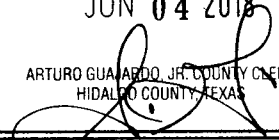


**HIDALGO COUNTY
Professional Engineering Services
Agreement #C-17-243-09-05**

WORK AUTHORIZATION NO. 6

FILED AT <u>12:30</u> O'CLOCK <u>P</u> M
JUN 04 2018
ARTURO GUERRA, JR. COUNTY CLERK HIDALGO COUNTY, TEXAS
BY:  DEPUTY

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 7 of the Agreement made by and between **HIDALGO COUNTY**, action herein by and through the **Commissioner's Court**, hereinafter called the "**Owner**," and, **B2Z ENGINEERING LLC**, professional engineers of Mission, Texas, hereinafter called "**Engineer**".

PART 1. SCOPE OF WORK

The purpose of this Work Authorization is for the "engineering services" to provide Environmental, Public Involvement, Schematic, Hydrologic, Pavement Design, PS&E, Utilities Services, Uncontrolled Mapping & Office Surveys for Mile 17 from Kenyon Rd to Sharp Rd located in Hidalgo County Precinct 4.

The scope of services to be provided by the **Owner** is identified in **EXHIBIT "A" – Scope of Services to be provided by the Owner** attached hereto.

The scope of services to be provided by the **Engineer** is identified in **EXHIBIT "B" – Scope of Services to be provided by the Engineer** attached hereto.

PART 2. ESTIMATED COST

The estimated cost for services under this Work Authorization is **\$351,290.10**. This amount is based upon the costs outlined in the Estimated **Cost Proposal** attached hereto as **EXHIBIT "D"**.

PART 3. PAYMENT

Compensation and payment to the Engineer for the services established under this Work Authorization shall be made in accordance with Articles 5 and 6 of the Agreement.

PART 4. FUNDING

This Work Authorization No. 6 shall be funded through funding source:

Account No. _ _ _ _ _

Requisition Number _____ **(MUST BE INCLUDED AFTER CC APPROVAL)**

PART 5. PERIOD OF SERVICE

This Work Authorization shall become effective on the date of final acceptance of the parties hereto, and terminate **upon completion of scopes of the work authorization.**

PART 6. RESPONSIBILITIES AND OBLIGATIONS

This Authorization does not waive the parties' responsibilities and obligations provided under the **Agreement**.

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

Acknowledgement and Confirmation by Hidalgo County Precinct No. 4, Commissioner, Joseph Palacios, as to content and detail of this **Work Authorization No. 6**.

**HIDALGO COUNTY
COMMISSIONER PRECINCT No. 4:**

BY: *Joseph Palacios*

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on May 22, 2018 as indicated below and effective as of 22nd day of May, 2018.

**THE ENGINEER:
B2Z ENGINEERING**

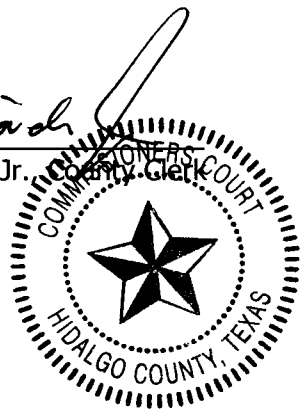
Nicholas Muñoz
By: Nicholas Muñoz, Vice President

**THE OWNER:
HIDALGO COUNTY**

Ramon Garcia
By: Ramon Garcia, County Judge

ATTEST:

Arturo Guajardo Jr.
By: Arturo Guajardo Jr., County Clerk



APPROVED BY
COMMISSIONERS' COURT
ON: 5/22/18

EXHIBIT "A"
SCOPE OF SERVICES TO BE PROVIDED BY THE OWNER

The following provides an outline of the services to be provided by the **Owner** in the development of the proposed improvements to Mile 17 located within Hidalgo County hereinafter denoted as the **Project**.

GENERAL:

The **Owner** will provide to the **Engineer** the following:

- 1) Provide the authorization to proceed with services through coordination with the project consulting and design Engineer.
- 2) Payment for work performed by the **Engineer** and accepted by the **Owner** in accordance with Article 5 of the Agreement.
- 3) Assistance to the **Engineer**, as necessary, to obtain the required data and information from other local, regional, State and Federal agencies the **Engineer** cannot easily obtain.
- 4) Provide any available relevant data the **Owner** may have on file concerning the **Project**.
- 5) Provide timely review and decisions in response to the **Engineer's** request for information and/or required submittals and deliverables, in order for the **Engineer** to maintain the agreed upon work schedule prepared in accordance with Exhibit "C" attached to this Work Authorization.
- 6) Attend and participate in progress meetings as required and as coordinated and conducted by **Engineer**.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 1-PROJECT DESCRIPTION

The services designated herein as "Services provided by the ENGINEER" shall include the performance of all engineering services for the following described facility:

COUNTY/CITY: Hidalgo County

CONTROL: _____

PROJECT/DESCRIPTION: Mile 17

LENGTH: 2.5 Miles

HIGHWAY: Mile 17

LIMITS: From Kenyon Rd to Sharp Rd

PROJECT CLASSIFICATION

(Place an "X" in only one Project Classification)

- Surface Treatment
- Overlay
- Rehabilitation Existing Road (Scarify & Reshape)
- Convert Non-Freeway to Freeway
- Widen Freeway
- Widen Non-Freeway
- New Location Toll Freeway
- New Location Non-Freeway
- Interchange (New or Reconstruct)
- Bridge Widening or Rehabilitation
- Bridge Replacement
- Upgrade to Standards - Freeway
- Upgrade to Standards - Non-Freeway
- Miscellaneous Studies (Use Function Code 110 for All Tasks)

ENGINEER shall mean B2Z Engineering.

STATE shall mean Texas Department of Transportation and/or Hidalgo County.

COUNTY shall mean Hidalgo County.

LPA shall mean Hidalgo County.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 2 – LEVEL OF SERVICE ANALYSIS AND ENGINEERING
(Function Code 102)

Services Provided By:		
<u>ENGINEER</u>	<u>LPA</u>	
<u>YES</u>	<u>NO</u>	Preliminary Design Values <i>The Engineer will work with the Owner to establish basic design concepts, project controls and general scope of Projects.</i>
<u>YES</u>	<u>NO</u>	Preliminary Route Locations on Uncontrolled Mapping <i>The Engineer will evaluate various alternatives (route locations, alignment shifts, geometry) for the Project.</i>
<u>YES</u>	<u>NO</u>	Uncontrolled Mapping (w/Contours & GIS Info) <i>The Engineer will investigate the existing routes and coordinate with the Owner on establishing the best-fit alignments and mapping proposed geometry for Projects. Preliminary Location Exhibit will be developed.</i>
<u>NO</u>	<u>NO</u>	Preliminary Traffic Evaluations & Trends <i>The Engineer will investigate existing traffic models and trends for the proposed Projects and adjacent roadways tying into the proposed Projects.</i>
<u>YES</u>	<u>NO</u>	Preliminary Hydrologic Map <i>The Engineer will develop a Hydrologic Map for the Projects. Hydrologic Maps will be based on LIDAR and GIS information.</i>
<u>YES</u>	<u>NO</u>	Preliminary ROW Requirements <i>The Engineer will research and identify affected property owners on the Projects utilizing the latest appraisal district file information from Hidalgo County Appraisal District and information from Carson Maps.</i>
<u>YES</u>	<u>NO</u>	Preliminary Cost Estimates <i>The Engineer will calculate preliminary construction cost estimates for the location and geometry of the Projects.</i>
<u>YES</u>	<u>NO</u>	Preliminary Environmental Analysis (for fatal flaws) <i>The Engineer will perform Preliminary Environmental Constraint Mapping to determine if any fatal flaws exist along the proposed alignment.</i>
<u>YES</u>	<u>NO</u>	Project Fact Sheet with Est. Local Cost vs. Total Project Cost <i>The Engineer will produce a Project Fact Sheet providing summaries of all pertinent items in this scope of services (as required) and providing estimated local costs vs. total project costs for the Projects.</i>
<u>YES</u>	<u>NO</u>	Meetings, Coordination & Support for Project Development <i>The Engineer shall provide coordination services and shall assist in meetings and workshops with TxDOT, Hidalgo County, Hidalgo County Drainage District No. 1 and Hidalgo County Irrigation Districts, and all other affected parties. The Engineer shall serve as representative for the Owner in coordination items. The Engineer shall coordinate with the Owner's staff on all Project related items.</i>

