2.) Discussion and possible action to approve Dannenbaum Engineering Corporation Work Authorization No. 2 for a total of **$567,911.98** for remaining engineering fees after September 1, 2015 to completion for Loop 20 Extension Project (CSJ: 0086-14-058)

Original Work Authorization No. 1 Amount =	$ 1,917,444.78	
Supplemental Work Authorization No. 1 Amount=	$(1,816,375.25)	$ 101,069.53
Supplemental Work Authorization No. 2 Amount=	$ 1,816,375.25	$1,917,444.78
Supplemental Work Authorization No. 3 Amount=	$ 123,191.88	$2,040,636.66
Supplemental Work Authorization No. 4 Amount=	$ (5,968.86)	$2,034,667.80
Supplemental Work Authorization No. 5 Amount=	$(1,466,755.82)	$ **567,911.98**

for remaining engineering fees after September 1, 2015 to completion for Loop 20 Extension Project (CSJ:086-14-058)

Explanation: WA No. 2 Contract is for remaining fee (services) after 09/1/2015 until services are 100%. Essentially, adding back in fee for services removed from WA No. 1. The date for WA No. 2 completion is August 1, 2020 to match contract.

ATTACHMENT D
WORK AUTHORIZATION
D-1
WORK AUTHORIZATION NO. 2
CONTRACT FOR ENGINEERING SERVICES

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 5 of Engineering Contract No. **CSJ:086-14-058** (the Contract) entered into by and between the County of Webb (County), and Dannenbaum Engineering Corporation (the Engineer).

PART I. The Engineer will perform engineering services generally described as the remainder of Phase I work, Authorization No. 1 for services after September 1, 2015 for finalizing to 100%, the preliminary engineering, including the preparation of schematics, and environmental documents, to support a possible future design/build project, and if design/build is not chosen as the preferred method of project delivery, then the County may amend the Contract to include the development of PS&E, for Loop 20 main lanes and frontage roads from Sta. 554+00 to Just North of Loop 20 / US 59 Overpass (TxDOT CSJ 0086-14-058) situated in Webb County, Texas in accordance with the project description attached hereto and made a part of this Work Authorization. The responsibilities of the County and the Engineer as well as the work schedule are further detailed in exhibits A, B and C which are attached hereto and made a part of the Work Authorization.

PART II. The maximum amount payable under this Work Authorization is **$567,911.98** and the method of payment is lump sum as set forth in Attachment E of the Contract. This amount is based upon fees set forth in Attachment E, Fee Schedule, of the Contract and the Engineer's estimated Work Authorization costs included in Exhibit D, Summary of Fees, Fee Schedule, and Exhibit D-1 Detailed Fee Schedule, which are attached and made a part of this Work Authorization.

Original Work Authorization No. 1 Amount	=	$	1,917,444.78		
Supplemental Work Authorization No. 1 Amount	=	$	(1,816,375.25)	$	101,069.53
Supplemental Work Authorization No. 2 Amount	=	$	1,816,375.25	$	1,917,444.78
Supplemental Work Authorization No. 3 Amount	=	$	123,191.88	$	2,040,636.66
Supplemental Work Authorization No. 4 Amount	=	$	(5,968.86)	$	2,034,667.80
Supplemental Work Authorization No. 5 Amount	=	$	(1,466,755.82)	$	**567,911.98**

PART III. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with Articles 3 thru 5 of the contract, and Attachment A, Article 1 of this contract.

PART IV. This Work Authorization shall become effective on the date of final acceptance of the parties hereto and shall terminate on **August 1, 2020** unless extended by a supplemental Work Authorization as provided in Attachment A, Article 1.

PART V. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

IN WITNESS WHEREOF, this Work Authorization is executed in duplicate counterparts and hereby accepted and acknowledged below.

THE ENGINEER	**THE COUNTY**
(Signature)	(Signature)
Louis H. Jones, P.E.	Luis Perez Garcia, P.E.
(Printed Name)	(Printed Name)
Principal	County Engineer
(Title)	(Title)
01/15/2016	
(Date)	(Date)

LIST OF EXHIBITS

Exhibit A	Services to be provided by the County
Exhibit B	Services to be provided by the Engineer
Exhibit C	Work Schedule
Exhibit D	Detailed Fee Schedule for Remaining Phase I (Advanced Planning Development Services) Fee Schedule/Budget For Services After September 1, 2015
Exhibit H-2	Subprovider Monitoring System Commitment Agreement

EXHIBIT A

Services to Be Provided by the County

EXHIBIT A

SERVICES TO BE PROVIDED BY THE COUNTY

1. The County shall provide prompt review of all submittals; process monthly invoices and review monthly progress reports within ten (10) days of receiving such documents.

2. The County shall contact TxDOT Laredo with three (3) business days of receiving request from Engineer on any required information or documents from TxDOT.

3. The County Engineer will provide the Engineer with all available existing information on the Projects from TxDOT or other available sources.

4. The County, through TxDOT, will be responsible for preparing, holding and documenting the Value Engineering Study with Engineer's Staff only. Based on One Day attendance by Project Manager; Deputy Project Manager and Senior Engineer.

DESIGN SCHEMATICS
Provide hard copy of the approved schematic developed by Kellogg Brown & Root (KBR) – 1Large format roll.

Provide hard copy of 90% schematic developed by Parson Brinkerhoff of Americas (PB America) – 1 Large format roll.

VALUE ENGINEERING REPORT – hard copy dated November 2007, Electronic in pdf format contained in CD along with construction plans (as builts).

ENVIRONMENTAL DOCUMENT – None available.

HYDRAULIC STUDIES

PAVEMENT DESIGN REPORT – Provided by TxDOT

PRELIMINARY CONSTRUCTION ESTIMATE- Provided for information only.

DSR PRELIMINARY – Provided for information only.

TRAFFIC STUDY – Provided by TxDOT and/or TTI

TRAFFIC DATA – Provided by TxDOT and/or TTI

CROSS SECTION FILES

UTILITY DATA – The State does not up-date schematic utility data.

CONSTRUCTION PLANS (All Microstation working files for original plans and As-Builts contained on CD)

- Existing Loop 20 from Sta. 554+00 to just North of Loop 20/US 59 Overpass
- Existing plans on any modification to Loop 20 or crossing roadways from Sta. 554+00 to just North of Loop 20/US 59 Overpass

SURVEYING DATA:

ALL EXISTING TOPOGRAPHIC SURVEY
Geopak DTM files
Geopak TIN files
Geopak DAT files
Microstation 2d CADD files
Microstation 3d CADD files
Existing ROW in 2d Microstation CADD files
XYZ text files of survey data
Existing Survey Control Monumentation in PDF Format
2007 Webb CADD Aerial Mosicac in ECW format @ 1 ft. pixel resolution

Note:
The survey data began provided by the State, DOES NOT reflect current site conditions. Topographic survey will required to be updated prior to final schematic development. See section IV. FIELD SURVEYING AND PHOTOGRAMMETRY for other information needed.

ALL SURVEY CONTROL
The survey control for this project was set back in 2003
Please check control points before use
Note that some of these points may have been disturbed and/or destroyed, therefore the coordinates and elevations shown might not be valid

ALL HYDRAULIC DATA
County will provide (obtained from TxDOT) all working files of drainage area maps and Windstorm runs for all existing storm sewer lines within project right-of-way in a condition and format that the Engineer can readily verify and for adequacy and accuracy of existing storm sewer systems

ALL HIGH MAST LIGHTING
County will provide (obtained from TxDOT) all microstation working files associated with the existing high mast lighting within project limits

ALL GEOTECHNICAL
County will provide (obtained from TxDOT) all existing geotechnical reports associated information within the project limits

SCOPE AND FEE SCHEDULE ASSUMPTIONS

1. Public meeting/public hearing court reporter to be provided by the County
2. The txDOT Laredo District has a VRS network
3. The project surveyors can utilize VRS in a two rover configuration

4. Highway Capacity Analysis and preparation of design report will be done by TTI
5. Preparation of Interstate Access Justification Report will be done by TTI
6. Txdot/County will provide all design working files in Microstation format for all plans of existing roadways. Txdot/County will provide all electronic files of computer runs (actual working data) of Winstorm for existing drainage
7. Pavement design is to be done by TxDOT

EXHIBIT B

SERVICES TO BE PROVIDED BY THE ENGINEER

Exhibit B

Services to be Provided by the Engineer

CSJ:	0086-14-058
Highway:	SL 20
County:	Webb County
Project No.:	CBI 2013 (881)
Limits:	Loop 20 from Sta. 554+00 to Just North of Loop 20 / US 59 Overpass
Project Length:	7.0 Miles
Area Office:	Laredo Area Office

Project Description
The Engineer will provide engineering services for phase I-advanced project development services including but not limited to schematics; environmental assessment; public involvement; value engineering, drainage studies; culvert sizing studies; surveying topo / aerial flights; utilizing investigations (Level A, B, C, D); utility special services for Loop 20 from Sta. 554 + 00 to Just North of the Loop 20 / US 59 Overpass.

Existing Conditions

The existing Loop 20 from Sta. 554+00 to Just North of Loop 20 / US 59 Overpass consist of four (4) to six(6) lanes with shoulders with at grade intersections at Loop 20 and Shiloh Road, Del Mar Road, University Drive, Jacaman Road and Laredo International Airport Road, including corresponding underground storm sewers; cross culverts; drainage ditches; signage and traffic signals.

Proposed Improvements

The proposed Loop 20 from Sta. 554+00 to Just North of Loop 20 / US 59 Overpass will consist of ~~six mainlanes with shoulders and two lane frontage roads on each side~~ eight (8) lane main lanes and no frontage roads from US 59 Hwy to Airport Drive and six (6) lane main lanes and three (3) lane frontage roads from Airport Drive to International Road for the advanced project planning Phase I and Phase II (Schematic / Environmental / Right of Way), and the Phase III – PS&E phase, may be performed at a later date, with Amendment to the Contract, which will consist of ~~designing four mainlanes with shoulders and two lane frontage road each side~~ eight (8) lane main lanes and no frontage roads from US 59 Hwy to Airport Drive and six (6) lane main lanes and three (3) lane frontage roads from Airport Drive to International Road with overpasses over Shiloh Road; Del Mar Road; University Drive; Jacaman Road and Laredo International Airport Road, including corresponding underground storm sewers; cross culverts; signage and traffic signals at frontage roads.

Sidewalks on both sides of the proposed Loop 20 Freeway from the Loop 20 / US 59 overpass to the Loop 20/ International Boulevard overpass.

Hike and Bike Trail along one side of the proposed Loop 20 Freeway from the Loop 20 / US 59 overpass to the Loop 20/ International Boulevard overpass.

THE FOLLOWING TASKS ARE FOR SERVICES AFTER SEPTEMBER 1, 2015

GENERAL MANAGEMENT/COORDINATION

Function Code 164 is for PS&E Development Services

Task: Contract and Work Authorization Management/Coordination (FC: 145/164)
The Engineer will manage and coordinate all the activities associated with this work authorization.

All communications associated with the work in this work authorization will be directly channeled through the Engineer, the Webb County Engineer and the State's designated project manager.

The Engineer will ensure compliance with "Article 4. Payment requirements" of the contract by providing a Monthly billing statement in addition to the requirements listed by the contract.

The Monthly Billing Statements should be provided no more frequently than monthly and no later than ninety (90) days after any costs are incurred and should include one original and one copy of the following documents:

- Provider's Invoice that should include vendor's name, address, contact information, telephone number, Texas Payee Identification Number (TINS), complete charge information, and description of services/goods provided.
- Completed Form 132- Accurate information such as Control Section Job (CSJ) numbers, function codes, work authorization balances and dates are required.
- Progress report that will include the activities previously completed, activities completed during the billing period, and any pending actions from the State. The progress report should also include all work performed by sub providers.
- Progress assessment reports with actual payments made to Disadvantage Business Enterprises or Historically Underutilized Business Program as detailed in the contract.

The monthly billing statements must be mailed to:
Luis Perez Garcia, P.E., Webb County Engineer
Webb County, Texas
1620 Santa Ursula, 2nd Floor
Laredo, Texas 78040

Task: Work Scheduling and Deliverables (FC: 164)
The Engineer should secure all resources necessary to produce the project deliverables listed in this work authorization and to meet the project schedule as presented in "Exhibit C". The project schedule should include milestone activities and specific delivery dates. The Engineer may identify the percentage of payment expected with each deliverable made.

The Engineer should continuously monitor the sub provider's schedules to ensure that the delivery dates are accomplished.

