

**SCOPE OF WORK FOR PS&E PHASE SERVICES**  
**Pedestrian Improvements along Rob Shelton Blvd.**  
**from Sports Park Road to Founders Park Road**

The Consultant shall provide design, engineering, surveying and other services required for the preparation of plans, specifications and estimates (PS&E) and related Concept Site Plan and Full Site Plan permitting documents for the City of Dripping Springs (City). These services may include, but are not limited to, surveying, roadway and bridge design, hydrologic and hydraulic design, safety illumination design, and traffic signal design.

Services include development of PS&E for the construction of Pedestrian / Bicycle Improvements along the corridor. A description of each segment and the proposed improvements are as follows:

- A. At Founders Park Road and Rob Shelton Blvd. – The existing granite pathway ending approximately 240 ft. south of the intersection will be extended north across Founders Park Road and connecting to the existing path. A bridge will be installed over the existing drainage channel parallel to Founders Road. A hydraulic model to determine the hydraulic opening will be required in accordance with TxDOT criteria and submitted for approval by the City and the State.
- B. 240 south of Founders Road continuing South to the Heritage Village Pedestrian Bicycle Crossing – the existing granite trail is considered acceptable and will remain in-place without modifications.
- C. the Heritage Village Pedestrian Bicycle Crossing to North of US 290 Intersection – re-stripe existing roadway to accommodate bicycle path on both sides of the road.
- D. At US 290 and Rob Shelton Blvd. – Improvements to the intersection to facilitate a safer pathway for bicycles and pedestrians. Improve signals to accommodate pedestrian pathways at all 4 sides. A bridge will be installed over the existing drainage channel parallel to US 290. A hydraulic model to determine the hydraulic opening will be required in accordance with TxDOT criteria and submitted for approval by the City and the State.
- E. From South of the intersection with US 290 to Sports park Road – construct 5' concrete pedestrian pathway with 5' buffer along both sides of the roadway. A pathway is not required from the Home Depot Entrance the South YMCA ROW line. A segment of sidewalk is required from Sports Complex road to the YMCA on the West side of Rob Shelton Blvd.

Traffic signs and striping will be incorporated throughout the project to promote pedestrian / Bicycle safety.

**1. Project Management and Administration**

**1.1. Progress Reporting and Invoicing**

The Consultant shall invoice according to task breakdowns shown in this scope for Engineering Services. The Consultant shall submit each invoice in the template format provided by the City. The Consultant shall submit a monthly Project Status Report to City's Project Manager regardless of whether the Consultant is invoicing for that month. The Consultant's Project Status Report shall include at a minimum:

- Summary of work completed during invoice period
- Upcoming work activities, tasks and milestones
- Scope elements added, changed or removed
- Outstanding issues, concerns or risks to scope, schedule and/or budget(costs)
- Issues and actions taken to remedy
- List of meetings attended
- Updated Production Schedule, include percentage of completed by task

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- Any corrective actions taken or proposed for schedule recovery

**Deliverables:**

- Monthly Project Status Reports

**1.2. Project Meetings/Workshops**

Attend progress meetings, as required, to monitor the development of the project. Meeting attendance shall be billed on a loaded hourly basis. Meetings may include, but are not limited to, the following:

- PS&E Kickoff Meeting (1 meeting estimated at 2 hours, attendance is limited to Consultant PM and PP)
- Project Progress/Coordination Meetings (bi-weekly meetings estimated at 1 hour each; one meeting per month; attendance is limited to Consultant PM and PP)
- 2 Meetings with TxDOT Env staff to discuss Env documentation comments
- 2 Meetings with TxDOT hydraulics personnel to discuss comments to hydraulic model and scour analysis

**Deliverables:**

- Meeting agendas for all meetings/workshops
- Meeting/Workshop exhibits
- Meeting/Workshop presentations
- Meeting minutes and documentation of meeting/workshop process and outcomes within five (5) working days of meetings/workshops

**1.3. Scheduling/Coordination**

The Consultant shall coordinate issues and communications with City's internal resource areas through CITY's PM. CITY will communicate the resolution of issues and provide the Consultant direction through CITY's PM. The Consultant shall prepare a design production schedule using the latest version Microsoft Project or Primavera P6. The schedule shall indicate tasks, subtasks, critical dates, milestones, deliverables and review requirements utilizing the outlined work breakdown structure provided by CITY. The Consultant shall schedule milestone submittals at 60%, 90% and final project completion phases. The Consultant shall notify CITY immediately if the Consultant is not able to meet scheduled milestone dates. The Consultant shall be responsible for directing and coordinating work activities to comply with applicable policies and procedures, and to deliver that work on time. The Consultant shall coordinate consistency of plans and administration of invoices and monthly progress reports.

