GDJ Engineering
www.GDJEng.com
2805 Fountain Plaza Blvd.,
Suite A, Edinburg, TX 78539
(956) 603-2025

May 24, 2023

Hon. Tano Tijerina
c/o: Leeroy Medford, Executive Administrator
Webb County Judge
1000 Houston St.
Laredo, Texas 78040

RE: 59-359 Connector Project Proposal
From US 59 to SH 359
Work Authorization #2

Dear Judge Tijerina,

As discussed, attached for your review and approval is our proposal to provide Work Authorization #2 development and design services for the 59-359 Connector project.

This Work Authorization proposal is in the amount of **$2,787.004.00**.

Attached you will find the following documents in support of the proposal:

1. Exhibit A "Scope of Services By Owner"
2. Exhibit B "Scope of Services By Engineer"
3. Exhibit C "Project Schedule"
4. Exhibit D "Fee Estimate"
5. Project Location Map

If this proposal is acceptable to you, I can assist in the preparation of the contract and work authorization documents for submittal to Commissioner's Court as you see fit. Thank you for this opportunity to assist Webb County in their transportation needs and should you have any questions regarding this submittal, do not hesitate to call me at (956) 603-2025.

Sincerely,

Robert Macheska, P.E., CFM
Executive VP/COO
GDJ Engineering, LLC

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 PS&E for the necessary improvements for the 59-359 Connector project, located within Webb 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 **Enginee**r.

2) Payment for work performed by the **Engineer** and accepted by the **Owner** in accordance with 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** including existing engineering documents or survey data.

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

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: Webb County

CONTROL:

PROJECT/DESCRIPTION: Survey, ROW Mapping, Schematic, Environmental, Traffic Studies, Geotechnical, PS&E and Bridge Design

LENGTH: Approx. 3.5 miles

HIGHWAY: 59-359 Connector

LIMITS: From US 59 to SH 359

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
- _X_ 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 GDJ Engineering.

LPA shall mean Webb County.

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

PRELIMINARY PROJECT DEVELOPMENT

(Function Code 102)

ADVANCED PLANNING MPO COORDINATION:

The ENGINEER will perform any needed preliminary/ongoing project planning which will include:

1. Meetings, Coordination & Support for Project Development
    a. The Engineer will coordinate with the LPAs representatives at the MPO Technical Advisory Committee (TAC) and Policy Committee and serve in an advisory position to assist the LPA in obtaining funding for projects. The Engineer shall serve as representative for the LPA in coordination items. The Engineer shall coordinate with the LPA's staff on all Project related items.

2. Evaluate the LPAs Projects on Regional Planning Documents.

    a. The Engineer will work with the LPA and the MPO to evaluate the status of the LPAs projects in the regional planning documents.

    b. The Engineer will review the local Transportation Improvement Program (TIP) to ensure there are no delays to the letting of projects in an advanced state of project development. This includes coordination with project engineers to ensure estimates and schedules are accurate.

    c. The Engineer will review the Unified Transportation Program (UTP) to ensure the LPAs Projects are properly listed on the TxDOT UTP to ensure there are no delays to project development.

    d. The Engineer will review the Metropolitan Transportation Plan (MTP) to ensure the LPAs long range goals are properly listed on the MTP to advance opportunities for additional funding.

    e. The Engineer will review and assess potential opportunities to advance the construction of the LPAs projects.

    f. The Engineer will coordinate with the LPA to develop project mitigation plans in the event that there is a decrease in available funding for projects.

3. Capital Improvements Program (CIP) Development
    a. The Engineer will assist the LPA with the Development of the CIP as it relates to available opportunities to leverage funding from the MPO.

4. Audit and Periodically Update Regional Planning Documents
    a. The Engineer will review the local Transportation Improvement Program (TIP) to ensure there are no delays to the letting of projects in an advanced state of project development. This includes coordination with project engineers to ensure estimates and schedules are accurate.

    b. The Engineer will review the Unified Transportation Program (UTP) to ensure the LPAs Projects are properly listed on the TxDOT UTP to ensure there are no delays to project development.

c. The Engineer will review the Metropolitan Transportation Plan (MTP) to ensure the LPAs long range goals are properly listed on the MTP to advance opportunities for additional funding.

d. The Engineer will review and assess potential opportunities to advance the construction of the LPAs projects.

e. The Engineer will coordinate with the LPA to develop project mitigation plans if there is a decrease in regional funding for projects.

5. Prepare Exhibits / Preliminary Estimates
   a. The Engineer will assist the LPA with the preparation of preliminary project exhibits, maps, typical sections to allow for the development of preliminary project cost estimates for planning purposes.

6. Draft Correspondence
   a. The Engineer will assist the LPA with the preparation of draft correspondence to be used to advance the development of the LPAs priority projects.

7. Develop Project Agreements
   a. The Engineer will assist the LPA with the development of Interlocal Agreements and project agreements with TxDOT, for example Advanced Funding Agreements (AFA), to ensure the LPAs projects can be reviewed by TxDOT.

8. State and Federal Grants
   a. The Engineer will monitor opportunities for additional funding for the LPAs projects including non-conventional State and Federal funding that may become available.

PRELIMINARY PROJECT DEVELOPMENT:

The ENGINEER will perform any needed preliminary project development which will include:

1. Establish Preliminary Design Values
   a. The Engineer will work with the LPA to establish basic design concepts, project controls and a general scope for the Project.

2. Prepare/Evaluate Preliminary Route Locations on Uncontrolled Mapping*
   a. The Engineer will evaluate various alternatives (route locations, alignment shifts, geometry) for the Project.

3. Uncontrolled Mapping (w/Contours & GIS Data)
   a. The Engineer will investigate the existing routes and coordinate with the LPA on establishing the best-fit alignments and mapping proposed geometry for Projects. A Preliminary Location Exhibit will be developed.

4. Prepare Preliminary Hydrologic Map
   a. The Engineer will develop a Hydrologic Map for the Projects. The Hydrologic Maps will be based on LIDAR and GIS information.

5. Investigate Preliminary ROW Requirements
   a. The Engineer will research and identify affected property owners on the Projects alignment and proposed ROW utilizing the latest appraisal district file information from the Hidalgo County Appraisal District and subdivision plat information from Carson Maps.

6. Prepare Preliminary Cost Estimates
    a. The Engineer will calculate preliminary construction cost estimates for the location and geometry of the Projects.

7. Preliminary Environmental Analysis (for Fatal Flaws)
    a. The Engineer will perform Preliminary Environmental Constraint Mapping to determine if any fatal flaws exist along the proposed alignment.

8. Prepare a Project Fact Sheet for All Anticipated Costs
    a. The Engineer will produce a Project Fact Sheet providing summaries of all pertinent items in the scope of services (as required) and providing estimated local costs vs. total project costs for the Projects.

9. Meetings, Coordination & Support for Project Development
    a. The Engineer shall provide coordination services and shall assist in meetings and workshops with TxDOT, County, Drainage Districts, Irrigation Districts, and all other affected parties. The Engineer shall serve as representative for the LPA in coordination items. The Engineer shall coordinate with the LPA's staff on all Project related items.

* A Phase I or better survey for hazardous materials should be included as a determining factor of route selection. Projects which do not require additional ROW should be considered separately from an expansion or new location.