Task: Data Management (FC: 164)

The Engineer will utilize MicroStation V8 native files. The computer graphics files will have the same integrity, singularity and attributes as elements generated by the Texas Department of Transportation (the State) State's computer system. The Engineer should obtain from the State the latest level naming criteria.

The Engineer will provide the State's graphics coordinator with a user name and password to access the provider's ftp (internet) site to upload and download large files that cannot be transmitted by e-mail.

Task: Meetings (FC: 164)
The Engineer will be required to meet one (1) progress meeting with designated Webb County and TxDOT representatives, utility companies, and adjacent and affected landowners to report on the

project's progress. The Engineer shall be required to prepare the minutes for the meeting and provide an electronic and hardcopy to the County and/or State for review.

Task: QC/QA (FC: 164)
The Engineer should meet the project schedule as presented in "Exhibit C" of this work authorization.

The Engineer will perform quality control and quality assurance (QC/QA) review and approve any deliverables including those provided by sub providers before submission to the state.

Peer review will be provided at all levels. Internal mark-ups (redlines) and/or comments developed as part of the Engineer's QC/QA will be maintained for inspection when requested by County and/or the State.

PHASE I- ADVANCED PROJECT DEVELOPMENT SERVICES

II. ROUTE AND DESIGN STUDIES

Task: Route Location Studies (FC: 110) (This Contract only includes widening alternative and no-build alternative)

A preliminary preferred route alignment will be selected based on the analysis of different routes, stakeholders input, evaluation criteria matrix, and County and State concurrence. This selection will be documented as part of the environmental assessment.

Develop a matrix to establish the project's route selection criteria for evaluating alignment alternates which include widening and no-build only. The criteria will include such factors as existing and future development, current and future land use, environmental factors, socioeconomic issues, geographic features, political issues, traffic volumes, traffic service, utility impacts, transportation infrastructure, and cost.

Identify and Analyze Alternate Routes (which include widening and no-build only) within the Corridor Bandwidth after the first open workshop.

- Develop preliminary alternate route alignment, within the identified bandwidth, utilizing previously developed constraints map, matrix criteria, and workshop input. A maximum of three alternates will be identified for the following projects:

Traffic Engineering Studies (Performed By TxDOT and/or TTI)
The Engineer should perform field work and analysis necessary to prepare a traffic engineering study at the designated location.

The Engineer should provide traffic engineering studies along with recommendations for improving traffic operations of the site under study.

The Engineer should prepare a list of all contacts the consultant has had communication with throughout the study.

The Engineer should provide one bound set, one unbound set, and one electronic copy of the traffic engineering study research, data, and results.

Sign Inventories
The Engineer should inventory using GPS coordinates regulatory and warning signs on the study roadway for each direction of travel. This information will be posted on the RI strip maps or ArcGIS maps of the study area as outlined in the individual work authorization.

Task: Roadway Design Criteria (FC: 110)
The Engineer shall develop the roadway design criteria based on the controlling factors specified (i.e. 4R, 3R, 2R, or special facilities), by use of the funding categories, design speed, functional classification, roadway class and any other set criteria as set forth in Roadway Design Manual, Bridge Design Manual, Hydraulic Design Manual, and other deemed necessary State approved manuals.

The Engineer shall include the design of sidewalks on both sides of Loop 20.

The Engineer shall include small signs to be designed in accordance with TxDOT "Sign Crew Field Book" and AASHTO "Guide for the Development of Bicycle Facilities (2012)

The Engineer shall include a hike and bike trail on one side of Loop 20. Hike and bike trail is to be designed in accordance with AASHTO "Guide for the Development of Bicycle Facilities (2012). Details are to be added illustrating sidewalk and hike and bike crossings of driveways.

The Engineer must develop a preliminary Design Summary Report (DSR) containing roadway and hydraulic criteria for discussion and evaluation in the Design Concept Conference (DCC).

Task: Preliminary Cost Estimate (FC: 110)
The Engineer shall develop a preliminary cost estimate through use of the MS Excel software. Unit bid prices used will coincide with the State's Laredo District averages, as available, over the preceding 3 month period and will be escalated to the proposed letting date.

Task: Design Schematic (FC: 110)

The Engineer shall perform the following tasks under this item:

- Prepare a schematic plan and profile drawing (1"=50'H, 1" = 10'V) on a continuous color plot paper roll. The Schematic will include hike and bike trail, small signs, the ultimate edge of pavement, proposed hike and bike trail profile, existing utility crossings, proposed culvert crossings, proposed bridges, proposed R.O.W., existing cross streets, proposed driveways, proposed outfall channels, proposed channelized intersections, ultimate interchange configurations, signing, and pavement markings.
- Prepare a preliminary construction estimate based on the approved schematic using Excel spreadsheets.
- Preliminary Hydrologic Analysis for 16 cross drainage structures. If additional crossings are found, it will be considered a change in scope.
  Delineate drainage area on USGS map for each stream crossing. Determine preliminary design flows for the crossings based on the 5, 10, 25, 50, and 100 year USGS Regression Curves or other hydrologic method approved by the District on the basis of accuracy.
- Preliminary Hydraulic Design Analysis for 16 cross drainage structures. If additional crossings are found, it will be considered a change in scope.
  Preliminary design flows to select a cost-effective preliminary crossing design. The analysis will include a comparison between bridge versus culvert. Preliminary water surface profiling will be determined using approximate cross section taken from the USGS maps in combination with the single or two-section method of surface calculation.
- Preliminary Hydraulic Report
  Prepare a report for the project addressing Hydrologic and Hydraulic Issues. Included in the report will be a preliminary 100-year flood plain impact and mitigation analysis based on available FEMA Flood Plain Maps showing approximate flood plain boundaries.

Task: Value Engineering Studies (FC: 110)

TxDOT will be responsible for preparing; holding and documenting Value Engineering Study with Engineer's Staff attending one(1) day

DRAINAGE IMPACT STUDY (DIS)

- **Drainage Analysis**

  Analyze and propose mitigation (detention) measures to avoid adverse downstream impacts.

  1. The Engineer will identify the existing drainage outfalls and existing condition peak flows.

     a. Data collection and site visits.
     b. Approximately sixteen outfall channels exist within the project reach.
     c. Identify outfall channels capacity.

  2. Drainage areas for the existing and proposed conditions.

     a. Develop NRCS **or similar** method for area peak flows and use of the HEC-HMS model for the 100-year, 50-year, 25-year, 10-year and 5-year flows and runoff hydrographs.

3. Estimate preliminary detention mitigation requirement
   a. Estimate roadway impact storage based on approximate methods.
   b. Estimate approximate floodplain volume.
   c. Identify potential detention sites.
   d. The Engineer will meet with the State (TxDOT) to discuss preliminary findings of the storage volume computations, preliminary impacts and potential mitigation facilities. Recommendations at this point will be generic and conceptual in nature, mainly for discussions with the State and the local government entities.

4. Compute existing and proposed peak flows at the sub-area level for the 5, 10, 25, 50 and 100-year frequencies. The additional pavement will be accounted for by modifying time of concentration and impervious cover.

   a. Review contributing drainage areas within the ROW for each outfall (drainage system) from information obtained in the Drainage Analysis. (Items 1,2 and 3)
   b. Calculate proposed peak flows utilizing **HEC-HMS**, NRCS **or similar method** parameters for both existing and proposed conditions. Use the HEC-HMS for runoff hydrographs.
   c. Use SWMM **or similar software** to link sub-areas to the outfall location.

- **Mitigation Analysis**

An impact analysis is required on bayous, creeks and ditches in accordance with State criteria for the various frequencies.

1. Storage computations will be based on hydrograph calculations. A mitigation volume for the 100-year storm will be computed.
   a. For in-line detention storage –
      - Develop an initial stage-storage rating curve for the detention basin. The inlet and outlet pipes and/or surface conveyance between the storm sewer system and the detention basin will be modeled in SWMM or similar routing software.
      - Iterate the storage volume and inlet and outlet pipes until the flow is fully mitigated at the outfall locations.

2. Existing Storage Mitigation
   a. Compute right of way corridor FEMA 100 year flood plain volumes for existing and proposed roadway elevations. A decrease in 100 year flood plain volumes is not allowed by the State or other governmental agencies, without adequate mitigation.
   b. Compute ROW Corridor Storage in existing drainage systems that exists outside the floodplain. Any decrease in volume will require adequate mitigation.

3. Finalize Mitigation Plan

   a. Finalize location, volume, footprint, control structures, 100-year and 10-year water surface elevations for all mitigation facilities on 1" = 200' schematics or similar exhibits at a suitable scale.

b. Prepare cost estimates for drainage facilities (Right-of-way, detention, storm sewers, extreme event structures, etc.)
c. If requested, prepare an alternative mitigation plan considering alternate basin locations, lack of available right-of-way, etc. Up to one alternate plan will be provided at each outfall. Additional alternatives would be handled as an additional task under the contract, and paid for by supplemental Work Authorization. This effort is not included in this scope of work.

4. This phase does not include the detailed PS&E design of any drainage features.

- **Deliverables**

a. Prepare Draft Drainage Impact Study (DIS) signed, sealed and dated by a registered/licensed engineer. Three copies of the report including color exhibits will be submitted.
b. Incorporate comments from draft DIS into final DIS.
c. Prepare CD for submittal to the State (TxDOT), and include report text, models, exhibits and tables.

Task: Design Concept Conference (FC: 110)

The Engineer will organize and attend a preliminary concept (or kick-off) meeting:

a. To identify and confirm with County and the State corridor issues that would influence the location and ultimate selection of a preferred alignment.
   1. To develop criteria to evaluate alternative corridors considering existing and future development, current and future land use, environmental factors, socioeconomic issues, geographic features, political issues, traffic volumes, traffic service, utility impacts, transportation infrastructure, and cost.

The Engineer shall attend one design concept conference at the County or State's Laredo District Office. The Engineer shall prepare the minutes for the meeting and forward to County and the State with all item addressed and agreed.

Task: Soil Core Hole Drilling (FC: 110)

(1) For: a.) Pavement, b.) Retaining Walls, c.) Miscellaneous Structures, or d.)Bridges, (1) No core drilling is to be accomplished until the state has given the engineer written approval.

Provide Soil Core Hole Drilling.

The Engineer shall perform the following items under this task:

- Perform the geotechnical drilling and engineering services for the bridge structures located at intersections shown below:

Shiloh Drive
Del Mar Blvd
University Blvd
Jacaman Rd
Laredo International Airport Entrance

- Establish in consultation with Webb County and the State, the locations of the test holes utilizing tape and right angle measurements from existing benchmarks (does not include surveying of boring locations).
- Drill two bridge borings utilizing auger drilling techniques to a maximum depth of 70 ft below existing grades or until five consecutive TCP test results of 100 blows for less than 4 in. are recorded, whichever is shallower; perform Texas Cone Penetrometer (TCP) tests at 2.5 ft. intervals for the first 10 ft. and at 5 ft. intervals.
- Collect one grab sample in the stream bank/bottom for scour analysis gradation testing.
- Visually classify the soil samples during drilling operations.
- Perform gradation testing on the scour sample.
- Provide a written engineering report to include the results of our classification and TCP testing in WinCore format boring logs, as well as pier capacity curve and the results of the gradation tests.
- Provide field sampling and laboratory analysis, according to the State's Standards, to produce Pier Capacity Charts to be used in the bridge foundation design. Provide boring logs to be shown on bridge layouts and in conformance with the State's criteria.
- Provide field sampling and laboratory analysis to produce recommendations on retaining wall design. Provide global stability analysis for the retaining walls.
- Provide slope stability analysis at fill locations

The Engineer shall provide all traffic control, labor and equipment for the Traffic Control Plan (TCP) while performing services under this work authorization. The Engineer shall comply with the regulations of the most recent edition of the "Texas Manual on Uniform Traffic Control Devices". The Engineer must submit the TCP to the respective Area Office to obtain approval from the Traffic Control Safety Review Committee concerning the proposed method of handling traffic prior to the commencement of geotechnical work.