**Deliverables:**

- Monthly detailed project design schedule
- Schedule of Deliverables

**1.4. Contract Time Determination (CTD)**

The Consultant shall prepare a detailed contract time estimate to determine the approximate time required for construction of the project in calendar days (based on CITY standard definitions of calendar) at the 90% and Final PS&E milestone. The schedule must include tasks, subtasks, critical dates, milestones, deliverables, and review requirements in a format which depicts the interdependence of the various items and adjacent construction packages. Prior to initial submission of the CTD, the Consultant shall provide a basis of estimate outlining assumptions of durations and production rates for the major work tasks and phases.

**Deliverables:**

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- Basis of Contract Time Determination Estimate Memorandum
- Construction Time Determination estimate in printed and electronic .pdf format at the 60%, 90% and 100% Final PS&E milestones

**1.5. Right-of-Entry**

The Consultant shall notify CITY of the anticipated need to enter property outside of the existing right-of-way to perform any surveying, environmental, engineering or geotechnical activities needed to execute the required scope of services and shall provide CITY with a list of the TCAD Property ID's for those properties. The CITY shall obtain Right-of-Entry (ROE) from the Property Owner on behalf of the Consultant.

**1.6. Consultant Quality Assurance (QA) and Quality Control (QC)**

The Consultant shall perform on-going quality assurance and quality control (QA/QC) to verify completeness of product and compliance with the contract Quality Control Plan (QCP) and applicable design criteria for deliverables.

**Deliverables:**

- Consultant's internal mark-ups (.pdf) and comment response log developed as part the Consultant's quality control process

**1.7. Milestone Submittal Acceptance/Technical Reviews**

The Consultant shall submit plans and supporting documents at the 60%, 90%, and 100% milestones.

**Deliverables:**

- Plans and applicable supporting documents at the 60% (Concept Site Plan), 90% (Full Site Plan) and 100% milestones.
- For 60% and 90% submittals, City review requires the consultant to prepare and provide the following documents:
  - Summary table of design waivers, variances, and/or alternative compliance requests from City Land Development Code, Transportation Criteria Manual, Drainage Criteria Manual, Environmental Criteria Manual, Utilities Criteria Manual, and other required codes and regulations. For waivers requiring Board and Commission or City Council approvals, consultant will prepare justification letters and exhibits for requested variances

**1.8. Use of Standards**

The Consultant shall identify and utilize the applicable, current adopted City of Dripping Springs, City of Austin or State Standard Details, or miscellaneous details that have been previously approved for use. The Consultant shall sign, seal, and date each Standard and miscellaneous detail(s) if the standard selected has not been adopted for use or if the standard is modified for use on the project. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment. The Consultant shall retain the responsibility for the appropriate selection of each Standard identified for use within their design.

**1.9. Design Controls**

The Consultant shall inform the City of design exceptions, waivers, and variances that may affect delivery of the project. The Consultant shall continue to identify, prepare exhibits, and complete necessary forms for design exceptions and waivers within project limits prior to the 60% review. These exceptions shall be provided to CITY for coordination and processing of approvals.

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**1.10. General Design Criteria**

As applicable, the Consultant shall prepare work in accordance with the latest version of City and/or State procedures, specifications, manuals, guidelines, standard drawings, and standard specifications or previously approved special provisions and special specifications, which include, but are not limited to, the following

- TxDOT Roadway Design Manual
- Texas Manual on Uniform Traffic Control Devices (TMUTCD)
- TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (latest Edition)
- National Association of City Transportation Officials (NACTO) Urban Street Design Guide and Urban Bikeway Guide
- AASHTO Guide for the Development of Bicycle Facilities
- TCEQ Edwards Aquifer Protection Program
- City of Dripping Springs / City of Austin / TxDOT: Transportation Criteria Manual (TCM), Drainage Criteria Manual (DCM), Utilities Criteria Manual (UCM), Environmental Criteria Manual (ECM), City Land Development Code, and other City and/or State approved manuals, as may be applicable

The Consultant shall continue to update and maintain the Design Summary Report (DSR).

**Deliverables:**

- Updated/Revised DSR to include new and/or updated design criteria - to be submitted prior to 60% review

**2. Survey Criteria**

**2.1. Design Survey**

Provide a partial topographic and tree survey of Rob Shelton Boulevard located in Dripping Springs, Hays County, Texas, from Sports Park Road to Founders Park Road being approximately 4,390 linear feet. The survey will focus primarily on collecting existing conditions from road gutter line or edge of paving to the apparent right of way (ROW) line in specific areas on both sides of Rob Shelton Boulevard.

- a. 3 primary control points will be set along the route established by 2-hour GPS static session and processed through OPUS. Primary control will be 1/2" iron rods with red caps stamped "Maestas Control". TxDOT will be contacted to acquire any benchmarks along Highway 290 near the project site that can be included into the control network.
- b. Control shall be referenced to the Texas State Plane Coordinate System, South Central Zone (4204), NAD83 (2011). Elevations will be referenced to NAVD88 and tied to TxDOT vertical control.
- c. Secondary control will be established along the length of the project, if needed.
- d. Differential leveling will be performed through all primary and secondary control to maintain vertical accuracy.
- e. Monumentation and other evidence at the intersection of Highway 290 and Rob Shelton Boulevard will be recovered to establish existing ROW.