ROUTE AND DESIGN STUDIES

(Function Code 110)

ROUTE AND DESIGN STUDIES:

The ENGINEER will perform any of the following tasks needed for the route and design studies:

1. Analyze Level of Service for Proposed Improvements

2. Provide Traffic Evaluations and Projections

3. Develop Roadway Design Criteria

4. Prepare the Design Schematic
    a. Horizontal and Vertical Alignment (Preliminary based on office surveys)
    b. Schematic Layout
        i. Identify the location of interchanges, main lanes, grade separations, frontage roads and ramps, if applicable.
        ii. Develop vertical and horizontal alignment of main lanes, ramps and cross roads at proposed interchanges or grade separations, if applicable. 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.
        iii. 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.
        iv. Provide a complete explanation of the sequence and methods of stage construction, if proposed, including the initial and ultimate proposed treatment of crossovers and ramps.
        v. Identify the tentative ROW limits

1. Provide a roadway Design System (RDS) or (GEOPAK) computer tape of the preliminary earthwork to verify ROW requirements.
2. Provide a graphics file containing the approved schematic.

vi. Provide the geometric configuration (pavement cross slopes, lane and shoulder widths, slope rates for fills and cuts) of the typical sections of the proposed highway main lanes, ramps, frontage roads, and cross roads.

vii. Identify the current and projected traffic volumes as provided by TxDOT (if On-System roadway) or by ENGINEER (if Off-System roadway) based on a 20 year traffic projection.

viii. Label the control of access lines if Interstate or designated under House Bill 179.

ix. Label the direction of traffic flow on all roadways.

x. Identify the location and width of any proposed median openings for highways without access control.

xi. Identify the geometrics of any speed change lanes (acceleration, deceleration, climbing, etc…).

5. Coordinate and Attend a Project Design Concept Conference

6. 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 LPA 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 and in the schematic checklist provided by the STATE.
   d. Handling of traffic during construction shall be a consideration in the development of preliminary designs.
   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.**

7. Traffic Analysis and Projections
    a. If the project is Off-System, the ENGINEER will provide all traffic analysis and projection data for the project as previously provided by TxDOT's Transportation Planning and Programming Division. The analysis will follow the STATE's SOP and the data will be approved by the STATE.

8. Final Hydrologic Map & Report
    a. The ENGINEER will provide a final hydrologic map to be submitted with the Schematic. This map will be considered part of the Schematic submittal.
    b. A H&H report will be submitted along with the Hydrologic Map. The report will follow the guidelines set forth in TxDOT's Hydraulic Design Manual.

9. Geotechnical Investigations, Engineering & Report
    a. The ENGINEER shall provide geotechnical explorations and laboratory testing as needed for the project. All exploration soil borings shall be drilled in general accordance with ASTM D420 procedures, the samples will be collected in general conformance with ASTM D1586 procedures, and laboratory testing procedures will be performed in general accordance with Texas Department of Transportation TEX methods (or ASTM methods as required).
    b. The ENGINEER shall provide geotechnical engineering and analysis of the explorations and laboratory testing.
    c. The ENGINEER shall provide a signed/sealed geotechnical report of all findings including relevant recommendations for pavement design utilizing Flexible Pavement Design System FPS 21 published by the Texas Department of Transportation. The ENGINEER will specifically recommend pavement sections and materials needed for the pavement design. (lime percentage, salvage, thicknesses, etc…)

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

SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT

(Function Code 120)

1. Environmental Reports (All Environmental Reports shall be in accordance with 43 Texas Administrative Code (TAC) 2.40-2.51, Code of Federal Regulations, Title 23, Part 771 and Highway Design Operations and Procedures Manual, Part II-B.)
    a. An Environmental Document shall be prepared anticipating one of the following levels of clearance:
        i. A Categorical Exclusion
        ii. A Finding of No Significant Impact
    b. If it is determined that an Environmental Assessment is not sufficient, an Environmental Impact Statement shall be prepared under a supplemental agreement.
        i. A Draft Environmental Impact Statement shall be prepared. After appropriate interagency and public reviews within time limits prescribed by the Code of Federal Regulations, Title 23, Part 771 and 43 Texas Administrative Code 2.40-2.51, a Final Environmental Impact Statement shall be prepared.
        ii. A Section 4(f) Statement (Department of Transportation Act) shall be provided by the ENGINEER. The format and content of the statement is found in FHWA Technical Advisory T6640.8A.

2. Public Involvement (All Public Involvement procedures shall be in accordance with 43 Texas Administrative Code (TAC) 2.101-2.110, Code of Federal Regulations Title 23, Part 771 and Highway Design Operations and Procedures Manual, Part II-B.)
    a. A public involvement meeting(s)/hearing(s) shall be scheduled, coordinated and conducted.*****
    b. Technical assistance, meeting(s)/hearing(s) preparation, maintenance of contracts lists, minutes of meeting(s), exhibit preparation, and other tasks outlined by the LPA, shall be provided.

3. Cultural Resources (Formal consultation with the State Historic Preservation Office (SHPO) and the Texas Historical Commission (THC) will be conducted by the LPA.)
    a. Historic Structure Studies
        i. A records search and reconnaissance survey shall be performed, and documentation prepared regarding identification efforts, National Register eligibility and potential impacts to historic properties in accordance with the state's historic structure requirements.
    b. Archeological Studies
        i. Files searches shall be conducted to determine if known archeological sites are present; to identify whether these sites have been listed or determined eligible for the National Register of Historic Places or have been designated State Archeological Landmarks; and to identify the need (if any) to perform additional archeological investigations.
        ii. Archeological reconnaissance will be performed under a Texas Antiquities Permit (13 TAC 26) signed for the Sponsor by a professional archeologist with the STATE.
        iii. Archeological survey shall be performed under a Texas Antiquities Permit (13 TAC 26) signed for the Sponsor by a professional archeologist with the STATE.

4. Technical Reports
   Technical reports will be scoped with TxDOT's Work Plan Development Tool (WPD) and prepared in accordance with the TxDOT Environmental Toolkit.
   a. Traffic Noise Analysis
      i. A traffic noise analysis shall be prepared, including predicted noise levels and the consideration and evaluation of noise mitigation, in accordance with the STATE'S Noise Guidelines. The noise analysis or a summary of the noise analysis shall be provided as a Technical Report and results included in the administratively complete document.

   b. Air Quality Analysis
      i. An air quality analysis shall be prepared in accordance with the STATE'S Air Quality Guidelines. The air quality analysis or a summary of the air quality shall be provided as a Technical Report and results included in the administratively complete document for the project.

   c. Hazardous Materials
      i. The ENGINEER shall perform an Initial Site Assessment (ISA) for hazardous materials impact in accordance with the American Society for Testing and Materials (ASTM) 1528.93 (Transaction Screen Process).

   d. Biological Assessment
      i. A Species Analysis and Site Assessment will be completed in accordance with the STATE'S guidelines. The assessment shall be provided as a Technical Report and results included in the administratively complete document for the project.

   e. Water Resources
      i. A Surface Water Analysis will be completed in accordance with the STATE'S guidelines. The analysis shall be provided as a Technical Report and results included in the administratively complete document for the project.

   f. Community Impact Analysis
      i. A Community Impact Assessment will be completed in accordance with the STATE'S guidelines. The analysis shall be provided as a Technical Report and results included in the administratively complete document for the project.