III. SOCIAL, ECONOMICAL, AND PUBLIC INVOLVEMENT

Task: Environmental Report- Environmental Assessment, Environmental Impact Statement
Function Code: 120

The Engineer will document the work effort and will assemble and summarize all technical information, methodologies, and results of analysis in the correct format for a Draft Environmental

Assessment. The applicable procedures of the State of Texas, and the requirements of the National Environmental Policy Act and Federal Highway Administration Technical Advisory 6640.8A will be followed. A brief description of the proposed report format – per State (TxDOT) and FHWAS guidelines – follows:

1. Cover sheet
2. Table of Contents
3. Introduction
4. Purpose of and Need for the Proposed Action
5. Description of the Proposed Action
    a. Roadway Construction (ultimate 4-lane divided facility, interchanges, and phased construction)
    b. Utility Construction
    c. Project Funding

6. Reasonable Alternatives – the development and evaluation of reasonable and feasible alternatives will be documented in this section including the preferred and the no-builder alternatives.
7. Project Setting/Existing Environment
8. Potential Social, Economic, and Environmental Impacts
    a. Socioeconomic Date
    b. Land Use
    c. Regional and Community Growth
    d. Public Facilities and Services
    e. Community Cohesion
    f. Environmental Justice
    g. Economic Impacts
    h. Conservation and Preservation
    i. Displacement of People, Business, and Farms
    j. Water Quality – Nationwide Permits, Wetlands, Floodplains, SW3P, and Surface Water Hydrology
    k. Air Quality Analysis
    l. Traffic Noise Analysis
    m. Vegetation Impacts
    n. Wildlife and Threatened/Endangered Species Impacts
    o. Section 4(f) Properties
    p. Prime and Unique Farmlands
    q. Archaeological/Historical Structures
    r. Construction Impacts
    s. Hazardous Waste/Materials
9. Secondary and cumulative Impacts
10. Comments and Coordination – Describe coordination efforts and comments received from government agencies and citizen comments from public workshop and meeting.
11. Conclusion
    After the selection of the preferred alternative and based on agency comments and anticipated permit requirements, the Engineer will conduct additional field environmental investigations as outlined below. These follow-on environmental surveys will be accomplished along the preferred route at the widths noted.

The following field visits will be conducted and documentation prepared in support of the detailed evaluation of environmental issues for these reasonable and feasible alternatives within each project corridor. Right of entry will be obtained prior to these visits by Engineer using the State's Environmental Right of Entry Form:

- Wetlands – Fieldwork will be limited to readily accessible areas, with the purpose of confirming the existence of potential constraints identified by federal, state, and local agencies.
    a. Jurisdictional wetlands within the preferred corridor will be located and classified according to the current U.S. Army Corps of Engineers methodology. The wetland/non-wetland boundary will be identified by staking/flagging within the preferred corridor and located by GPS and/or surveying. Document shall be on an approved map base.
    b. Coordinate with County and the State, the NRCS and USCOE on confirmation of findings and extend of wetland areas.

Project wetland scientists will perform wetland evaluations in all areas potentially affected by each alternate alignment. This scope of services includes both a wetland determination and delineation to be conducted in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual for potential wetlands within the Preferred Alternative. Individual Section 404 wetlands permit(s) and/or Nationwide Permit(s) requiring a Pre-discharge Notification or wetland mitigation planning will be conducted under an additional scope and budget.

- Archaeology – An agreement with the State Historic Preservation Officer will be developed regarding the level of effort needed for archaeological field studies. A background study and PCR for archaeological cultural resources will be conducted within the preferred corridor to identify previously recorded archaeological resources and potential resources within the APE, prior to the schematic alignment . No field work is included in this scope of work. Engineer will prepare a background study and project coordination request for archaeological resources that conforms to TxDOT's Standards of Uniformity (June, 2011 version) and submit that to TxDOT – Environmental Division for review and comment. The need for field investigations, if any, cannot be determined at this time. These efforts are therefore not included in this scope of work, and may be added by supplemental agreement.

- Hazardous Waste Sites – The Engineer will conduct a Transaction Screen Environmental Site Assessment for hazardous materials for potential hazardous materials sites within the preferred corridor and all properties required for right-of-way acquisition. Work will be accomplished in accordance with ASTM 1528.96 (Transaction Screen Process). If USTs or hazardous waste sites are found within the project area, subsurface investigations and further study will be considered additional services.

- Historic Structures – The Engineer shall prepare a Non-Archeological Historic Resources Project Coordination Request (October 2009 version) for review and comment by TxDOT-ENV. The Engineer shall contact the Webb County Historical Committee Chairman to identify any resources within the APE of local historical concern and to gather additional information on the documented structures.

- Land Survey – The preferred alternative corridor will be reviewed and grouped into similar habitat types, i.e., farmland, pasture, mixed hardwood, bottomland hardwood, riparian, etc. using available aerial photography and limited groundtruthing. Areas that have a hardwood component will be classified using tree plots that identify individual trees into three groups: 30-45 cm (11.8 – 17.7 inches), 45-60 cm (17.7 – 29.5 inches) and greater than 60 cm (29.5 inches) DBH. If a significant or unique species is found that is less than 30 cm (11.8 inches) it will be noted, otherwise no trees of less than 30 cm will be documented. In addition, areas that are classified as bottomland hardwood/riparian forest will have an additional class: 15-30 cm (5.9 – 11.8 inches). Trees of less than 15 cm (5.9 inches) will not be documented in these areas unless it is a significant or unique species. A tree with multiple trucks will be considered to be one tree; thus, the DBH for each multiple trunk will be summed for the total for that tree.

- Threatened or Endangered Species – A preliminary biological assessment will be performed for any areas of potentially affected T&E species habitat identified in Phase 1. If Section 7

coordination with United States Fish and Wildlife Service will be handled by the State (TxDOT). Cross section of disturbed area will be provided with computer files.

- Final Environmental Assessment.
  The Engineer shall incorporate additional information from the final surveys into the environmental assessment and include a discussion about the comments received at the public workshop and meeting. The Engineer shall submit a Draft Final Environmental Assessment (4 copies) for review by the Webb County and any State District Staff. The Engineer will revise as necessary and resubmit for delivery to the State Environmental Affairs Division (9 copies) and for distribution to the resource agencies (9 copies).

Task: Public Involvement (FC: 120)
The Engineer shall perform the following tasks under this item:

The Engineer will coordinate/conduct the following meetings to solicit comments/concerns from the preliminary list of stakeholders.

STAKEHOLDER MEETINGS FOR CORRIDOR DETERMINATION – To present the corridor alternatives, discuss the project development process, and obtain input from the major stakeholders and agencies on constraints and issues.(The Engineer will meet individually with each stakeholder with a County and a State (TxDOT representative) All input will be studied/analyzed in the development of the project's constraint matrix. The estimated number of meetings is as follows:

- 4 meetings – 1 w/ each county precinct
- 1 meeting w/ city council members, mayor and staff (Laredo)
- 4 meetings – 1 w/ each large property owner
- 1 presentation to MPO technical committee
- 1 presentation to MPO Policy board
  It will be the Engineer's intent to group the meetings when it is proper to do so and schedule as many as possible for that day.
- Develop, produce, and mail a bilingual project newsletter prior to the Public Workshop, Meeting, Hearing, and after approval of Environmental Assessment Document. The newsletter will chronicle the project events occurring prior to its mailing.
- Schedule, advertise, and conduct a **Public Information Workshop**. The workshop will consist of an informal "open-house" prior to the County and State (TxDOT) formal project introduction. Assistance in answering questions and recording public comments will be provided to County and State (TxDOT) by the Engineer. A bilingual interpreter will be provided. Exhibits will be prepared showing a map of the corridor bandwidth on an available photographic background. Also, a presentation board showing the matrix of general project criteria for route selection will be displayed. The workshop will be advertised twice in the two local newspapers prior to its schedule date. The advertisement will be in a bilingual format. The bilingual advertisement will occur twice in the two local newspapers prior to the meeting at 30 to 10 day notices. Provide to the State the names and addresses of all property owners, along the corridor prior to the Public Meeting. Prepare required presentation materials (including handouts, agenda, and sign-in roster and exhibits for both meetings described above. Develop project mailing list.
- Prepare a Public Workshop Report detailing the event and recording input received from attendees. The report will be submitted to the County and the Laredo District for review by the Environmental Affairs Division.

- Schedule, advertise, coordinate, conduct, and maintain minutes of a **Public Meeting**. A bilingual interpreter will be provided if needed. Exhibits will be displayed showing the alternate routes on the rectified aerial photograph along with property boundaries obtained from available property maps. A bilingual advertisement will occur twice in the two local newspapers prior to the meeting at 30 and 10-day notices. Meeting minutes will be recorded, using a court reporter, documenting public input and presentation items.
- Evaluate comments received from attendees of the public meeting. Evaluate comments on each specific alternative to determine if negative or positive consensus has been built on any of the alternatives.
- Public Hearing after completion and preliminary approval of the Draft Final Environmental Assessment and the approval of the schematic design by the County and State and FHWA, the Engineer will:

  a. Prepare and conduct the information for presentation at the Public Hearing as follows:

     (1) Develop a layout of the ultimate facility schematics in accordance with State standards and submit 3 copies for approval by the State.
     (2) Prepare a handout package that includes:
     - Agenda
     - Project Area Map
     - Typical Cross Sections
     - Right-of-Way Acquisition Information
     - Comment Form

  b. Advertise, using a bilingual advertisement, for the Public Hearing twice in the two local newspapers prior to the hearing and prepare a bilingual agenda. Notice and advertisement will be at 30 to 10 day prior notice. **(Not Included)**
  c. Public Hearing to be conducted by the Engineer. Assistance will be provided as needed.
  d. Responses will be prepared to address agency and public comments and to determine the need to revise schematic design or environmental analysis. Responses will be reviewed by the State (TxDOT).
  e. Prepare a Public hearing report (Summary and Analysis).
  f. Publish the Final Environmental Assessment (15 copies).

Task: Cultural Resource Investigations (FC: 120)

Cultural Resources – the archeological investigation for Phase 1 will be limited to collecting existing documentation from the Texas Historical Commission, Texas Archeological Research Laboratory, and local sources. The archeologist will research existing documentation, determine the areas of high probability for archeological resources, and integrate this into a detailed background study. The project historian will determine the location of potentially NRHP-eligible structures or districts within the three study corridors. The construction date for evaluating the applicability of age criterion will be the year 1952, based on the earliest project construction date of 2001.

Project archeologist will conduct the necessary cultural resource investigations consisting of: 1) preliminary background research pertaining to the presence and/or potential for important cultural resources in the project area; 2) formal studies (TxDOT) Environmental Affairs Division (TxDOT-ENV) Coordination and; 3) compilation of the cultural resources section of the EA. Pre-field research will

consist of site and survey record searches at the Texas Archeological Research Laboratory (TARL-State repository for all site records) and the Texas Historical Commission (prehistoric).

Formal TxDOT-ENV and THC coordination will consist of the preparation of a PCR to be submitted to TxDOT-ENV, which incorporates all preliminary finding. This PCR will be used by TxDOT-ENV for formal coordination purposes with the Texas State Historic Preservation Office (SHPO), in partial compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended).

A brief description of the general report format – per State (TxDOT) and FHWA guidelines – follows.

1. Cover Sheet
2. Table of Contents
3. Introduction
4. Purpose of and Need for the Proposed Action
5. Description of the Proposed Action
   a. Roadway Construction (ultimate 4-lane divided facility, with or without interchanges, and phased construction)
   b. Utility Construction
   c. Project Funding
6. Reasonable Alternatives – the development and evaluation of reasonable and feasible alternatives will be documented in this section including the preferred and the no-build alternatives.
7. Project Setting/Existing Environment
8. Potential Social, Economic, and Environmental Impacts
   a. Socioeconomic Date
   b. Land Use
   c. Regional and Community Growth
   d. Public Facilities and Services
   e. Community Cohesion
   f. Environmental Justice
   g. Economic Impacts
   h. Displacement of People, Businesses, and Farms
   i. Water Quality; - Nationwide Permits, Wetlands, Floodplains, SW3P, and Surface Water Hydrology
   j. Air Quality
   k. Traffic Noise Analysis
   l. Vegetation Impacts
   m. Wildlife and Threatened/Endangered Species Impacts
   n. Section 4(f) Properties
   o. Prime and Unique Farmlands
   p. Archaeological/Historical Structures
   q. Construction Impacts
   r. Hazardous Waste/Materials
9. Secondary Impacts
10. Comments and Coordination – Describe Coordination efforts and comments received from government agencies and citizen comments from public workshop and meeting.
11. Conclusion

1) Project Administration Activities
   a) Maintain Project Schedule and Budget
   b) Develop and maintain a Project QA/QC Program.
   c) Hold Progress Meetings on a regular basis averaging once per month in Laredo or Rio Bravo, as necessary.
   d) Submit Billings.