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- f. The topographic/design survey will include the location of all improvements and visible utilities within the survey limits as stated above.
- g. To avoid crews working within high volume traffic lanes at Highway 290, Maestas will utilize our LiDAR mapping system to collect any data needed within the road area.
- h. Cross sections will be taken at 50-foot stations along straight segments of the proposed route and 25-foot stations in any curved segments. All major grade breaks and drainage features will be included.
- i. Survey will extend past stated limits at two areas that have proposed pedestrian bridges as deemed necessary to support hydraulic calculations; being at Founders Park Road and Highway 290.
- j. Hardwood trees that are 8 inches in diameter and larger will be located and tagged, indicating the size, species, and canopy radius of each tree, as defined by ARTICLE 28.06 LANDSCAPING AND TREE PRESERVATION, Sec. 28.06.004 and Sec. 28.06.059.
- k. Perform partial boundary retracement at the HEB property for easement acquisition.

**2.2. Deliverables**

- a. 2D MicroStation planimetric file
- b. 3D MicroStation DTM file including break-lines and 1-foot contours.
- c. DTM TIN file
- d. ASCII point file
- e. Photographs and field notes that are necessary to clearly convey information for design; to include all drainage structures
- f. Tree Table
- g. Control Sheet
- h. Easement plat and legal description affecting HEB property

**2.3. Assumptions**

- 1. A full topographic survey will be performed at the intersection with Highway 290 that will consist of all improvements being located ROW to ROW for up to 100 linear feet in all directions from the curb returns at said intersection.
- 2. The Surveyor shall notify the client prior to performing the work if:
  - a. Traffic Control cannot be managed by the Surveyor's personnel.
  - b. The work is delayed due to weather or other circumstances beyond the Surveyor's direct control.

**3. Environmental Document (Categorical Exclusion)**

The services to be provided by the Engineer shall include preparation of a Categorical Exclusion (CE) document and associated public involvement. The limits of the CE shall be from approximately the

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intersection of Rob Shelton Boulevard to the intersection of Rob Shelton Boulevard and Sports Park Road. All work on the project shall conform to the applicable requirements of TxDOT. All work to be performed shall be subject to review and approval by the City of Dripping Springs and TxDOT. Following review of each technical report, Engineer will make all required revisions and resubmit the final documents to TxDOT for processing.

The work required is described below according to each task to be performed.

**3.1. Task 1 – Initial Coordination and Project Scope for Environmental Review Documents**

The Engineer shall coordinate with TxDOT to determine the type of CE to be prepared, the technical reports that will comprise the CE and will attend up to six meetings with TxDOT during the development of the CE to discuss progress and any issues. The technical reports assumed to be required are listed below.

**3.2. Task 2 – Data Collection**

In addition to the data described earlier, the Engineer shall collect and review environmental data specific to the project and the project area. The Engineer shall gather information for the existing conditions such as existing facility and roadway network, land use and demographics. The Engineer shall collect, review and evaluate available and appropriate data pertaining to the project area, including but not limited to, land use maps, aerial photography as available, demographic maps, census information, historical and archeological site listings, Potential Archeological Liability Map (PALM), digital orthophoto quadrangle maps, national wetland inventory maps, floodplain maps, Hays County Soil Survey, hazardous materials database information, traffic data for existing year and proposed design year, proposed letting schedule, accident data, design study report, drainage report, and any other pertinent information related to this proposed project.

**3.3. Task 3 – Right-of-Entry Letters**

Our understanding is that all work will be conducted on City or TxDOT right of way. The Engineer shall prepare a list of required Right-of-Entry (ROE)'s. City shall prepare and send letters to those property owners where ROE is needed in order to perform the environmental onsite investigations.

**3.4. Task 4 – Air Quality Analysis**

Our understanding is that this project will not affect vehicular traffic flow and will not require a detailed quantitative air quality analysis. Similarly, since the existing traffic volumes and the projected design year traffic volumes do not exceed 140,000 vehicles per day, a Traffic Air Quality Analysis shall not be required. Standard recommended template language per TxDOT's Air Quality SOU shall be used in the CE. Since the existing traffic volumes and the projected design year traffic volumes do not exceed 140,000 vehicles per day, FNI will prepare a qualitative MSAT analysis.

This scope and fee does not include detailed quantitative air quality analysis. This service may be added by supplemental agreement if required.

**3.5. Task 5 – Cultural Resources**

**Project Coordination Requests**

Non-Archeological Historic Resources

Engineer will prepare a Non-Archeological Historic Resources Project Coordination Request for review and comment by TxDOT-ENV. FNI assumes a non-archeological resource survey will not be required.

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Archeological Resources

Engineer will prepare a coordination letter to the Texas Historical Commission (THC) to determine if any previously recorded sites or archeological surveys occur within or near the proposed project area. FNI assumes an archeological resource survey will not be required. This scope does not include formal National Register eligibility testing of archeological sites or mitigation of adverse effect through data recovery or other means. If required, these services would be performed at additional cost.