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 3 - ROUTE AND DESIGN STUDIES

(Function Code 110)

Services
Provided By:
ENGINEER LPA

- | | | |
|------------|-----------|------------------------------------------------------------------------------------|
| <u>NO</u> | <u>NO</u> | 1. Route Location Studies |
| <u>NO</u> | <u>NO</u> | 2. Level of Service Analysis |
| <u>NO</u> | <u>NO</u> | 3. Traffic Evaluations and Projections |
| <u>YES</u> | <u>NO</u> | 4. Develop Roadway Design Criteria |
| <u>YES</u> | <u>NO</u> | 5. Preliminary Cost Estimates |
| <u>YES</u> | <u>NO</u> | 6. Design Schematic
(See Section 7, page 7-1 for schematic layout requirements) |
| <u>YES</u> | <u>NO</u> | 7. Preliminary Right-of-Way Requirements |
| <u>YES</u> | <u>NO</u> | 8. Design Concept Conference |
| <u>YES</u> | <u>NO</u> | 9. Soil Core Hole Drilling |
| <u>NO</u> | <u>NO</u> | a. Pavement (See Section 7, pages 7-2 thru 7-3 for requirements) |
| <u>NO</u> | <u>NO</u> | b. Retaining Walls (See Section 10, page 10-1 for requirements) |
| <u>NO</u> | <u>NO</u> | c. Miscellaneous Structures (See Section 10, page 10-3 for requirements) |
| <u>NO</u> | <u>NO</u> | d. Bridges (See Section 11, page 11-2 thru 11-3 for requirements) |

EXHIBIT "B"

SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 4 – PHASE I ENVIRONMENTAL SITE ASSESSMENT (Function Code 120)

1.0 Phase I Environmental Site Assessment (ESA)

B2Z's approach for performing the Phase I ESA consists of three tasks: first, a review of the public record and an examination of the history of the property; second, an on-site investigation of the property; and third, preparation of a final report summarizing the findings and recommendations of the assessment. The main focus of this site assessment will be to determine if there are any chemical constituents or hazardous materials on the property. B2Z will use the American Society for Testing and Materials (ASTM) Publication E1527-13 as technical guidance for the ESA. B2Z will conduct a search of the National Wetlands Inventory database and a field reconnaissance survey for the presence or absence of Section 404 jurisdictional "waters of the U.S." B2Z will review the existing files held by the Texas Archeological Research Laboratory (TARL) and the Texas Historical Commission (THC) to determine if any previously recorded sites or archeological sites occur within or near the property. In addition, B2Z will conduct a review of the Natural Diversity Database (NDD) checklist for federal and state listed threatened, endangered, and candidate species that potentially occur in the vicinity of the property.

1.1 Compilation and Review of Public Records

This task serves to identify evidence in the public record of activities that may have resulted or could result in contamination or deposition of hazardous materials on the site. Activities to be conducted by B2Z include:

- Compilation and review of pertinent public records (e.g., Texas Commission on Environmental Quality, U.S. Environmental Protection Agency, Texas Railroad Commission) regarding past, present and pending enforcement actions and/or investigations at the site and on the adjoining sites.
- Collect and study topographic maps, soil maps, descriptions of soil composition, and hydrology
- Review reasonably obtainable standard historical information to attempt to identify those uses or occupancies that are likely to have led to recognized environmental conditions. Typical historical information that will be reviewed, if obtainable are as follows: aerial photographs, Fire Insurance Maps, city directories, county tax records, topographic maps, etc.
- A government records review check will be conducted for federal, state, or municipal list of contaminated sites.
- Interviews will be conducted with anyone who may have knowledge of the property's prior uses, which would include current and previous owners and neighbors, previous employees, local government officials, etc.

1.2 Site Reconnaissance

A site reconnaissance will be performed to inspect for evidence of past and/or current presence of hazardous materials on the site and adjoining sites. In addition, B2Z will evaluate any factors in the review of the public record that might be indicative of activities that resulted in hazardous materials being used or deposited on the site or that could result in contamination of the site. The site reconnaissance will include:

- Performance of a detailed physical and visual reconnaissance of every section of the site and adjacent property to observe any signs which may indicate the presence of contaminants on the property and contaminant pathways to the property.
- Photographic documentation of all indicative features of the site for inclusion in the final report.

EXHIBIT "B"

SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

2.0 Report Preparation

Upon completion of the above tasks, B2Z will provide one (1) original set of a written report documenting the Phase I which will include maps, sources consulted and findings of the historical, transcripts of the interviews, recommendations and findings of the site reconnaissance, etc.; however, will not include the government records search. Two (2) other original sets of the written report will be provided which will include the entire findings including the document records. Unless directed otherwise, only the client will receive the report, and no copies will be distributed without prior approval.

If required, services that would be performed at additional cost that are not included in this Scope are as follows:

- Any sampling, analysis, or any environmental hazard or contaminant (including but not limited to asbestos-containing materials, lead-based paint, or radon).
- Any wetlands delineation.
- Remedial or correction actions.
- Preparation of detailed cost estimates for any Phase II ESA activities.

3.0 Contract Management

B2Z has conducted a preliminary background search on the project in order to develop a cost proposal for this project. B2Z will coordinate with Pct #2 on a bi-weekly basis to provide updates on the progress of the project. B2Z will develop a plan to ensure that the project tasks are performed within the budget and scope of the project. The work plan will include developing a project schedule and coordinating field work to ensure that all work is performed on a timely basis and that Quality Assurance and Quality Control (QA/QC) is performed on each task.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 7 - ROADWAY DESIGN CONTROLS

(Function Code 160)