Task: Hazardous Materials (FC: 120)
Hazardous Materials – Fieldwork will be limited to readily accessible areas, with the purpose of confirming locations of sites revealed during agency records review.

Task: Noise and Air Quality Analysis (FC: 120)
Noise – Conduct ambient noise measurements in readily accessible areas as required for the noise analysis documentation procedures by State (TxDOT) and FHWA.

Address and/or prepare the following:

- Noise-sensitive land uses in the vicinity of the alternatives will be identified.
- Predicted noise level contours will be developed using the FHWA Highway Traffic Noise Prediction Model STAMINA 2.0/OPTIMA (revised March 1993) for present and future **Design Year Traffic**.
- A noise barrier mitigation analysis will be prepared for noise receivers where predicted design year noise level contours approach or exceed the FHWA Noise Abatement Criteria (NAC) or meet the criteria for relative impacts.

Task: Ecological Investigations (FC: 120)
Project biologists will perform a characterization of project area ecological resources, including descriptions of vegetation and wildlife habitat resources. Ecologically sensitive resources, if any, will be identified and discussed in the EA. An assessment of the project area's potential to support federally threatened or endangered species will be conducted. This includes a data search of the Texas Biological and Conservation Database, an assessment of potential habitat in the project area for any listed species determined to be of potential occurrence, and coordination by letter with the U.S. Fish and Wildlife Service. A list of all state and federally sensitive species of potential occurrence in the project area will be provided in the EA. Any required threatened or endangered species presence/absence surveys will be conducted under an additional scope and budget.

Ecology/Wetlands/Endangered Species – Fieldwork will be limited to readily accessible areas with the purpose of confirming documentation provided by federal, state and local agencies.

Task: Social- Economic Investigations (FC: 120)
Social/Economic/Relocation/Land Use – Analysis of social and economic environment will include documentation of potential Environmental Justice issues. Census block data will be collected to document areas of low-income and minority populations.

ENVIRONMENTAL NOTES:

Environmental Services to Be Performed. The Technical Expert shall perform the environmental services indicated below.

Services to be provided by:

Technical Expert: Identify the study area for the Environmental Assessment (EA)

Obtain right of entry to perform environmental services

Develop letters or other materials for seeking right of entry

Public Involvement activities:

Develop public involvement plan

Compile and maintain mailing list

Make arrangements for public meeting

Technical Expert: Provide one staff member to attend one Public Meeting and one Public Hearing

Develop summary of public meeting and responses to comments

Make arrangements for public hearing

Technical Expert: Provide one staff member to attend a public hearing.

Develop comment and response report, summary and analysis and other information from public hearing

Develop and send acknowledgement / response letters to commenters

Develop, publish, and distribute newsletter

Develop and maintain web site

Technical Expert: Analysis of social and economic impacts, including:

Technical Expert: Identify and evaluate social and economic impacts

Technical Expert: Identify property owners and tenants adjacent to the roadway project

Technical Expert: Identify potential displacements

Technical Expert: Identify potential replacement housing and/or other replacement sites

Technical Expert: Identify the racial, ethnic and income level of affected individuals and communities

Technical Expert: Develop mitigation measures for social, economic and community impacts for the preferred alternative

Technical Expert: Perform public contact and public involvement to gather information from individuals and communities regarding social impacts

Technical Expert: Estimate the losses and gains to tax revenues

Technical Expert: Identify current and anticipated land uses with surveys and land use plans

Technical Expert: Incorporate subdivision plats into identification of current and anticipated land uses.

Technical Expert: Evaluate travel modes and patterns. Evaluation also shall incorporate:

Technical Expert: Observation

Technical Expert: Public contact

Technical Expert: Identify and evaluate the potential for impacts to disabled and elderly individuals

and populations

Technical Expert: Perform Environmental Justice analysis

Technical Expert: Perform indirect and cumulative impact studies

Technical Expert: Identify considerations impacting pedestrians and bicycles

Technical Expert: Perform air quality analysis to include a qualitative MSAT analysis

Technical Expert: Perform a traffic noise analysis. The noise analysis also shall include:

Technical Expert: Perform computer modeling of existing (if not obtained through field measurements) and predicted noise levels. Modeling shall be accomplished with the Federal Highway Administration (FHWA) approved Traffic Noise Model.

Technical Expert: Determine predicted noise impact contours for undeveloped property

Technical Expert: Water Quality studies

Technical Expert: Perform wetland delineations

Technical Expert: Perform floodplain impact studies

Technical Expert: Section 401 of the Clean Water Act (33 United States Code (U.S.C.) 1341)

Technical Expert: Section 402 of the Clean Water Act (Stormwater Permit)

Technical Expert: Section 404 of the Clean Water Act (33 U.S.C. 1344)

Technical Expert: Threatened and endangered species. Studies shall include:

Technical Expert: Survey for protected species habitat

Technical Expert: Survey shall be performed for T & E species on the El Paso County TPWD and USFWS lists (no species specific surveys are anticipated).

Technical Expert: Check for presence of designated critical habitat

Technical Expert: Habitat analysis (Entire project area not just Threatened and Endangered Species)

Technical Expert: Analysis of stream modifications (if any) and associated habitats

Technical Expert: Early coordination with United States Fish and Wildlife Service (USFWS) / Texas Parks and Wildlife Department (TPWD) (indicate which) (coordination with both USFWS and TPWD)

Technical Expert: Perform invasive species studies

Technical Expert: Perform beneficial landscaping studies

Technical Expert: Determine farmland impacts

Technical Expert: Perform hazardous materials studies

Technical Expert: Archeological studies:

Technical Expert: Perform archeological background studies and a PCR

Technical Expert: Identify and seek the views of local historical and archeological societies, county historical commissioners, and other individuals or organizations

Technical Expert: Perform early coordination with the State Historic Preservation Officer (SHPO)

Technical Expert: Historic Resource Studies: Consultant will prepare the Pre-coordination Request (PCR) form

Technical Expert: Perform visual impact studies

Technical Expert: Perform construction impact studies
Technical Expert: Perform Section 4(f) evaluations
Technical Expert: Perform services in Exhibit A, Special Provisions

Alternatives to be considered:
A. No build
B. Widening along the existing corridor
C. New location to the west from US 59 to University Blvd.
D. New location to the east from US 59 to University Blvd.

Special Provisions:

Management and Coordination
Project duration assumed to be no longer than 18 months. Assumes 1-hour conference call attendance by one Engineering staff, once a week for project duration . One staff will attend one team meeting in Laredo.

Literature Review and Secondary Data Collection
Data collection to consist of one site visit for 1 week to collect data (includes meetings with the State (TxDOT) to obtain copies of Feasibility Study, EA, CE, DCIS, review TxDOT project file

Natural Resources
It is assumed that two separate field surveys will be scheduled and conducted on two different dates. This scope of work does not include USACE 404 permitting. It is assumed that permitting under the Nationwide Permit 14 will be required for impacts to waters of the U.S. This scope of work does not include presence absence surveys for threatened and endangered species at the request of resource agency consultations. This scope of work does not include a hydrologic model or letter of map revision (LOMR) from the Federal Emergency management Agency. This scope of work does not include a pre-nesting bird survey prior to construction.

Cultural Resources
No windshield or other site/field surveys are included in this scope and contract.

Field Surveys and Environmental Investigations
All field surveys and environmental investigations assume that the proposed new right of way and additional buffer area for survey is no greater than 500 feet in width.

Alternatives
Assume up to two new location alternatives will be considered only in the vicinity of US 59 to University Blvd, each of approximate length of 3.75 miles.

Public Involvement:
The Engineer will perform all public involvement, including exhibits. Two Engineering Staff will attend one public meeting and one public hearing. Each is assumed to require 16 hours per meeting/hearing for travel, attendance, and related coordination.

Air Quality:

Air Quality Analysis includes a qualitative Mobile Source Air Toxics (MSAT) analysis. MSAT quantitative analysis is not included in this scope.

Hazardous Materials/Phase I ESA

No detailed legal descriptions of property boundaries will be utilized. No interior inspections of structures will be completed. Historic land use will be limited to review of aerial photography. Interviews with select landowners potentially impacted by the project will conducted by members of the project team. Additional landowner interviews may be conducted when site reconnaissance reveals the need for additional information on past or current land use activities. Only sites of environmental concern and within the ASTM Standard search distances for the project area will be assessed. Asbestos was banned in most friable building materials (spray-applied surfacing materials and thermal system insulation) in 1978. Physical inspection of the interior of buildings or the identification of asbestos containing materials will not be conducted. The scope of work does not include air, surface water, groundwater, lead-based paint, or polychlorinated biphenyl (PCB) sample collection or testing, nor does it include a title search.

Socioeconomics

Only windshield surveys will be conducted. No door-to-door, mailer, or phone surveys will be conducted to obtain information from residence or business owners.

Section 4(f) Evaluation

This scope and contract includes necessary coordination, analysis, and documentation related to a *de minimis* finding only. No avoidance alternatives development or analysis, or Section 4(f) statement preparation is included.

Environmental Decision Document:

The Engineer shall prepare a draft environmental decision document for review by ENV and a final environmental decision document for approval by FHWA. The decision document will succinctly summarize the prime aspects of the project that influence FHWA's environmental decision. At a minimum the decision document shall include a brief description of the project (including project location and termini), a summary of the Need and Purpose statement, an explanation of why the preferred alternative was chosen over the other alternatives studied, a listing of anticipated impacts from the preferred alternative, a summary of all the proposed mitigation actions (if any) for the project impacts, and a justification as to why the impacts of the project are not considered significant. The environmental decision document shall be prepared in accordance with the February 20, 2009 memorandum from the FHWA Texas Division.

Deliverables:

The Engineer shall conduct an internal quality assurance and quality control review on each deliverable before it is submitted to the County/State for review. After the draft deliverables are submitted and reviewed by the State (TxDOT), the Engineer shall revise and resubmit the deliverables to address all comments received from Environmental Affairs Division, TxDOT Laredo District and the Federal Highway Administration.

Assume classification letter results in Environmental Assessment document and project obtains FONSI.

Copies of the Draft and Final Environmental Assessment for FHWA review will be printed double sided.

IV. FIELD SURVEYING AND PHOTOGRAMMETRY

The Engineer's Surveyor shall assure compliance and adherence to all rules, regulations and policies as set forth by the Texas Board of Professional Land Surveyors.

The Engineer's Surveyor shall provide all traffic control, labor and equipment for the Traffic Control Plan (TCP) while performing services under this work authorization. The Engineer's Surveyor shall comply with the regulations of the most recent edition of the "Texas Manual on Uniform Traffic Control Devices". The Engineer must submit the TCP to the respective Area Office to obtain approval from the Traffic Control Safety Review Committee concerning the proposed method of handling traffic prior to the surveyor's commencement of work.

FIELD SURVEY

All surveying for this project shall be provided in English Units

Task: Obtain Permission for Right of Entry (FC: 130)
Refer to Right of Way Service – Task: Right of Entry for services to be provided.

Task: Establish Ground Control (FC: 150)
The surveyor shall establish Horizontal & Vertical Control.

1. Recover existing (primary) control along project limits and recover adjacent existing State (TxDOT) control as well as NGS A or B and First Order Horizontal and First Order Vertical control stations in the vicinity of the survey.
2. Set all monuments and complete GPS obstruction field sketches, to reach descriptions and reference swing ties. Also, update, if necessary, all information on existing control to be used on this survey. Monuments will consist of ~~aluminum disks~~ "Berntsen Driven-In Survey Monuments" that are to be driven into the ground until "refusal" or to a depth of fifteen feet (whichever is reached first). The station ID is to be stamped on the disk.
3. Perform a GPS static survey of all stations using dual frequency GPS survey equipment.
4. Process, analyze and adjust the data. Final coordinates should be provided in the Texas Coordinate System, South or South Central Zone in US Survey Feet. Provide coordinates in NAD83/86 and NAD83/93.
5. Vertical positions should be provided in NAVD88.

Task: Obtain Cross Sections from Field Surveying (FC: 150)
The surveyor shall locate and identify all topography (natural and man-made) within the existing right-of-way, for the entire length of the project plus any other added length needed by the engineer for incidental construction. Topographic information shall include, but not be limited to, right of way monumentation (include type), dimensions of lanes, shoulders, tapers, and taking roadway cross-sections (i.e. center line, pavement edges, ditch flow lines, ROW) at a maximum of 100 ft intervals or

at any severe change in vertical elevation throughout the project limits, plus any areas that look recently disturbed by excavation or embankment, and will extend left and right of the roadway to a minimum of 50 ft past existing or proposed ROW from proposed baseline.