5. General Guidelines for Preparation of Environmental Documents
   a. All technical reports will be submitted electronically to TxDOT.
   b. All cultural resource reports (i.e. Archeological and Historical Project Coordination Requests (PCRs), background and reconnaissance surveys) will be submitted electronically to TxDOT.
   c. The draft administratively complete document will be submitted to TxDOT electronically.
   d. The administratively complete document will be prepared in accordance with the content and format of TxDOT Administrative Code 43 TAC §2.48 and the TxDOT Environmental Toolkit.
   e. The administratively complete document will be submitted to TxDOT electronically.
   f. Upon completion and approval of the administratively and technically complete document, the Engineer will provide one (1) hard copy to the Client.
   g. Exhibits in the environmental document shall be color copies and text shall be black and white.

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

RIGHT-OF-WAY DATA

(Function Code 130)

NOTE: No work involving right-of-way (ROW) data is to be performed until the LPA has given the ENGINEER written approval of the final location of the proposed ROW lines.

The ENGINEER shall perform the following Right-Of-Way Data duties:

1. Provide Ownership Data in a .dgn file
    a. For the entire project limits
    b. Compensable utility ownership that has property rights on ROW shall be researched and provided.
    c. For each drainage outfall property
    d. For each irrigation structure pipe

2. Parcel Plats & ROW Map
    a. A ROW map, parcel plats and field notes shall be prepared and furnished.
    b. All plats and field notes must be signed and sealed by a Registered Professional Land Surveyor (RPLS).
    c. ROW map must depict all improvements affecting ROW.

3. Utilities (Compensable)
    a. Property ownership with recording information shall be shown on ROW Map and Parcel Plats with distance ties to property corners in an effort to locate utility.

4. Field Notes
    a. Field notes and plats shall be provided, signed and sealed by a Registered Professional Land Surveyor, for all parcels on the ROW Map.
    b. Computation sheets for survey closure and area of each parcel shall be provided.
    c. Ground surveys and preparation of parcel maps, legal descriptions, and ROW maps

5. Survey and Stake Right-of-Way

6. Records as required by the LPA and State
    a. Records used to establish property ownership

PROJECT SPECIFIC SCOPE OF SERVICES

FC 130 – RIGHT-OF-WAY DATA – Abstract analysis, development of ROW Map sheets including parcel plats and field notes with Metes & Bounds field descriptions, and Title Commitments.

FC 150 – FIELD SURVEYING FOR PARCEL MAPPING – Recover horizontal & vertical control, locate and field tie existing ROW and boundary corners. Update topography, and reestablish corners for ROW map revisions.

SURVEYING SCOPE OF SERVICES FOR PARCEL MAPPING

FC 130 – RIGHT-OF-WAY DATA

Right-of-Way Documents - The SURVEYOR will utilize State examples and provide the following:

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

GENERAL

a. Abstracting: The SURVEYOR will determine Ownership Data.
b. Prepare individual parcel maps and field notes as needed to properly describe the right-of-way the State is to acquire.
c. All procedures involving right-of-way maps will be in accordance with the STATE'S Right-of-Way Book I and Book II, the State's local operating procedures and according to the Texas Board of Professional Land Surveying Practices Act.
d. All required documents will be in English units.
e. The SURVEYOR will monument all corners with a 5/8 inch iron rod with a Surveyor's plastic cap on all parcel boundary corners.
f. The SURVEYOR will provide to the STATE a copy of Instruments of Record.
g. The SURVEYOR will attach graphics files compatible with the latest version of Micro-Station graphics software.
h. The SURVEYOR will attach documents or text files compatible with the latest version of Word software.

PARCEL PLATS

a. A parcel plat will be prepared for each parcel of land to be acquired. The STATE has developed standard formats for parcel plats, copies of which the SURVEYOR will request and secure for all purposes
b. Parcel boundary lines will be delineated with appropriate bearings, distances, and curve data.
c. Private property lines will be delineated with appropriate bearings, distances, and curve data to the extent necessary to describe the individual parcels of land to be acquired.
d. League lines and survey lines will be shown and identified by name and abstract number.
e. A north arrow will be shown on each sheet and, if possible, in the upper right hand corner.
f. Monumentation set or found will be shown and described as to material and size.
g. A station and offset will be shown for each PC, PT, and angle point in the proposed right-of-way lines and the existing right-of-way lines in areas of no proposed acquisition.
h. Intersecting streets will be shown and identified by name and right-of-way width.
i. A parent tract inset will be shown for each parent tract.
j. A note will be included on each map sheet stating the basis of bearings, coordinates, and datum used.
k. Appropriate notes will be included on the title sheet stating the following:
a. Month(s) and year abstracting was performed upon which the map is based.
b. Month(s) and year field surveys were conducted upon which the map is based.
c. Month and year map was completed by the SURVEYOR.
l. The right-of-way account number and R.O.W. CSJ if available will be shown on each parcel map sheet.
m. All parcel maps should be 8-1/2" x 11" signed and sealed by a Registered Professional Land Surveyor and note referencing legal description.
n. The acreage of the part taken should be shown to three decimal places, rounded.

FIELD NOTE DESCRIPTIONS

A field note description will be prepared for each parcel of land to be acquired. Field note descriptions will include, but need not be limited to, the following:

a. The field note description will begin with a general description that will include, as a minimum:
   (1) State, county, and city within which the proposed parcel of land to be acquired is located.
   (2) A reference to unrecorded and recorded subdivisions by name, lot, block, and recording data to the extent applicable.
   (3) A reference, by name, to the grantor and grantee, date, and recording data of the most current instrument(s) of conveyance describing the parent tract.

b. The field note description will continue with a metes and bounds description that will include, as a minimum:
   (1) A point of commencing (outside property corner).
   (2) A point of beginning on proposed R.O.W. line.
   (3) A series of courses, identified by number and proceeding in a clockwise direction, describing the perimeter of the parcel of land to be acquired, and delineated with appropriate bearings, distances, and curve data.
   (4) A description (8-1/2" x 11") of all monumentation set or found to include, as a minimum, size and material.
   (5) All field note descriptions will be signed and sealed by a Registered Professional Land Surveyor.
   (6) Note referencing parcel plat.

FIELD SURVEYING AND PHOTOGRAMMETRY

(Function Code 150)

TOPOGRAPHY AND CONSTRUCTION SURVEYS:

The SURVEYOR will perform Topography and Construction Surveying for the project which will include:

1. Primary Project Control: 3 to 5 mile spacing (Precision shall be 1 part in 20,000 or better, unless otherwise directed by the ENGINEER).
   a. Establish Horizontal Control Points
   b. Establish Vertical Control Points

   NOTE: ALL BEARING AND DISTANCE SHALL BE BASED ON THE STATE PLANE COORDINATE SYSTEM NAD 1983, SOUTH ZONE.

   ALL DISTANCES AND COORDINATES SHALL BE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999960

2. Secondary Project Control (Surveyor shall recover and/or reset H&V Control Points as provided by the Engineer and create Survey Data Sheets for inclusion in the Project Plans).
   a. No traverse should exceed 25 angle points. Planimetrics shall be 20 ft Lt & Rt from the proposed ROW as per the schematic provided by the Engineer.
   b. The unadjusted angular error should not exceed 2 seconds per angle, plus 14 seconds.
   c. The unadjusted ratio of precision should be one part in 10,000 or better (The ratio of precision is the total length of the traverse divided by the total error.).
   d. The unadjusted vertical error should not exceed 0.03 foot per mile of traverse.