Services
Provided By:
ENGINEER LPA

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|------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>YES</u> | <u>NO</u> | 1. Geometric Design |
| <u>YES</u> | <u>NO</u> | a. Horizontal and Vertical Alignment (Preliminary based on office surveys) |
| | | b. Schematic Layout |
| | | (1) The location of interchanges, main lanes, grade separations, frontage roads and ramps. |
| | | (2) Develop vertical and horizontal alignment of main lanes, ramps and cross roads at proposed interchanges or grade separations. Frontage road alignment data need not be shown on the schematic; however, it should be developed in sufficient detail to determine ROW needs. The degree of horizontal curves and vertical curve data, including "K" values, shall also be shown for ease of checking. |
| | | (3) For freeways, show the location and text of the proposed main lane guide signs. Lane lines and/or arrows indicating the number of lanes shall also be shown. |
| | | (4) A complete explanation of the sequence and methods of stage construction, if proposed, including the initial and ultimate proposed treatment of crossovers and ramps. |
| | | (5) The tentative ROW limits. |
| | | (a) Provide a roadway Design System (RDS) or (GEOPAK) computer tape of the preliminary earthwork to verify ROW requirements. |
| | | (b) Provide a graphics file containing the approved schematic. |
| | | (6) The geometric (pavement cross slopes, lane and shoulder widths, slope rates for fills and cuts) of the typical sections of proposed highway main lanes, ramps, frontage roads, and cross roads. |
| | | (7) The current and projected traffic volumes as provided by the TxDOT (20 year traffic projection, unless otherwise determined by the District Engineer). |
| | | (8) The control of access lines if Interstate or designated under House Bill 179. |
| | | (9) Direction of traffic flow on all roadways. |
| | | (10) Location and width of median openings for highway without access control. |
| | | (11) The geometric of speed change (acceleration, deceleration, climbing) lanes. |
| <u>YES</u> | <u>NO</u> | 2. General Guidelines for Project Development |
| | | a. Prior to preparing detailed plans for a proposed project, a preliminary schematic layout shall be prepared which indicates the general geometric features and location requirements peculiar to the project. An uncontrolled aerial mosaic will be provided for this use. Four copies of the schematic layout shall be submitted through the district to the Design Division for approval and subsequent coordination with the Federal Highway Administration (FHWA) where applicable. The layout shall be submitted for two-lane arterial highway projects on new locations and for all multi-lane highway projects. No geometric design is to be performed until the COUNTY has given the engineer written approval of the preliminary schematic layout. |
| | | b. All geometric design shall be in conformance with the State's Design Division, Operations and Procedures Manual, except where variances are permitted in writing by the STATE. |
| | | c. The schematic layout shall include basic information which is necessary for the proper review and evaluation including the items listed above in the checklist for schematic layout. |
| | | d. Handling of traffic during construction shall be a consideration in the development of preliminary designs. |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
ENGINEER LPA

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| <u>YES</u> | <u>NO</u> | 2. General Guidelines for Project Development (<i>continued</i>) |
| | | <ul style="list-style-type: none"> e. Upon approval of the schematic layout by Design Division (FHWA on Federal-aid projects), it shall be the basis for an exhibit at any required public hearing prior to final development of the project. If there are any changes to the schematic after the Design Division and FHWA approval and before the public hearing, four copies of the revised schematic, as displayed at the hearing, shall be submitted either prior to or accompanying the public hearing data. If there are no changes in the schematic as displayed at the hearing, only photographs of the schematic and other displays shall be submitted with the public hearing data. f. For all freeway construction projects, these schematics shall show the location and text of the proposed main lane guide signs. A schematic layout shall be submitted through the district to the Traffic Operations Division, Traffic Safety Section for approval and subsequent coordination with the FHWA. All signing shall be in conformance with the Texas MUTCD. g. On complex projects, informal contact through the district with the Design Division and FHWA personnel is encouraged with regard to development of preliminary design prior to official schematic submission. h. The engineer shall furnish a project tape that is compatible with the STATE's computer system, a project listing, and a cross section plot showing the original design sections containing the earthwork input and original cross sections for the project. Accuracy of the earthwork design is of utmost importance since it is the basis for contractor payments and construction staking. |
| <u>NO</u> | <u>NO</u> | 3. Exhibit for Airway/Highway Clearance Permits |
| <u>YES</u> | <u>NO</u> | 4. Grading Design |
| | | <ul style="list-style-type: none"> a. Refine the horizontal and vertical alignment of main lanes, frontage roads, ramps, cross roads and direct connectors based upon the approved schematic layout. Determine vertical clearances at grade separations and overpasses, taking into account the appropriate super elevation rate. b. Typical Sections c. Design Cross Sections d. Determine Cut and Fill Quantities e. Slope Stability Analysis f. Embankment Foundation Stability Analysis g. Embankment Settlement Analysis |
| <u>YES</u> | <u>NO</u> | 5. Pavement Design |
| | | <ul style="list-style-type: none"> a. Prior to initiating detailed plan preparations for a project, a preliminary investigation shall be made to determine the approximate section and pavement type to be used for the pavement structure. The Flexible Pavement Design Manual for flexible pavement, "Appendix F" of the Design Division, Operations and Procedures Manual, and the current AASHTO Guide for the Design of Pavement Structures, may be used for this purpose. b. The typical section shall also reflect proposed geometric including pavement cross slopes, lane and shoulder widths, and slope rates whenever this data have not been previously shown on a schematic submission. c. Embankment and Subgrade <ul style="list-style-type: none"> (1) Soil Core Holes (Show cost estimate with Function Code 110) <ul style="list-style-type: none"> (a) Along center line (b) Along center line of each roadway |
| <u>YES</u> | <u>NO</u> | |
| <u>NO</u> | <u>NO</u> | The location and minimum number of soil core holes required for this project are as follows: (To be determined when schematic is being completed) |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services

Provided By:

ENGINEER LPA

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| <p><u>YES</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> | <p>5. Pavement Design (<i>continued</i>)</p> <p>c. Embankment and Subgrade (<i>continued</i>)</p> <p> (2) Identify, interpret and summarize geologic features that affect engineering design (PI, Sulfate content, % of lime)</p> <p>d. Traffic Data for Pavement Design by STATE</p> <p>e. Basic Design Criteria</p> <p>f. Life Cycle Cost Analysis(es)</p> <p>g. Cost Data</p> <p>h. Pavement Material Properties</p> <p>i. Rehabilitation Investigations</p> <p> (1) Core Hole Survey (Show cost estimate with Function Code 110)</p> <p> (a) Determine type and depth of existing material, pavement, etc. The Engineer will determine whether to salvage ACP and FLEXBASE as well as their properties and provide this information to TxDOT.</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 8 - DRAINAGE

(Function Code 161)

Services
 Provided By:
ENGINEER LPA

All hydraulic design shall be in accordance with the TxDOT's Hydraulic Manual, except where variances are permitted in writing by the LPA.

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> | <p>1. Hydrologic Studies, Discharges</p> <p>a. Hydrologic Map showing drainage areas, contours and drainage Q's.</p> <p>b. Drainage area maps showing existing conditions and proposed improvements.</p> <p>c. Hydrologic data/discharge determination</p> |
| <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> | <p>2. Hydraulic Drainage Study and Documentation</p> <p>a. Hydraulic computations</p> <p>(1) Storm water detention available within the ROW (linear ft. along side drain ditch).</p> <p>(2) Storm water detention required outside the ROW (as per HCDD#1)</p> <p>(3) Culverts</p> <p>(4) Bridge waterways</p> <p>(5) Channels</p> <p>(6) Storm sewers/inlets</p> <p>(7) Pump stations</p> <p>(8) Storm Water Management facilities</p> <p>(9) Other</p> <p>(a) Irrigation Canals/Siphons</p> <p>b. Hydraulic report(s)</p> <p>c. Federal Emergency Management Agency (FEMA) floodway requirements</p> <p>d. Determine impact of proposed drainage plan on the following receiving stream(s)</p> <p>(1) Hidalgo County Drainage District Outfalls</p> <p>(2) All Irrigation District Outfalls impacted</p> |
| <p><u>YES</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> | <p>3. Layout, Structural Design and Detailing of Drainage Features</p> <p>a. Culverts</p> <p>(1) New culverts</p> <p>(2) Culvert widening and/or lengthening</p> <p>(3) Culvert replacements</p> <p>b. Storm sewers</p> <p>(1) New storm sewers</p> <p>(2) Modify existing storm sewers</p> <p>(3) Inlets</p> <p>(4) Manholes</p> <p>(5) Trunk lines</p> <p>c. Pump stations</p> <p>d. Subsurface drainage at retaining walls</p> <p>e. Outfall channel(s) within the ROW</p> <p>f. Outfall channel(s) outside the ROW</p> <p>g. Detention Pond(s) within the ROW</p> <p>h. Detention Pond(s) outside the ROW</p> <p>i. Summary of Quantities</p> <p>j. Storm Water Management facilities</p> |
| <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> | <p>4. Storm Water Pollution Prevention Plan (SW3P)</p> <p>5. Scour Evaluation - Waterway Structures only (to be completed by Bridge Engineer under FC 170).</p> |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 9 - SIGNING, MARKINGS AND SIGNALIZATION