The surveyor shall label and describe all structure, surface, element in the actual 2D Micro-Station Planimmetric Graphic file.

Task: Ground Topography (FC: 150)

1. Driveway (Public Access, Commercial, & Private) and Turnouts
   a. Locate and obtain approximate centerline station.
   b. Determine driveway radiuses, establish a center line and obtain profile along intersecting driveways (i.e. centerline, radiuses, right and left gutters/shoulders) to a distance of 300 feet from the edge of pavement/gutter of the State Roadway. For commercial and private driveway, obtain profile to the right of way limits or as directed by the Engineer.
   c. Inventory by type (dirt, caliche, gravel, concrete or paved). Including width and type of existing ramp according to State (TxDOT) standards. Also include radius, skewed angle and distance to right of way.
   d. Obtain length (from existing edge of pavement to R.O.W. line) and width at R.O.W. line.
   e. Inventory public access, commercial, and private driveways.
   f. Obtain elevations at both edges of the driveway or turnout in line with the side drain.
   g. Label name for each roadway if available and describe drive surface each driveway (concrete, asphalt pavement, caliche or dirt).

2. Side Drains
   a. Obtain approximate roadway centerline station.
   b. Obtain size, length, description of structure, and conditions.
   c. Obtain F.L. elevations at both ends and offsets to driveway or turnout centerline.
   d. Label descriptions (size and length) on each side drain.

3. Culverts:
   a. Obtain size of drainage structure, type, skewed angle, and material. Label and describe each structure (for example: irrigation or drainage culvert) size and length.
   b. Locate and obtain inlet and outlet flow lines elevations at structures, top of headwall, aprons, edge of pavement, and center line.
   c. Obtain profile and cross sections of upstream and downstream ravines on man-made channels leading from and to the existing or proposed structure. These profiles and cross sections shall extend from inlet and outlet flow lines to distance of 500 ft. beyond the right of way or as directed by the Engineer.
   d. Determine type of wingwall (i.e. flared wingwall, parallel, etc...) and safety end treatments (pipe runners, safety end treatments, barrier rail, etc...) according to State's (TxDOT) standards. For barrier rail include type of end treatments, location, type, length, and height.
   e. Obtain pictures of culverts barrels and outlet and inlet view to right of way line.

4. Ditches:

Determine the type of ditch (i.e. concrete, gabions, energy dissipater, etc.) and corresponding dimensions and conditions.

5. Inlets & Manholes
   a. Obtain inlet opening width(s) and grate inlet dimensions.
   b. Locate and obtain elevation flow lines at inlet width openings, grate inlets, top of curb, and gutter lip elevations.
   c. Locate and obtain elevation(s) at top of manhole lid.
   d. Locate and obtain invert flow elevations for all inlets, junction boxes, and manholes. Include all inlet and outlet elevations from drainage structures leading to the inlets, junction boxes, and manholes. Obtain the size, material, and direction of flow for these drainage structures.
   e. Locate all outfall locations, size of drainage structure, length from last inlet/junction box/manhole, and elevations.

6. Bridges:
For hydraulic modeling, the Engineer shall direct the surveyor to establish the center line alignment of the creek/river to obtain necessary cross sections upstream and downstream for hydraulic analysis. The surveyor shall gather all geometric characteristics of the existing (to include all substructure, super structure, railing, and deck) bridge and hydraulic opening under the structure for hydraulic modeling purposes. Obtain horizontal clearance, vertical clearances, abutment and bent locations, and for bridge rail include location, type of end treatments, type, length, and height.

The surveyor shall tie all soil core drilling.

7. Fence, Mailboxes, and Sign Inventory:
   a. Locate and inventory fence, describe type, limits, and gates. Include photographs.
   b. Locate and obtain mailboxes inventory (type-identify as single, double or multiple) for all mailboxes within R.O.W. and at all intersection locations. Include photographs.
   c. Locate and obtain sign inventory (type) for all signs within R.O.W. and at all intersection locations Include pictures.

8. Utilities: Refer to Right of Way Services, "Task: Utilities", for services to be provided by the surveyor.

9. Structures, Trees, Walks, Monuments, etc.:
   a. Obtain locations of all structures (encroaching buildings, canopy, etc...) trees, walks, monuments, and support systems.
   b. Obtain sidewalk material (concrete, asphalt or other) including width and type of existing ramp according to State (TxDOT) standards.
   c. Determine elevations of all elements as described in (a) above. All elevations of trees shall be at there base.
   d. Indicate the size of each tree trunk for trees 1foot above ground.
   e. Label all elements as described in (1) above.

10. Traffic Signals, Flashing Beacons, and Illumination
   a. Locate poles and traffic controller box.
   b. Locate pedestrian poles and height of pedestrian push buttons.
   c. Located crosswalks and stop bar.
   d. Obtain lane(s), shoulder(s), left and right turning lanes - taper widths.
   e. Locate traffic signal heads and illumination.

11. Railroad Traffic Signals, and Railroad Replanking
    a. The surveyor shall obtain information at least 100 ft. either side of crossing, along the roadway and along the railroad tracks, including (all tracks, switches, railroad warning devices, pavement markings, block signals, and railroad milepost markers, etc.).
    b. Show directional traffic arrows.
    c. Angle between highway and railroad tracks.

12. Miscellaneous
    a. This item requires the surveyor to pick up any items that may be an obstruction for the proposed construction or may require special attention during the development of construction plans (ex: oil and gas on proposed right of way, etc.)
    b. ASCII files shall be provided to the State. These files shall be retrieved from GPS/Data Collector and shall be compatible with Microstation.

Task: Deliverables:

1. Field books, containing all information gathered in the field, this information shall be to the surveyor's best knowledge, accurate and complete.
2. Original and a copy of the Horizontal and Vertical Control Survey Report, listing all horizontal points and vertical benchmarks with both datums, with sketches showing location and reference ties in the recover of said points.
3. Right of Entry Letters
4. Two copies of the Electronic Files (TXT, Planimetric,TIN, and DTM) containing survey information with proper identification and with the following data format x, y, and z (NAD83 coordinate system)
5. Planimetirc: will extend from East of International Blvd to US 59/LP 20 Interchange, and shall include all information gathered on the topographic survey

DTM:

1. The DTM will extend from East of International Blvd to US 59/LP 20 Interchange, and shall include minimum breaklines of roadway striping, edge of pavement, top and bottom of bank. Spot elevation, sidewalks, and high and low points. If DTM will extend beyond ROW line into private property provide copy of Right of Entry Form.
2. Only TxDOT SDMS feature code(s) will be allowed, when collecting the DTM. (Current Feature code list is TxDOT2K1)
3. Tie visible right of way monuments.
4. Topo shots will not exceed 500 feet from the instrument and distance between ground shots will not exceed 100 feet.
5. Locate trees which have a trunk diameter of 6" or greater at chest height and provide species and drip line diameter as a PD tag.
6. Provide a description of each instrument set up and back sight with height of instrument and staff height noted, the last shot of each setup shall be to a control point.
7. Provide a sketch showing all chains with first and last point numbers.

PHOTOGRAMMETRY

All surveying for this project shall be provided in English Units

Task: Recover and Survey Primary Control (FC: 150)
The surveyor shall establish Horizontal & Vertical Control for Primary control

1. Recover existing (primary) control along project limits and recover adjacent existing TxDOT control as well as NGS A or B and First Order Horizontal and First Order Vertical control stations in the vicinity of the survey.
2. Set all monuments and complete GPS obstruction field sketches, to reach descriptions and reference swing ties. Also, update, if necessary, all information on existing control to be used on this survey. Monuments will consist of aluminum disks. The station ID is to be stamped on the disk.
3. Perform a GPS static survey of all stations using dual frequency GPS survey equipment.
4. Process, analyze and adjust the data. Final coordinates should be provided in the Texas Coordinate System, South or South Central Zone in US Survey Feet. Provide coordinates in NAD83/86 and NAD83/93.
5. Vertical positions should be provided in NAVD88.

Task: Obtain Permission for Right of Entry (FC: 130)
Refer to Right of Way Service – Task: Right of Entry for services to be provided.

Task: Establish and Survey Secondary Control (FC: 150)
The surveyor shall establish horizontal and vertical control for secondary control.

1. Panel Layout: refer to State's (TxDOT) manual "User's Guide to Engineering and Survey Systems Products and Services", October 1996. ISD, page IIE-A, also refer to http://crossroads/isdinfo/data/isd/srvymap/technologies/photogrammetry/grndcntrlguide.asp
2. Provide a detailed flight map on USGS Quad of the paneled flight lines, with a list of panels with Latitude and Longitude
3. Perform a GPS static survey of all stations using dual frequency GPS survey equipment.
4. Process, analyze and adjust the data. Final coordinates should be provided in the Texas Coordinate System, South or South Central Zone in US Survey Feet. Provide coordinates in NAD83/86 and NAD83/93.
5. Vertical positions should be provided in NAVD88.
6. Surveyor shall maintain panels for photogrammetry flight
7. Surveyor shall remove paneling material after dictated by Webb County and/or State

Task: Aerial Photography Low level Flight (FC: 150)
New **color** aerial photography will be obtained with a calibrated precision aerial mapping camera. The camera is equipped with forward motion compensation (FMC) and interfaces with a GPS receiver. Aerial photography will be obtained at an altitude of approximately 1,500' above mean terrain (AMT) for digital mapping. The scale of photography will be approximately 1:3,000.

1. Analytical Aerotriangulation

   Full analytical aerotriangulation is necessary to extend control throughout project photography for the development of digital mapping.

Selection of photogrammetric points for control extension will be performed with strict adherence to rigid geometric and photogrammetric principles. Measurements will be made using soft copy photogrammetric workstations.

Several computer programs will be run to perform data analysis and data refinement tasks prior to obtaining final results. These computer programs allow us to detect, isolate, and evaluate the contribution of all measurements to the final results.

Following data analysis and refinement will perform a simultaneous least square block adjustment of all measurements to obtain the final results. The block adjustment combines the mathematical constraints of the colinearity equations with rigorous statistical analysis to ensure accurate results.

2. Digital Data Collection for Planimetric Features

Digital data will be collected at a 1" = 50' scale for planimetric features that are identifiable on, or interpretable from, the aerial photographs. Map features to be collected for this scale of planimetric mapping shall include the following: buildings, roads, railroads, drainage features, bridges, culverts, fences, driveways, poles, sidewalks, individual trees, fire hydrants, manholes, catch basins, etc.

Digital planimetric data will be provided in the specified format.
Stereo compilation will be performed using soft copy photogrammetric workstations. All stereo-compiled data will be collected directly from the softcopy photogrammetric workstations.

3. Digital Terrain Model (DTM) Development

All digital terrain model (DTM) files will be developed using soft copy photogrammetric workstations. DTM will be developed using the specified break line random point method. Profile distances will be based on the elevation differential and complexity of terrain. Data points along the profiles are collected as the stereoplotter operator maintains a consistent reference to the ground surface. The points are collected as the delta elevation changes by a pre-specified amount, usually equivalent to the particular mapping scale, or at a distance equal to predetermined grid spacing.

DTM data will be collected in a manner that will accurately depict the terrain and will comply with the specified accuracy requirements for maps with 1' contour intervals. DTM data will be provided in a format compatible with State, Laredo District's computer software. All files will be labeled and delivered on specified medium.

4. Edited Digital Contours

The Engineer will develop 1' contour intervals as specified above from DTM data. Contours will be generated using terrain-modeling software. A triangular irregular network (TIN) will be developed using both the collected break lines and mass points. From this TIN, the contours

will be determined and cartographic editing will be performed. Edited contours will be provided in the Microstation format.

Digital Orthophoto Development

The Engineer will produce digital orthophotos of the project area. The rigorous "pixel-by-pixel" orthophoto rectification process will be used, as defined below.

1. The aerial film is scanned using a calibrated photogrammetric scanner to produce digital image files. Prior to orthophoto correction, the scanned images are checked on a workstation for completeness, cleanliness and image quality.

2. Interior orientation is performed whereby calibrated image fiducial marks are measured to establish a photo coordinate system.

3. Exterior orientation is performed whereby coordinates and angles representing camera position and attitude (exterior orientation) are determined by aerotriangulation. The exterior orientation facilitates transforming the photo coordinates to ground coordinates.

4. Differential rectification is performed using an algorithm that utilizes the elevation model in conjunction with the exterior orientation to correct displacement of ground features to resample the image producing a geo-referenced orthophoto.