3. Other Field Surveying
    a. **The limit of the Design surveys shall be 1,500-ft before and after the limits of the project as identified by the Project Engineer on the schematic. Establish horizontal and vertical control.** Set benchmarks at 1000-ft intervals along the project proposed right-of-way. Provide x, y, z for each Benchmark. Provide a BM along each outfall identified on the Hydrologic Map. The BM's shall be #5 I.R. 2-ft in depth set in concrete. **The surveyor shall provide an H&V Book (a Sample shall be provided by the Engineer to the Surveyor).** The Surveyor will provide a 3-pt reference sketch with ties to the BMs for inclusion the existing H&V Control Book. Establish benchmark circuit throughout the project with a tolerance of 0.03'/ft per mile error vertically.
    b. The Surveyor shall provide complete topographic and cross section survey, data processing, and CADD mapping (2D & 3D) for the limits of the project.
    c. The Surveyor shall locate all visible utilities, data processing and CADD mapping (2D & 3D) including irrigation lines. Follow sample provided by the Engineer.
    d. The Surveyor shall field locate cross culverts, driveway culverts, inverts, irrigation lines, within the project limits, data processing and CADD mapping (2D & 3D).
    e. Right of Entry, Right of Way Research, and Appraisal District Records is the responsibility of the Surveyor.
    f. The Surveyor shall also paint the proposed centerline on the existing pavement as approved by the ENGINEER (at 500-ft stations and a tick mark at 100-ft stations, 12 inches long with approved paint by ENGINEER) before construction for the purpose of utility adjustments and project location.
    g. Profile and cross section intersecting streets for ties into project (500-ft. beyond the proposed ROW per schematic and 20-ft wider than the existing ROW of intersecting street). Reference missing voids as per CD provided by the Engineer.
    h. Cross section irrigation crossings for a distance of 20-ft beyond the proposed ROW at 100-ft intervals in a DTM file. Provide a complete description of irrigation appurtenances as identified by the engineer sample layout.
    i. Tie Horizontally and Vertically the existing storm drain system that lies within the existing proposed ROW including the elevation of the outfall of said recovered existing storm drain systems.
    j. Tie to existing underground and overhead utilities (location, elevation and direction)
        i. Horizontally - The surveyor shall call the 1-800 number for the utilities to be marked on the ground as well as any city water and sewer lines. He shall tie all visible utility crossings with name, address and Phone #'s of utility companies. The engineer will coordinate with the utility companies and jointly the Surveyor and the Engineer will identify which utilities were missed and need to be tied down.
        ii. Vertically - The engineer shall identify all utilities that are potential conflicts and that need to be tied vertically. The engineer will advise the surveyor in writing of the needed vertical ties and the surveyor will tie the lines vertically once the surveyor has coordinated the exposure and provide the information to the engineer.
    k. Additional Field Surveying as shown below:
        i. Irrigation Lines - The surveyor will meet with the engineer before he ties down any irrigation lines. The Engineer will provide him the existing Irrigation District Maps and the A&M Data of existing irrigation lines that are identified of record. He will follow the sample given to him by the engineer and tie the structures horizontally and vertically and provide Field Books to the engineer.
        ii. Outfalls - The surveyor will provide a complete 2D & 3D File including utilities of the outfall identified on the Hydrologic Map.

l. Driveways and Turnouts
    i. Inventory commercial entrances, public roads and side streets separately.
    ii. Obtain centerline station (Width at ROW, Pavement and existing radius).
    iii. Inventory by type (dirt, caliche, gravel or paved). If paved, indicate condition in terms of no patches, has patches or has potholes.
    iv. Obtain width at ROW line
    v. Obtain elevations at both edges of the driveway or turnout in line with any side drain.

m. ROW Staking (Existing and proposed @ 1,000 ft stations, PC's, PT's and Angle points as per ROW Map)

n. Soil core hole staking

o. Determine changes in topography from voids and outdated maps due to development, erosion, etc.

p. Profile existing drainage facilities, if applicable

q. Measure hydraulic openings under existing bridges, if applicable

r. Obtain elevations of manholes and valves of utilities, if applicable

s. Provide temporary signs, traffic control, flags, safety equipment, etc.

t. Provide ties to existing bridges or culverts that may conflict with new construction

u. If there is a Bridge widening, provide top of deck and/or top of cap elevations at the Profile Grade Line (PGL) and the edges of slab at bent locations.

v. Inventory signs, mailboxes and driveways

w. Survey controlled data sheets as per STATE guidelines

4. Subsurface Utility Engineering (SUE)

a. Quality Level C - Existing Records: Utilities are plotted from review of available existing records that will be generated by the Engineer on the schematic and provided to the surveyor for his further creation of a Utility Map which will be turned in as a deliverable as part of this work order.

b. Quality Level B - Surface Visible Feature Survey: The Surveyor shall gather the field tied Utility Information and compare it to the existing records (if any) as provided by the Engineer and correlate with surveyed surface-visible features. The surveyor shall create a Utility Layout Map or plan layout 2D, showing the limits of the proposed project and limits of the work area required for this work authorization; including highway stations, limits within existing or proposed right of way. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. A color-coded composite utility facility plan with utility owner names, quality levels, line sizes and subsurface utility locate (test hole) locations. The Layout Map will include all utilities that have been field tied – 2D Horizontal Utilities. This Layout will be provided to the Engineer and a meeting held with Engineer to identify which utilities will need to be tied down vertically. A note must be placed on the designate deliverable only that states "lines sizes are from best available records". All above ground appurtenance locations must be included in the deliverable to the Engineer. This information will be provided in the latest version of Micro Station or Geopak used by the State. The electronic file will be delivered on C.D. or DVD. A hard copy is required and must be signed, sealed, and dated by the Surveyor. Note: Determine and inform the Engineer of the approximate utility depths at critical locations. This depth indication is understood by the Engineer to be approximate only and is not intended to be used for preparing the construction plans.

c. Quality Level A (Subsurface Utility Locate (Test Hole)) **THE SURVEYOR SHALL COORDINATE WITH THE ENGINEER ON THE NUMBER OF HOLES.** Locate shall mean to obtain precise horizontal and vertical position, material type, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non-destructive excavation techniques that ensures the

integrity of the utility facility. Subsurface Utility Locate (Test Hole) Services (Quality Level A) are inclusive of Quality Levels B and C. The Surveyor shall:

i. Review the requested test hole locations that have been identified by the Engineer and Coordinate with utility owner inspectors as may be required by law or utility owner policy.

ii. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the Engineer:
   - Elevation of top and/or bottom of utility tied to the datum of the furnished plan.
   - Identify a minimum of two benchmarks utilized. Elevations shall be within an accuracy of 15mm (.591 inches) of utilized benchmarks.
   - Elevation of existing grade over utility at test hole location.
   - Horizontal location referenced to project coordinate datum.
   - Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.
   - Utility facility material(s).
   - Utility facility condition.
   - Coating/Wrapping information and condition.
   - Unusual circumstances or field conditions.

iii. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate State District Office.

iv. Backfill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material. The Engineer shall be responsible for the integrity of the backfill and surface restoration for a period of three years. Install a marker ribbon throughout the backfill.

v. Provide complete restoration of work site and landscape to equal or better condition than before excavation.

vi. Plot utility location position information on the Utility Layout sheet and identify the vertical elevation and sealed by the responsible Surveyor. This information will be provided in the latest version of Micro Station or Geopak format used by the State. The electronic file will be delivered via file share links.

