
Internal QA/QC	4	2				
5. 100% Design						
100% Design Plans	4	4	10		15	
Construction models	2	24			24	
Internal QA/QC	4	5				
6. Pre-Bid Services						
Bidding Assistance		4				
7. Construction Services						
Construction Observation		108				
8. Project Admin and Meetings						
PM	4	20				6
Meetings	3	17				
Totals	67	357	188	20	174	6

Total Hours	812
Subtask Labor	\$ 121,020.00
Subtask Directs	\$ 100.00
Lump sum Out of State	\$ 7,522.00
Task Labor	\$ 121,020.00
Task Directs	\$ 7,622.00
Task Sum	\$ 128,642.00

Hourly Rates	\$ 180.00	\$ 170.00	\$ 150.00	\$ 120.00	\$ 100.00	\$ 45.00
Labor	\$ 12,060.00	\$ 60,690.00	\$ 28,200.00	\$ 2,400.00	\$ 17,400.00	\$ 270.00
Total Labor	\$ 121,020.00					
Directs	\$ 7,622.00					
Cost	\$ 128,642.00					

**Billing Rate Schedule**

<b>Labor Category</b>	<b>Senior Water Resources Eng.</b>	<b>Water Resources Eng. / Senior Scientist</b>	<b>Project Engineer / Designer</b>	<b>Env. Scientist / Biologist</b>	<b>GIS /CADD Technician</b>	<b>Clerical</b>
<b>Hourly Billing Rate</b>	\$180.00	\$170.00	\$150.00	\$120.00	\$100.00	\$45.00

**SCHEDULE**

A project schedule will be developed in coordination with the CLIENT and the City.

## **COST PROPOSAL FOR LANDSCAPE IRRIGATION DESIGN SERVICES**

January 29, 2020

Cobb Fendley  
505 E. Huntland Drive, Suite 100  
Austin, Texas 78752

**ATTN:** Lance Parish, P.E.

**PROJECT:** Bishop Street Improvements San Marcos, Texas

**PROJECT SUMMARY:** JAS Irrigation Design will provide the following tasks related to the design of the irrigation system for the Bishop Street Improvements project located in San Marcos, Texas. The irrigated area is the channel area, as shown on the email (Bishop Street – Irrigated Area, and 20200110\_OVERALL-LAYOUT-EXHIBIT.pdf). The irrigation system will be designed based off a metered potable water source and according to the applicable local jurisdiction irrigation standards. This proposal does not include separate irrigation for water quality or water quality ponds. Cobb Fendley will provide the necessary AutoCAD files and layout sheets to be used for the irrigation plan layout.

This proposal is based on information provided by Lance Parish, received on January 15, 2020.

### **TASKS:**

- Task 1: Cost Estimate (40% Submittal)
- Task 2: Landscape Irrigation Design Plan (60% Submittal)
- Task 3: Landscape Irrigation Design Plan (90% Submittal)
- Task 4: Landscape Irrigation Design Plan (100% Submittal)
- Task 5: Landscape Irrigation Specifications

### **SCOPE OF SERVICES:**

#### **Task 1: Cost Estimate (40% Submittal)**

- A. Assist the engineer in providing a cost estimate for the proposed irrigation system.

#### **Task 2: Landscape Irrigation Design Plan (60% Submittal)**

- A. A sixty percent plan submittal shall include, but is not limited to, the irrigation main line location and type.
- B. Locate and size Point of Connection (POC).
- C. Coordinate with the City of San Marcos on controller type, communication and location.
- D. Provide plan sheets to lead consultant.
- E. Respond to comments and resubmit.
- F. Perform minor revisions (one round) to the Landscape Irrigation Design Plan.
- G. Attend (via conference call) up to 28 one half hour weekly project meetings.
- H. The Landscape Irrigation Design Plan does not include re-irrigation (water quality, temporary, etc.) or as-builts, unless noted.

**Task 3: Landscape Irrigation Design Plan (90% Submittal)** Plan includes details, notes, and tabulations that comply with applicable regulations.