5. Each digital orthophoto image is checked for accuracy on a workstation.

6. Orthophoto image files will have a 0.25' pixel resolution, and will be geographically referenced and delivered in Tiff with Tiff world files and "hmr" formats.

5. Fill in void (obscure) areas, update DTM.

To compliment the Photogrammetry service with a Design Survey, refer to Field Survey for the following services to be provided.

Task: Establish Benchmark Circuit
Task: Establish Base Lines
Task: Ground Topography
Task: Deliverables

V. RIGHT OF WAY SERVICES

Task: Ownership Data and Permission for Right of Entry (FC: 130)
The Engineer shall obtain ownership data for all impacted property owners within the project limits and shall obtain right of entry from all property owners prior to commencing any work for surveying and/or right of way services. Number of parcel has increased from 50 parcels identified in "SCOPE AND FEE SCHEDULE ASSUMPTIONS", Paragraph F.8 to over 200 parcels.

Task: Existing and Proposed Utility Layouts, Utility Coordination and Meetings (FC: 130)

The Engineer shall perform the following duties:

1. The Engineer shall meet with the Area Office and Utility providers periodically to coordinate the work efforts and resolve any utility related problems. The Engineer shall prepare the minutes for these meetings and forwarded to the State. The Engineer shall address the following issues and any other items deemed necessary during the Utility Coordination meetings:
    a) Activities completed since last meeting
    b) Problems encountered.
    c) Late activities.
    d) Activities required by the next progress meeting.
    e) Solutions for unresolved and/or anticipated problems.
    f) Information or items required from other agencies/consultants.
2. If a reimbursable utility relocation exists, the Engineer shall request conveyance documents from the utility provider and shall notify the County and the State's Area Engineer in writing. If utility is allowed by permit, information shall be obtained from the State's Director of Maintenance.
3. The Engineer shall notify the Utility companies in writing and request the following information in writing:
    a. Project letting date and request they relocate prior to letting.
    b. Develop their relocation plan according to the State's Utility Accommodation Policy Manual.
    c. Forward their relocation plan to the Engineer.
    d. Request in writing when relocation of utilities will be complete.
    e. Upon immediate completion of relocation, request they forward as-built plans to County and/or the State.
4. The Engineer shall develop the typical sections, alignment, and preliminary cross sections addressing the utility location and shall forward these to the respective utility company.
5. The Engineer shall update all files and plans based on the utility company responses.
6. The Engineer shall identify all utility conflicts on the plans and prepare layouts and profiles of existing utility crossings showing conflicts of utilities with proposed improvements. The Engineer shall forward these layouts to the County and/or State and the utility companies. During design process, the Engineer shall field verify all visible utility conflicts.
7. The Engineer shall verify the proposed relocation plan submitted by the Utility companies to assure their design is according to Utility Accommodation Policy Manual. Upon the Engineer's review and concurrence with the proposed relocation plan, they shall forward their recommendation for approval to County and/or the State.

Task: Topographic -Utility locations (FC: 130)

The Engineer's Surveyor shall gather all vertical and horizontal overhead utilities (location, elevation, direction, etc.) within the existing and proposed right of way that will not be obtained by Subsurface Utility Engineering (SUE).

Task: Property Ties- Boundary Data (FC: 130)

The Engineer shall prepare metes and bounds for the design of this project.

Task: Existing and Proposed Right of Way (FC: 130)

The Engineer shall stake all proposed right of way necessary for preparation and construction of this project.

- On each plan sheet show the following:
  a. Existing ROW (by bearing an distance) through the entire project length, even in areas where no new ROW is needed. In areas where new ROW is only needed on one side, the ROW on both sides of the new facility needs to be delineated and monumented.
  b. Existing ROW monuments;
  c. Record ownership data of adjacent properties.
  d. PC's, PTs and PIs (show and label).
  e. Existing utility lines and easements (deed reference, if available).
  f. Existing improvements such as buildup and fences, etc. Potential obstructions and/ or encroachments. (Locate any improvement within 25 feet of new ROW line. This will assist appraisers in determining damages to the remainder of properties).
  g. Survey lines, city limit lines and county lines (show and label all).
  h. Existing public roads, streets, alleyways, existing drainage or channel easement (include recorded plat or deed reference).
  i. The whole property relative to existing and proposed right of way. If the property is too large to fit on the map sheet at the existing sheet scale, draw an inset at a smaller or not to scale with a not stating "N.T.S."
  j. The existing ROW line should be labeled "Existing Right of Way."
  k. Each individual property line should be shown on the map sheet, with respect to and their relationship with existing ROW line based on information obtained during preliminary surveys, research of tax records, deeds, and subdivision plats.
- On each plan sheet show the following:
  a. New ROW lines.
  b. New ROW markers
  c. Portions of the proposed design. Although a ROW map is not to be used to construct a highway, you should show, by either a single line or shading, the following proposed items or additional topography information:
     1. frontage roads
     2. main lanes
     3. connecting ramps

  When control of access is used, it should be described in a recorded deed. Limits of denied access should be staked on the ground. The control of access clauses may be included in the property descriptions or as a separate instrument. If a metes and bounds description is prepared to describe a controlled access line, it must be signed and sealed by an RPLS.

- On Federal Aid Projects such as Interstate, U.S. and State Highways showing the whole property on the map is a requirement.

DELIVERABLES

I. ADVANCED PROJECT DEVELOPMENT DELIVERABLES

A. ENVIRONMENTAL DELIVERABLES
   1. Preliminary draft EA (to be reviewed by Webb County and TxDOT Laredo District)
   2. Draft EA #1 (to be reviewed by TxDOT Laredo District and ENV)

3. Draft EA #2 (to be reviewed by FHWA)
4. Final EA (addresses FHWA comments)
5. Draft Environmental Decision Document
6. Final Environmental Decision Document (addresses TxDOT Laredo District and ENV

B. GEOTECHNICAL DELIVERABLES
The Engineer shall submit the Geotechnical Report signed and sealed by a Registered Professional Engineer in the State of Texas.

C. SURVEY DELIVERABLES
Field Surveying Deliverables

1. Field books, containing all information gathered in the field, this information shall be to the Enginer's Surveyor best knowledge, accurate and complete.
2. Original and a copy of the Horizontal and Vertical Control Survey Report, listing all horizontal points and vertical benchmarks with both datums, with signed and sealed sketches showing location and reference ties in the recover of said points in PDF format.
3. Project Horizontal and Vertical Control (11"x17") mylar sheets.
4. Right of Entry Letters
5. Two copies of the Electronic Files (TXT, 2D (Planimetric) and 3D (DTM) MicroStation files, Geopak TIN, and Geopak DAT files) containing survey information with proper identification and with the following data format x, y, and z (NAD83/93 coordinate system)
6. Planimetric: shall include all information gathered on the topographic survey

Provide a 1" = 40' scale Micro station electronic drawings in both 2D & 3D and all other files listed below on CD/DVD media. All files shall adhere to the following:

a. Survey Data to be provided in MicroStation V8, Version 08.05.02.35 format.
b. It shall be in English Units (US Survey feet).
c. A hard copy of survey will also need to be provided, in PDF format.
d. Elevations of all topo shots will be provided with corresponding point number on a separate level.
e. Base maps shall be prepared in accordance to TxDOT standards for plan drawings, 11" x 17" plan format. Base map scale shall be 1" = 40". Minimum text size shall be a Leroy #8.
f. 11" x 17" Survey control sheets on mylar film signed and sealed by a Registered Professional Land Surveyor (R.P.L.S.) in the state of Texas.
g. Copies of Texas One-Call or Dig Tess locate confirmation request tickets and any other correspondence with individual utility providers.
h. All topographic shots in 2D file will be provided with elevation, point number, node and descriptor on separate levels in the same text size.

List of Files needed:

(*) In all file names listed below represents Primary Highway Name; i.e. "Highway"

1) TOPO (*_topo.dgn = 2D file)
2) DTM (*_dtm.dgn = 3D file)
3) ROW (*_row.dgn = 2D ROW file)

4) BM Sketches (*_SK.dgn = 2D)
5) BM-SKETCHES.PDF (PDF file of Signed & Sealed Recovery Sketches)
6) DAT (*.dat = Geopak DAT file)
7) TIN (*.tin = Geopak TIN file)
8) Ascii Text (*.xyz = XYZ.txt file)
9) BM_SURFACE-CONTROL LISTING (*_ADJSURF.SFT)
10) CONTROL (*_cntrl.dgn = 2D file)

D. RIGHT OF WAY DELIVERABLES

1. Right of Entry letters. Number of parcel has increased from 50 parcels identified in "SCOPE AND FEE SCHEDULE ASSUMPTIONS", Paragraph F.8 to over 200 parcels.
   a.

SCOPE AND FEE SCHEDULE ASSUMPTIONS

ADVANCED PROJECT DEVELOPMENT:

1. Only one public meeting and one public hearing to be held
2. Public meeting/public hearing court reporter to be provided by the County
3. The txDOT Laredo District has a VRS network
4. The project surveyors can utilize VRS in a two rover configuration
5. All environmental field surveys and investigations assume a maximum roadway width (with buffer) of 400 feet.
6. Preparation/Evaluation of three (3) alternatives options around Casa Blanca Lake Dam are not required
7. Preparation of local option alternative (local sponsor projects) to develop project is not required
8. Highway Capacity Analysis and preparation of design report will be done by TTI
9. Preparation of Interstate Access Justification Report will be done by TTI
10. There will be no provision for bicycle facility/pedestrian coordination design
11. There will be no scheduling and attending of coordination meetings to fast track project
12. Only one (1) value engineering study for a 1 day duration will be assumed
13. The following Traffic services will not be required:
    - Illumination study
    - ITS study
    - Traffic Engineering study
    - Traffic Signal Warrants study
    - Sketch Level Traffic and Revenue study

ENVIRONMENTAL:

1. Estimate losses and gains using a computer model is not included
2. Taking of field measurements of existing noise levels is not included
3. No wild and scenic river studies will be performed
4. No coastal barrier studies will be performed

5. No coastal zone impact studies will be performed
6. United States Coast Guard Section 9 Permit is not required
7. Section 10 of the Rivers and Harbors Act (33 U.S.C. 403) is not required
8. No water body modifications and wildlife impact studies will be performed
9. No essential fish habitat studies will be performed
10. No potential displacements will be identified
11. Predictive models are not included in this scope
12. Wetland Delineations will not be performed
13. No Threatened and Endangered Species investigation will be done
14. No Survey for Protected Species Habitat will be performed
15. No beneficial landscaping studies will be performed
16. Survey shall be performed for T & E species on the Webb County TPWD and USFWS lists (no species specific surveys are anticipated)
17. No checking for presence of designated critical habitat will be performed
18. No Habitat analysis (Entire project area not just Threatened and Endangered Species) will be performed
19. No analysis of stream modifications (if any) and associated habitats will be performed
20. No invasive species studies will be performed
21. No determination of farmland impacts will be performed
22. No archeological field studies will be performed
23. No Identification of Native American tribes for consultation is included
24. ARS: PCR is included
25. Visual impact studies will not be performed
26. Construction impact studies will not be performed
27. Environmental Document development project duration schedule assumed to be no longer than 6 months. Draft and Pre-Final or Final Environmental Document will be submitted within 6 months. Additional time will require supplemental to further develop or finalize environmental document.
28. It is assumed that one windshield survey will be scheduled and conducted. This scope of work does not include USACE 404 permitting. It is assumed that permitting under the Nationwide Permit 14 will be required for impacts to waters of the U.S. This scope of work does not include presence absence surveys for threatened and endangered species at the request of resource agency consultations. This scope of work does not include a hydrologic model or letter of map revision (LOMR) from the Federal Emergency management Agency. This scope of work does not include a pre-nesting bird survey prior to construction.
29. Assumption of no build and widening alternatives will be considered only in the vicinity of US 59 to University Blvd, each of approximate length of 3.75 miles.
30. Air Quality Analysis includes a qualitative Mobile Source Air Toxics (MSAT) analysis. MSAT quantitative analysis is not included in this scope.
31. No detailed legal descriptions of property boundaries will be utilized. No interior inspections of structures will be completed. Historic land use will be limited to review of aerial

photography. It is assumed landowners will not be potentially impacted by the project and no interviews will be conducted by members of the project team. Only sites of environmental concern within the 400' ROW and within the ASTM Standard search distances for the project area will be reviewed. Asbestos was banned in most friable building materials (spray-applied surfacing materials and thermal system insulation) in 1978. Physical inspection of the interior of buildings or the identification of asbestos containing materials will not be conducted. The scope of work does not include air, surface water, groundwater, lead- based paint, or polychlorinated biphenyl (PCB) sample collection or testing, nor does it include a title search.