**3.6. Task 6 – Community Impact Assessment**

Census bureau data collected under Task 1 will be used to complete TxDOT’s Community Impact Assessment Technical Report Form. The Engineer will attach all required supporting documentation.

**3.7. Task 7 – Water Resources Report:**

The Engineer shall document compliance with Section 402 of the Clean Water Act (CWA): Texas Pollutant Discharge Elimination System (TPDES), Construction General Permit (CGP) requirements. The Engineer shall identify any impaired waters using the latest Texas Commission on Environmental Quality (TCEQ) Section 303(d) Clean Water Act list. The Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Maps (FIRM) for Brazoria County shall be analyzed with respect to the proposed project and the information documented in the CE. This task includes preparing an exhibit to include any 100 year floodplain locations. The Engineer shall delineate the boundaries of any wetlands and the Ordinary High Water Mark (OHWM) and width of any streams located within the proposed ROW. The Engineer shall assess what type of permit, if any, is required for any potential impacts to waters of the U.S., including wetlands, as part of Section 404 the federal Clean Water Act and prepare the Water Resources Technical Report.

**3.8. Task 8 – Tier I Site Assessment:**

The Engineer shall complete the Tier I Sites Assessment fillable form to document the impacts of the project on wildlife and vegetative resources in the project area including federal and state listed threatened and endangered species and other species of concern. Engineer will attach all required supporting documentation. The Engineer will fill out the Species Analysis.

**3.9. Task 9 – Hazardous Materials**

The Engineer shall conduct an initial hazardous materials assessment for the proposed project to identify sites within the project area that may have experienced soil and/or groundwater contamination by hazardous materials. Consultant will complete TxDOT Hazardous Material Initial Site Assessment Form for the project area and surrounding areas.

*Other Documents*

It is assumed that the following tasks not performed shall include but not be limited to: U.S. Coast Guard Section 9 and U.S. Army Corps of Engineers Section 10, the Texas coastal management program, coastal barriers, Section 4(f) Evaluation, or U.S. Department of Interior’s National Inventory of River Segments in the National Wild and Scenic River System.

**3.10. Task 10 – Public Meeting**

This scope and fee does not include conducting or hosting a Public Meeting or a Meeting of Affected Property Owners (MAPO). This service may be added by supplemental agreement if required.

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**3.11. Task 11 – Notice Affording Opportunity for Public Hearing**

Upon receiving Satisfactory for Further Processing from TxDOT, the Engineer shall prepare the Notice Affording Opportunity for Public Hearing for publication in the Austin American Statesman, a local newspaper, and a, if needed, Spanish newspaper for review and approval by TxDOT. The Engineer shall publish the Notice in the Austin American Statesman (in English), a Spanish newspaper in Spanish, and a local newspaper (in English), twice (30 days prior to the deadline for requesting a hearing and approximately 10 days prior to the deadline). The Notice shall also be mailed to all adjacent property owners and other identified interested citizens approximately 30 days prior to the deadline.

This scope and fee does not include conducting a public hearing.

**3.12. Task 12 – Traffic Noise Analysis**

The project does not affect vehicular traffic therefore, we do not anticipate TxDOT requiring a traffic noise analysis. A traffic noise analysis is not included in the proposed scope of work. This service may be added by supplemental agreement if required.

This scope assumes building permits will not be issued for development adjacent to the proposed project prior to the date of public knowledge (per the noise guidance, the date of public knowledge is the date of the approval of the categorical exclusion (CE)). Detailed noise abatement analyses associated with currently unknown development adjacent to the project is not included in this scope of services, but it can be provided as an additional service upon written authorization by the City. This scope also does not include services associated with hosting or participation in a noise workshop.

**4. Roadway Design**

**4.1. Typical Sections**

The Consultant shall prepare existing and proposed typical sections for roadways and structures. Typical sections must include width of travel lanes, direction of travel, shoulders, outer separations, border widths, curb and gutter, curb offsets, median islands, sidewalks, and other pertinent cross-sectional elements, as well as the ROW. The typical section must also depict proposed gradeline, centerline, pavement section material types and depths, sodding or seeding limits, traffic barriers, SUP/sidewalks, and station limits.

**4.2. Earthwork (Cut and Fill Quantities)**

The Consultant shall develop earthwork quantities and provide final design cross sections at 50 foot intervals and at intersections, culvert crossings, or other areas of impact as determined by the Consultant. The Consultant shall provide OpenRoads templates and supporting design files used to generate the design cross sections. Annotation shall include at a minimum stationing, existing and proposed ROW/easements, cross-slopes, side-slopes, offset distances to grade breaks, etc. The Consultant shall submit cross sections at the 60%, 90%, and final submittals. The Consultant shall also submit the current OpenRoads generated 3D model for each submittal.

