SERVICES TO BE PROVIDED BY THE CITY

In addition to the services listed in the Agreement, the City will provide the following services.

- Provide a sample set of plans
- Furnish a point of contact to coordinate aspects of the Project.
- Provide design reviews or statement waiving design reviews
- If the bid package is intended to be split among multiple contractors, City of Bee Cave will identify which items of work are included in each bid package.
- Furnish reference documents, information, and project data for the development of the Project including but not limited to previous hydraulic analysis, sample set of plans, and hydraulic gauge data.
- Print on City letterhead, sign and mail Right of Entry (ROE) requests prepared by the ENGINEER. The City will address issues regarding refusal to grant ROE or communication with landowners who are hostile with respect to the completion of this scope of services.
- Provide additional coordination with adjacent property owners, as needed.
- Provide coordination for utility relocations, if applicable, based on identification from the ENGINEER.
- Provide location recommendations for proposed utility adjustments, if applicable, and verification & monitoring of those adjustments.
- Preparation and submission of reimbursable utility agreement assemblies.
- Provide timely reviews and approvals of required documentation including, working documents, reports, and drawings.
- Perform timely review and processing (30-60 days) of monthly invoice submissions.
- Provide available accident history and traffic counts documented in the project vicinity.

SERVICES TO BE PROVIDED BY THE ENGINEER

GENERAL PROJECT OVERVIEW

This project includes site investigation and design services for the Great Divide Drive at Little Barton Creek located in the City of Bee Cave, Texas. The existing creek crossing consists of 3-24" CMP's that overtop frequently creating a safety hazard as Great Divide Drive provides the only ingress/egress access for the neighborhood. Site investigation includes site survey and geotechnical exploration. The new bridge is expected to remain a low water crossing but is to clear the 10-year storm event as recommended by the City.

The supplemental agreement is to provide additional services associated with decisions and direction from the City of Bee Cave associated with the Great Divide Drive at Little Barton Creek through a phased replacement of the existing 3-24" CMP's. The proposed bridge will be designed for phases consisting of one-way traffic entering/exiting The Homestead through the first phase of the bridge replacement followed by two-way traffic after the first phase bridge construction is completed through full bridge replacement.

PROJECT MANAGEMENT (Task 1)

- Project management.
 - Prepare monthly project invoices with progress report.
 - Prepare project schedule and update as needed. Submit with project invoices.
 - Project filing and data management.
 - The ENGINEER will perform a quality control review of all work for compliance with accepted practices and procedures, policies, standards, specifications and design criteria.
- Subconsultant coordination.
 - The ENGINEER will conduct team meetings with project subconsultants.
 - The ENGINEER will execute contracts, monitor activities, review and recommend approval of sub consultant invoices.
- Review/Progress Meetings
 - The ENGINEER will attend progress meetings (up to three) with city officials and provide meeting minutes. These meetings will be done to evaluate project status, determine necessary adjustments to the project work plan and schedule and discuss and resolve project technical issues. These meetings will include coordination and review meetings for the submittals as defined.
 - The ENGINEER will attend a 3060% Over-the-Shoulder meeting with city officials and provide meeting minutes.

SURVEYING AND PHOTOGRAMMETRY (Task 2)

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DESIGN SURVEY

• Project Control

ENGINEER will establish up to 3 primary project control points within the project limits. The survey control points (5/8" iron rods with SAM Control" plastic caps) will be set in locations that will likely be undisturbed by construction or County maintenance. Horizontal values will be referenced to the NAD83 (2011) Texas Coordinate System, Central Zone). Horizontal values will be represented in US Survey Feet (USFT) and will be adjusted to surface by multiplying by a surface adjustment factor to be provided by the City. The vertical values for this project will be based on the North American Vertical Datum of 1988 (NAVD 88), Geoid 2012B model.

• Right of Entry (ROE)

• ENGINEER shall attempt to obtain right-of-entry (ROE) for approximately three (3) private properties for the purpose of collecting ROW and Design survey data. ENGINEER anticipates that the City will handle problems regarding any refusal to grant ROE or communication with private property owners who are hostile with respect to the completion of this scope of services. ENGINEER shall document any interactions with property owners while performing the work.

• Design Survey

 ENGINEER will utilize conventional survey methods or Global Positioning Systems to collect cross-sections and break lines at approximate 50-foot intervals within the above-described project limits. Major grade-break lines necessary to produce a one-foot interval contour DTM will be collected, as well as any visible improvements including driveways (with type noted), driveway pipes, drainage structures (noting size, material and flowline elevation), edge of pavement, edge (shoulder) line, crown (physical centerline), guardrail, fences, signs (with text) and mailboxes, visible utilities and visible evidence of underground utilities. Trees, 4-inches and larger in diameter, within the project limits will be located and tagged (noting size and species).

Additional survey for area along Little Barton Creek and Guess Property as well as further survey of Little Barton Creek upstream of current Great Divide Crossing.

• Project Control

Existing control as established during original portion of project shall be utilized for this additional work. Horizontal values will be referenced to the NAD83 (2011) Texas Coordinate System, Central Zone). Horizontal values will be represented in US Survey Feet (USFT) and will be adjusted to surface by multiplying by a surface adjustment factor to be provided by the City. The vertical values for this project will be based on the North American Vertical Datum of 1988 (NAVD 88), Geoid 2012B model.