DRAINAGE (FC 161):

1. Wetland Mitigation will not be required
2. Sensitive Areas Investigation will not be required
3. Preparation of a Wetland Mitigation plan will not be required
4. The number of Drainage Outfalls is assumed to be 16, if number of outfalls increase; then the increase will be handled as a separate work authorization, increasing fee
5. Detention pond design is not included, if required, it will be handled as a separate work authorization, increasing fee
6. No Drainage or Construction Easements are included in this scope & fee
7. No Survey of Offsite Detention Ponds and/or Easements, etc. are included in this scope and fee

ROADWAY:

1. Txdot/County will provide all design working files in Microstation format for all plans of existing roadways. Txdot/County will provide all electronic files of computer runs (actual working data) of Winstorm for existing drainage
2. Sheet count (number of sheets) for PS&E Plan and Profile and Retaining Wall was determined by TxDOT and is assumed to be correct. If sheet count increases it will be determined to be a change in scope and the Engineer will be eligible for increase in fee.
3. Assume no schematic changes will be required after commencing PS&E; if changes occur, Engineer will require additional fee
4. No Traffic Management System design is required
5. Pavement design is to be done by TxDOT
6. Assume three (3) phases for traffic control plan, no intermediate sub-phases within the 3 phase traffic control plan will be required. If additional phases or sub-phases are needed, Engineer will require additional fee as this will be deemed a scope change.
7. Cross sections to be provided on roll plots and not on plan sheets
8. Raised Median design is not required
9. Fencing design is not required
10. Bus Bay design is not required
11. Parking Areas design is not required
12. Landscaping/Irrigation design is not required
13. Aesthetic details design is not included, design is to be provided by TxDOT

BRIDGES:

1. The Design and Detailing of one (1) Single Bridge is included in this scope and fee. This bridge design will be standard for all five locations shown below:
   - Shiloh
   - Del mar
   - University Blvd
   - Jacaman
   - Airport

   If project requires more than one standard bridge design and detailing, then Engineer will require additional fee due to scope change
2. The Design and Detail of all bridges is assumed to have:
   - Zero skew
   - Exact same span lengths
   - No taper
   - No horizontal curves
   - Identical vertical curves
   - Same drilled shaft spacing
   - Same column spacing
   - Same beam spacing and number of beams

3. It is assumed that utilities will not force a change in bridge column/foundation spacing

RIGHT OF WAY:

1. SUE: Quantity of test holes is assumed as 15 locations per overpass, none for detention pond, and 5 per mile to cover other locations
2. SUE: Precise test hole location recommendations to be made by Client. Existing utility records are to be provided to RODS SUE for use in locating utility in field
3. Sue Quality Level A rates on fee schedule are inclusive of any/all associated costs for Quality Level B designation to pinpoint utility at requested location
4. RODS SUE will not be responsible for signed and sealed SUE Quality Level A test hole data sheets, this will be the responsibility of Howland Engineering & Surveying and Gilpin Engineering
5. RODS SUE will only serve as a vacuum excavation consultant
6. RODS SUE will require test hole placement by client and utility records to assist in locating the utilities via electromagnetic designation. Utilities that cannot be located via electromagnetic methods may require an additional labor charge
7. Test holes will be excavated and backfilled to TxDOT standards, and a 2" PVC will be left in place above utility for others to survey at a later date. No sketches or photographs will be provided. Test holes will be billed at actual depths found
8. For Right of Way Mapping, 50 parcels have been assumed. Parcel count above 50 will be considered scope change and will require additional fee. Number of parcel has increased from 50 parcels to over 200 parcels.

EXHIBIT C

Work Schedule

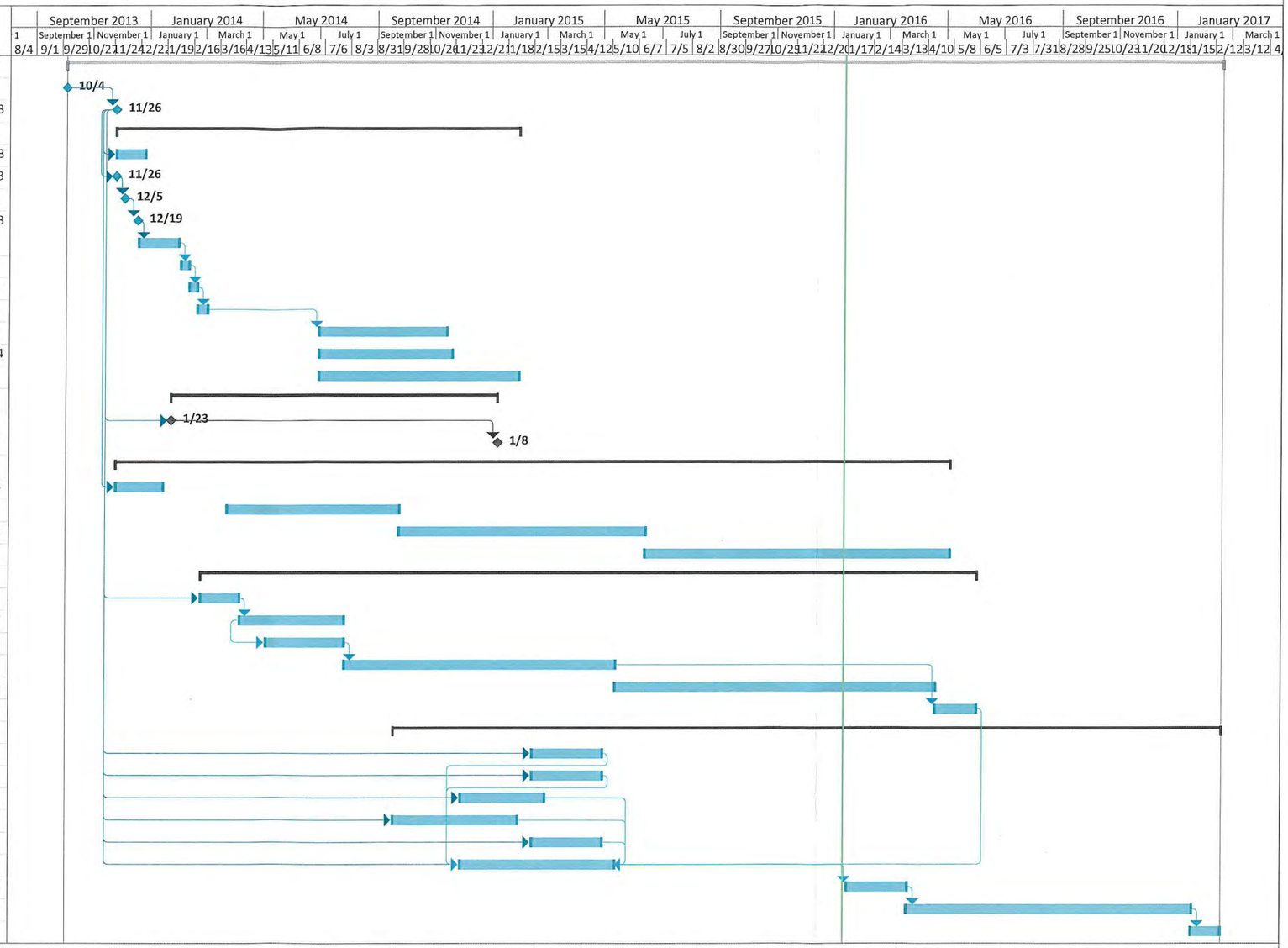
CSJ: 0086-14-058

EXHIBIT D

LOOP 20 EXTENSION WORK SCHEDULE

Loop 20 from Sta. 554+00 to just North of Loop 20 / US 59 Overpass

ID	Task Mode	Task Name	Duration	Start	Finish
0		**LOOP 20 EXTENSION**	**881 days**	**Fri 10/4/13**	**Sun 2/19/17**
1		Notice to Proceed	0 days	Fri 10/4/13	Fri 10/4/13
2		Design Summary Report/Kickoff Meeting	0 days	Tue 11/26/13	Tue 11/26/13
3		**Survey**	**309 days**	**Tue 11/26/13**	**Fri 1/30/15**
4		Obtain Existing Control Data/Gilpin Engineering	23 days	Tue 11/26/13	Thu 12/26/13
5		Prepare ROI Letter	0 days	Tue 11/26/13	Tue 11/26/13
6		Submmit for Approval	0 days	Thu 12/5/13	Thu 12/5/13
7		Final Approval for ROW Entry Letter	0 days	Thu 12/19/13	Thu 12/19/13
8		Send & Receive all ROW Entry Letters from Landowners	31 days	Fri 12/20/13	Fri 1/31/14
9		Verify Establish Horizontal/Vertical Control Panel Points	7 days	Mon 2/3/14	Tue 2/11/14
10		Set Panels Locations for Aerial Topography	7 days	Wed 2/12/14	Thu 2/20/14
11		Set 4 Permanent Control Points along Project Corridor	7 days	Fri 2/21/14	Mon 3/3/14
12		Obtain Airborn GPS	99 days	Tue 7/1/14	Fri 11/14/14
13		Obtain Field Data of Topograhy	103 days	Tue 7/1/14	Thu 11/20/14
14		Obtain Field Data of Existing Utilities	154 days	Tue 7/1/14	Fri 1/30/15
15		**Utilities**	**249 days**	**Thu 1/23/14**	**Thu 1/8/15**
16		Meet with Utility Coordination Committee	0 days	Thu 1/23/14	Thu 1/23/14
17		Coordination Meeting w/Utility Committee	0 days	Thu 1/8/15	Thu 1/8/15
18		**Schematic Development**	**638 days**	**Tue 11/26/13**	**Thu 5/5/16**
19		Schematic Development 30%	37 days	Tue 11/26/13	Wed 1/15/14
20		Schematic Development 60%	133 days	Tue 3/25/14	Thu 9/25/14
21		Schematic Development 90%	188 days	Thu 9/25/14	Mon 6/15/15
22		TxDOT Review	234 days	Mon 6/15/15	Thu 5/5/16
23		**Hydrology**	**594 days**	**Tue 2/25/14**	**Fri 6/3/16**
24		Existing Conditions	30 days	Tue 2/25/14	Mon 4/7/14
25		Proposed Conditions	80 days	Tue 4/8/14	Mon 7/28/14
26		Mitigation	60 days	Tue 5/6/14	Mon 7/28/14
27		Draft Report	209 days	Tue 7/29/14	Fri 5/15/15
28		TxDOT Review	244 days	Fri 5/15/15	Wed 4/20/16
29		Final Report	33 days	Wed 4/20/16	Fri 6/3/16
30		**Environmental**	**630 days**	**Sat 9/20/14**	**Sun 2/19/17**
31		Socio - Economic Technical Report	56 days	Sun 2/15/15	Fri 5/1/15
32		Noise Technical Report	56 days	Sun 2/15/15	Fri 5/1/15
33		Wetlands & Endangered Species	66 days	Mon 12/1/14	Sat 2/28/15
34		Hazardous Materials	96 days	Sat 9/20/14	Fri 1/30/15
35		Air Technical Report	56 days	Sun 2/15/15	Fri 5/1/15
36		Draft Environmental Technical Reports	120 days	Mon 12/1/14	Fri 5/15/15
37		TxDOT Review	45 days	Tue 1/19/16	Mon 3/21/16
38		Final Environmental / Public Involvement (by TxDOT)	219 days	Mon 3/21/16	Thu 1/19/17
39		FONSI (by TxDOT)	23 days	Thu 1/19/17	Sun 2/19/17



Project: LOOP 20 EXTENSION
Date: Fri 1/15/16

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Progress
Milestone	External Milestone	Manual Task	Start-only	Manual Progress
Summary	Inactive Task	Duration-only	Finish-only	

EXHIBIT D

Fee Schedule

CSJ: 0086-14-058

EXHIBIT D
DETAILED FEE SCHEDULE (ADVANCED PROJECT DEVELOPMENT SRVCS) SUPPORTING LUMP SUM CALCULATIONS
DANNENBAUM ENGINEERING CORP
WORK AUTH NO. 2

Cont No.
PHASE I
WA NO.2

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20

from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

SUMMARY OF REMAINING PHASE I WORK (WORK AUTHORIZATION NO. 2)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES SUMMARY BY FUNCTION CODES: $567,911.98