**4.3. Cross Streets**

The Consultant shall provide intersection layouts detailing the pavement and drainage designs at the



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intersection of each cross street. The layouts must include horizontal and vertical alignments, curb returns, geometrics, transition lengths, street names, stationing, pavement elevations, drainage details, contours, and ADAAG compliance items and other non-standard facilities for bicycles and pedestrians.

**4.4. Pedestrian and Bicycle Facilities**

The Consultant shall coordinate with the City to incorporate pedestrian and bicycle facilities. Pedestrian and bicycle facilities must be designed in accordance with the latest ADAAG, the Texas Accessibility Standards (TAS), and the AASHTO Guide for the Development of Bicycle Facilities, National Association of City Transportation Officials (NACTO) Urban Street Design Guide and Urban Bikeway Guide, and 2016 Mobility Bond Corridor Design Standards.

Consultant shall submit to TDLR (through Registered Accessibility Specialists) for review at 90% 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

The proposal excludes services to determine compliance with other federal, state, or local accessibility requirements such as Public Rights-of-Way Guidelines (PROWAG) and accessibility requirements of building and housing codes such as the International Building Code (IBC).

**4.5. Urban Design, Landscape Architecture and Placemaking**

The Consultant shall coordinate with City to incorporate plans, sections, details, specifications and estimates that describe the proposed urban design and placemaking improvements, in the hardscape, landscape, and irrigation plans. The urban design and placemaking improvements shall be limited to: pavement treatments and materials, crosswalk treatments, bicycle racks, and park benches.

**Deliverables:**

- Roadway Plan sheets in accordance with the PS&E submittals
- Urban Design/Hardscape Plan sheets in accordance with the PS&E submittals
- Typical design cross-sections on 11x17 .pdf format sheets
- Design cross sections on 11x17 .pdf format sheets
- Design files in 2D and 3D (as applicable) (.dgn format)
- OpenRoads 3D model, template library and supporting files used in the 3D model generation

**5. Drainage**

A proposed hydraulic analysis is required at two locations for the proposed project. One is for the channel on the south side and running parallel to Founders Park Road. The second is for the proposed channel on the south side and parallel to US 290. Both analysis will be for the purpose of installing a pedestrian bridge over each creek.

**5.1. Drainage Design Criteria**

The Consultant shall utilize current adopted design criteria for City of Dripping Springs and TxDOT in preparing the hydraulic analysis.

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**5.2. Complex Hydraulic Design and Documentation**

The Consultant shall provide the following services:

- Gather pertinent information regarding existing drainage facilities and features from existing plans and other available studies or sources.
- Perform a hydrologic impact analysis using the Rational Method to determine if the increased impervious cover associated with the proposed sidewalks will result in an increase in peak flow rates for the 2-yr, 25-yr, 10-yr, and 100-yr storm events.
- Perform a hydraulic impact analysis for two (2) proposed pedestrian bridges using flow rates from hydrologic impact analysis and appropriate hydraulic methods, which may include computer models such as Bentley FlowMaster.
- Develop a TCSS Manual Waiver Request Letter summarizing the methodology and assumptions used in developing the hydrologic and hydraulic analyses.
- Perform hydraulic design and analysis using appropriate hydraulic methods, which may include computer models such as HEC-RAS, unsteady HEC-RAS or 2D models such as SWMM. Consultants shall not use versions beyond those noted above without first discussing with City/TxDOT. Consider pre-construction, present and post-construction conditions, as well as future widening

**5.3. Scour Analysis**

The Consultant shall provide the following services:

- Perform a scour analysis for two proposed pedestrian bridge structures.
- Update the effective hydraulic model to reflect Atlas 14 rainfall and new updated geometry to reflect the proposed conditions.
- Provide City the potential scour depths, envelope and recommended countermeasures including bridge design modifications and/or revetment

**5.4. Plans for Hydraulics Structures**

The Consultant shall provide the following sheets and documents, as appropriate:

- Hydrologic/Hydraulic/Scour Data Sheets
- Prepare drainage area maps
- Depict and annotate utility facilities and clearances
- Identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts
- Consider pedestrian facilities, utility impacts, driveway grades
- Prepare Hydraulic Data Sheets for bridge or cross drainage structures at the outfall channel and indicate site location (e.g., station and name of creek or bayou), if applicable

**Deliverables:**

- Plan sheets in accordance with the PS&E submittals (Concept workshops, 60%, 90%, 100%)
- All files from the software used to produce the other deliverables (CAD, StormCad, HEC-RAS, etc.)

