EXHIBIT A

SCOPE OF WORK
Rowlett Trail Extension
May 14, 2021

Project Name: Rowlett Trail Extension – South Section
City: Allen
County and State: Collin, Texas
Limits: From West of US 75 to South of Marie Drive

PROJECT DESCRIPTION

The scope of services for primary design includes trail design, demolition plans, surveying, geotechnical investigations, environmental investigation, drainage design, structural design of bridge foundations, and the development of 60%, 90% and final plans, specifications, and estimate (PS&E), for approximately 0.42 miles of new trail.

BASIC SERVICES

I. PROJECT COORDINATION and QA/QC

A. Coordination and QA/QC

Arredondo, Zepeda and Brunz, LCC (Engineer) shall be responsible for coordinating the project design team for the successful completion of their task. The City of Allen (City) will serve as the primary point of contact for the project team. The Engineer shall review work and perform Quality Control/Quality Assurance (QC/QA) on procedures, field observations, and deliverables prior to submission of the deliverables.

The Engineer shall place his or her Texas professional seal of endorsement on all engineering documents and
engineering data prepared under the supervision of the Engineer in the performance of this Contract.

The Engineer shall deliver requested work to the City in digital form which is electronically downloadable and able to be manipulated by City's computers. These files shall include all referenced files, and cell libraries, and shall be created consistent with TxDOT specifications regarding level structure, line type, and line weight. Any corrupted files shall be replaced by Engineer at no additional cost to City. The Engineer shall provide all maps to the City
in digital files generated using MicroStation brand computer aided drafting software. These files shall include all reference files, and cell libraries, and shall be created consistent with Texas Department of Transportation specifications regarding level structure, line type, and line weight. In addition to these electronic files, hard copies shall be supplied or in such other formats as instructed by the City herein. The Engineer shall design, develop and prepare all documents in English units. Provide general coordination and administration of contract work, including internal staffing and task assignments. All files generated for the project will be delivered to City.

The Engineer shall submit progress reports to the City on a monthly basis. The following information shall be included in each report:

a. Task(s) worked on since previous report submission
b. Estimates of the percent complete for each task
c. The anticipated work schedule until the next report is due
d. Comments, concerns and discoveries that could affect the successful completion of the project

B. Progress Schedule

The Engineer shall prepare and submit, on a monthly basis, a formal (typewritten) progress report with the percentage completion of each task outlined. It is assumed the schedule for the final PS&E deliverables will proceed independently of right-of-way acquisition, utility relocations and environmental analysis and remediation, if required and performed by others.

C. Research and Data Gathering

1. Attend a project "Kick-off meeting conducted by the City. The purpose of the meeting will be to set the basic parameters for the project and to discuss roles of the team members, technical requirements, schedule, and deliverables.
2. Walk the project site and take photographs along the corridor for use during design
3. Obtain as-built data for existing public utilities, storm-sewer, and/or paving plans for intersecting streets.
4. Obtain existing hydrologic and hydraulic studies and models for streams the proposed trail extension will cross.

5. Walk through trail alignment, with city staff, based on Concept Plan previously prepared by others to determine alignment to be surveyed. City will identify and tag any trees to be preserved during this walk through.

D. Meetings

The Engineer shall attend three (3) design meetings.

II. PEER REVIEW OF CONCEPT PLAN & 30% DESIGN

The Engineer will review the Concept Plan (prepared by Halff Associates, Inc.), including:

1. Horizontal and vertical alignments

2.Proposed typical trail sections

3.Drainage structure locations, size, geometries and hydraulic adequacy of receiving systems (storm sewers and channels), verification and analysis of existing and proposed hydrologic and hydraulic models or calculations.

4.Number and approximate location of proposed trail bridges

The City shall provide all electronic files used in the preparation of the Concept Plan.
The right-of-way acquisition for the trail, if required, will be performed by the City of Allen. Utility relocations will be performed by the City of Allen. Any environmental constraints will be noted and remediated by the City.

The Engineer will conduct a multidisciplinary Peer Review of the Concept Plan plans using the above electronic files and well as hard copies. This review will check for consistency with AASHTO Guide for the Development of Bicycle Facilities, 4th Edition (2012) and current ADA trail design standards, as well as applicable City of Allen and TxDOT standards. Any issues with the trail geometric and/or drainage designs will be noted, including constructability.

Potential geotechnical and structural issues with bridge foundations and retaining walls will be identified. This Peer Review is a necessary step for the acceptance of the Concept Plan by the Engineer. The Peer review will also require for the Engineer to recover and verify previously set Horizontal and Vertical survey controls, including benchmarks (this is essentially verifying survey control set by others for the project).

5.The Engineer shall submit findings, including discrepancies, recommendations and possible solutions in a Peer Review Technical Memorandum to the City for review and comment. The Engineer will revise the Concept Plans if necessary. The Engineer will also coordinate with the City to obtain comments regarding the technical memorandum. The Engineer shall meet with the City to discuss and finalize any outstanding issues to the mutual agreement of Engineer and City.

The Engineer will include 30% design for the trail extension and a concept.

6. The Engineer will prepare an environmental document.

An environmental impact assessment of the hydrologic, soils, and biologic features of the Rowlett Trail Extension Project Area – South Segment will be conducted within this scope. These environmental features can include presence/absence of threatened and endangered species or their habitats, migratory bird colony nesting habitats, and jurisdictional waters of the U.S.