• Right of Entry (ROE)

- ENGINEER shall coordinate right-of-entry (ROE) for one (1) private property for the purpose of collecting Design survey data. ENGINEER anticipates that the City will handle problems regarding any refusal to grant ROE or communication with private property owners who are hostile with respect to the completion of this scope of services. ENGINEER shall document any interactions with property owners while performing the work.
- Design Survey

ENGINEER will utilize conventional survey methods or Global Positioning Systems to collect cross-sections and break lines at approximate 50-foot intervals within the above described project limits. Major grade-break lines necessary to produce a one-foot interval contour DTM will be collected, as well as any visible improvements including driveways (with type noted), driveway pipes, drainage structures (noting size, material and flowline elevation), edge of pavement, edge (shoulder) line, crown (physical centerline), guardrail, fences, signs (with text) and mailboxes, visible utilities and visible evidence of underground utilities. Trees, 4- inches and larger in diameter, within the project limits will be located and tagged (noting size and species).

RIGHT OF WAY (Task 3)

RIGHT OF WAY SURVEY (up to 3 ROW Parcels)

- Records Research and Deed Study
 - ENGINEER will perform a ROW survey along the proposed alignment of Great Divide Drive. Upon notice to proceed, ENGINEER will conduct research in the Travis County offices to confirm property ownership for the 3 affected properties (subject properties). Concurrently, copies of the current deeds and any plats for subject properties will be obtained from the County Clerks' records. ENGINEER anticipates that Title Commitments, Title Reports, and any other form of records research beyond obtaining current deeds and plats will be provided by others. Obtaining any additional records (including easements, chain of title, or any encumbrances) is outside of this scope of services.
- Field Surveys
 - ENGINEER will recover monuments marking the existing ROW lines (if any) and the front corners of the properties from which ROW is to be obtained and will tie to the project control. ENGINEER will recover the corner or angle point monuments nearest to the proposed ROW on the sideline of each of the subject properties and these corners will be tied to the project control. ENGINEER will utilize the above-described design survey planimetric file to show any visible improvements within the proposed ROW acquisition parcels. Building corners within 25 feet of the proposed ROW will be located in the field and dimensioned on ROW map sheets and parcel plats.

Boundary Analysis

• Utilizing the deed study and the data from the field survey, ENGINEER will analyze the results of the survey and perform computations related to the analysis.

Location of the existing ROW lines and the side property lines of each of the subject properties will be determined by ENGINEER.

• Preparation of Documents

- ENGINEER will develop a base file showing ownership of the subject properties. Properties adjacent to the existing/proposed right of way within the project limits will be labeled with the owner's name and deed recordation information.
- Utilizing the boundary surveys performed by ENGINEER and the proposed ROW line location provided by the City, ENGINEER will compute the boundaries of the ROW parcels for each of the subject properties.
- ENGINEER will draft plats for the 3 parcels for ROW acquisition. The plats will be prepared on 8 1/2" x 11" pages at a scale dependent upon parcel size. A closure computation will be prepared for each of the plats.
- ENGINEER will prepare a field note (metes and bounds) description for each of the 3 parcels. A closure computation will be prepared for each of the descriptions.

GEOTECHNICAL (Task 4)

• Bridge Soil/Rock Borings.

- The Geotechnical investigation should include soil borings on each abutment with a minimum of two (2) soil/rock borings in accordance with the TxDOT geotechnical manual. The borings should be approximately 40-feet deep. Texas Cone Penetration (TCP) tests or Standard Penetration tests will be performed at 5ft intervals, soil samples will be obtained with Shelby tubes and/or split spoons and intact limestone will be cored with NXB Wireline core barrel.
- The Geotechnical investigation should include a minimum of two (2) soil borings to a depth of 10 feet for the bridge approaches and temporary access road.
- The Geotechnical investigation should include laboratory testing to include, but not limited to, Moisture content, Minus 200 Sieve, Atterberg Limits, unit weights, unconfined compressive strength tests and soil classification tests on selected soil samples and rock cores obtained from the borings.

• Geotechnical Report.

• The Geotechnical report should include a boring location plan, soil boring logs, laboratory tests results, description of soil and rock conditions, and foundation recommendations for the proposed bridge. The foundation recommendations should include allowable bearing capacity, skin friction values, pier seating depths and construction consideration considerations such as casing and pumping of pier holes. The Geotechnical report should be prepared and sealed by a licensed engineer in the State of Texas.

• Pavement Design.

• The Geotechnical report should include pavement thickness recommendations for the bridge approaches on Great Divide Drive and the temporary access road. The pavement recommendations should include subgrade preparation and stabilization, if needed. The pavement design should be based on street classification and traffic parameters provided by the owner. The pavement thickness should be developed using TxDot FPS-21 Computerized Pavement Design.

ENVIRONMENTAL STUDIES (Task 5)

• Environmental Documentation

- Each environmental service provided by the Engineer shall have a deliverable. Deliverables shall summarize the methods used for the environmental services and shall summarize the results achieved. The summary of results shall be sufficiently detailed to provide satisfactory basis for the City Due Diligence investigations thorough review by the State, and (where applicable) agencies with regulatory oversight. Deliverables shall meet regulatory requirements for legal sufficiency and shall adhere to the requirements for state and federal laws.
- Quality Assurance/Quality Control Review

For each deliverable, the Engineer shall perform quality assurance quality control (QA/QC) reviews of environmental documents and other supporting environmental documentation.

• Due Diligence Report and Documentation

• Definition of technical report and documentation for environmental services: a report, checklist, form, or analysis detailing resource-specific studies identified during the process of gathering data to provide evidence of environmental research and field activities to comply with required federal and state laws, regulations, and statues.

Some examples of environmental technical research and documentation are listed below:

- Biological evaluation of threatened and endangered species and potential habitat
- Texas Historical Commission coordination for Archeological materials
- Hazardous Materials Site Assessment
- Historic Resources
- Waters of the US Jurisdictional Determination, wetland mapping, and permitting analysis
- **Deliverables:**
 - Due Diligence Report summarizing the research and actions outlined below. This documentation will be submitted to the City to be kept in the project file for review/audit by the State or regulating agencies.