The following services are not included in this scope of work and would be considered additional services:

- A hydrology/hydraulic/drainage report
- Hydraulic Impact Analysis of ditches and/or storm drain.
- Design of any detention facilities.
- Design of any water quality facilities.
- Coordination with TCEQ.
- Outlet or Inlet structures

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- Quantities for drainage elements
- And structural details for drainage elements

**6. Signing, Pavement Markings and Signalization**

**6.1. Signing**

The Consultant shall prepare drawings, specifications, and details for signs in accordance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD). As applicable, the Consultant shall coordinate with CITY for overall signing strategies and placement of signs. The consultant shall prepare the following drawings, specifications and details for signs

- Signing - Small Sign Layouts
- Signing - Small Sign Summary Sheets
- Signing – Standards

**6.2. Pavement Markings**

The Consultant shall detail both permanent and temporary pavement markings and channelization devices in accordance with the TMUTCD on plan sheets created for sidewalks and on the typical sections. The Consultant shall coordinate with CITY for pavement marking strategies. The Consultant shall select pavement markings from the latest City/State standards, as applicable. The Consultant shall provide the following information:

- Existing signs to remain, to be removed, to be relocated or replaced
- Proposed signs (illustrated, numbered and sized)
- Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation
- Quantities of existing pavement markings to be removed
- Proposed delineators, object markers, and mailboxes
- Direction of traffic flow on roadways

**6.3. Traffic Signals**

The Consultant shall prepare Traffic Signal Plans for warranted traffic signals. The effort proposed will include reconfiguring Ped Poles at each corner to meet ADA compliant requirements. The existing signal pole at the South-West corner will not be relocated to accommodate the relocated curb at this corner. Modifications to the signals will not require new signal poles or

The Consultant shall develop quantities, general notes, and specifications and incorporate the appropriate agency standards required to complete construction. Traffic signal poles, fixtures, signs, and lighting must be designed in accordance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD) and standards. The Consultant shall provide the following information in the Traffic Signal Plans:

- Estimate and quantity sheet
  - List of bid items
  - Bid item quantities
  - Specification item number
  - Paid item description and unit of measure
- General notes and specification data
- Plan sheet(s)
  - Existing traffic control infrastructure that will remain (signals, signs, markings, etc.)
  - Existing utilities

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- Proposed highway improvements
- Proposed installation
- No additional traffic controls are proposed
- Existing illumination attached to signal poles will not be revised.
- No changes to power pole source are proposed.
- Notes for plan layout
- Phase sequence diagram(s) (re-created from existing plans)
  - Signal locations
  - Signal indications
  - Phase diagram
  - Signal sequence table
- General Requirements
  - Prepare governing specifications and special provisions list
  - Prepare project estimate

**Deliverables:**

- General notes and specification data
- Summary of Quantities
- Plan sheets
- Phase sequence diagram(s)
- Signal Detail Sheets
- Signal Standard Sheets

**7. Miscellaneous Items**

**7.1. Traffic Control Plan (TCP), Detours, Sequence of Construction**

The Consultant shall prepare TCP using TxDOT standard details. A detailed TCP is not required for this scope of work. Advanced warning signs shall be shown on an project layout sheet. All TCP appurtenances must be developed in accordance with the latest edition of the TMUTCD and applicable City/State design requirements, to include special approvals such as, night-time work operation, long-term lane closures, and work during peak hours and others, as required. The Consultant shall implement the current City/State Barricade and Construction (BC) standards and TCP standards as applicable.

**Deliverables:**

- Applicable traffic control plans and details
- Quantity and item summaries for the TCP

**7.2. Stormwater Pollution Prevention Plans (SW3P)**

The Consultant shall develop SW3P in conformance with the TCP to minimize potential impact to receiving waterways. The SW3P must include text describing the plan, quantities, type, phase and locations of erosion control devices and required permanent erosion control. The SW3P shall be incorporated into the plan set via erosion/sedimentation control plan and tree protection sheets. The report and forms of the SW3P to meet City of Dripping Springs, TCEQ and City of Austin requirements shall be incorporated into the project manual for bidding.

**Deliverables:**

- SW3P sheets, report and forms (NOI, NOT, inspection, etc) and standard details

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**7.3. Compute and Tabulate Quantities for Construction Bid Items**

The Consultant shall develop and tabulate pay items on estimate summary and quantity sheets.

**Deliverables:**

- Summary and Quantity sheets

**7.4. Utility Conflict Review**

The Consultant shall seek to avoid utility conflicts where. The Consultant shall work with CITY to confirm necessary utility relocations and provide adequate spacing to meet clearances, utility constructability and future access.

**7.5. Removal Plans**

The Consultant shall develop details to depict and quantify removals necessary to implement the proposed improvements.

**Deliverables:**

- Removal Plan Sheets

**7.6. Estimate**

Utilizing TxDOT specified bid items, the Consultant shall independently develop and report quantities necessary to construct the project in TxDOT bid format at the specified deliverable milestones and Final PS&E submittals. The Consultant shall prepare and submit a basis of estimate for all pay quantities and submit to CITY for each milestone deliverable. Escalation and contingency shall be clearly shown and separate from bid items.

**Deliverables:**

- Quantity Estimates
- Basis of Estimates in .pdf file formats

**7.7. Specifications and General Notes**

The Consultant shall identify and prepare necessary standard specifications, special specifications, special provisions and the appropriate reference items for inclusion in the construction manual, plans and pertinent bidding documents.