Preliminary remote mapping of the area will be conducted prior to a field visit. The remote mapping will include, but not be limited to the following resources:

- United States Geological Survey
- National Resources Conservation Service (NRCS) Soils Data
- USGS 7.5-minute topographic map
- National Hydrography dataset (USGS)

- United States Fish and Wildlife Service - National Wetland Inventory (NWI)
- United State Environmental Protection Agency (EPA) Ecoregions
- United States Fish and Wildlife Service – Threatened and Endangered Species
- Texas Parks and Wildlife Department – Threatened and Endangered Species

Upon completion of the remote sensing, a field investigation will be conducted. An environmental field survey will be conducted of the Project Area and any potential WOUS features will be mapped and the ordinary high water mark (OHWM) noted. Any wetlands found on site will also be mapped. Wetland and upland areas will be determined using the 1987 US Army Corps of Engineers (USACE) Wetland Delineation Manual and the Regional Supplemental Wetland Determination Data Form - Great Plains Region (Version 2.0). Once all waterbodies have been delineated and assessed as to their jurisdictional status, the next approach will be to determine Section 404 permitting options.

a. Environmental Impact Assessment

An important component of the delineation process is the determination of appropriate functions and values of waters of the U.S. This determination is necessary for the USACE to verify the adequacy of any delineations and any required mitigation.

Using available literature, the soil survey, and USGS topographic maps, we will provide a description of the functions and values of the project site. As part of the functions/values determination, we will provide the Client with the appropriate wetland delineation forms, map of jurisdictional waters overlain on the site plan, and any evaluation of the waters of the U.S., as well as the riparian corridor, within the proposed project site. The wetland forms will include the vegetation characteristics of the jurisdictional waters, soil profiles, and hydrologic information per the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the 1987 Corps of Engineers Wetland Delineation Manual. The delineation will be conducted in accordance with the 2020 Navigable Waters Protection Rule.

A Global Positioning System (GPS) or iPad-based mapping tool will be used to map jurisdictional waters of the U.S. Data collected in the field will be downloaded to existing Microstation/AutoCAD files to overlay on the existing topographic maps for the project. Exhibits indicating all jurisdictional waters of the U.S. will be prepared for inclusion in the wetland survey report.

The Project Area will be assessed for potential threatened and endangered species habitats, migratory bird colony nesting areas, and significant arboreal riparian areas. Fish and wildlife observed in the area and assess the potential habitat for suitability with any rare species will be documented.

A Natural Resources Assessment Report will be prepared describing the limits and types of waters of the U.S., threatened and endangered species, migratory bird colony nesting habitat, significant arboreal riparian habitats, and a general assessment of the natural resources in the area as well as those found within the project site. The report will contain descriptions of the environmental features, site maps with waters shown, and permitting options.

b. Additional Services

i. A Section 404 (of the Clean Water Act) permit is not included in this scope. Should a Section 404 permit be required, we could conduct this process as Additional Services.
ii. It is not anticipated that threatened and endangered species, or their habitats, would be impacted by the proposed project. In the event that the USACE requires additional threatened and endangered species coordination with Texas Parks and Wildlife Department and/or U.S. Fish and Wildlife Service to process a Section 404 permit, this would be considered Additional Services.
iii. It is assumed that an archeology survey will not be required. Should one be required, we

will conduct this as Additional Services.

iv. A detailed tree survey is not included in this scope. Although the scope includes identifying significant riparian arboreal features, it does not include tagging and geo-locating individual trees. A detailed tree survey can be conducted as Additional Services.

v. This scope and fee assumed the three sections will be conducted in one series of field visits. Should they be separated as individual projects, additional fees may be required.

Environmental Services Fee

The environmental document will be accomplished for total lump sum fee of $8,500.

7. 30% Design will include bridge design.

III. 60% DESIGN

Upon final acceptance of the Peer Review Technical Memorandum and 30% Design, the Engineer will proceed to develop the 60% PS&E Package.

A. Title Sheet

Incorporate any comments from 30% Design and further detail sheet for 60% submittal. Title sheet shall be consistent with the latest template used by the Allen City Department of Public Works.

B. General Notes/Specifications

The Engineer shall compile all pertinent General Notes and develop any Special Provisions/Special Specifications applicable and required for this project. The Engineer will utilize TxDOT 2014 Standard Specifications and the NCTCOG General Specifications and General Notes as directed by the City. Additional or supplemental specifications will be generated as needed.

C. Estimate and Summary Sheets

All summaries shall be consolidated into the various work categories and by bid item codes. Any quantities shown "For Contractor Information Only" will be shown as such. No sheet quantities will be provided.

D. Horizontal Control

Engineer will prepare project layout sheet showing the proposed centerline alignment, control points, and existing right-of-way within the limits of the project. Engineer shall update centerline alignment and curve data tables if necessary.

E. Typical Sections

Incorporate 30% Design review comments and further detail sheet for 60% submittal.

F. Trail Plan & Profile Sheets

The Engineer shall incorporate 30% Design review in the 60% submittal. Plan and profile shall be prepared for all the access connections. Trail plan and profile sheets shall be at a 1" = 20' scale (full size) and 1" = 40' (half size).

G. Demolition and Removal Plans

The Engineer shall determine and verify the structures and items to be removed and shall review and confirm these with Allen City prior to preparing the demo plan set. The Demo Plan Set shall include the following, but not
limited to:

- Pavement removals such as concrete pavement and sidewalks
- Drainage feature removals such as but not limited to pipe, culverts, rock rip, headwalls, gabions, inlets and other drainage appurtenances as identified by engineer during completing the plans.

H. Trail Signs

The Engineer shall include trail signs in the detail sheets.