(Function Code 162)

Services
Provided By:
ENGINEER LPA

- | <u>YES</u> | <u>NO</u> | |
|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | 1. Signing and Markings Layout |
| | | a. Requirements (Separate Layout) |
| | | (1) Roadway layout |
| | | (2) Center line with station numbering |
| | | (3) ROW lines |
| | | (4) Culverts and other structures that present a hazard to traffic |
| | | (5) Location of utilities, if not shown on plan and profile |
| | | (6) Existing signs to remain, to be removed, to be relocated |
| | | (7) Proposed signs (illustrated and numbered) |
| | | (8) Existing overhead sign bridges to remain, to be revised, removed or relocated |
| | | (9) Proposed overhead sign bridges indicating location by plan layout (electrical details need not be shown on this layout) |
| | | (10) Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation |
| | | (12) Quantities of existing pavement markings to be removed |
| | | (13) Proposed delineators and object markers |
| | | b. For projects involving freeway to freeway or other types of directional interchanges, projects including left-hand ramps or connections, the following information must be provided: |
| | | (1) The location of interchanges, main lanes, grade separations, frontage roads and ramps |
| | | (2) complete explanation of the sequence and methods of stage construction, where applicable, which would include the initial and ultimate proposed treatment of crossovers and ramps |
| | | (3) The number of lanes in each section of proposed highway and the location of changes in numbers of lanes |
| | | (4) The projected traffic volumes as provided by the STATE (20 year traffic projection, unless otherwise determined by the District Engineer) |
| | | (5) Tentative ROW limits |
| | | (6) Direction of traffic flow on all roadways |
| | | (7) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations |
| <u>YES</u> | <u>NO</u> | 2. Summary of Small Signs Tabulation |
| <u>NO</u> | <u>NO</u> | 3. Summary of Large Signs Tabulation including all Guide Signs |
| <u>YES</u> | <u>NO</u> | 4. Sign Detail Sheets |
| | | a. All signs except route markers |
| | | b. Design details for large guide signs |
| | | c. Dimensions of letters, shields, borders, corner radii etc. |
| | | d. Designation of shields attached to guide signs |
| | | e. Designation of arrow used on exit direction signs |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
ENGINEER LPA

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|-----------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 5. | Traffic Signals | |
| | a. | Development of Justification (Warrant) Data |
| <u>NO</u> | <u>NO</u> | (1) Location Map
Relationship of proposed installation to other traffic signals, highways, business areas and traffic generators |
| <u>NO</u> | <u>NO</u> | (2) Photographs as appropriate |
| <u>NO</u> | <u>NO</u> | (3) Accident data as appropriate |
| <u>NO</u> | <u>NO</u> | (4) Vehicle volumes (provided by TxDOT) |
| <u>NO</u> | <u>NO</u> | (a) Existing |
| <u>NO</u> | <u>NO</u> | (b) Estimated |
| <u>NO</u> | <u>NO</u> | (c) Projected |
| <u>NO</u> | <u>NO</u> | (d) Pedestrian |
| <u>NO</u> | <u>NO</u> | (5) Traffic Survey - Count Analysis |
| <u>NO</u> | <u>NO</u> | (6) Recommendation based on above data |
| | b. | Layout |
| <u>NO</u> | <u>NO</u> | (1) Title Sheet (when applicable) |
| | | (a) Describe the location |
| | | (b) Type of installation |
| | | (c) Area map with project limits for each location |
| | | (d) Index of sheets |
| | | (e) Space for official signatures |
| | | (2) Estimate and quantity sheet (when applicable) |
| | | (a) List of all bid items |
| | | (b) Bid item quantities |
| | | (c) Specification item number |
| | | (d) Paid item description and unit of measure |
| | | (3) Basis of estimate sheet (list of materials) |
| | | (4) General notes and specification data sheet |
| | | (5) Condition diagram |
| | | (a) Highway and intersection design features |
| | | (b) Roadside development |
| | | (c) Traffic control including illumination |
| | | (6) Plan sheet(s) |
| | | (a) Existing traffic control that will remain (signs and markings) |
| | | (b) Existing utilities |
| | | (c) Proposed highway improvements |
| | | (d) Proposed installation |
| | | (e) Proposed additional traffic controls |
| | | (f) When applicable, proposed conduit for Railroad interconnect with standard details for runs under tracks. |
| | | (g) Proposed illumination attached to signal poles. |
| | | (7) Notes for plan layout |
| | | (8) Elevation sheet(s) (span wire design) |
| | | (9) Phase sequence diagram(s) |
| | | (a) Signal locations |
| | | (b) Signal indications |
| | | (c) Phase diagram |
| | | (d) Signal sequence table |
| | | (e) Flashing operation (normal and emergency) |
| | | (f) Preemption operation (when applicable) |
| | | (g) Interval timing, cycle length and offset |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
ENGINEER LPA

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|-----------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>NO</u> | <u>NO</u> | 5. Traffic Signals <i>(continued)</i>
b. Layout <i>(continued)</i>

(10) Construction detail sheets(s)
(a) Poles (TxDOT standard sheets)
(b) Detectors
(c) Pull Box and conduit layout
(d) Controller Foundation standard sheet
(11) Marking details (when applicable)
(12) Barricade and warning sign standard sheet and any special details for work zone traffic control for special conditions
(13) Aerial or underground interconnect details (when applicable) |
| <u>NO</u> | <u>NO</u> | c. General Requirements
(1) Contact local utility company
(a) Confirm power source
(b) Discuss route of aerial or underground interconnect cable (when applicable)
(c) Adjustment of overhead utility lines
(2) Prepare governing specifications and special provisions list
(3) Prepare project estimate |
| <u>NO</u> | <u>NO</u> | d. Summary of Quantities |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 10 - MISCELLANEOUS (ROADWAY)

(Function Code 163)

Services
 Provided By:
ENGINEER LPA

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| <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p>
<p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p>
<p><u>NO</u> <u>NO</u></p>
<p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p>
<p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> <p><u>NO</u> <u>NO</u></p> | <p>1. Retaining Walls</p> <p>a. Structural Details</p> <p>(1) Cast-in-Place Cantilever at _____ locations. (TxDOT Standard Retaining Wall)*</p> <p>(2) Tiedback Retaining Wall at _____ location. (TxDOT standard retaining wall)</p> <p>(3) Specialized Retaining Wall at _____ locations (Unique Design).*</p> <p>b. Alternate Patented Retaining Walls at all locations. (Layouts Only)**</p> <p>(1) Mechanically Stabilized Earth</p> <p>(2) Concrete Block Wall Systems</p> <p>c. Retaining Wall Layout (PLAN)</p> <p>(1) Designation of reference line</p> <p>(2) Beginning and ending retaining wall stations</p> <p>(3) Station of each retaining wall joint***</p> <p>(4) Offset from reference line</p> <p>(5) Horizontal curve data</p> <p>(6) Number of retaining wall panels and lengths***</p> <p>(7) Total length of wall</p> <p>(8) Indicate face of wall</p> <p>(9) All wall dimensions and alignment relations (alignment data as necessary)</p> <p>(10) Soil core hole locations</p> <p>d. Retaining Wall Layout (ELEVATION)</p> <p>(1) Top of wall elevations at each joint or intervals***</p> <p>(2) Existing and finished ground line elevations</p> <p>(3) Height of stem at each joint***</p> <p>(4) Wall panel designations***</p> <p>(5) Top of footing elevations***</p> <p>(6) Limits of measurement for payment****</p> <p>(7) Type, limits and anchorage details of railing (If applicable)</p> <p>(8) Top and bottom of wall profiles and soil core hole data plotted at correct station and elevation. The plot shall be at the same scale as the wall profile. Ground water elevations and the observation date shall be shown.</p> <p>e. Foundation Studies (Show cost estimate with Function Code 110)</p> <p>(1) The soil core holes shall be obtained at approximately 200 foot intervals along retaining wall alignments. The core holes shall extend 25 feet below the footing elevation.</p> <p>f. Stability Analysis (the ENGINEER shall estimate this task as part of his bid to complete the work).</p> <p>g. Estimate</p> <p>h. Summary of Quantities</p> <p>i. Typical X-section.</p> <p>j. General Guidelines for Retaining Walls</p> <p>(1) The ENGINEER shall make final design calculations and final detail drawings in accordance with standard requirements of the Texas Department of Transportation. The designer and checker shall check all calculations and initial each page.</p> <p>(2) The ground water level should be observed at the water strike.</p> <p>(3) For purposes of uniformity statewide, soil core hole data shall be shown on layouts as illustrated in the Bridges and Structures Foundation Exploration and Design Manual.</p> <p>(4) Foundation exploration shall conform to the requirements set forth in Administrative Circular No. 25-84, Administrative Circular 33-87 and Administrative Circular No. 25-92.</p> |
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EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
ENGINEER LPA
YES NO