• Archeological Resources

- The Archeological Permit Application shall be produced by a professional archeologist as defined in 13 TAC §26.4(2).
- The Permit Application shall conform to the current Review Standard available from the State.

- The Archeological Permit Application for the project must define and consider alternatives selected for detailed study, including existing right of way, proposed new right of way, easements (temporary and permanent), and any other project-specific location designated by the State. The Permit Application shall consider the likely depth of impacts resulting from the proposed project.
- To complete the Archeological Permit Application, the professional archeologist shall undertake a review of existing data, including, but not limited to, the Texas Archeological Sites Atlas, geologic maps, soil maps, Potential Archeological Liability Map (PALM) of the project area (if applicable), aerial photographs, and historic maps. Based on this review, the Archeological Permit Application shall identify and plot on a map the areas that require field investigation to evaluate the project's effects on archeological resources and cemeteries and shall identify the areas in which the proposed project would have no effect on archeological resources and cemeteries. The Archeological Permit Application shall identify any areas proposed for field investigation where impacts are deep, extending beyond three feet in depth.
- Once the Permit is approved by the Texas Historical Commission, the Archeological Survey will be carried out on those areas identified in the Permit. Shovel testing of the surface sediments will include 30cm x 30cm x 50cm (depth) test pits will be excavated by hand and tested for cultural materials.
- Any cultural materials will be presented in the Archeological Survey report, to be submitted to the THC for their review and approval.
- Cultural materials excavated during the survey will be curated at the Texas Archeological Research Laboratory.
- Mechanical excavation and site curation would require supplemental work authorization.

• **Deliverables:**

- Archeological Permit Application
- Archeological Survey
- Archeological Survey Report

• Determining Impacts to Waters of the United States, including Wetlands

- The Engineer shall identify waters within the boundaries of the project area.
- The Engineer shall make a preliminary determination of USACE jurisdiction. Restrict the level of effort to identification without formal delineation
- The Engineer shall delineate waters of the United States (WOUS), including wetlands.
 - Provide documentation which shall include field work and compilation of field documentation for WOUS, including wetland delineations. Wetland delineations shall be performed in accordance with the current USACE Wetlands Delineation Manual (Technical Report Y-87-1) and, if appropriate, the Great Plains, Arid West, or Atlantic and Gulf Coastal Plain Supplement to Technical Report Y-87-1.
 - Stake WOUS boundaries in the field.

- Map the boundaries of the WOUS with the global positioning system per guidance from the USACE, and state the boundaries in the field.
- USACE Nationwide Permit 14 for Linear Transportation Projects with no Preconstruction Notification is presumed for this project. If additional permitting is required, additional work will be done under a supplemental work authorization.
- If additional USACE permitting including Preconstruction Notifications (PCNs) or individual permits are required, these tasks would be provided under a supplemental work authorization.
- Deliverables:
 - The Engineer shall provide documentation of the WOUS determinations and delineations.

• Stormwater Permits (Section 402 of the Clean Water Act)

The Engineer shall:

- Describe the need to use the TPDES General Permit, TX 150000. The text will describe how the project will comply with the terms of the TPDES, including the Stormwater Pollution Prevention Plan.
- **Deliverables:**
 - The Engineer shall provide documentation of the Section 402 project requirements and TCEQ coordination and required Project BMPs to be incorporated.

• Threatened or Endangered Species

The Engineer shall perform biological services.

- Surveys for Protected Species or Habitat of Protected Species based on the most current TPWD threatened and endangered species list.
 The Engineer shall:
 - Perform surveys of protected species or habitat of protected species. This shall include:
 - Species listed by the United States Fish and Wildlife Service (USFWS) as threatened or endangered or proposed for listing as threatened or endangered (50 CFR 17.11-12),
 - Species that are candidates for review for listing by USFWS as threatened or endangered (per most recently updated list in Federal Register),
 - Species listed as threatened or endangered species or species of greatest conservation need (SGCN) by the State of Texas Threatened and Endangered Species Listings, Texas Park and Wildlife Department (TPWD),
 - Species protected by the Migratory Bird Treaty Act (50 CFR 10.13) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).
 - Examine existing data to determine the likelihood that rare species, protected species, their habitat, or designated critical habitat (per 50 CFR §17.94-95) could be impacted by the Transportation Activity. Existing data shall include the

Element Occurrence Identification (EOID) records of the TPWD Natural Diversity Database, following the Guidelines set forth in the most current version of TPWD's Guidelines for TXNDD Data Analysis.

- It is not anticipated that the Project will provide habitat for Threatened and Endangered Species. Should habitat be present or threatened and endangered species individuals are identified in the project area, additional tasks would be provided under a supplemental work authorization.
- Habitat Analysis and Characterization of Project Study Area. The Engineer shall
 perform an analysis and characterization of habitat and habitat impacts for the study
 area and documented in the Due Diligence Report. For transportation activities
 involving new right-of-way or easements, including temporary easements, the habitat
 description shall address the entire study area. If lack of access to the new location
 right-of-way limits field observation for the habitat description, existing published
 sources shall be used to provide an estimate. Land use within and outside the
 proposed right-of-way or easements shall include the following:
 - Dominant Species for each vegetation stratum (i.e., tree, shrub, vine, herbaceous [grass and forbs]) present,
 - Height of trees (range), if present,
 - Diameter at Breast Height (DBH) of trees (range and average), if present,
 - Percent canopy cover of trees, if present,
 - Acreage for each vegetation type present.
 - The habitat analysis shall contain a description of anticipated impacts to the following:
 - Any vegetation, broken down by plant community (as above),
 - Unusual vegetation features (as above),
 - Special habitat features (as above),
 - Habitat for any protected species (as above),
 - Any other habitat feature identified by and considered to be important to the State's District.