I. Miscellaneous Details

The Engineer shall prepare a preliminary set of construction details for non-standard or unique items which require special dimensions or additional information. Including handrails, ramp details, paving details, curb details, bollards, driveways and others. The plans shall also include pavement markings, crosswalk markings and follow TxMUTCD, City of Allen and AASHTO guidelines (if discrepancies between any of these the City shall decide). These details will be updated in subsequent PS&E phases per City and City review comments and/or relevant design modifications made by the Engineer.

J. Small Sign Summaries

Small sign summaries will be prepared for all proposed small signs. The sign summary will include sign location, mount type, sign description and size.

K. Small Sign Details

The signs will be included in detail sheets

L. Drainage

The Engineer shall develop drainage designs and plans in accordance with the City of Allen, Drainage Design Criteria and shall coordinate with the City on software being used for hydraulics/hydrology design efforts on the project. The following tasks are also to be included:

- Perform final drainage design-storm sewer sizing and alignment design, culvert sizing, inlet sizing
- Prepare final inlet design sheets, hydraulic design
- Prepare profiles for ditches (if needed)
- Determine outfall grading requirements and prepare plans and details for channel protection,
- Prepare details for connections to existing systems or creek channels within the ROW (where applicable)
- Provide plans sheets and details to construct storm sewer and culvert outfalls
- Analyze storm sewer outfall flows onto the trail alignment. Review outfall details
- The capacity shall be verified, and hydraulics shall be performed on existing structures within the ROW that are to remain in place.

M. Drainage Area Maps

The Engineer will include calculated direct runoff based on the design frequency shown in the design criteria for this project or as directed by the City and initially performed at the 30% design phase. Drainage areas outside the proposed ROW will be delineated using the drainage area contours in the 30% PS&E Package electronic files provided by the City. If needed, NCTCOG 2' contours or other available data will be used to supplement the drainage area topography.

N. Hydrologic and Hydraulic Calculations

Based on the Peer Technical Review, hydrologic calculations will be further developed using the Rational Method for areas less than 200 acres. These hydrologic calculations shall include (but not limited to):

- Drainage area number to corresponding inlet/culvert number and size of drainage area
- Runoff coefficient (including percentage of each cover to arrive at weighted runoff coefficient) Time of concentration (i.e. sheet flow, overland flow, & channel flow)
- Design storm frequency and corresponding intensity
- Calculated design flow

Culvert hydraulic calculations (for proposed, existing and modified structures) shall include (but not limited to):

- Structure description: material, size, & entrance (inlet)
- Design discharges, flow per barrel, pipe slope, and Manning n-value
- Inlet flow line, allowable headwater, roadway elevation, calculated inlet headwater elevation

- Outlet flow line, tailwater for design frequency/frequencies, type of flow, critical depth, and calculated friction losses, calculated outlet water elevation
- Controlling headwater elevation, outlet velocity, and recommended countermeasures to maintain an acceptable outlet velocity
- Trail side ditch calculations using Manning's Equation

Storm sewer hydraulic data sheets (for proposed, existing and modified structures) shall include (but not limited to):

- Pipe length
- Hydrologic data, including drainage area, time of concentration, intensity, and design discharges
- Hydraulic data, including travel time in conduit, design pipe size, friction loss, head loss, and HGL elevations
- Bridge hydraulic modeling for proposed conditions
- Calculate and verify required bridge hydraulic openings and configurations for each bridge
- Verify freeboard and low cord bridge elevation for each bridge.

O. Culvert Layouts (Plan and Profile)

Based on the Peer Technical Review, the Engineer will prepare culvert layouts for new and/or revised culverts.

Culvert layouts shall include plan and profile showing existing and proposed grades. The layouts shall include pipe size, material, length, and flowline data. Headwalls will be TxDOT standard headwalls or safety end treatments.

P. Storm Sewer Plan and Profile

Based on the Peer Technical Review, the Engineer will revise as needed the plan and profile of the storm sewer systems (trunk and laterals) shown in the 30% design.

Storm sewer plan and profile sheets shall depict storm sewer, inlets and manholes. The storm sewer plan and profiles will be consistent with the hydraulic computations and the City of Allen Drainage Manual. Inlets, manholes and junctions will be in accordance with TxDOT standard details (as used in the 30% PS&E Package). No analysis or modeling of connecting offsite storm sewers and receiving channels are included in this proposal. Layouts shall match horizontal and vertical scales as shown in the accepted 30% PS&E Package plan set.

Q. Drainage Details

The Engineer shall identify and insert all applicable City of Allen and/or TxDOT standard details. Modification to inlets, pipe connection, bedding details, and other elements pertaining to drainage details shall be included under this work task. Handrail details will be developed for culvert crossings which have an edge drop-off condition which may warrant handrails.

R. Retaining Walls

No retaining walls are anticipated.

S. Traffic Control Plan

Not included. It will be prepared by construction contractor.

T. Construction Sequence Plan

Not included. Construction sequence plans will be prepared by construction contractor.

U. Erosion Control Plan

The Engineer shall prepare erosion control layout sheets showing limits of areas that will be impacted by construction activity, location of sediment control devices, rock filter dams, permanent seeding, soil

retention blankets, near bridges and drainage outfall locations, etc. The Engineer shall prepare the sheets in plan/plan view. The plan will identify the SWP3 components that will mitigate the impacts of construction activities. The actual SWP3, Notice of Intent (NOI), and any related TCEQ permitting will be considered additional services.

V. Cross Sections

Incorporate any 30 % Design Review comments and further detail sheets for 60% submittal. Ditch profiles, ditch grading, and ditch layouts and typical sections shall be provided if needed.