2. Traffic Control Plan, Detours and Sequence of Construction
 Traffic Control Plans (TCP) are required for all projects. A detailed TCP shall be developed when traffic handling during construction involves complications for which a feasible solution is not covered by the Texas MUTCD or the current Barricade and Construction (BC) Standards. The following items are required on all Traffic Control Plan Layouts:
- a. The sequence of construction and method of handling traffic during each phase.
 - b. The existing and proposed traffic control devices that will be used to handle traffic during each construction sequence. Include signals, regulatory signs, warning signs, construction warning signs, guide signs, route markers, construction pavement markings, channelizing devices, portable changeable message signs, flashing arrow boards, barricades, barriers, etc.
 - c. The proposed traffic control devices (stop signs, signals, flag person, etc.) at grade intersections during each construction sequence.
 - d. Where detours are provided, typical cross sections shall be shown.
 - e. Road construction work hours shall be developed after an investigation of the traffic volumes has been performed.

NO NO

3. Illumination
- a. Preliminary Roadway Illumination Layout and Circuit Layout
 - (1) For projects involving freeway to freeway or other types of directional interchanges and projects including left-hand ramps or connections, provide the following:
 - (a) The location of interchanges, main lanes, grade separations, frontage roads and ramps
 - (b) A complete explanation of the sequence and methods of stage construction, where applicable, which would include the initial and ultimate proposed treatment of crossovers and ramps
 - (c) The number of lanes in each section of proposed highway and the location of changes in the number of lanes
 - (d) The projected traffic volumes as provided by the STATE (20 year traffic projection unless otherwise determined by the district engineer)
 - (e) Tentative ROW limits
 - (f) Direction of traffic flow on all roadways
 - (g) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations

NO NO

- b. Final Roadway Illumination and Electrical Circuit Layouts
 - (1) Roadway layout showing pavement edges, shoulders, curbs, retaining walls, etc.
 - (2) Center line with station numbering.
 - (3) ROW lines.
 - (4) Symbol legend. Use department standard symbols for lighting and electrical.
 - (5) Culverts and other structures that present a hazard to traffic.
 - (6) Location of underground utilities, if not shown on plan profile.
 - (7) Location of overhead electrical lines, both crossing and parallel to ROW.
 - (8) Existing sign lighting circuits and roadway illumination to remain, to be removed, to be relocated.
 - (9) Existing service poles, electrical circuits, ground boxes, etc.
 - (10) Contact electric utility for service pole locations, voltage characteristics.
 - (11) Location of proposed sign lighting circuits and roadway illumination.
 - (12) Proposed electrical circuits.
 - (13) Tabulation of all quantities including proposed, existing to be relocated, existing to be removed. The layout sheet quantities and lighting summary shall be shown. Tabulations to include estimated quantity with a column for final quantities.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services Provided By:		
<u>ENGINEER</u>	<u>LPA</u>	
<u>NO</u>	<u>NO</u>	3. Illumination (<i>continued</i>)
		c. General Guidelines for Illumination (If applicable)
		The ENGINEER shall submit to the COUNTY, well in advance of PS&E due date, the roadway illumination and electrical circuit layout sheets for review by the STATE. Two copies of the layout sheets are to be submitted. One copy will be returned to the Engineer showing corrections that are to be made by the ENGINEER. When final plan submission is made, the ENGINEER shall provide a written statement regarding completion of the corrections.
<u>YES</u>	<u>NO</u>	4. Miscellaneous Drafting/Standards
<u>NO</u>	<u>NO</u>	a. Erosion Control
		b. Landscape Development
<u>YES</u>	<u>NO</u>	5. Compute and Tabulate Quantities
<u>YES</u>	<u>NO</u>	6. Special Utility Details (Irrigation lines)
		7. Miscellaneous Structures
		a. Type of Structure*
		(1) Overhead Sign Bridges (O.S.B.)
		Modifications or special O.S.B. designs shall be prepared using the same design assumptions that are used for the standard O.S.B structures.
<u>NO</u>	<u>NO</u>	(a) New O.S.B. structure(s)
<u>NO</u>	<u>NO</u>	(b) Structural evaluation of existing O.S.B. structure(s) that are to remain in place or to be relocated.
<u>NO</u>	<u>NO</u>	(2) High Mast Illumination Poles (HMIP)
<u>NO</u>	<u>NO</u>	(3) Traffic Signal Supports
<u>NO</u>	<u>NO</u>	(4) Conventional Illumination Poles
<u>NO</u>	<u>NO</u>	(5) Sound Barrier Walls
<u>NO</u>	<u>NO</u>	b. Checklist for Layouts
		(1) Reference appropriate O.S.B. standard
		(2) Drilled shaft size and length
		(3) Soil strength used for design {indicate basis and boring(s) used}
		(4) Design height
		(5) Tower heights
		(6) Leg spacings
		(7) Design wind speed
<u>NO</u>	<u>NO</u>	c. Foundation Studies (Show cost estimate with Function Code 110)
		The soils exploration requirements for miscellaneous structures on this project are as follows: (To be provided by the Engineer on an as-needed basis)
		8. Agreements
<u>NO</u>	<u>NO</u>	a. Utility Agreements
<u>NO</u>	<u>NO</u>	b. Exhibits for Utility Agreements
<u>NO</u>	<u>NO</u>	c. Railroad Agreements
		d. Railroad Exhibits
		(1) Railroad Underpasses
<u>NO</u>	<u>NO</u>	(2) Railroad Overpasses
<u>NO</u>	<u>NO</u>	(3) Railroad Grade Crossing (Replanking)
<u>NO</u>	<u>NO</u>	(4) Railroad Grade Crossing Warning Systems (Signals)
<u>NO</u>	<u>NO</u>	(5) Other Miscellaneous Sketches for Railroads
<u>NO</u>	<u>NO</u>	e. Traffic Signal Agreements
<u>NO</u>	<u>NO</u>	f. Exhibits for Traffic Signal Agreements
<u>YES</u>	<u>NO</u>	9. Estimate
<u>YES</u>	<u>NO</u>	10. Specifications and General Notes

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

ADDITIONAL RESONSIBILITIES

Easements, Letters of Permission, Etc.

The ENGINEER shall be responsible for delineating easements. The ENGINEER will be responsible for securing the necessary legal instruments.