**Deliverables:**

- Special provisions to standard specifications, special specifications and general notes in Word (with tracked changes on) and electronic .pdf format

**8. Bridge Design**

**8.1. Bridge Layouts**

The Consultant shall prepare a bridge layout plan sheet for two proposed bridges along Rob Shelton Blvd. One bridge is proposed over the channel in the South East corner of US 290 and Rob Shelton Blvd. The second bridge is located at the South West Corner of Rob Shelton and Founder Park Road over the existing Channel. The proposed bridges shall utilize a prefabricated super structure. The Consultant shall comply with relevant sections of the latest edition of the State's LRFD Bridge Design Manual, Bridge Project Development Manual, Bridge Detailing Guide, and AASHTO LRFD Bridge Design Specifications and respective checklists. Each bridge layout sheet must include bridge typical sections, structural dimensions, abutment and bent locations. The Consultant shall locate and plot soil borings and utilities.

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- Bridges are those discussed with the CITY during scope development
- The Consultant shall determine the location of each soil boring needed for foundation design in accordance with applicable geotechnical reference manuals
- The Consultant shall submit preliminary bridge layouts, with associated documentation for prior to 60%
- The Consultant shall submit final bridge layouts to City for approval at 60% PS&E submittal
- The Consultant shall comply with relevant sections of the State's LRFD Bridge Design Guide, Bridge Project Development Manual, Bridge Detailing Manual, and AASHTO LRFD Bridge Design Specifications 7th Edition and respective checklists
- Each bridge layout sheet shall include horizontal and vertical alignment data, bridge typical sections, structural dimensions, abutment and bent locations, superstructure and substructure types. Locate and plot soil borings (including groundwater information) and utilities.

**Deliverables:**

- Bridge Layouts

**8.2. Bridge Detail Summary**

The Consultant shall prepare total bridge quantities, estimates, and summary sheets for each bridge.

**Deliverables:**

- Bridge structural details

**8.3. Bridge Structural Details**

The Consultant shall prepare each structural design and develop detailed structural drawings of required details in compliance with above-listed manuals and guidelines. The Consultant shall assemble and complete applicable CITY Standard Details sheets. Additionally, the Consultant shall:

- Perform calculations for design of bridge abutments
- Perform calculations to determine elevations of bridge substructure and super structure elements
- Prepare necessary foundation details and plan sheets
- Prepare plan sheets for abutment design
- Prepare plan sheets for additional abutment details
- Compute and prepare tables for slab and bearing seat elevations, dead load deflections, etc.
- Prepare special provisions and special specifications in accordance to the above-listed manuals and guidelines

The following services are not included in this scope of work and would be considered additional services:

- Structural design and details for superstructure elements including bridge slabs, railings, and beams
- No design or detailing of steel elements are included.
- Bearing elements other neoprene bearing pads.

**9. Environmental Permits Issues and Commitments (EPIC) Sheets**

The Consultant shall complete the latest version of the EPIC sheets, as required. These sheets must be signed, sealed and dated by the Consultant as indicated in signature block. The final sheets must be submitted for CITY signature. The EPIC sheets are supplemented by the City-required erosion/sedimentation control and tree protection plan sheets and standard details.

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**Deliverables:**

- EPIC Sheets
- Erosion/sedimentation control and tree protection plan sheets
- Two standard notes/detail sheets provided by CITY
- Special details if required for the project

**10. Plan Preparation**

Plans shall facilitate City of Dripping Springs / TxDOT reviews in accordance with applicable design review checklists for the following milestone deliverables 60% (Concept Site Plan), and 90% (Full Site Plan)). Prior to the 60% submittal, the Consultant shall schedule a workshop to review conceptual traffic control plans, 3D models and/or design cross-sections with CITY. The CITY will review the proposed profiles, 3D models (if applicable), and cross sections.

**10.1. Plan Sheet Sequence**

As applicable, the Consultant shall prepare plans following the sheet sequence (table of contents) below.

- General
  - Title Sheet\* using CITY template cover sheet FNI cover sheet can be used if the City does not have a template)
  - Index of Sheets\*
  - Project Layout\*
  - Roadway Typical Sections\*
  - General Notes\*\* including two standard notes sheets provided by CITY
  - Project-specific notes and sequence of construction
  - Boring logs sheet(s)
  - Special notes for Edwards Aquifer / Void & Water Flow Mitigation (if required)
  - Estimate and Quantity Sheets
  - Quantity Summary Sheets\*\*
- Traffic Control Plan
  - Traffic Control Plan (TCP) Sheets\*\*
  - Notes and Barricade summary tables
  - Standards
- Roadway Details
  - Survey and Control Index Sheets\* (signed/sealed by surveyor)
  - Horizontal and Vertical Control Sheets\*
  - Removal Plan Sheets\*
  - Roadway Plan and Profile Sheets\*
  - Urban Design Sheets\*
  - Placemaking Details\*
  - Intersection Details\*\*
  - Driveway Details\*\*
  - Miscellaneous Details
  - Standards
- Drainage Details
  - Drainage Area Map Sheets\*
  - Impervious cover calculations for new and redeveloped impervious cover \*
  - Hydraulic Calculation Sheets with existing and proposed drainage calculations\*