Note: The description of anticipated impacts shall be based on impacts that can be predicted as a result of construction activities and the kind(s) of facility proposed for the Transportation Activity.

• Deliverables:

• Survey Reports and Habitat Analyses included in the appendices of the Due Diligence Report.

• Initial Assessment of Hazardous Materials Impacts

The Engineer shall:

- The Engineer shall perform an Initial Site Assessment (ISA) for potential hazardous materials impacts for the limits of the study area.
 - Note: The ISA shall determine the potential for encountering hazardous materials in the study area, including possible environmental liability, increased handling

requirements (e.g., soil or groundwater), and potential construction worker health and safety issues.

- Note: The Engineer is responsible for reviewing and being familiar with the State's guidance related to the development of the ISA and the Hazardous Material process.
- The Engineer's completed ISA shall include, when applicable, full copies of list search reports, including maps depicting locations, copies of agency file information, photographs, recommendations, and any other supporting information gathered by the Engineer to complete the ISA.
- Based on the ISA information, the Engineer shall provide a report discussing the known or potential hazardous materials impacts suitable for inclusion in the environmental document. The report of hazardous materials impacts shall include, when applicable:
 - A concise summary of relevant information gathered during the ISA, including sufficient information to show that the study area for the Transportation Activity was investigated for known or potential hazardous material contamination.
 - A concise description of the scope of the hazardous materials ISA, disclosure of any limitations of the assessment, and a statement indicating who performed the assessment.
 - Disclosure of known or suspected hazardous material contamination that is anticipated to be encountered during construction.
 - A discussion of any required or recommended special considerations, contingencies or provisions to handle known or suspected hazardous material contamination during right-of-way negotiation and acquisition, property management, design and construction.
 - A summary of any early coordination or consultation conducted with the regulatory agencies, local entities or property owners.
- Should the findings of the ISA conclude that additional investigation, special considerations, or other commitments from the City are required during future stages of project development, the Engineer shall review those findings and commitments with the City prior to completing the hazardous materials discussion for the environmental document. Additional investigations, including Phase 2 and Phase 3 inspections or site remediation would be provided under a supplemental work authorization.
- Deliverables:
 - Hazardous materials investigation and risk analysis in the Due Diligence Report.

• Coordination and Permit

 CEF Coordination: During the November 2022 field work conducted by HDR, two Critical Environmental Features (CEFs) were identified. These included the floodplain and riparian zone around Little Barton Creek and its tributary. Both CEFs were listed in the Environmental Resource Inventory (ERI). These CEFs are protected along with a buffer around them. HDR will coordinate with the City of Bee Cave regarding working within the boundaries of the CEFs and their protective buffers. This effort will include completion of an Administrative Variance form as well as show buffer zones on construction plans with applicable notes.

- Full Purpose Zone Site Development Permit: The project site is located in the City of Bee Cave Full Purpose Zone. Development within this jurisdiction will require a site development permit. HDR will complete the application, submit it to the COBC development department, distribute COBC comments, and resubmit once comments are addressed. Trees proposed to be removed will be included in the plan set and site development permit application.
- Balcones Canyonlands Conservation Plan(BCCP) Zone 3 Application: The Balcones Canyonlands Conservation Plan (BCCP) provides a streamlined way for landowners to comply with the Endangered Species Act, while protecting high-quality habitat in the Balcones Canyonlands Preserve (BCP). The Project Area is in BCCP Zone 3 No Fee Zone but is near a fee zone. HDR will submit a BCCP application to Travis County to confirm the absence of habitat and that there is no need for Endangered Species Act (ESA) compliance for the covered species.
- TPWD Wildlife Habitat Assessment Program Coordination: Sixteen state listed species have the potential to occur in Travis County. Suitable habitat for these 16 states listed species was evaluated during the site visit. Habitat for the listed species is unlikely to be present in the Project Area. Coordination with the TPWD Wildlife Habitat Assessment (WHAB) Program is not required; however, TPWD may be contacted for municipally funded projects for their recommendations on protecting threatened and endangered species. HDR will complete a WHAB application and submit it to the COBC for review. The COBC is encouraged to utilize best management practices to avoid direct impacts to wildlife and to conserve wildlife habitat to the extent practicable.
- Tri-colored Bat Listing: There may be potential habitat for the tri-colored bat in the wooded riparian areas of the Project Area. Although this species is not afforded regulatory protection at this time, the bat is expected to be federally listed as an endangered species by Fall 2023. To avoid the potential for "take" (i.e., direct mortality of individuals), vegetation clearing activity in potential habitat should be avoided during the summer roosting season, typically April to September. HDR will watch the listing status of the tricolored bat and provide guidance to the COBC on maintaining compliance with the Endangered Species Act. If surveys, mist netting, or other field work, reporting, or coordination with a regulatory agency are required, HDR can provide these services for an additional scope and fee.

UTILITY COORDINATION (Task 6)

• Utility Coordination.

The ENGINEER will perform utility coordination/engineering services related to the number of existing utilities identified to date.