Coordination of Utilities

The ENGINEER shall furnish the LPA prints of a project layout which will be distributed by ENGINEER to various utility companies to determine which utilities are in the limits of the project. These shall be preliminary layouts. Upon completion of the preliminary drainage plans and U&D sheets, the ENGINEER shall distribute to the various utility companies and request return. Upon return of these prints, the ENGINEER will schedule a meeting with the various utility companies to discuss potential conflicts and conformance with the State's Utility Accommodation Policy. The ENGINEER is responsible for coordination with the various utility companies for exposing potential conflicts and field ties to uncover utilities in potential conflict areas.

Meetings

Meetings will be held with the FHWA, State Officials, local governments, property owners, utility owners, railroad companies, other consulting firms, etc., as needed or required by the LPA. The ENGINEER shall coordinate through the LPA for the development of this project with any local entity having jurisdiction or interest in the project (i.e., city, county, etc).

Specifications, Special Provisions, Special Specifications

Use the State's standard specifications or previously approved special provisions and/or special specifications. If a special provision and/or special specification is developed for this project, it shall be in the State's format and incorporate references to approved State test procedures.

Project Manager/Engineer Communication

The ENGINEER shall designate one Texas Registered Professional Engineer to be responsible throughout the project for project management and all communications, including billing, with the LPA's Director. Any replacements to the ENGINEER's designated Project Manager/Engineer must be approved by the LPA.

Engineering documents produced for the department's engineering projects shall be signed, sealed and dated or CADD sealed in accordance with Administrative Order No. 5-89 and Administrative Circular No. 26-91.

Design Responsibilities

The ENGINEER is responsible for design errors and/or omissions that become evident before, during or after construction of the project. The ENGINEER's responsibility for all questions arising from design errors and/or omissions will be determined by the LPA and all decisions shall be final and binding. This would include, but not necessarily be limited to:

1. All design errors and/or omissions resulting in additional design work to correct the errors and/or omissions.
2. Preparation of design documents and detail drawings necessary for a field change due to design errors and/or omissions.
3. Revision of original tracings to the extent required for a field change due to design errors and/or omissions.

The ENGINEER shall promptly make necessary revisions or corrections resulting from the ENGINEER's errors, omissions or negligent acts without additional compensation. Acceptance of the work by the LPA will not relieve the ENGINEER of the responsibility for subsequent correction of any such errors or omissions or for clarification of any ambiguities.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Document and Information Exchange

Data, Plan Sheets, General Notes and/or Specifications provided to the LPA shall be furnished on 8GB USB flash drives. Each 8 GB flash drive shall have a file titled Table of Contents. The Table of Contents shall indicate the locations of files within the directory structure of the documentation.

General Notes and specifications shall be provided in MS Office 2007 format. Plan sheets shall be provided in Microstation DGN or GEOPAK GPK format. PDF copies of plan sheets shall also be provided.

Two copies of the documentation shall be provided to the LPA.

If required, the ENGINEER shall provide to the LPA, a CD that contains all the plan sheets for the project. The graphics tape shall be compatible with the LPA's computer system.

CD Tape Required (YES or NO): YES

Proposal Time

The time indicated in the proposal and the contract shall include time necessary for reviews, approval, etc.

Office Location

The ENGINEER will perform the services to be provided under this agreement out of their office or offices listed below:

<u>Service</u>	<u>Office Location</u>
Schematic	Mission Office
PS&E	Mission Office
Environmental Document	Mission Office

The work effort will be managed out of the _____ Mission _____
(City)

office located at 900 South Stewart Rd., Suite 4 _____,
(Address)

Mission _____, Texas _____.
(City) (State)

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

APPENDIX A - PLAN SHEET SEQUENCE PROCEDURE

1. Title Sheet
Detailed Index of Sheets
2. Typical Sections
3. General Notes and Specifications Data
4. Estimate and Quantity Sheets
5. Storm Water Pollution Prevention Plan (SW3P) Sheets
6. Traffic Control Plans
 - a. Sequence of Construction Layouts
 - b. Detour Plan/Profile/Typical Sections/Quantities
7. Roadway Layouts
 - a. Roadway Plan/Profile Sheets
 - b. Intersection Plan/Profile Sheets
 - c. Intersection Layouts
 - d. Alignment Layouts/Data
 - e. Ramp Layouts/Profiles
 - f. Connection Roads/U-turns Layouts/Profile
8. Roadway Details
 - a. Concrete Pavement Details/Standards
 - b. Concrete Pavement Terminal Anchorage Details/Standards
 - c. Bridge Approach Details/Standards
 - d. Bridge Terminal Anchorage Details/Standards
 - e. Roadway/Median Barrier Details/Standards
 - f. Curb Details
 - g. Driveway Details/Typical Sections/Standards
9. Signing Layouts and Marking Layouts
10. Traffic Signal Layouts
11. Lighting Layouts
12. Illumination Detail Standards (HMID, HMIF, HMIP, RID)
13. Utility Layouts/Profiles
14. Drainage Area Maps and Hydraulic Data
 - a. General Drainage Area Maps
 - b. Stage-Discharge Curves
 - c. Main Cross-Drainage Culvert/Bridge Hydraulic Data
 - d. Drainage Area Maps/Culverts/Storm Sewer
 - e. Hydraulic Data/Culverts/Inlets/Storm Sewer/Pumps
15. Detailed Drainage Plans
 - a. Drainage Plan/Profile Sheets (Storm Sewer Plan/Profile Sheets)
 - b. Channel Plan/Profiles/Typical Sections
 - c. Box Culvert Plan/Profile
 - d. Pipe Sewer/Culvert Cross Sections

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

APPENDIX A - PLAN SHEET SEQUENCE PROCEDURE (Continued)

16. Drainage Structural Details/Standards
 - a. Inlet Details/Standards
 - b. Manhole Details/Standards
 - c. Junction Box Details/Standards
 - d. Safety End Treatment Details/Standards
 - e. Box Culvert Details/Standards
 - f. Culvert Wingwall Details/Standards
 - g. Excavation-Backfill Diaphragms
 - h. Riprap Details/Standards
 - i. Temporary Pollution and Erosion Control Details

17. Pumphouse Layouts

18. Pumphouse Details

19. Pumphouse Standard Details

20. Bridge Layouts/Profile/Typical Sections*

21. Bridge Details*
 - a. Summary of Bridge Quantities
 - b. Abutments
 - c. Interior Bents
 - d. Spans
 - e. Special details for the specific bridge

22. Bridge Standard Details*

23. Bridge Railing Standards

24. Retaining Wall Layouts/Profiles**

25. Retaining Wall Details**

26. Retaining Wall Standard Details**

27. Guard Fence/Standards and Signal Pole Standards

28. Signal/Electrical Details/Standards and Signal Pole Standards

29. Signing/Markers/Striping Details/Standards

30. Barricade/Construction/Beacon Standards

31. Miscellaneous Standards
 - a. Chain Link Fence Standards
 - b. Bridge End Detail/Standards
 - c. Roadway Clearance Details/Standards
 - e. Attenuator Standards

NOTE: Variations of these plan sheet sequence guidelines may be permitted if approved in writing by the LPA.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