ADDITIONAL RESPONSIBILITIES

A. TRAFFIC CONTROL:

The SURVEYOR shall control traffic in and near surveying operations adequately to comply with provisions of the latest edition of the TxDOT Manual on Uniform Traffic Control Devices – Part VI and the latest edition of the Occupational Safety Manual both of which can be found on the TxDOT internet site.

In the event field crew personnel must divert traffic or close traveled lanes, a Traffic Control Plan based upon principles outlined in the latest edition of the TxDOT Manual on Uniform Traffic Control Devices – Part VI shall be prepared by the SURVEYOR and approved by the ENGINEER prior to commencement of field work. A copy of the approved plan shall be in the possession of field crew personnel on the job site at all times and shall be made available to the ENGINEER for inspection upon request.

B. INVOICING:

Payment requests shall include a SURVEYOR's invoice. With each payment request, the SURVEYOR shall submit a project status report which will, as a minimum, include the percentage of total work complete as of the date of the payment request and a description of current work activity. The percentage of total work complete shall not be based simply on the percentage of funds expended, but shall be based on the best judgment of the SURVEYOR as to the percentage of actual work complete.

C. EASEMENTS, LETTERS OF PERMISSION, ETC.

The SURVEYOR shall be responsible for delineating easements. The SURVEYOR will be responsible for securing the necessary legal instruments and obtaining all Right-of-Entries (ROEs).

D. MEETINGS:

The ENGINEER shall setup the necessary meetings with the SURVEYOR in order to assure all field information is provided on-time and products are delivered in accordance with TxDOT's/LPA's specifications. SURVEYOR must attend all meetings involving data provided if requested by ENGINEER.

E. PROJECT MANAGER/SURVEYOR COMMUNICATION:

The SURVEYOR shall designate one Texas Registered Professional Land Surveyor (RPLS) to be responsible throughout the project for project surveying coordination and all communications, including billing, with the ENGINEER.

F. OFFICE LOCATION:

The SURVEYOR will perform the services to be provided under this agreement out of a local office and have a crew available to perform requested tasks within 24 hours of request. The coordinating SURVEYOR's Project Manager (RPLS) shall be accessible at all times and working from the local office.

ROADWAY DESIGN CONTROLS

(Function Code 160)

ROADWAY DESIGN:

The ENGINEER will perform roadway design services for the needed construction repairs along the project limits. The services will include:

1. Geometric Design
    a. Horizontal and Vertical Alignment
    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 LPA.
    c. Handling of traffic during construction shall be a consideration in the development of preliminary designs.

2. Exhibits for Airway/Highway clearance permits (if within airport vicinity)

3. Grading Design
    a. Refine the horizontal alignment including the following items
        i. Typical Sections
        ii. Design Cross Sections
        iii. Determine Cut and Fill Quantities
        iv. Slope Stability Analysis, if applicable

v. Embankment Foundation Stability Analysis, if applicable
vi. Embankment Settlement Analysis, if applicable

4. Pavement Design
    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
        i. Provide Soil Core Holes (location and number to be agreed upon with Owner)
            1. Along center line of each roadway
        ii. Identify , interpret and summarize the geological features that affect engineering design (PI, sulfate content & % of lime)
    d. Traffic Data for Pavement Design
    e. Basic Design Criteria
    f. Life Cycle Cost Analysis(es)
    g. Cost Data
    h. Pavement Material Properties
    i. Rehabilitation Investigations
        i. Soil Core Holes to determine type and depth of existing material, pavement, etc. The ENGINEER, in coordination with LPA, will determine whether to salvage the existing ACP and Flexbase.

DRAINAGE

(Function Code 161)

DRAINAGE DESIGN:

The ENGINEER will perform drainage design services for the needed construction repairs along the project limits. All hydraulic design shall be in accordance with TxDOT's Hydraulic Manual, except where variances are permitted in writing by the LPA. The services will include:

1. Hydrologic & Hydraulic Studies, Discharges
    a. Hydrologic Map showing drainage areas, contours and drainage Q's.
    b. Drainage area maps showing existing conditions and proposed improvements.
    c. Hydrologic data/discharge determination

2. Hydraulic Drainage Study & Documentation
    a. Hydraulic Computations, if applicable
        i. Storm water detention available within the ROW (linear ft. along side drain ditch).
        ii. Storm water detention available outside the ROW (as per local Drainage District)
        iii. Culverts
        iv. Bridge Waterways
        v. Channels
        vi. Storm sewers/inlets
        vii. Irrigation Canals/Siphons
    b. Hydraulic Reports
    c. Federal Emergency Management Agency (FEMA) floodway requirements

d. Determine impact of proposed drainage plan on Drainage District or Irrigation District receiving streams

3. Layout, Structural Design and Detailing of Drainage Features
    a. Culverts
        i. New Culverts
        ii. Culvert widening and/or lengthening
        iii. Culvert replacements
    b. Storm Sewers
        i. New storm sewers
        ii. Modify existing storm sewers
        iii. Inlets
        iv. Manholes
        v. Trunk lines
    c. Outfall channel(s) within the ROW
    d. Outfall channel(s) outside the ROW
    e. Detention Pond(s) within the ROW
    f. Detention Pond(s) outside the ROW
    g. Summary of Quantities

4. Storm Water Pollution Prevention Plan (SW3P)

5. Scour Evaluation – Waterway structures only (to be completed under FC 170)

SIGNING, MARKINGS AND SIGNALIZATION

(Function Code 162)

PAVEMENT MARKINGS:

The ENGINEER will provide pavement marking layouts for the needed construction repairs along the project limits. The services will include:

1. Signing and Markings Layout
    a. Roadway layout
    b. Center line with station numbering
    c. ROW lines
    d. Culverts and other structures that present a hazard to traffic
    e. Location of utilities, if not shown on plan and profile
    f. Existing signs to remain, to be removed, to be relocated
    g. Proposed signs (illustrated and numbered)
    h. Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation
    i. Quantities of existing pavement markings to be removed
    j. Proposed delineators and object markers

2. 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:
    a. The location of interchanges, main lanes, grade separations, frontage roads and ramps
    b. 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 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

3. Summary of Small Sign Tabulation

4. Summary of Large Sign Tabulation including all Guide Signs (if applicable)

5. Sign Detail Sheets
    a. All signs except for 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

6. Traffic Signals (if applicable)
    a. Development of Justification (Warrant) Data
        i. Location Map
        ii. Photographs as appropriate
        iii. Accident data as appropriate
        iv. Vehicle volumes (existing, estimated, projected, and pedestrian)
        v. Traffic Survey – Count Analysis
        vi. Recommendation based on the collected data
    b. Layout
        i. Title Sheet (when applicable)
            1. Describe the location
            2. Type of installation
            3. Area map with project limits for each location
            4. Index of sheets
            5. Space for official signatures
        ii. Estimate and quantity sheet (when applicable)
            1. List of all bid items
            2. Bid item quantities
            3. Specification item number
            4. Paid item description and unit of measure
        iii. Basis of estimate sheet
        iv. General notes and specification data sheet
        v. Condition Diagram
            1. Highway and intersection design features
            2. Roadside development
            3. Traffic control including illumination
        vi. Plan Sheets(s)
            1. Existing traffic control that will remain (signs and markings)
            2. Existing utilities
            3. Proposed highway improvements
            4. Proposed installation
            5. Proposed additional traffic controls
            6. When applicable, proposed conduit for Railroad interconnect with standard details for runs under tracks