• The ENGINEER has identified the following utilities as being present within the project limits for which this Work Authorization is based upon: The number of existing utilities or utility identification within the project limits are not confirmed at this time; the utilities found by Texas Utility One-Call System and aerial photography, generated the following tentative list:

- Charter-Spectrum;
- Austin Energy;
- AT&T;
- West Travis County Public Utility Agency (water and hydrant noted);
- No sewer has been identified, at this time; and
- Low-water flood control gauge station noted.
- Coordination activities include meeting and contacting with utilities on the project, initial project notifications, preparation of existing utility layouts, preparation of contacts lists, reviewing conflicts between the utilities and the proposed project, resolutions of utility conflicts, creation of a utility conflict list, creating a utility tracking report, and review of the proposed utility adjustments.
- The ENGINEER will identify and contact identified utility companies
 - Issue project notifications to identified utility companies
 - Contact, request, and confirm utility record drawings, utility as-builts, and facility information (SUE QL-D)
 - SUE QL-C, based on utility information within the ground survey information
 - Develop a utility company contact matrix
 - Develop utility facility matrix in an Excel format
 - Name of utility company
 - Contact name/address/phone/e-mail
 - Type(s) of facility
 - Utility notification date
 - Located within ROW or private easement
 - Location of potential conflict(s)
 - Utility adjustment or protect-in-place needs
 - ROW cleared
 - Comments section this section will be used to track any correspondence from utility companies. This section will contain dates of correspondence.
 - Identified action items and due dates
 - Develop a utility layout in DGN and PDF formats, based on utility record information received from utility companies (SUE QL-D) and survey information (SUE QL-C)
 - Identify existing and proposed utilities size, location, ownership, and number of lines in a particular utility facility
 - Existing and proposed ROW
 - Identify any existing and proposed utility easements
 - Existing and proposed edge of roadway
 - Identify existing and proposed pertinent structures, which the utility could be in conflict with
 - Background image

PUBLIC INVOLVEMENT (Task 7)

- The ENGINEER will plan and implement one in-person community engagement event to present 15% design alternatives for the Great Divide Bridge, in coordination with the Communications Director of Bee Cave. The meeting will be held at Bee Cave City Hall and provide an overview of the purpose and need and will provide attendees an opportunity to share feedback. The ENGINEER will collect feedback from the community to inform the continuing design of the bridge.
- The ENGINEER will work with the Communications Director to notify the community of the upcoming events via social media and local news media. The ENGINEER will prepare a notification postcard and mailer to raise community awareness of the event.
- Tasks listed in original scope (Exhibit A) that are no longer displayed here have been removed at request of owner.
- The ENGINEER will draft and develop materials and exhibits including name tags, signin sheet, fact sheet, comment cards, survey, and up to 10 large-format exhibits (36x48). The ENGINEER will prepare and produce all approved exhibits and materials and will transport all meeting materials to and from the venue, as well as set up and break down. The ENGINEER will provide technical staff to answer any questions during the meeting and will host a sign-in table as well as assist community members with filling out the survey and comment cards if needed.
- The ENGINEER will also build and manage an on-demand virtual open house to present the meeting information online for a defined period of time for community members unable to attend the in-person event. The virtual open house will be presented via an ArcGIS StoryMap and will allow attendees to view the same exhibits and materials presented at the in-person event, as well as share their feedback via and online survey and a similar comment mechanism. The ENGINEER will provide a meeting comment summary for both the in-person and virtual events.
- The ENGINEER will also develop and maintain a stakeholder/community engagement database for community members who wish to sign up for email updates.
- The ENGINEER will also update public facing exhibits for update to City Council at 30%, 90% and 100% design.

ROADWAY DESIGN & PS&E (Task 8)

- The ENGINEER shall prepare 15% concept, in accordance with the City's criteria, for approval by the City. The concept shall include the following:
 - Concept (Roadway and TCP Exhibits)
 - Typical Sections, existing and proposed.
 - Plan and Profile Sheet.
 - Drainage Area Maps for External Drainage
 - Hydrologic Data Sheet
 - Hydraulic Data Sheet
 - Interim Culvert Layout
 - Estimate
- The ENGINEER shall prepare 30% roadway plans, in accordance with the City's criteria, for approval by the City. The submittal shall include the following:
 - <u>Concept (Roadway and TCP Exhibits)</u>
 - Plan and Profile Sheets.
 - Interim design of grading associated with earth berm design
 - o Drainage Area Maps for Internal and External Drainage
 - Hydrologic Data Sheet
 - <u>Hydraulic Data Sheet</u>
 - Misc Standard Details
 - Quantities and Cost Estimate
- <u>The ENGINEER shall progress to 60% roadway design and develop a status plan set, in</u> accordance with the City's criteria, for approval by the City via a 60% Over-the-Shoulder meeting. The status set shall include the following:
 - Compile Status Plan Set
 - <u>QA/QC</u>
- The ENGINEER will attend a 60% Over-the-Shoulder meeting with City officials.
- The ENGINEER shall prepare 90% and 100% roadway and drainage plans, specifications, and estimates necessary for construction of the project in accordance with the City's criteria. The plans shall include, as applicable to each milestone submittal, the following:
 - Title Sheet, with project information, limits, location map, signature blocks, index of sheets, and other City information.
 - Typical Sections, existing and proposed, with dimensioned roadway widths, cross slopes, station limits, and pavements sections.
 - General Notes, necessary for construction of the project, including a basis of estimate.
 - Summary Sheets, with quantities broken down by discipline.
 - Traffic Control Plan, including narrative, phasing sheets, and standards.
 - Survey Control Sheets (insert from surveyor).
 - Removal Layout, showing items to be removed.
 - Plan and Profile Sheet, with alignment data, station, and offsets of roadway geometry, signing, striping, and ditch geometrics.
 - Driveway Detail Sheets, with driveway dimensions, profiles, and spot grading
 - o Drainage Area Maps for Internal and External Drainage
 - Hydrologic Data Sheet
 - Hydraulic Data Sheet
 - Proposed Ditch Plan & Profile

- Interim Culvert Layout
- Special Details
- List of Specifications
- Stormwater Pollution Prevention Plan (SW3P) Narrative, for permitting.
- Erosion Control Layout, with temporary and permanent Best Management Practices (BMPs).
- Roadway Detail Sheet (1).
- Applicable City and TxDOT standards.
- Cross Sections at 50' intervals (excluding culvert) showing existing and proposed ground.
- The ENGINEER shall prepare a construction schedule utilizing Microsoft Project at the 90% deliverable
- The ENGINEER shall perform QA/QC on deliverables.
- The ENGINEER shall develop plan sheets illustrating pavement markings and signing appropriate to the project and in compliance with TXDOT standards and the TMUTCD.