W. Construction Standard Details

The Engineer shall identify and insert all applicable City of Allen and/or TxDOT standard and/or non-standard details. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

X. Structural Plans

The scope of work consists of one (1) new Pre-Fabricated wood or steel pedestrian bridge structure:

New Watters Branch Bridge: 14' wide Pre-Fabricated wood or steel bridge across the tributary branch located at the east side of the park and shown on sheet L1.05 2 abutments and approach segments. (L =+/- 70 ft)

1. Schematic Design Phase: Prepare a narrative to describe the major structural components for the project.

2. Design Development Phase: Develop preliminary plans, details and specifications with sufficient information to obtain preliminary pricing for the project.

3. Contract Document Phase: Prepare drawings and specifications in sufficient detail to allow a contractor to price and construct the structural elements of the project. Drawings will be produced using AutoCAD, Release 2020.

4. Bidding Phase: Prepare any necessary clarifications or addenda to assist contractors in pricing the structural components of the project.

5. Construction Phase: Review all shop drawings/submittals of the components shown on the structural drawings. Respond to questions/RFIs submitted by the Contractor. Review testing and inspection reports. Visit the site during construction to observe progress of the structural work. Two (2) site visits assumed.

ADDITIONAL STRUCTURAL ENGINEERING SERVICES

Additional Services include any structural engineering services that are not listed as Basic Services. If requested and agreed in writing, we will provide Additional Services for mutually agreed additional fees, as outlined under "Compensation" below. Such work includes:

1. Preparing details to accommodate contractor preferences.
2. Preparing details to correct construction errors.

STRUCTURAL SERVICES FEES

1. BASIC SERVICES

Lump sum fee:

South Section:	New Watters Branch Bridge	**$6,250**

Allocation of fee as listed below for billing purposes:

Schematic Design	15%
Design Development	25%
Contract Documents	40%
Bidding	5%
Construction phase	15%
Total	100%

2.. ADDITIONAL SERVICES

No additional services will be performed without prior authorization by the City

Y. Bridge Plans and Structural Details

Included in Section X above..

60% DELIVERABLE:

1. Submit one (1) pdf file of the 60% design set via Bluebeam.
2. Incorporate 30% review comments into the 60% set.
3. Submit the 60% Opinion of Probable Construction Cost.

IV. 90% DESIGN

Make necessary revisions to the 60% plans based on review comments. Address review comments and complete the level of detail for 90% submittal. Perform final trail and drainage design, horizontal and vertical geometry, storm sewer sizing and alignment, culvert and inlet design.

Engineer shall engage Robert Ferkin (RAS) of Barrier Free Texas™, a Registered Accessibility Specialist (RAS), to conduct a TDLR/TAS plan review of the 90% design for accessibility.

90% DELIVERABLE:

1. Submit one (1) pdf file of the 90% design set via Bluebeam.
2. Submit pdf copies of the 60% City and city markup.
3. Submit one (1) copy and pdf file of the Preliminary Specification Book, including bid schedule.
4. Submit the 90% Opinion of Probable Construction Cost.

V. 100% DESIGN

Make necessary revisions to the 90% plans based on review comments. Address review comments and complete the level of detail for 100% submittal.

100% DELIVERABLE:

1. Submit four (4) full size and four (4) half size sets of the 100% PS&E (signed and sealed). Include one (1) pdf file of the 100% design set.
2. Submit copies of the 90% City and city markup.
3. Submit the 100% Opinion of Probable Construction Cost and one (1) copy and pdf file of the Final Specification Book (including final bid schedule sheets) for the project.

VI. BID PHASE SERVICES

The Engineer will attend one (1) pre-bid meeting to be conducted by the City. The Engineer will support City on responding to RFI's and written contractor questions, as well as providing clarifications when needed during the bidding process. Engineer will attend site walk at City's request.

VII. CONSTRUCTION PHASE SERVICES

A. Review and submit comments and recommendations to City for shop drawings.

SPECIAL SERVICES

I. FIELD SURVEYING

General Scope of Services:
Design Survey services include performance of surveys associated with the gathering of survey data for planimetrics, topography, cross-sections, and other related survey work to assist the City of Allen. AZ&B will provide all services listed herein and clarify each area of responsibility and related services assumptions and exclusions below.

AZ&B proposes to use GPS/RTK and traditional ground survey procedures, as appropriate, to efficiently, effectively provide the mapping, and design survey services as detailed below. The established control and mapping will be the basis for all survey efforts.

AZ&B proposes to tie all survey work directly to the AllTerra Central RTK network system on state plane coordinates (NAD83) without any local site calibration and adjusted to surface data using the following combined adjustment factor: 1.000152710 (Collin County) based on the City of Allen Geodetic Monumentation. This detailed scope of service is as follows:

1 Project Control

a. Recover (if possible) the existing City of Allen Geodetic Monumentation.
b. Verify the published values of the existing City of Allen Geodetic Monumentation.
c. Prepare a comparison of the published values to AZ&B determined values for review and comment from the City of Allen.
d. Establish a maximum of two (2) primary control points (5/8" rebar with cap or "X" cuts) adjacent to, but outside the project areas based on the recovered City of Allen Geodetic Monumentation. This control is the basis for all design survey performed.
e. Use VRS/GPS/RTK and/or classic survey methods and procedures as appropriate to establish the control.
f. Classic survey methods and procedures will be used in areas where GPS/RTK is not appropriate.
g. Publish all coordinates in adjusted surface values.
h. Set additional temporary horizontal and vertical control for the project, as necessary to support the design survey activities.
i. The project will not be geo-referenced to any prior Surveys completed by others and provided to AZ&B.