7. Proposed illumination attached to signal poles

vii. Notes for plan layout
viii. Elevation sheet(s) (span wire design)
ix. Phase sequence diagram(s)
1. Signal locations
2. Signal indications
3. Phase Diagram
4. Signal sequence table
5. Flashing operation
6. Preemption operation
7. Interval timing, cycle length and offset
x. Construction Detail Sheets
1. Poles, Detectors, Pull box and conduit layout & Controller Foundation
xi. Marking Details (when applicable)
xii. Barricade and warning sign standard sheet and any special details for work zone traffic control for special conditions
xiii. Aerial or underground interconnect details (when applicable)

c. General Requirements
i. Contact the local utility company
1. Confirm Power Source
2. Discuss route of aerial or underground interconnect cable
3. Adjustment of overhead utility lines
ii. Prepare governing specifications, special provisions list and estimate

d. Summary of Quantities

MISCELLANEOUS ROADWAY

(Function Code 163)

TRAFFIC CONTROL PLAN, DETOURS AND SEQUENCE OF CONSTRUCTION:

The ENGINEER will provide a Traffic Control Plan (TCP) for the needed construction repairs along the project limits. TCP's are required for all projects; therefore 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 TCP Layouts:

1. The Sequence of Construction and method of handling traffic during each phase
2. Roadway layout
3. Center line with station numbering
4. 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…
5. The proposed traffic control devices (stop signs, signals, flag person, etc.) at grade intersections during each construction sequence.
6. Where detours are provided, typical cross sections shall be shown.
7. Road construction work hours shall be developed after an investigation of the traffic volumes has been performed.

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

COMPUTE AND TABULATE QUANTITIES:
The ENGINEER will provide a summary of quantities sheet in the plans identifying all estimated project quantities.

PROJECT ESTIMATE:
The ENGINEER will provide a project estimate summarizing all estimated construction costs.

SPECIFICATIONS AND GENERAL NOTES:
The ENGINEER will provide all relevant project specification and general notes to the project construction activities.

PROJECT MANAGEMENT
(Function Code 164)

MEETINGS, COORDINATION & SUPPORT FOR PROJECT MANAGEMENT:
The ENGINEER shall meet and coordinate with all relevant entities (i.e. County, Regional Mobility Authority, Texas Department of Transportation, Rio Grande Valley Metropolitan Planning Organization, etc…) 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.

BRIDGE DESIGN
(Function Code 170)

BRIDGE DESIGN:
The ENGINEER will provide bridge design and bridge layouts for the needed construction repairs along the project limits. The services may include the following type of bridge structures:

1. Preparation of Structural Details for New Structures
    a. Railroad Overpass
    b. Bridge Classification Culvert**

Total anticipated new structures shall be reflected on the fee proposal

****** In the early stages of a project, it sometimes cannot be determined whether a Waterway Bridge Structure or a Bridge Classification Culvert (20' minimum length) will be required. Therefore, the ENGINEER should be aware that either of these two types of bridges may be reclassified later in the project for the other type when more information is known that would dictate a change in structure classification.

2. Preparation of Bridge Layouts (each Bridge)
    a. Bridge Layout (Plan)
        i. Horizontal curve information or bearing of centerline
        ii. Including horizontal, vertical, and template information of all roadways or railroads crossed
        iii. Bearing of center line or reference line
        iv. Skew angle
        v. Slope for header banks and approach fills
        vi. Control stations at beginning and ending of bridge (with deck elevation), intersections, etc.
        vii. Approach pavement and crown width
        viii. Bridge roadway width and curbs, face of rail, shoulders, or sidewalks
        ix. Approach slab and curb returns

x. Limits and type of riprap
xi. Proposed features under structure
xii. Location of profile grade line
xiii. North arrow
xiv. Typical bridge roadway section including preliminary proposed beam types and spacings
xv. Cross slope and super elevation data
xvi. Minimum horizontal clearances when applicable
xvii. Location of soil core holes (station & offset), shown on layout
xviii. Bent stations and bearings
xix. Retaining wall locations
xx. Traffic flow directional arrows
xxi. Railing types shown
xxii. Joint types and seal size, if used
xxiii. Beam line numbers consistent with span details
xxiv. Critical horizontal clearances
xxv. Bearings of utilities

b. Bridge Layouts (Elevation)
i. Type of foundation
ii. Finished grade elevations at beginning and end of bridge
iii. Overall length of structure
iv. Length, type of spans and units
v. Type of railing
vi. Minimum calculated vertical clearance(s)
vii. Existing and proposed ground lines clearly marked
viii. Grid elevations and stations
ix. Bent numbers encircled
x. Stationing of bridge compatible with grid stations
xi. Standard title
xii. Profile grade data
xiii. Type of riprap
xiv. Soil Core Hole Information with penetrometer test data (shall be shown on the bridge layout at correct station, elevation and scale)
xv. Fixed/expansion condition of all bents
xvi. Column "H" heights
xvii. Number, size and length of foundations

c. Additional layout requirements for waterway structures and bridge classification culverts
i. Design and 100-year peak discharges
ii. Design and 100-year high water (recorded data and date if available)
iii. Natural and through-bridge velocities for design and 100-year floods
iv. Calculated backwater for design and 100-year floods
v. Direction of flow for waterway crossings
vi. Contours for water crossing

3. Bridge Classification Culvert, Estimate, Quantities, and Specification (Each Bridge)

4. Foundation Studies (The minimum number of soil core holes shall be obtained in accordance with Section 1-301 of the Bridges and Structures Foundation Exploration and Design Manual. Soil core holes shall be obtained at approximately (300 foot) intervals along bridge alignments. Texas cone penetrometer (TCP) tests shall be conducted in all soil types encountered at a maximum of (10 foot) intervals. If single column bents with single drilled shafts are planned, TCP values should be taken at close intervals in the upper (15 feet).)