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- Bridge Scour Analysis with countermeasures
- Culvert Layouts\* (if required)
- Miscellaneous Details
- Standards
- Utilities
  - Existing Utility Plan Sheets\*
- Bridges
  - Bridge Hydraulic Data Sheets\*
  - Bridge Layouts\*
  - Detailed Quantity Summary, and Structural Details\*\*
  - Standards
- Traffic Items
  - Traffic Signal Layouts\*
  - Traffic Signal Details\*\*
  - Illumination\*\*
  - Signing\*\*
  - Pavement Markings\*\*
  - Standards
- Environmental Issues
  - Erosion/Sedimentation Control and tree protection plans depicting floodplain, water quality zones, critical environmental features and required buffers\*\*
  - SW3P and EPIC Sheet\*\*
  - Standards (including two standard sheets provided by CITY, and any others required for the project)

**10.2. Plan Submittals**

The Consultant shall provide the following information at each submittal:

- 60% Review Submittal (Concept Site Plan Application)
  - Electronic .PDF version of 11" x 17" plan sheets
  - Estimate of construction cost
  - One set (roll plot format) TCP phasing layouts, one .pdf file for plan sheets for TCP concept
  - Impervious cover calculations (in square feet) for new and/or redeveloped impervious cover
  - Drainage calculations (provide in \*.zip file), RSMP waiver for detention and/or Fee-in-Lieu request for water quality controls, as applicable
  - Plan set meeting City design and permitting standards
  - Summary table of design waivers, variances, and/or alternative compliance requests from City Land Development Code, Transportation Criteria Manual, Drainage Criteria Manual, Environmental Criteria Manual, Utilities Criteria Manual, and other required codes and regulations. For waivers requiring Board and Commission or City Council approvals, consultant will prepare justification letters and exhibits for requested variances.
  - Project Manual including table of contents listing proposed standard specifications (front-end contract documents), standard technical specifications, special provisions, and special specifications
- 90% Review Submittal (Full Site Plan Application)
  - Electronic .PDF version of 11" x 17" plan sheets, including updated design cross-sections and full set of plan sheets as listed above



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- Response comments from 60% submittal
- Construction schedule with supporting documentation for calendars, production rates, etc.
- If applicable, a detailed 3D model, in DGN format, created using OpenRoads, OpenBridge and/or 3D MicroStation\Civil tools, and with detail to verify the design of the 90% plan sheets
- List of governing Specifications and Special Provisions in addition to those required
- New Special Specifications and Special Provisions with Form 1814, if applicable
- Marked up general notes
- Plans estimate
- Special Specifications/Provisions
- Consultant signed, sealed and dated supplemental sheets (8 ½" x 11")
- Right-of-Way, Relocation, Encroachment, Utilities and Railroad certification, as applicable
- Impervious cover calculations (in square feet) for new and/or redeveloped impervious cover
- Drainage calculations (provide in \*.zip file), RSMP waiver for detention and/or Fee-in-Lieu request for water quality controls, as applicable
- Summary table of design waivers, variances, and/or alternative compliance requests from City Land Development Code, Transportation Criteria Manual, Drainage Criteria Manual, Environmental Criteria Manual, Utilities Criteria Manual, and other required codes and regulations. For waivers requiring Board and Commission or City Council approvals, consultant will prepare justification letters and exhibits for requested variances.
- Other supporting documents
- Project submitted to TDLR (through Registered Accessibility Specialists) for review.
- Final Submittal
  - Final plan sheets as needed from 90% review comments
  - Final supporting documents from 90% review comments
  - If applicable, a final 3D model, in DGN format, LandXML format and other format (as directed by CITY) created using OpenRoads, OpenBridge and/or 3D MicroStation\Civil tools
  - Complete bid-ready project manual
  - **All TDLR comments addressed and accepted.**

**10.3. Electronic Copies**

The Consultant shall furnish CITY with a flash drive of the final plans in the current CADD system used by CITY, .pdf format, and in CITY's File Management System (FMS) format. The Consultant shall also provide separate flash drive containing cross section information (in dgn, XLR, & ASCII formats) for CITY contractor to use. The Consultant shall provide an electronic copy of Primavera file or the latest scheduling program used by CITY for construction time estimate.

**11. Construction Phase Services**

The Engineer shall provide Construction Phase Services at the written request of the City's Project Manager. The written request must include a description of the work requested, a mutually agreed upon time limit, and any special instructions for coordination and submittal. These services shall include, but are not limited to the following:

1. Review and approval of shop drawings
2. Responding to requests for information (RFIs)

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3. Providing minor redesign (major redesign should be handled with a contract supplement), which will include changes to the affected plan sheets and an updated copy of the 3D model (if applicable).
4. Answering general questions
5. Providing clarification
6. Other project related tasks in support of the City & State during construction