2. Design Survey

Design survey will commence after the City of Allen has successfully obtained right-of-entry (ROE) and provided AZ&B copies of signed ROE Letters (entry granted) to access each private property.

a. Map the planimetric and topographic features of the Rowlett Trail Extension for a general width of 40 foot at 50 foot intervals within the limits of survey and as depicted on the maps or exhibits provided by the Client.
b. Map the planimetric features within the project areas, including; visible utilities and other visible improvements.
c. Map the topography of the site (including grade breaks) sufficient to produce one (1) foot contours.
d. Map the observable horizontal locations of all visible utilities within the survey limits.
e. Place a One-Call (Texas811)and survey the horizontal location of utilities as marked by One-Call.
f. To the extent possible, illustrate the location, size and direction of flow of wastewater systems and storm drainage systems.

g. Acquire top of structure (rim, grate) and invert elevations of wastewater system and storm drainage system.
h. As-built culvert information (if accessible) will include; flowlines/invert elevations, sizes, material flow direction and provide pictures of each structure.
i. Locate fire hydrants, water meters, water valves and water valve top of nut elevations.
j. Capture electronically the information for all points (horizontal and vertical) compile in an automated system and convert into a topographic survey plan.
k. Map the limits of bridge (maximum 2 spans), to include columns and bridge clearances.
l. Map the location, size, and common species name (if known) of all trees 6-inches in caliper and larger.

3. ROW and Property Base Map

ROW and Property Base Map will commence after the City of Allen has successfully obtained right-of-entry (ROE) and provided AZ&B copies of signed ROE Letters (entry granted) to access each private property.

a. Perform adequate record research to establish platted lot and block lines, property lines, ROWs and widths of streets and any existing easements found within the project site limits.
b. Depict the platted lot and block lines, property lines, ROWs and existing easements found based on available record information acquired and physical evidence (monumentation) recovered in the field.

4. Design Survey Deliverables

a. Base Map (2-D digital file in MicroStation DGN format) that includes existing ROW lines with labels, property lines with ownership labels, subdivision plats with labels, and found existing ROW monuments and property corners
b. Planimetric mapping in 2D MicroStation V8I format
c. Terrain surface DTM and contour data in 3D MicroStation V8I format
d. The drawing files will not be sheeted and will be prepared at 1" = 50'.
e. Terrain surface TIN data in GeoPak format file
f. ASCII points file

Duration:

a. Survey Project Manager will manage and coordinate the project schedule with representatives of the Client. A mutually agreeable schedule will be determined after award of the project and prior to NTP.

Fee:

a. AZ&B will provide our professional surveying services for the Base Map and Design Survey portion of this project on a "Lump Sum" basis. The fee is based on our estimate of the personnel assigned to the project and the associated man-hours to complete the scope of services. This fee includes reimbursable expenses, necessary personnel, and the normal equipment to complete the tasks in an efficient and effective manner. The LUMP SUM fee for completing the scope of services as detailed herein are as follows:

Project Control:	**$3,000.00**
Design Survey:	**$27,000.00**
ROW/Property Base Map:	**$10,000.00**
TOTAL:	**$40,000.00**

b. AZ&B will invoice each task monthly based on the percentage of work completed to date.

Clarifications

a. AZ&B will adhere to the minimum requirements as promulgated by the Texas Board of Professional Engineers and Land Surveyors.
b. AZ&B will contact One-Call (Texas811) or individual utility companies for any additional utility information.
c. AZ&B will provide the Personal Protection Equipment (PPE) for the field personnel being; steel toed boots, safety vests and hardhats, as needed.
d. AZ&B assumes the site conditions are safe and no special PPE equipment is necessary due to site contamination.
e. AZ&B assumes no responsibility for errors and/or omissions that may exist in the supplied data or related design plans.
f. Some circumstances beyond AZ&B's control may arise such as inclement weather conditions or delays in receiving information from third parties. In any event, AZ&B will neither assume any obligation associated with either an expressed or implied target date or any damages, claims or liabilities that may arise because of such delays.
g. Underground utilities as depicted on the design survey are not guaranteed as to accuracy or completeness.

II. GEOTECHNICAL SERVICES

The south section of the Rowlett Trail extension involves the construction of a pre-fabricated wood or steel bridge over Watters Creek. The bridge span is approximately 65 feet.

Geotechnical Services consist of geotechnical borings and laboratory testing, and a geotechnical report containing bridge foundation recommendations.

Included are two (2) bridge borings to depths of 35 feet each below the existing ground surface, or 10 feet into intact bedrock, whichever comes first. It is anticipated that bedrock may be on the order of 30 to 60 feet below existing ground surface at this site.

Texas Cone Penetrometer (TCP) test (Tex-132-E) will be performed at five-foot intervals beginning at a depth of five feet. Sampling will be performed continuously to depth 10 feet and at 5-feet intervals thereafter to the termination depth. If intact rock is encountered, rock coring will be performed to 10 feet below first encounter. These borings will be used to determine site stratigraphy and to obtain samples for laboratory testing. Shelby tube sampling will be performed in cohesive soils and split spoon sampling will be performed in cohesionless soils.

The rock core samples will be retrieved from the borehole and the percent recovery (REC) and the Rock Quality Designation (RQD) will be recorded for each 5-foot run. The core samples will be visually examined for rock type and features, which will be properly documented on boring logs along with the REC and RQD values. The samples will be then wrapped and secured in core boxes for transportation to our laboratory.