DRAINAGE ANALYSIS (Task 9)

The Great Divide Drive low water crossing is located on the Little Barton Creek with a contributing watershed of approximately 8.5 square miles. The project area is located within Travis County and is contained within a FEMA regulated Zone AE floodplain.

The purpose of this task is to prepare drainage Technical Memorandum documenting drainage design and floodplain impact analysis for the existing low water crossing and proposed bridge replacement project.

The following tasks are required:

- **Data Collection** The Engineer shall provide and obtain the following data:
 - Collect available data including GIS data and maps (LiDAR, SSURGO soils, land use and other watershed datasheets), site survey data, previous reports and studies, and readily available rainfall history for the area. Particular sources of data collected must include, but are not limited to, the State, County, and Federal Emergency Management Agency (FEMA).
 - Collect available Flood Insurance Rate Maps (FIRMs), Flood Insurance Study (FIS) study data, and models.
 - Meet with local government official or floodplain administrator to obtain historical flood records including high water marks, gauge data or frequency of road closures.
- Hydrologic Calculations
 - Develop the drainage area boundaries and hydrologic parameters such as impervious covered areas, and overland flow paths and slopes from appropriate sources including, but are not limited to, topographic maps, GIS modeling, construction plans, and existing hydrologic studies. The Engineer shall not use existing hydrologic studies without assessing of their validity. If necessary, obtain additional information such as local rainfall from official sites such as airports. Drainage area boundaries will be defined using best available topographic information. Provided topographic survey within the State ROW will be supplemented with available TNRIS LiDAR data.

- Define precipitation depth-duration-frequency and intensity-duration-frequency (IDF) data for the entire length of the project (multiple watersheds) using national Atmospheric and Oceanic Administration (NOAA) Atlas 14 precipitation data in accordance with local criteria. Methodology to be determined during Design Criteria meeting with the City.
- Include, at a minimum, the "design" frequency to be specified in the Design Criteria meeting with the City and the 1% Annual Exceedance Probability (AEP) storm frequency. The report must include the full range of frequencies (50%, 20% 10%, 4%, 2%, and 1% AEP).
- Develop historical event gage adjusted rainfall data (5-minute precipitation hyetographs) for up to three (3) historical events to be used in hydrologic validation. Historical events will be selected based on available stream gage data and high-water marks for associated events along Little Barton Creek within the project area. Available NOAA NEXRAD radar data and rainfall gage data will be taken from gages within the surrounding area.
- Calculate discharges using the Curve Number Unit Hydrograph method. Curve number unit hydrograph method calculations will be validated to a minimum of two historic storm events and gage data provided by the City at Hamilton Pool Road and Great Divide Drive.

• Complex Hydraulic Design

- Perform hydraulic design and analysis for the interim detour culvert and ultimate bridge structures using appropriate hydraulic methods, which may include computer models such as HEC-RAS 1D or unsteady HEC-RAS 2D. Data entry for appropriate hydraulic computer programs shall consist of a combination of both on-the-ground survey and other appropriate sources including but not limited to topographic maps, LiDAR, GIS modeling, and construction plans and existing hydrologic studies.
- If a "best available data" model is provided by the local floodplain administrator, it must be utilized accordingly for this analysis. Review the provided base model for correctness and updated as needed. If the provided effective model is not in a HEC-RAS format, convert it to HEC-RAS for this analysis.
- Develop hydrologic model storage-discharge relationships using developed hydraulic models to account for hydrological channel routing through the watershed.
- Consider pre-construction and post-construction conditions as determined in the Scope of Work and evaluate impacts to the 1% AEP floodplain and adjacent habitable structures and adjacent properties.
- Quantify impacts, beneficial or adverse, in terms of increases in peak flow rates and water surface elevations for the above listed hydraulic conditions and hydrologic events. Impacts will be determined both upstream and downstream of the bridge crossings.

• Scour Analysis

- Perform a scour analysis for the existing and proposed bridge structure in accordance with City and State approved methodologies.
- Develop the potential scour depths, envelope and recommended countermeasures including bridge design modifications and/or revetment.
- Develop scour documentation stating assumptions, methodologies, and results to be included the Drainage Technical Memorandum.
- <u>The ENGINEER will attend a 60% Over-the-Shoulder meeting with City officials.</u>

• The ENGINEER shall perform QA/QC on deliverables.

BRIDGE DESIGN (Task 10)

- The bridge ENGINEER shall coordinate with other engineering disciplines such as roadway, hydraulics, and geotechnical to design a bridge structure over Little Barton Creek.
- The ENGINEER shall prepare 30% plans, in accordance with the City's criteria, for approval by the City. The submittal shall include the following:
 - Bridge Layout consisting of a plan and elevation.
 - Bridge Typical Section consisting of stages associated with phased traffic control.
- <u>The ENGINEER shall progress to 60% bridge design and develop a status plan set, in</u> <u>accordance with the City's criteria, for approval by the City via a 60% Over-the-Shoulder</u> <u>meeting.</u>
- The ENGINEER will attend a 60% Over-the-Shoulder meeting with city officials.
- General Analysis and design of the bridge structure is to be per AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges (Dec. 2009), AASTHO Bridge Design Specifications 2020, 9th Edition, and TxDOT Bridge Design Manual – LRFD (November 2021). Applicable City of Austin, and TxDOT Standard drawings will also be used.
- Bridge options shall be evaluated for cost effectiveness, aesthetics, and appropriateness to the site. Options are to include: 1) Prestressed concrete slab beams (phased and not phased) and 2) multiple box culverts. Additional items to be considered will be aesthetic specific, such as rails, and concrete form liners.
- The geotechnical report will be reviewed for bridge foundation designs.
- A bridge layout plan sheet showing begin and end bridge in plan and elevation view will be provided.
- Bridge detail sheets will be provided. These sheets will be appropriate to the final specific bridge type.
- Quantities for bridge items will be developed using City of Austin construction specifications and bid items.
- Deliverables will be detail checked and include a quality control review.