5. Bridge Total Quantities and Cost Estimates (Each Bridge)

6. Bridge Special Provisions and Specifications (Each Bridge)

7. Bearing Seat elevations for each beam or girder. Top of cap elevations for non-beam type structures.

8. General Guidelines for Bridge Design
    a. The ENGINEER shall prepare a bridge layout of each bridge structure for Company's review and approval. The bridge layout shall be in conformance with the Bridges and Structures, Operation and Planning Manual and the Bridges and Structures, Detailing Manual. Soil core hole data is not required for submission of the preliminary bridge layout. **No bridge design work is to be performed until the LPA has given the engineer written approval of the preliminary bridge layout.**
    b. Several months may be required, after the preliminary bridge layout is submitted, for the district to obtain approval and/or permits from the following:
        i. TxDOT Design Division, when applicable
        ii. Railroad companies
        iii. FHWA
        iv. USACOE
        v. US Coast Guard
        vi. Bureau of Reclamation
        vii. Texas Parks & Wildlife
        viii. Others
    c. Therefore, the bridge layout should be submitted at the earliest possible date and the ENGINEER's design schedule should reflect this.
    d. All Bridge superstructure and substructure design will be reviewed by the TxDOT Design Division for purposes of verifying structural integrity and optimization of design.
    e. The final bridge layout shall be in conformance with the Bridges and Structures, Operation and Planning Manual and the Bridges and Structures Detailing Manual.
    f. The ENGINEER shall make final design calculations and final detail drawings in accordance with standard requirements of the Texas Department of Transportation. All bridge design shall be in conformance with the TxDOT Bridges and Structures Operation and Planning Manual, the current American Association of State Highway and Transportation Officials or American Railway Engineers Association Specifications for railway structures, Standard Specifications for Highway Bridges, including applicable interim specifications, and the Bridges and Structures, Foundation Exploration and Design Manual. The ENGINEER shall furnish design calculations to the Design Division. **The designer and checker shall check all calculations and initial each page.**
    g. Structural steel or prestressed concrete shop drawings, form work drawings and false work drawings are not part of the design requirements. However, contract plans shall be in sufficient detail to permit the preparation of complete shop details for fabrication and erection.
    h. Elements of the bridge (abutments, bents, slabs, etc.) shall be detailed to a metric scale of 1:20 (1/2 inch equals one foot architect scale) or 1:50 (1/4 inch equals one foot architect scale) to provide clear legible drawings when the drawings are reduced. Lettering 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).
    i. Standard drawings for beams, diaframs, railings, armor joints, riprap, etc., shall be furnished to the ENGINEER upon request. These standards shall not be redrawn by the ENGINEER nor shall his title block be transferred to the standard drawings. Modifications

to the standards, if necessary, shall be clearly identified and designated by "MOD" in the standard title. Specific special drawings prepared by the ENGINEER shall not be identified as standards.

j. Bridge layout sheets shall have the same vertical and horizontal scale. Usually a metric scale of 1:100 (1 inch = 10 feet) or 1:200 (1 inch = 20 feet) is used. Sections of existing and proposed structures usually have a metric scale of 1:50 (1 inch = 5 feet). Soil core holes shall be positioned and labeled on the bridge layout plan view. The core hole data shall be plotted at the correct station, at the same vertical scale, and at the proper elevation unless otherwise approved by the Design Division.

k. APPENDIX C, "GENERAL PLAN CHECKLIST", on pages C-1 thru C-5, more specifically relates various sheet types, details, summaries, standards, etc.

l. 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.

m. Geometry and structural design errors found after acceptance of bridge plans shall be promptly corrected by the consultant at no cost to the Company.

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.

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 via file share links complete with a table of contents on what is transmitted. 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 the latest Office 365 file formats (.docx, .xlsx, etc…). Plan sheets shall be provided in Microstation Open Roads Designer (ORD)/Power GEOPAK 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 all services to be provided under this agreement out of their office located at: 2805 Fountain Plaza Blvd., Suite A, Edinburg, Texas 78539

Client: Webb County

EXHIBIT C
PROJECT DEVELOPMENT SCHEDULE
Webb County: US 59 - SH 359 Connector Project
US 59 to SH 359 (3.5 mi approx.)

TASK AND DESCRIPTION	ENTITY	2023					2024											2025												2026												2027							
		AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
WORK AUTHORIZATION #1 TASKS																																																	
ROW Mapping & ROW Acquisition																																																	
Prepare ROW Map/Pacel Sketches & Field Notes	GDJ																																																
ROW Parcel Negotiations (Approx9 Parcels)	GDJ																																																
Payments for Parcels	GDJ																																																
Condemnation Support	GDJ																																																
Eminent Domain Proceedings	GDJ																																																
Project Planning and Programming																																																	
Initiate coordination with LWCMPO for project funding*	GDJ																																																
Amend RGVMPO TIP/MTP to fund project	LWCMPO																																																
Coordinate Functional Classification of project	LWCMPO																																																
Coordinate with RGVMPO for inclusion into the 2026 UTP	LWCMPO																																																
AFA coordination with TxDOT	GDJ																																																
AFA Approval	TxDOT																																																
Schematic, Env & Public Involvement																																																	
Design Survey & Topography	GDJ																																																
Schematic Development For ROW Mapping	GDJ																																																
Hydrologic Map	GDJ																																																
Preliminary Environmental Investigations	GDJ																																																
Environmental Scoping Meeting	GDJ																																																
Public Involvement for Public Meeting	GDJ																																																
Advertise & Conduct Public Meeting	GDJ																																																
Submit Schematic to TxDOT (After Public Meeting - TxDOT Req.)	GDJ																																																
TxDOT Schematic Approval	TxDOT																																																
Environmental Document Preperation	GDJ																																																
Submit Final Draft Document	GDJ																																																
Agency Review & Revisions	TxDOT																																																
Environmental Decision	TxDOT																																																
PS&E, Geotech & Utility Coordination																																																	
Geotechnical Drilling & Engineering	GDJ																																																	
Subsurface Utility Engineering (SUE)	GDJ																																																
30% PS&E Package	GDJ																																																
30% PS&E Package Review	TxDOT																																																
60% PS&E Package	GDJ																																																
60% PS&E Package Review	TxDOT																																																
90% PS&E Package	GDJ																																																
90% PS&E Package Review	TxDOT																																																
95% PS&E Package	GDJ																																																
95% PS&E Package Review	TxDOT																																																
100% PS&E Package	GDJ																																																
Final Plan Approval	TxDOT																																																
Construction Letting & Management																																																	
Local Let Bid Package Development	GDJ																																																
Bidding Process	GDJ																																																
Begin Construction Operations	WEBB CO.																																																

GDJ ENGINEERING TASK
LWCMPO/TxDOT/FHWA TASK
TxDOT TASK

Notes: * Assumes ROW Acquisition is 100% completed September 2024, if ROW acquisition is completed sooner then LWCMPO Coordination will be initiated more quickly accelerating the schedule.

"Exhibit D"
Fee Estimate

Webb County: US 59 - SH 359 Connector Project - Project Development & Design Fee Proposal