Selected laboratory testing will be conducted on soil samples that are representative of the materials obtained during the field exploration. The tests will be used to evaluate and classify the soils and identify subsurface site characteristics. All the field and laboratory tests will be performed according to ASTM standards, where applicable, or with other established procedures.

A geotechnical report of our study will be prepared by an engineer specializing in soil and rocks mechanics and foundation engineering after reviewing available structural, geological, boring, and laboratory data. In general, the following items will be included in our report:

- Site vicinity map,
- Plan of borings,
- Table of laboratory results,
- Boring logs and key to terms,
- Generalized subsurface conditions,
- Groundwater level observations,

- Site Geology, and
- Bridge foundation recommendations.

Schedule

Draft report will be submitted approximately 4 to 6 weeks following receipt of a written notice to proceed and all the right of entries/permitting to complete the field work, as per the following estimated schedule:

- Field Work (Marking boring locations, clearing utilities, obtaining permits, coordinating, site clearing and completing drilling): 1-2 weeks
- Laboratory Testing: 1-2 weeks
- Engineering & Draft Report Preparation: 2 weeks
- Final Report: 1-2 weeks after comments

If requested, draft logs can be provided throughout the progress of the investigation as testing is completed.

Right of entry for the sites will be obtained from City of Allen and the application for the right of entry is limited to two attempts. Site clearing will be performed for the boring locations and ATV drill rig is needed to access all the borings.

A draft report will be submitted for review. After approval of draft report, a final report of the study will be submitted. Additional revisions and/or supplements to the report following approval may be considered additional services.

Fee and Conditions

Based on the scope of work outlined, the fee for our services is $15,050.00. A detailed breakdown for the cost estimate is included with this letter. Our accounting procedures call for the submittal of invoices on a month-end basis or at the conclusion of the project should its duration last less than a month. Our credit terms are net 30 days. Generally our invoicing can be expected to follow our schedule as follows:

- Completion of Field Work (or monthly): up to 50% Fees
- Completion of Lab Work: up to 75% Fees
- Draft Report Preparation up to 95% Fees
- Final Report Preparation: up to 100% Fees

The following assumptions were made in preparing this letter:

- No known contamination exists at the sites and standard geotechnical drilling and sampling is appropriate for the sites.
- We have assumed no special permits or right of entry requirements are needed to complete this geotechnical investigation.
- Field survey of the borings locations and elevation is not part of our scope.
- Approximate existing grade elevation at each boring will be obtained from Google Earth.
- Approximate latitudes and longitudes for the boring locations will be obtained using a hand held GPS unit which accuracy may be +/- 20 feet laterally.
- HVJ is not responsible for the development of a construction cost estimate.
- Laboratory samples will be held for no more than a period of 60 days following completion of the final report or 120 days following completion of the draft report, whichever is less.

The scope of services described is appropriate for the project configuration presented to us. If anomalous conditions are encountered, or if the project configuration changes significantly, a change in work scope may be required. No changes will be implemented without prior City authorization.

Texas One Call System will be contacted to locate buried utilities. We will take care to minimize damage to existing facilities; however, our activities may result in some damage to vegetation or unidentified existing utilities. Fee specifically excludes any costs associated with restoration of vegetation or repair of utilities damaged by our operations that were not previously identified by Texas One Call and other field observations.

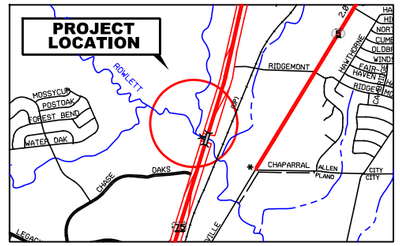
EXCLUSIONS (services not included but can be provided as additional services)

a. Construction phase services, including surveying, staking, inspections, sampling and testing.
b. Property surveys, boundary surveys, right of way surveys, title searches, easements, etc., (AZ&B will

use City provided property surveys).

c. Easements documents (i.e., drainage easements, utility easements, special use and temporary construction easements, etc.,)
d. Acquisition of right-of-entry permits.
e. Utility Coordination and Conflict Resolution: City will serve as the Utility Coordinator with AZ&B assistance with exhibits.
f. Preparing data and reports for assistance to the City in preparation for hearings before regulatory agencies, courts, arbitration panels or any mediator, giving testimony personally or by deposition, and preparations therefore before any regulatory agency, court, arbitration panel or mediator.
g. Assisting the City in defense or prosecution of litigation in connection with or in addition to those services contemplated by the Agreement. Such services if any shall be furnished by the Engineer on a fee basis negotiated by the respective parties outside of an in addition to this Agreement.
h. Design, contract modifications, studies, or analysis required to comply with local, State, Federal or other regulatory agencies that become effective after the date of this agreement.
i. SWP3, Notice of Intent (NOI), and any related TCEQ permitting.
j. Modeling of existing storm sewer systems that are outside of the trail ROW.
k. Electrical engineering design is not included for any type of lighting on or under bridges, trail path, or intersections.
l. Traffic analysis are not included.
m. USACE, FEMA, TCEQ, TDLR, ADA nor City of Allen permits, fees (beyond those identified in Exhibit B), studies, and mitigation plans.
n. Performing FEMA flood studies, and/or delineating Flood Plains.
o. Utility design and utility relocation plans or inclusion into PS&E set.
p. Re-tagging of trees prior to construction.
q. Construction observation visit in excess of those included in Section VII, D. of Basic Services. Any and all environmental services, whether it is federal, state or local, including but not limited to permitting, permits, hazmat, remediation and sampling.
r. Preparation of Record Drawings utilizing City and contractor as-built information (legible construction plan redlines only).
s. Irrigation and landscaping plans are limited to landscape restoration and seeding/grassing plans. Irrigation and landscaping plans for the entire length of the project are not included.
t. A complete Boundary or Right of Way Survey is not included in this Scope.
u. A complete Tree Survey is not included in this Scope.
v. A Wetland Survey is not included in this Scope.
w. Subsurface Utility Engineering (SUE) is not included in this Scope.
x. Preparation of any Zoning or Platting documents is not included in this Scope.
y. Determination of property ownership is not included in this Scope.
z. Attendance at P&Z, City Council meetings and/or other meetings is not included in this Scope.
aa. Construction staking is not included in this Scope.
bb. Post-construction as-builts are not included in this Scope.