TDLR (Task 11)

- The ENGINEER proposes to perform the following services in compliance with the Chapter 469 of the Texas Government Code, State of Texas Architectural Barriers Act to verify compliance with the Texas Accessibility Standards (TAS):
 - Register the project with TDLR
 - Perform plan review of the project construction documents
 - Perform the final inspection of the project upon completion

OTHER SERVICES (Task 12)

- Karst Site Visit, Assessment and Memo
- The ENGINEER will present to Bee Cave City Council results related to design progress made for 15% submittal.
- The ENGINEER will present to Bee Cave City Council data and analysis results associated with various options of bridge configurations and roadway profiles including impacts to project site adjacent properties from several storm events limited to recent area events, 2-yr, 5-yr, 10-yr, and 100-yr.
- The ENGINEER will present to City Council data and analysis results associated with various options of culvert configurations and roadway profiles including impacts to project site adjacent properties from several storm events limited to 2-yr, 5-yr, 10-yr, and 100-yr.

FEE ACQUISTION SERVICES (1 PARCEL) (Task 13)

• Administration

- Maintain status reports of all parcel activities and provide bi-weekly status reports to City.
- Prepare initial property owner list with property owner contact information.
- Attend Public Meetings and Council Meetings as requested by City, not to exceed four (4) meetings total.
- Prepare proposed conveyance documents and coordinate with the City for Approval of form templates.

• Initial Appraisal

- Appraisals shall be based on nationally recognized appraisal standards and techniques to the extent that such principles are consistent with the concepts of value and the rules on the admissibility of evidence of value under the eminent domain law of the State of Texas. If there is a conflict between performance standards, the Contractor shall immediately consult with CITY OF BEE CAVE and shall recommend a resolution of the conflict.
- At a minimum, all appraisals shall be performed, and all appraisal reports will be prepared in accordance with the requirements (as amended from time to time) set forth in the following sources:
 - Uniform Standards of Professional Appraisal Practice (USPAP), as promulgated by the Appraisal Standards Board of The Appraisal Foundation. The Contractor should recognize that compliance with both USPAP and the requirements for appraisals performed for Federal and federally assisted real property acquisitions may require use of the Supplemental Standards Rule and the Jurisdictional Exception Rule of USPAP, where applicable;

- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC 4601 et seq.) and implementing regulation, 49 CFR Part 24;
- Texas State Property Code.
- These reports must conform to CITY OF BEE CAVE policies and procedures along with the Uniform Standards of Professional Appraisal Practice(USPAP); as they are amended from time to time
- ENGINEER shall obtain TCAD information for parcels to be acquired and forward to CITY OF BEE CAVE for a 10-year appraisal search at the time the appraisals are ordered.
- Appraisers shall provide advance notice of the date and time of their appraisal inspections of the subject property to the Contractor's Acquisition Project Manager CITY OF BEE CAVE in order to coordinate the Appraiser's inspection with (if applicable and practical) the initial interview with the Displacee by the Relocation Agent.
- Appraisers shall contact property owners or their designated representative in writing with a letter to offer an opportunity to accompany the appraiser on the appraiser's inspection of subject property. Letter must be a part of the Appraisal. Maintain record of contact in file.
- The assignment for an initial and update appraisal are two separate and distinct appraisal assignments. The fee for each assignment must be reflective of the complexity of the specific individual assignment.
- For an initial appraisal assignment, the Appraiser must prepare an appraisal report for each parcel to be acquired utilizing applicable CITY OF BEE CAVE forms.
- As necessary, Contractor shall prepare written notification to the CITY OF BEE CAVE of any environmental concerns associated with the right of way to be acquired, which may require environmental re-mediation.
- All completed appraisals must be administratively reviewed and approved by CITY OF BEE CAVE.
- Beyond delivery of the initial appraisal documents, the appraiser can be called to provide preparation and testimony for a Special Commissioners Hearing.
- For this appraisal assignment, the fee for the preparation time and testimony must be based on the hourly rate and time agreed to by CITY OF BEE CAVE and Appraiser.

• Appraisal Review

• ENGINEER must review all appraisal reports for each parcel to determine consistency of values, supporting documentation related to the conclusion

reached, compliance with the Uniform Standards of Professional Appraisal Practices.

- Prepare and submit to the CITY OF BEE CAVE Staff a review on a form approved by CITY OF BEE CAVE Staff for each appraisal.
- The fees for the review of an initial and updated appraisal are based on separate appraisal review assignments with the fee for each review assignment based on separate assignments performed.
- CITY OF BEE CAVE coordinates with the ENGINEER (if applicable) regarding revisions, comments, or additional information that might be required. The ENGINEER must coordinate with the Appraiser.

• Negotiation

- The ENGINEER will secure preliminary title reports for each parcel from a City approved Title Company and secure title report updates when requested by City.
- The ENGINEER will analyze preliminary title report to determine potential title problems, propose and inform City Staff of methods to cure title deficiencies.
- $\circ~$ The curative services necessary to provide clear title to City is the responsibility of the ENGINEER.
- The ENGINEER will prepare and send the letter transmitting the Landowners' Bill of Rights by Certified Mail-Return Receipt Requested (CMRRR) to the Property Owner.
- The ENGINEER, with the prepared appraisal, confirm City's approved value prior to making the Initial Offer for each parcel.
- The ENGINEER will prepare the initial offer letter, purchase contract, and instruments of easement conveyance approved by City.
- The written initial offer must be sent to each property owner or the property owner's designated representative CMRRR.
- The ENGINEER will maintain follow-up contacts and secure the necessary instruments upon acceptance of the offer for the closing. Retain copies of signed and unsigned CMRRR receipts.
- The ENGINEER will respond to property owner inquiries verbally or in writing within five (5) business days.