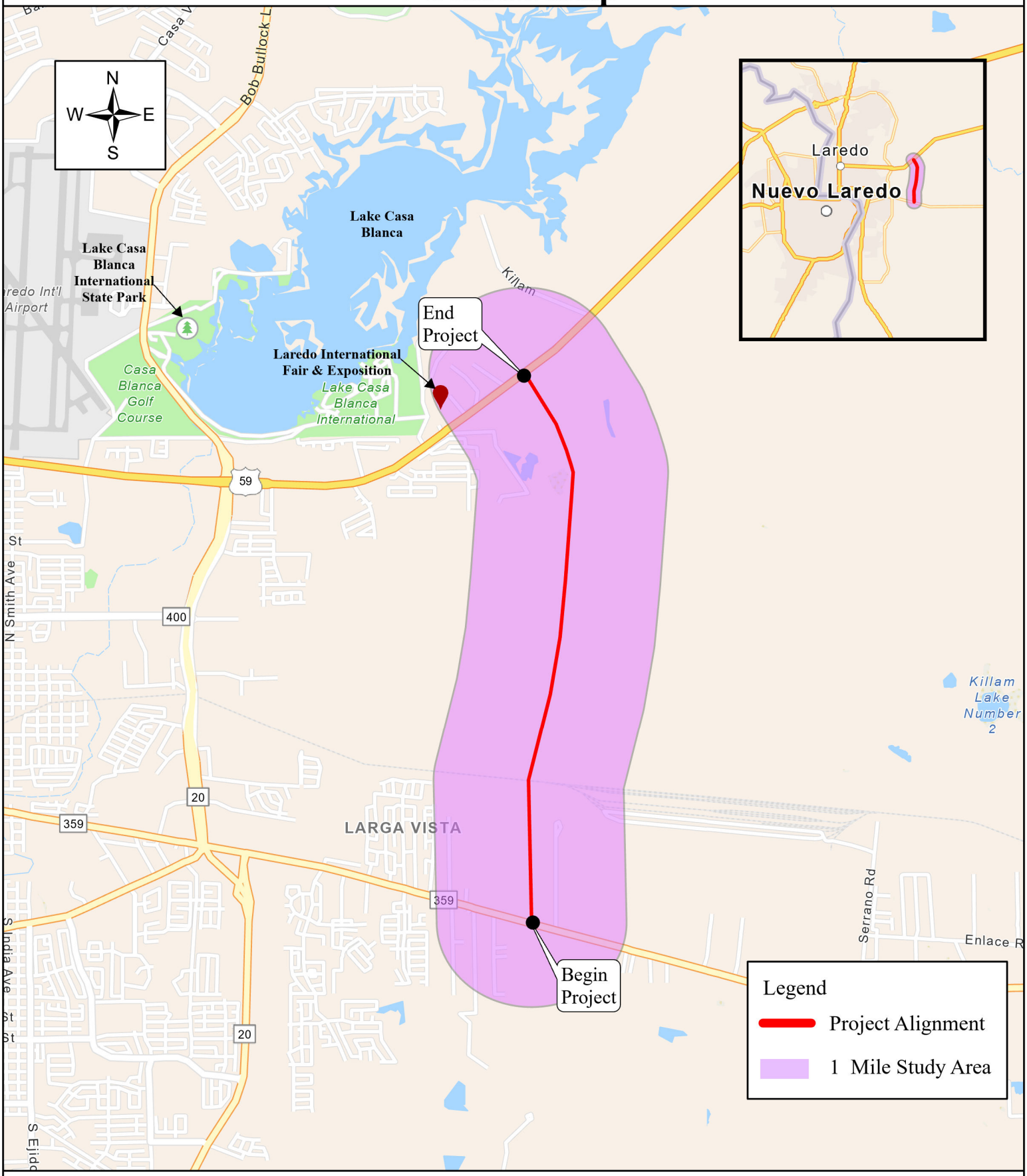
US 59 to SH 359 (3.5 mi approx.)

		Project Development (Schematic, Environmental, PS&E, ROW) Fee Proposal - Webb County: US 59 - SH 359 Connector Project	MANHOURS									
			Principal/Senior Project Manager	Project Manager	Agency Coordination/ Utility Manager	Project/Design Engineer	Environ. Specialist	EIT	Engineering Tech	Admin/Clerical	Total Hours	Total Line Item Cost
		TASK										
		PHASE I - Schem, Env, Survey & Project Funding										
	1	Environmental Document (TxDOT/FHWA Clearance)	40	120	484	360	360			160	1524	$ 174,120.00
	2	Public Involvement for the Project w/1 Public Meeting, Hearing and/or Opportunity	32	48	192	240	80			80	672	$ 78,960.00
	3	Archeological & Historical Research	SUBCONSULTANT ARCHAEOLOGICAL & HISTORICAL COST									$ 118,000.00
	4	Topographic Survey	SUBCONSULTANT SURVEY COST									$ 93,000.00
	5	Schematic Development & TxDOT Approval	154	238	240	376		508	640		2156	$ 243,110.00
	6	Hydrologic Map/H&H Report	40	120	80	240		80	240		800	$ 93,480.00
	7	Project Development (Funding/Entity Coordination/AFA Development, etc…)	80	180	240					160	660	$ 81,200.00
	8	Traffic Signal Warrants (US 59 & SH 359)	SUBCONSULTANT TRAFFIC COST									$ 45,000.00
	9	Traffic & LOS Analysis for Off-System Rdwy (Env & Pvmnt Des Purposes)	SUBCONSULTANT TRAFFIC COST									$ 50,000.00
	10	Parcel Sketches & Field Notes (est 9 parcels @ $3,500/parcel)	SUBCONSULTANT ROW SURVEY COST									$ 31,500.00
	11	Railroad Coordination	72	198	226	142					638	$ 89,870.00
	12	Project Management	78	134	92	92					396	$ 58,410.00
		Subtotal (PHASE I)	**496**	**1038**	**1554**	**1450**	**440**	**588**	**880**	**400**	**6846**	**$ 1,156,650.00**
		PHASE II - PS&E, Geotechnical and Utility Coordination										
	13	PS&E Development	494	758	584	1728		2284	2656	520	9024	$ 962,122.00
	14	Possible RR Overpass Design (Only if Needed)	102	144	124	484		652	758	156	2420	$ 249,966.00
	15	Geotechnical Testing & Pavement Design	SUBCONSULTANT GEOTECHNICAL COST									$ 105,000.00
	16	Permitted Utility Coordination	12	40	48	114		54	128	4	400	$ 44,476.00
	17	Compensable Utility Coordination	34	70	82	222		100	282	12	802	$ 88,364.00
	18	Subsurface Utility Engineering (Est. 15 potholes)	SUBCONSULTANT SUE COST									$ 22,500.00
	19	Project Management	82	146	98	98					424	$ 62,540.00
	20	Project Site Visits	6	22	22	30					80	$ 11,020.00
		Subtotal (PHASE II)	**730**	**1180**	**958**	**2676**	**0**	**3090**	**3824**	**692**	**13150**	**$ 1,545,988.00**
		PHASE III - Construction Letting & Project Management										
	21	Local Let Bid Package Development Assistance	24	58	114	124	34			8	362	$ 46,706.00
	22	Lertting Assistance (Pre-Bid Meeting, RFI's, Pre-Con Meeting, etc…)	22	64	80	110					276	$ 37,660.00
		Subtotal (PHASE III)	**46**	**122**	**194**	**234**	**34**	**0**	**0**	**8**	**638**	**$ 84,366.00**
Total Labor Hours			**1272**	**2340**	**2706**	**4360**	**474**	**3678**	**4704**	**1100**	**20634**	
Contract Rate			$ 185.00	$ 160.00	$ 120.00	$ 125.00	$ 99.00	$ 95.00	$ 82.00	$ 55.00		
Total Labor Costs			**$ 235,320.00**	**$ 374,400.00**	**$ 324,720.00**	**$ 545,000.00**	**$ 46,926.00**	**$ 349,410.00**	**$ 385,728.00**	**$ 60,500.00**		**$ 2,787,004.00**

LINE ITEM EXPENSES

N/A	$ -
Total Expenses	**$ -**
GDJ Engineering Total Cost	**$ 2,787,004.00**

Location Map



US 59-359 Connector
Webb County, Texas

GDJ Engineering