APPENDIX B - PLAN PREPARATION PROCEDURES

1. Title Sheet
The ENGINEER shall be responsible for completing the title sheet as required and formatted by the STATE and as discussed in Part V of the Highway Design, Operations and Procedures Manual. Refer to Section K - Plans, 1 - Title Sheets, page 5-24, for the procedure to be used regarding all plans prepared by the ENGINEER.
2. Project Layout
The project layout shall clearly depict the entire project as it is proposed and will usually be drawn at a scale of 1 inch=100 feet or 1 inch=200 feet, depending on the size of the project.
3. Typical Sections
See Part IV of the Highway Design, Operations and Procedures Manual.
4. Sequence of Work Sheets (Traffic Control Plan)
Clarity and completeness should be the rule to follow in preparing these sheets, with particular attention given to location of construction signs and barricades, lane widths, protection of drop offs, etc. For a reference guide use the Texas Department of Transportation, Texas Manual on Uniform Traffic Control Devices. Usual scale of 1 inch=100 feet and/or 1 inch=50 feet for special locations. A narrative sequence shall be included in the special provisions for the project. Staging of structural elements shall be considered. Provisions for drainage shall be considered, included and indicated during all stages of construction operations.
5. Removal Item Sheets
These sheets indicate removal of existing facilities necessary to the proposed construction. (1 inch=40 feet) (use same scale as plan/profile sheets).
6. Summary Sheets
Summary Sheets are required to indicate type, quantity and/or location of work for individual items of the proposed project.
7. Alignment Layout Sheets
These sheets indicate the horizontal alignment with curve data and coordinates usually tabulated thereon. On some projects, depending on size, this information may be included on the plan profile sheets. Usual scale (1 inch=100 feet) or (1 inch=40 feet).
8. Plan Profile Sheet
Clarity and completeness should be the rule to follow in preparation of these sheets. Usual scale (1 inch=40 feet or 1 inch=50 feet) or (1 inch=20 feet), depending on project complexity.
9. Drainage Area Maps
Usual scale (1 inch=100 feet) and/or (1 inch=200 feet) supplemented by large scale area maps as necessary.
10. Drainage Plan Profile Sheets
These sheets may be required on some projects to clearly depict location of inlets, storm sewer lines, and profile of storm sewer lines and laterals. Usual scale (1 inch=40 feet or 1 inch=50 feet) or (1 inch=20 feet). Storm sewer design does include redesign of storm sewers imposed by utility constraints developing after initial reviews by the STATE and consequential redesign and adjustments.
11. Runoff, Inlet, Storm Sewer and Culvert Sheets
Use standard sheets.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

APPENDIX B - PLAN PREPARATION PROCEDURES (Continued)

12. Culvert Cross Sections and Details
District standard reproducible sheets can be furnished (one each) to the ENGINEER for modification of special designs.
13. Manhole and Inlet Details
District standard reproducible sheets can be furnished (one each) to the ENGINEER.
14. Miscellaneous Detail
Curb, Sidewalk, Driveways, etc.
15. Intersection Details
16. Marking Layouts and/or Details
Layouts of the entire project with markings depicted thereon. Usual scale 1:500 (1 inch=40 feet or 1 inch=50 feet). On some projects typical details might suffice.
17. Structural Details
Bridge layout sheets shall have the same horizontal and vertical scale. Usually (1 inch = 10 feet) (1 inch = 20 feet). Sections of existing and proposed structures usually have a scale of (1 inch = 5 feet). Elements of the bridge (abutments, bents, slabs, etc.) shall be detailed to a (1/2 inch = 1 foot) or (1/4 inch equals 1 foot) architect scale to provide clear legible drawings when reduced. Letters shall be a minimum size of 4 millimeters (5/32 inch) height for hand lettering and 140 for lettering by computer-aided design and drafting (CADD).
18. Overhead Sign Bridge Layouts
A maximum of four structures may be shown on each layout sheet. The reference to the appropriate overhead sign bridge (OSB) standard and the following requirements shall be shown on the layout:
 - (1) Drilled shaft size and length
 - (2) Soil strength used for design {indicate basis and boring(s) used}
 - (3) Design height
 - (4) Tower height
 - (5) Leg spacings and
 - (6) Design wind speed.

The wind speed design map need not be included in the project plans. Designation of tower member size and anchor bolt size shall not be shown. For OSBs which require special design, the design shall be in accordance with the AASHTO sign specifications (see Item 22 of References on page 49) and to the same loading requirements as for normal standard structures. Structures (special or standard) which will have changeable message signs shall be analyzed by the ENGINEER.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

APPENDIX C - GENERAL PLAN CHECKLIST

Services
 Provided By:
ENGINEER LPA

___	___	Title Sheet
___	___	Project Layout
___	___	Sequence of Work
___	___	Detour Layouts & Profiles
___	___	Construction Pavement Markings
___	___	Signing & Barricades
___	___	Construction Sign & Beacons
___	___	Typical Sections
___	___	Shaping & Finishing Sections
___	___	Slopes Adjacent to Shoulders
___	___	Estimate & Quantities
___	___	General Notes & Specification Data
___	___	Grading Summary
___	___	Miscellaneous Summaries (See following "SUMMARIES" heading)
___	___	Horizontal Curve Data & Alignment Layouts
___	___	Drainage Summaries
___	___	Structure Summaries
___	___	Erosion Control Summary & Details
___	___	Plan/Profile Sheets
___	___	Erosion Control Summary & Details
___	___	Pavement Contours
___	___	Superelevation Transition (If Required)
___	___	Grading Contours
___	___	Guard Fence Layouts
___	___	Storm Water Pollution Prevention Plans (SW3P)
___	___	Drainage Area Maps
___	___	Hydraulic Data
___	___	Drainage Sheets
___	___	Bridge Hydrology Sheets
___	___	Inlet & Manhole Details
___	___	Utility Support Details
___	___	Culvert Cross Sections & Details
___	___	Special Culvert Designs
___	___	Special Drainage Details
___	___	Chain Link Fence Locations
___	___	Ramp Details Sheet
___	___	Removal Item Sheet - Including detours (Shown in detour summary, No payment for removal; subsidiary to construction detours)
___	___	Pavement Details
___	___	Pavement Standard Modification for Concrete Shoulder
___	___	Concrete Pavement Continuously Reinforced (CPCR)
___	___	Concrete Pavement Contraction Design (CPCD)
___	___	Concrete Pavement Details - Jointed Reinforced (Steel Bars) (CPJR)
___	___	Bridge Approach Slab Details
___	___	Vehicle Attenuator Details
___	___	Miscellaneous Details
___	___	Wheelchair Ramps
___	___	Pavement Marking Details
___	___	Modified Standards
___	___	List of Standards
___	___	Permanent Signing Plans & Quantities

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

APPENDIX C - GENERAL PLAN CHECKLIST (continued)

Services
 Provided By:
ENGINEER LPA

- | | | |
|-----|-----|-----------------------------------------------------------------------------|
| ___ | ___ | Permanent Lighting Plans, Quantities & Standards |
| ___ | ___ | Bridge Layout(s) |
| ___ | ___ | Bridge Details |
| ___ | ___ | Retaining Wall Layout(s) |
| ___ | ___ | Retaining Wall Details |
| ___ | ___ | Pumphouse Details |
| ___ | ___ | Underdrain Details (Retaining Walls) |
| ___ | ___ | Culvert Standards |
| ___ | ___ | Soil Profile |
| ___ | ___ | Temporary Traffic Signals |
| ___ | ___ | Design Cross Sections |
| ___ | ___ | Estimate |
| ___ | ___ | List of Standard Specification, Special Provisions & Special Specifications |
| ___ | ___ | Detour Special Provisions (If Required) |
| ___ | ___ | Construction Time Estimate |
| ___ | ___ | Critical Path Method (CPM) |
| ___ | ___ | Unit Price Documentation |

Miscellaneous

- | | | |
|-----|-----|-----------------------------|
| ___ | ___ | Conduit Requirements |
| ___ | ___ | Traffic signal Requirements |

Summaries

(ALL BELOW YES FOR ENGINEER AND NO FOR COUNTY UNLESS NOTED OTHERWISE)