- The ENGINEER will prepare a negotiator contact report for each parcel, per contact.
- The ENGINEER will maintain parcel files related to the purchase of the fee acquisition.
- The ENGINEER will advise property owner of the counteroffer process if approved by the City.
- The ENGINEER will transmit to City written counteroffer from property owners including supporting documentation, and recommendation regarding the counteroffer.
- The ENGINEER will coordinate with the City for acquisition payments required for closing.
- The ENGINEER will coordinate and/or attend parcel closings at the Title Company. Request title insurance from the Title Company if requested by City for parcels closing.
- Prepare the final offer letter and instruments of conveyance, and any other documents required or requested by the CITY OF BEE CAVE on applicable CITY OF BEE CAVE forms.

Assumptions

- ENGINEER does not anticipate the need for condemnation to acquire the right of way as part of this project and services related to condemnation services are not included in the scope of work.
- All title services and fees associated with preliminary Title Reports, Closing Costs, and Title Policies shall be obtained and paid by the City.
- Curative services do not include costs/expenses that qualify as payment of incidental expenses to transfer real property to the City.
- Any fee related to obtaining certified court documents and fees for recording same which are not collected at the closing of the parcel shall be direct pass-through fees at the exact cost supported by the county courthouse receipts.

PROJECT DELIVERABLES – All deliverables will be in electronic format

- Task 2 2D planimetrics, 3D DTM (Microstation V8i)
- Task 2 GPK and TIN file (3D surface file)
- Task 2 1-Foot Contour map (Microstation V8i DGN format)
- Task 2 Word doc file of surveyed points list and descriptor code list
- Task 2 Survey Control Sheets signed, sealed, and dated by a Registered Professional Land Surveyor on 11 x 17 pdf.
- Task 2 PDF file of scanned field book copies
- Task 3 Legal description for each parcel (signed and sealed) (Up to 2).
- Task 3 Survey plat on 8 1/2"x11" for each parcel (signed and sealed) (Up to 2).
- Task 3 One set of area computation sheets for legal descriptions and plats and ROW maps for parcels.
- Task 4 Geotechnical report with field and laboratory test results and bridge foundation recommendations.
- Task 5 Due Diligence Report
- Task 5 Archeological Permit Application
- Task 5 Archeological Survey Report
- Task 5 Clean Water Act compliance evaluation and summary memo
- Task 5 Documentation of Section 402 compliance and TCEQ coordination and required project BMP's
- Task 5 Hazardous materials investigation and risk analysis included in the Due Diligence Report
- Task 5 CEF Coordination: Variance Form, Digital Files of CEFs
- Task 5 Site Development Permit: Permit Application
- Task 5 BCCP: BCCP Application
- Task 5 TPWD WHAB Form
- Task 7 Event planning, logistics coordination and staff participation to successfully hold an in-person event
- Task 7 Deliverables listed in original scope (Exhibit A) that are no longer displayed here have been removed at request of owner.
- Task 7 Development and production of all meeting materials and exhibits to be shared at the in-person and virtual events, as outlined in the scope.
- Task 7 Draft and final post-open house meeting comment report in Word format
- Task 7 Stakeholder/community database in Excel format.
- Task 7 Updates to public facing exhibits at key milestones of project design.
- Task 8 15% exhibits and cost estimates
- Task 8 30% construction plans and estimates
- Task 8 30% design submittal comment responses provided by the City or other reviewers as requested by the City.
- Task 8 60% Roadway design status plan set (non-official submittal).
- Task 8 90% construction plans and estimates

- Task 8 90% and 100% Construction Schedule
- Task 8 100% complete signed and sealed Plans, Specifications, and Estimates
- Task 9 Draft 15% Design (Concept) drainage technical memorandum documenting scope of work, data collection, design assumptions, and summary of findings in an electronic .pdf format.
- Task 9 15% Design submittal comment responses provided by the City or other reviewers as requested by the City.
- Task 9 90% Design submittal comment responses provided by the City or other reviewers as requested by the City.
- Task 9 Final (100% Design) drainage technical memorandum documenting scope of work, data collection, design assumptions, and summary of findings in an electronic .pdf format.
- Task 9 Plan sheets in accordance with the PS&E submittals (15% Concept, 90% and 100% Design)
- Task 9 Local Floodplain Administrator Notification Letter (90% Design)
- Task 10 15% exhibits, cost estimates, aesthetics, and renderings (2) for presentation at city open house.
- Task 10 30% bridge plans
- Task 10 30% design submittal comment responses provided by the City or other reviewers as requested by the City.
- Task 10 60% Bridge design status plan set (non-official submittal)
- Task 10 90% construction plans and estimate.
- Task 10 100% complete signed and sealed Plans, Specifications, and Estimates
- Task 11 Proof of project registration via the TDLR Proof of Registration Sheet.
- Task 11 Plan Review Report detailing the observed findings of elements that are not in compliance with the Texas Accessibility Standards (TAS).
- Task 11 Inspection Report detailing the observed elements that are not in compliance with the Texas Accessibility Standards (TAS).
- Task 12 Karst Memorandum
- Task 12 Attend and Present to City of Bee Cave City Council regarding 15% submittal and findings.
- Task 12 Attend and Present to City of Bee Cave City Council regarding crossing options including culvert configurations for various storm events.