- A. Provide plan sheets to lead consultant.
- B. Respond to comments and resubmit.
- C. Attend (via conference call) up to 40 one half hour weekly project meetings.
- D. The Landscape Irrigation Design Plan does not include re-irrigation (water quality, temporary, etc.) or as-builts, unless noted.

**Task 4: Landscape Irrigation Design Plan (100% Submittal)** Plan includes details, notes, and tabulations that comply with applicable regulations.

- A. Provide plan sheets to lead consultant.
- B. Respond to comments and resubmit.
- C. Attend (via conference call) up to 40 one half hour weekly project meetings.
- D. The Landscape Irrigation Design Plan does not include re-irrigation (water quality, temporary, etc.) or as-builts, unless noted.

**Task 5: Landscape Irrigation Specifications** Specifications include all components of the irrigation system.

- A. Provide written Landscape Irrigation Design specifications. Specifications will cover all irrigation system components and installation procedures.

## **PROPOSED BASIS OF COMPENSATION**

The total **LUMP SUM** fee **SHALL NOT EXCEED \$8,610.00** for the above described services and will be invoiced monthly, marked to your attention at the above address.

The cost for any additional services requested by Cobb Fendley will be established and agreed upon in writing by both Client and JAS Irrigation Design prior to commencing the work.

In addition, JAS Irrigation Design may, after giving seven (7) days' written notice to Client, suspend services until JAS Irrigation Design has been paid in full all amounts due. In the event of a disputed or contested billing, only that portion so contested may be withheld from payment, and the undisputed portion will be paid to JAS Irrigation Design.

Client and JAS Irrigation Design agree that neither of them shall be responsible or liable to the other for the consequences of events that are beyond the reasonable control of the other party including, but not limited to, interference by third parties, changed conditions, labor strikes, weather delays, fires, thefts or other losses, or acts of God.

Client agrees that JAS Irrigation Design's liability for the negligent act, error, or omission in the preparation of designs and drawings, the designation or selection of materials and equipment, the selection and supervision of Project Representatives and other personnel, or the performance of any other services pursuant hereto shall in no event exceed the amount of the total compensation received by JAS Irrigation Design for services rendered hereunder.

## **ADDITIONAL SERVICES AND ASSUMPTIONS:**

- All requests for additional services will be submitted to the Client in writing and a signed contract received by JAS Irrigation Design before commencement of work.



## Accessibility Code Etc. TAS Plan Review, Inspection, and Travel Fee Schedule

Construction Cost	TDLR Filing Fee	Plan Review Fee	Inspection Fee	Total Project Cost *Not Including Travel Fees*
Under \$50, 000		\$365	\$440	\$805.00
\$50,000-199,999	\$210.00	\$385	\$450	\$1,045.00
\$200,000-499,999	\$210.00	\$450	\$475	\$1,135.00
\$500,000-999,999	\$210.00	\$500	\$500	\$1,210.00
\$1M-4.99M	\$210.00	\$575	\$600	\$1,385.00
\$5M-9.99M	\$210.00	\$700	\$750	\$1,660.00
\$10M-14.99M	\$210.00	\$875	\$875	\$1,960.00
\$15M-24.99M	\$210.00	\$1,050	\$1,050	\$2,310.00

- **Call for Quote:** Construction Cost Estimates over \$25M.
- **For No-Show Inspection or incomplete facilities:** If the inspection has been scheduled by the client, the full inspection and travel fee will apply and must be paid prior to scheduling the final TAS inspection.
- **Standard service area:** Austin. For areas outside our standard service area, please consult the Travel Fee list. Attached. Note. If you do not see the city listed for your project, call/email for a travel quote.



Austin Area & Surroundings	
Town	Travel fee
Bastrop	\$ 102
Buda	\$ 46
Cedar Creek	\$ 46
Dripping Springs	\$ 72
Elgin	\$ 77
Georgetown	\$ 108
Hutto	\$ 86
Killeen	\$ 216
Kyle	\$ 68
Lakeway	\$ 68
Leander/Cedar Park	\$ 71
Lockhart	\$ 103
Manor	\$ 46
Marble Falls	\$ 231
New Braunfels	\$ 185
Pflugerville	\$ 62
Round Rock	\$ 68
San Marcos	\$ 94
Taylor	\$ 114
Wimberley	\$ 123