- | | | |
|-----|-----|-----------------------------------------------------|
| ___ | ___ | Salvaging and Placing Topsoil |
| ___ | ___ | Prepare ROW |
| ___ | ___ | Remove Old Structures |
| ___ | ___ | Scarify Existing Pavement |
| ___ | ___ | Remove Old Concrete Curb of Curb and Gutter (C&G) |
| ___ | ___ | Remove Old Concrete Pavement |
| ___ | ___ | Remove Old Concrete Riprap |
| ___ | ___ | Remove Metal Beam Guard Fence |
| ___ | ___ | Galvanized steel Beam Guard Fence (12Ga) (GSBGF) |
| ___ | ___ | Temporary Guard Fence (TEMPGF) |
| ___ | ___ | Summary of Concrete Flumes |
| ___ | ___ | Curbs |
| ___ | ___ | Adjust Manholes & Inlets |
| ___ | ___ | Underdrains |
| ___ | ___ | Base and Pavement |
| ___ | ___ | Large Structure |
| ___ | ___ | Concrete Riprap (RR8 & RR9) |
| ___ | ___ | Temporary Portable Concrete Barrier (PCBR) |
| ___ | ___ | Concrete Traffic Barrier |
| ___ | ___ | Vehicle Attenuator |
| ___ | ___ | Guard Rail Energy Absorbing Terminal (Great System) |
| ___ | ___ | Pavement Markings & Blast Cleaning (Thermoplastic) |
| ___ | ___ | Retaining Walls |
| ___ | ___ | Large Structure Summaries |
| ___ | ___ | Small Structure Summaries |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

APPENDIX C - GENERAL PLAN CHECKLIST *(continued)*

Services
Provided By:
ENGINEER LPA


Summaries **(ALL BELOW YES FOR ENGINEER AND NO FOR COUNTY UNLESS NOTED OTHERWISE)**

- | | | |
|-----|-----|-------------------------------------------------------------|
| ___ | ___ | Earthwork (Roadway & Channel) & Channel Details |
| ___ | ___ | Culverts |
| ___ | ___ | Detours |
| ___ | ___ | Seeding or Mulch Sod - Quantity Only |
| ___ | ___ | Inlet & Manholes |
| ___ | ___ | Sidewalks |
| ___ | ___ | Construction Pavement Markings |
| ___ | ___ | Driveways |
| ___ | ___ | Concrete Median |
| ___ | ___ | Storm Sewers |
| ___ | ___ | Head Walls & Safety End Treatments |
| ___ | ___ | Curb Openings |
| ___ | ___ | Manholes |
| ___ | ___ | Chain Link Fence, Remove & Replace Chain Link Fence |
| ___ | ___ | Remove & Relay Reinforced Concrete Pipe (RCP) or Pipe Sewer |

EXHIBIT "C"
PROJECT SCHEDULE

Mile 17
From Kenyon Rd to Sharp Rd

TASK AND DESCRIPTION	2018						2019					
	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
WA #6												
Notice to Proceed												
Limited Public Involvement with Project Stakeholders												
Phase I Environmental Site Assessment												
Schematic Design & Hydrologic Mapping												
PS&E Design												
Permitted Utility Adjustment Coordination												
In House Construction Operations												

 B2Z Engineering
 Hidalgo County



Mile 17 Rd Project - On Call Contract # C-17-243-09-05

EXHIBIT "D"
FEE PROPOSAL

Work Authorization #6

TASKS	MANHOURS						B2Z Total Hours	Total Line Item Cost
	Senior Project Manager	Project Engineer	Senior Engineer Tech	Admin/Clerical				
1 Environmental Phase I	14	24	40	10		88	\$11,121.78	
2 Limited Public Involvement with Project Stakeholders	10	38	56	4		108	\$13,472.98	
3 Schematic Development (Inclusive of Utility Identification)	24	46	66			136	\$18,412.38	
4 Hydrologic Mapping	22	62	84			168	\$22,070.54	
5 Pavement Design	12	40	40	10		102	\$12,992.54	
6 PS&E Development (Approx 7.5% Engineering Fee)	182	496	722	16		1416	\$183,861.36	
7 Permitted Utilities Coordination to Adjust	34	98	76	10		218	\$29,720.08	
8 Uncontrolled Mapping and Office Surveys	88	134	204	14		440	\$59,638.44	
	386	938	1288	64		2676		
Labor Hours	386	938	1288	64		2676		
Hourly Base Rates	\$ 68.00	\$ 45.00	\$ 31.00	\$ 20.00				
Contract Rate FY2018	\$ 217.82	\$ 144.15	\$ 99.30	\$ 64.07				
Total Labor Costs	\$ 84,078.52	\$ 135,212.70	\$ 127,898.40	\$ 4,100.48			\$351,290.10	

B2Z Engineering Total Cost

\$351,290.10

May 10, 2018

Commissioner Joseph Palacios
Attn: Maria Mayorga, Executive Assistant
Hidalgo County Precinct No. 4
1051 N. Doolittle Rd.
Edinburg, Texas 78541

**RE: On-Call Services for “Road and Bridge, C.I.P. and Other Projects in General”
(C-17-243-09-05)**

Work Authorization No. 6 ~ Mile 17 from Kenyon Rd to Sharp Rd

Dear Ms. Mayorga,

Attached for your review and approval is Work Authorization No. 6 to provide Environmental, Public Involvement, Schematic, Hydrologic, Pavement Design, PS&E, Utilities Services, Uncontrolled Mapping & Office Surveys for Mile 17 from Kenyon Rd. to Sharp Rd. located within Precinct 4. These services are being proposed under our Contract for On-Call Services for “Road and Bridge, C.I.P and Other Projects in General”. This submittal is made to you in duplicate form for your further coordination with Commissioner Palacios.

We appreciate the opportunity to provide our professional services and look forward to working with you. Should you have any questions, please feel free to give me a call at (956) 585-3773.

Sincerely,



Oliver Salgado, P.E.
Senior Project Manager

Attachments:
Work Authorization No. 6

B²Z ENGINEERING

Letter of Transmittal

To: Commissioner Joseph Palacios
Attn: Ms. Maria Mayorga, Executive Assistant
Hidalgo County Precinct No. 4
1051 N. Doolittle Rd.
Edinburg, Texas 78541

DATE:
May 11, 2018

RE: On-Call Engineering Contract
(C-17-243-09-05)
Work Authorization No. 5 ~ Mile 17 1/2 from Depot Rd East to Mon Mack Rd
Work Authorization No. 6 ~ Mile 17 from Kenyon Rd to Sharp Rd

TRANSMITTED:

<input checked="" type="checkbox"/> For Your Use	<input type="checkbox"/> Please comment	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> As Requested	<input type="checkbox"/> Reply ASAP	<input type="checkbox"/> As Noted Below

VIA:

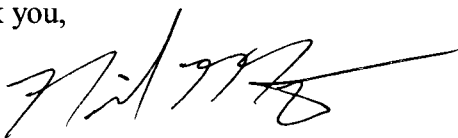
<input type="checkbox"/> US Mail	<input type="checkbox"/> Courier	<input checked="" type="checkbox"/> Hand Carry
<input type="checkbox"/> E-Mail	<input type="checkbox"/> Lonestar Overnight	<input type="checkbox"/> Pick up

COPIES	DESCRIPTION
1	Submittal Letter for WA #5
2	Original, Partially Executed Work Authorization No. 5 under the above referenced contract
1	Signed Form 1295 for WA #5
1	Submittal Letter for WA #6
2	Original, Partially Executed Work Authorization No. 6 under the above referenced contract
1	Signed Form 1295 for WA #6

REMARKS:

Should you have any questions or comments, please feel free to contact me, Nicholus Muñoz, at (956) 585-3773.

Thank you,



Received By: Carmen Fuentes

Date: 5-11-18 Time: 9:47