CITY OF ALLEN, TEXAS



LOCATION MAP

N

ROWLETT TRAIL EXTENSION

NOTES

LEGEND

TRAIL ALIGNMENT

PROPERTY LINE

HORIZONTAL 200 0 200 400 600

SCALE IN FEET

SOUTH SECTION

ARREDONDO, ZEPEDA & BRUNZ, LLC.
11355 McCREE ROAD - DALLAS, TEXAS 75238
(214) 341-9900
TBPE FIRM REG# F-10098

DESIGNED BY:	DATE: FEBRUARY 2021
DRAWN BY:	
CHECKED BY:	

SHEET NO: 05

Exhibit B City of Allen Rowlett Trail Extension, May 14, 2021 South Section

Category	Estimated Time in Hours								Reimbursable Expenses							
	PM	H&H Engineer	Project Engineer	EIT	Technician	Total Hours	Total Labor Fee	Survey Fee	Sub Consultant Fees	Car Rental w/ Fuel	Mileage	Lodging	Printing	Misc.	Total Expenses	Total Project Costs
Billing Rate	$190.00	$179.00	$163.00	$124.00	$118.00											
PART 1 BASIC SERVICES																
I. PROJECT COORDINATION and QA/QC	**54**	**26**	**54**	**16**	**16**	**166**	**$27,588.00**		**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$27,588.00**
A. Coordination and QA/QC	24		32			56	$9,776.00								$0.00	$9,776.00
B. Progress Schedule	12					12	$2,280.00								$0.00	$2,280.00
C. Research, Data Gathering, Alignment Walk Through	12	24	16	16	16	84	$13,056.00								$0.00	$13,056.00
D. Meetings	6	2	6			14	$2,476.00								$0.00	$2,476.00
II. PEER REVIEW OF CONCEPT PLAN & 30% DESIGN	**2**	**36**	**54**	**23**	**23**	**138**	**$21,192.00**		**$9,437.50**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$9,437.50**	**$30,629.50**
1.Horizontal and vertical alignments			4	4	4	12	$1,620.00								$0.00	$1,620.00
2.Proposed typical trail sections			2	3	3	8	$1,052.00								$0.00	$1,052.00
3.Drainage structure locations, size, geometries and hydraulic adequacy of receiving systems (storm sewers and channels) and Verification of Hydrologic and Hydraulic Models		20	20			40	$6,840.00								$0.00	$6,840.00
4.Number, type, geometry and location of proposed trail bridges		8	8			16	$2,736.00								$0.00	$2,736.00
5. Peer Review Technical Memorandum & 30% Design	2	8	20	16	16	62	$8,944.00								$0.00	$8,944.00
6. Environmental Document						0	$0.00		$8,500.00						$8,500.00	$8,500.00
7. Structural 30% Design						0	$0.00		$937.50						$937.50	$937.50
III. 60% DESIGN	**20**	**59**	**172**	**165**	**79**	**495**	**$72,179.00**		**$1,562.50**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$1,562.50**	**$73,741.50**
A.Title Sheet			2	16	8	26	$3,254.00								$0.00	$3,254.00
B.General Notes/Specifications	8	16	20			44	$7,644.00								$0.00	$7,644.00
C.Estimate and Summary Sheets	2		20	40	10	72	$9,780.00								$0.00	$9,780.00
D.Horizontal Control	2		20	40	10	72	$9,780.00								$0.00	$9,780.00
E.Typical Sections			8	8	8	24	$3,240.00								$0.00	$3,240.00
F.Trail Plan & Profile Sheets			32	16	8	56	$8,144.00								$0.00	$8,144.00
G. Demolition and Removal Plans			2	4	5	11	$1,412.00								$0.00	$1,412.00
H.Trail Signs			4		2	6	$888.00								$0.00	$888.00
I.Miscellaneous Details			4		2	6	$888.00								$0.00	$888.00
J.Small Sign Summaries			4		2	6	$888.00								$0.00	$888.00
K.Small Sign Details			4		2	6	$888.00								$0.00	$888.00
L.Drainage		4				4	$716.00								$0.00	$716.00
M.Drainage Area Map		4				4	$716.00								$0.00	$716.00
N.Hydrologic and Hydraulic Calculations	4	24	20			48	$8,316.00								$0.00	$8,316.00
O.Culvert Layouts (Plan and Profile)		4		8		12	$1,708.00								$0.00	$1,708.00
P. Storm Sewer Plan and Profile		1		5	4	10	$1,271.00								$0.00	$1,271.00
Q. Drainage Details		2		4	2	8	$1,090.00								$0.00	$1,090.00
R. Retaining Walls - See Structural						0	$0.00								$0.00	$0.00
S. Traffic Control Plan						0	$0.00								$0.00	$0.00
T. Construction Sequence Plan						0	$0.00								$0.00	$0.00
U. Erosion Control Plan & Landscape and Sodding/Seeding Plan	2	2	16	8	8	36	$5,282.00								$0.00	$5,282.00
V. Cross Sections			8	8		16	$2,296.00								$0.00	$2,296.00
W. Construction Standard Details	2	2	8	8	8	28	$3,978.00								$0.00	$3,978.00
X. Structural						0	$0.00		$1,562.50						$1,562.50	$1,562.50
Y. Bridge Plans and Structural Details - see Structural						0	$0.00								$0.00	$0.00
IV. 90% DESIGN	**3**	**13**	**22**	**12**	**4**	**54**	**$8,443.00**		**$3,200.00**	**$0.00**	**$0.00**	**$0.00**	**$150.00**	**$0.00**	**$3,350.00**	**$11,793.00**
A. Address 60% Comments & Update Plans	1	2	8	4	4	19	$2,820.00						$150.00		$150.00	$2,970.00
B. Address 60% Comments & Update Calculations		8	4			12	$2,084.00								$0.00	$2,084.00
C. 90% Draft Specifications	1	2	7	4		14	$2,185.00								$0.00	$2,185.00
D. 90% OPCC	1	1	3	4		9	$1,354.00								$0.00	$1,354.00
E. TDLR Submittal						0	$0.00		$1,450.00						$1,450.00	$1,450.00
F. Address Structural Comments						0	$0.00		$1,750.00						$1,750.00	$1,750.00

Category	Estimated Time in Hours								Reimbursable Expenses							
	PM	H&H Engineer	Project Engineer	EIT	Technician	Total Hours	Total Labor Fee	Survey Fee	Sub Consultant Fees	Car Rental w/ Fuel	Mileage	Lodging	Printing	Misc.	Total Expenses	Total Project Costs
Billing Rate	$190.00	$179.00	$163.00	$124.00	$118.00											
V. 100% DESIGN	**1**	**6**	**14**	**4**	**4**	**29**	**$4,514.00**		**$750.00**	**$0.00**	**$0.00**	**$0.00**	**$150.00**	**$0.00**	**$900.00**	**$5,414.00**
A. Address 90% Comments & Complete Plans	1	2	4	4	4	15	$2,168.00						$150.00		$150.00	$2,318.00
B. Address 90% Comments & Finalize Calculations		2	2			4	$684.00								$0.00	$684.00
C. Finalize Specifications		1	4			5	$831.00								$0.00	$831.00
D. Finalize OPCC		1	4			5	$831.00								$0.00	$831.00
F. Address Structural Comments						0	$0.00		$750.00						$750.00	$750.00
						0	$0.00								$0.00	$0.00
VI. BID PHASE SERVICES	**8**	**0**	**16**	**0**	**0**	**24**	**$4,128.00**		**$312.50**	**$0.00**	**$50.00**	**$0.00**	**$0.00**	**$0.00**	**$362.50**	**$4,490.50**
A. Pre-Bid Meeting	4		8			12	$2,064.00				$50.00				$50.00	$2,114.00
B. RFIs	4		8			12	$2,064.00								$0.00	$2,064.00
C. Structural Sub						0	$0.00		$312.50						$312.50	$312.50
VII. CONSTRUCTION PHASE SERVICES	**0**	**0**	**4**	**0**	**0**	**4**	**$652.00**		**$937.50**	**$0.00**	**$120.00**	**$0.00**	**$0.00**	**$0.00**	**$1,057.50**	**$1,709.50**
AZB			4			4	$652.00				$120.00				$120.00	$772.00
Structural Sub						0	$0.00		$937.50						$937.50	$937.50
SUBTOTAL	**88**	**140**	**336**	**220**	**126**	**910**	**$138,696.00**		**$16,200.00**	**$0.00**	**$170.00**	**$0.00**	**$300.00**	**$0.00**	**$16,670.00**	**$155,366.00**
PART 2 SPECIAL SERVICES																
Surveying	**0**	**0**	**0**	**0**	**0**	**0**	**$0.00**	**$40,000.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$40,000.00**	**$40,000.00**
Project Control						0	$0.00	$3,000.00						$0.00	$3,000.00	$3,000.00
Design Survey South Section						0	$0.00	$27,000.00							$27,000.00	$27,000.00
Approximate Boundary						0	$0.00	$10,000.00							$10,000.00	$10,000.00
Geotechnical	**0**	**0**	**0**	**0**	**0**	**0**	**$0.00**	**$0.00**	**$15,050.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$15,050.00**	**$15,050.00**
South Section						0	$0.00		$15,050.00						$15,050.00	$15,050.00
SUBTOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**$0.00**	**$40,000.00**	**$15,050.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$55,050.00**	**$55,050.00**
TOTAL	**88**	**140**	**336**	**220**	**126**	**910**	**$138,696.00**	**$40,000.00**	**$31,250.00**	**$0.00**	**$170.00**	**$0.00**	**$300.00**	**$0.00**	**$71,720.00**	**$210,416.00**

Schedule
Rowlett Trail Extension
June 18, 2021

Schedule: The proposed services shall begin within 5 working days of authorization to proceed. Each phase of the project will be completed within the estimate of the working days shown below. Schedule does not include time for City review.

South Section

Surveying: ……..20 Working Days

Peer Review of Concept Plan & 30% Design:……..30 Working Days

60% Trail Design:……30 Working Days

90% Trail Design:……30 Working Days

100% Trail Design:……..20 Working Days

Bid Phase Services:……20 Working Days