	PRIME		DBE		DBE		DBE		NON-DBE		NON-DBE	
Function Codes	Dannenbaum Engineering Corporation		Arredondo, Zepeda&Brunz, LLC		Arias & Associates, Inc.		Arredondo, Zepeda&Brunz, LLC ENVIRONMENTAL		Howland Engineering & Surveying Co.		Gilpin Engineering Company	
	Hrs	Fee	Hrs	Fee	Hrs	Fee	Hrs	Fee	Hrs	Fee	Hrs	Fee
FC 110 Route and Design Studies	457	$ 59,084.15			810	$ 218,414.94						
FC 120 Social, Economic and Environmental Studies and Public Involvement	358	$ 48,270.05					168	$ 24,860.63				
FC 130 Right of Way Data									141	$ 18,536.06		
FC 150 Field Surveying									402	$ 52,235.08	483	$ 67,824.61
FC 161 Drainage	420	$ 67,048.75	8	$ 1,619.02								
FC 164 Managing Advanced Planning Services and Overall QA/QC Services	42	$ 9,018.69										
Total	**1277**	**$ 184,421.65**	**8**	**$ 1,619.02**	**810**	**$ 218,414.94**	**168**	**$ 24,860.63**	**543**	**$ 70,771.14**	**483**	**$ 67,824.61**
Percent Participation		**32.47%**		**0.29%**		**38.46%**		**4.38%**		**12.46%**		**11.94%**

% PARTICIPATION =

NON-DBE	$	323,017.39	56.88%
DBE	$	244,894.59	43.12%
TOTAL	$	567,911.98	100.00%

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20 from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

Dannenbaum Engineering Corporation

WORK AUTHORIZATION NO. 2

BASIC SERVICES TASK DESCRIPTION	Principal/PM	DEPUTY PM	Senior Engineer-Civil	Senior Engineer-Bridge	Engineer	Senior Designer	CADD Operator/Tech	Clerical	Total Labor Hrs.	Task Cost
ADVANCED PROJECT DEVELOMENT										
FC 164 - PROJECT MANAGEMENT (FC 102 TO FC 164) (ADVANCED PROJECT DEVELOPMENT SERVICES (18 MONTHS) - ASSUMING LEGISLATURE PASSES FINAL REVIEW OF EA AND OVERALL QA/QC										
PREPARE CLIENT MANAGEMENT/MANAGE WORK AUTHORIZATIONS INCLUDING RECORD KEEPING/FILING (ADVANCED PROJECT DEVELOPMENT)	1	0	0	0	0	0	0	1	2	$ 392.82
COORDINATION/PREPARE SUB WORK AUTHORIZATIONS/MANAGE SUBCONSULTANTS	2	0	1	0	0	1	0	0	4	$ 988.00
PREPARATION OF INVOICES AND PROGRESS REPORTS (TOTAL = 18 EA)	2	1	1	0	2	1	0	2.13	9.13	$ 1,626.47
MONITOR SUB-PROVIDER'S SCHEDULES ON MONTHLY BASIS (18 MONTHS)	0	0	4	0	0	0	0	1	5	$ 986.89
QC/QA - OVERALL 100% SUBMITTAL (1 SUBMITTAL) (TOLL STUDY/SCHEMATIC/ENV DOCUMENT/DRAINAGE STUDIES/SURVEY TOPO)	0	2	4	2	0	0	0	1	9	$ 1,890.03
ORGANIZE AND DOWNLOAD ELECTRONIC FILE DELIVERABLES	0	0	0	0	0	0	1	0	1	$ 83.44
COMPLETION OF CPM SCHEDULE (FORMS 1823 & 1002 NOT INCLUDED)	0	2	5	0	3	0	1	1	12	$ 2,144.24
SUB-TOTAL - FC 164 - PROJECT MANAGEMENT (FC 102 TO FC 164) (ADVANCED PROJECT DEVELOPMENT SERVICES (18 MONTHS) - ASSUMING LEGISLATURE PASSES FINAL REVIEW OF EA AND OVERALL QA/QC	**5**	**5**	**15**	**2**	**5**	**2**	**2**	**5.13**	**42.13**	**$ 8,091.89**
FC 120 - SOCIAL, ECONOMIC & ENVIRONMENTAL STUDIES & PUBLIC INVOLVEMENT										
ATTEND PUBLIC INVOLVEMENT MEETING (TOTAL 1) AND PUBLIC HEARING (TOTAL 1) **(COURT REPORTER PROVIDED BY THE COUNTY)**	16	16	16	0	0	0	0	4	52	$ 12,891.55
PREPARE EXHIBITS FOR PUBLIC INV MEETING (TOTAL 1) AND PUBLIC HEARING (TOTAL 1)	0	4	8	0	40	0	40	10	102	$ 12,018.38
PROVIDE VISUALIZATION AIDS FOR STAKEHOLDER/TXDOT	1	5	5	0	0	113	0	4	128	$ 14,945.66
DEVELOPMENT OF ENGLISH PROJECT NEWSLETTER (TOTAL 2)	0	2	4	0	6	0	0	6	18	$ 2,556.02
DEVELOPMENT OF SPANISH PROJECT NEWSLETTER (TOTAL 2)	0	2	4	0	2	0	0	4	14	$ 2,162.06
DEVELOPMENT OF PUBLIC MEETING MINUTES AND COURT REPORTER TYPED TRANSCRIPT	1	2	1	0	16	0	0	24	44	$ 4,696.37
SUB-TOTAL - FC 120 - SOCIAL, ECONOMIC & ENVIRONMENTAL STUDIES & PUBLIC INVOLVEMENT	**18**	**31**	**38**	**0**	**66**	**113**	**40**	**52**	**358**	**$ 49,270.05**
II. ROUTE AND DESIGN STUDIES										
FC 110 - ROUTE AND DESIGN STUDIES										
PREPARE SCHEMATIC PLAN AND PROFILE (all inclusive of all work below) **(6 MONTHS)**	0	9	5	5	100	100	95	14.72	328.72	$ 37,134.46
QA/QC 90/100% **(ADDRESS TXDOT INTERNAL REVIEW)**	0	5	20	0	0	10	10	0	45	$ 7,591.15
SCHEDULE & ATTEND COORDINATION MEETINGS TO FAST TRACK PROJECT **(NOT REQUIRED)**	1	0	0	0	0	0	0	0	1	$ 327.93
CONDUCT ONE (1) VALUE ENGINEERING STUDY **(1 DAY)** AND PREPARE VALUE ENGNEERING REPORT	5	5	5	0	5	5	14	0	39	$ 6,309.31
TASKS FROM PREVIOUS SUPP WA 3 TO WA 1:										
HIKE AND BIKE TRAIL TO SCHEMATIC PLAN AND PROFILE	1	0	0	0	0	1	1	1	4	$ 582.90

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20 from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

Dannenbaum Engineering Corporation

WORK AUTHORIZATION NO. 2

BASIC SERVICES TASK DESCRIPTION	Principal/PM	DEPUTY PM	Senior Engineer-Civil	Senior Engineer-Bridge	Engineer	Senior Designer	CADD Operator/ Tech	Clerical	Total Labor Hrs.	Task Cost
REVISE SCHEMATIC TYPICAL SECTIONS	0	0	2	0	3	0	1	0	6	$ 930.71
REVISE CHEMATIC CROSS SECTIONS	0	4	5	0	5	1	0	0	15	$ 2,838.87
CREATE SCHEMATIC PLAN AND PROFILE ILLUSTRATING SIDEWALKS, SMALL SIGNS, AND HIKE AND BIKE TRAIL	0	0	0	0	5	5	8	0	18	$ 1,860.19
SUB-TOTAL - FC 110 - ROUTE AND DESIGN STUDIES	**7**	**23**	**37**	**5**	**118**	**122**	**129**	**15.72**	**456.71**	**$ 57,575.52**
TOTAL DIRECT EXPENSES (FROM BELOW)										**$ 1,508.63**
SUBTOTAL BASIC SERVICES & DIRECT EXPENSES	**30**	**59**	**90**	**7**	**188.9926**	**237**	**171**	**73.85**	**856.84**	**$ 116,446.09**
HOURS SUB-TOTALS	**30**	**59**	**90**	**7**	**189**	**237**	**171**	**73.85**	**856.84**	
LABOR RATE PER HOUR	$ 327.93	$ 236.07	$ 225.50	$ 225.50	$ 132.09	$ 106.64	$ 83.44	$ 64.89		
DIRECT LABOR COSTS	$ 9,837.90	$ 13,928.13	$ 20,295.00	$ 1,578.50	$ 24,964.03	$ 25,273.68	$ 14,268.24	$ 4,791.98	$ 114,937.46	
TOTAL	**$ 9,837.90**	**$ 13,928.13**	**$ 20,295.00**	**$ 1,578.50**	**$ 24,964.03**	**$ 25,273.68**	**$ 14,268.24**	**$ 4,791.98**	**$ 114,937.46**	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	**8.56%**	**12.12%**	**17.66%**	**1.37%**	**21.72%**	**21.99%**	**12.41%**	**4.17%**	**100.00%**	**CHECK**
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	**3.50%**	**6.89%**	**10.50%**	**0.82%**	**22.05%**	**27.66%**	**19.96%**	**8.62%**	**100.00%**	**$ 114,937.46**
DIRECT EXPENSES: BALANCE FROM PREVIOUS WA #1										
PLOTS (B/W ON BOND) $1.00/LINEAR FOOT (30 FT/PLOT x 20 PLOTS)										$ 60.00
PLOTS (COLOR ON BOND) $2.00/LINEAR FOOT (30 FT/PLOT x20 PLOTS)										$ 120.00
COURT REPORTER (PUBLIC HEARINGS AND TRANSCRIPTION) ($100 / HR) (2 MEETINGS @ 4 HRS/MEETING = 8 HRS)										$ 80.00
COLOR GRAPHICS ON FOAM BOARD ($5.00/SF) (3'x6'x 10 Ea)										$ 90.00
CAR RENTAL - $90 / TRIP X 10 TRIP										$ 90.00
PER DIEM - $121 /NIGHT STAY X 2 PERSON X 24 NIGHT ($85 hotel/$36 meals)										$ 580.80
DELIVERY SERVICES - $50 / PACKAGE X 20 PACKAGES										$ 100.00
MILEAGE 24 TRIP x 286 MI / TRIP @ $0.565/mile										$ 387.83
TOTAL DIRECT EXPENSES										**$ 1,508.63**
SPECIAL SERVICES (DANNENBAUM)										
TOTAL PREPARE HYDROLOGY/HYDRAULIC REPORT FC 161								**$ 67,048.75**		
TOTAL ENGINEERING (DANNENBAUM) - SPECIAL SERVICES								**$ 67,048.75**		

EXHIBIT D
DETAILED FEE SCHEDULE (ADVANCED PROJECT DEVELOPMENT SRVCS) SUPPORTING LUMP SUM CALCULATIONS
DANNENBAUM ENGINEERING CORP
WORK AUTH NO. 2

Cont No.
PHASE I
WA NO.2

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20 from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

Dannenbaum Engineering Corporation

WORK AUTHORIZATION NO. 2

BASIC SERVICES TASK DESCRIPTION	Principal/PM	DEPUTY PM	Senior Engineer-Civil	Senior Engineer-Bridge	Engineer	Senior Designer	CADD Operator/Tech	Clerical	Total Labor Hrs.	Task Cost
SPECIAL SERVICES (SUBCONSULTANTS)										
- ARREDONDO, ZEPEDA & BRUNZ, LLC (ENVIRONMENTAL SERVICES) (FC 120)								$ 24,860.63		
- HOWLAND ENGINEERING & SURVEYING CO. FC 130								$ 8,202.22		
- HOWLAND ENGINEERING & SURVEYING CO. FC 130 (TASKS FROM PREVIOUS SUPP WA 3 TO WA 1)								$ 10,536.06		
- HOWLAND ENGINEERING & SURVEYING CO. FC 150								$ 44,032.86		
- HOWLAND ENGINEERING & SURVEYING CO. FC 150 (TASKS FROM PREVIOUS SUPP WA 3 TO WA 1)								$ 8,000.00		
- GILPIN ENGINEERING COMPANY (FC 150)								$ 67,824.61		
- ARREDONDO, ZEPEDA & BRUNZ, LLC (CULVERT ANALYSIS) (FC 161)								$ 1,619.02		
- ARIAS & ASSOCIATES, INC. (FC 110)								$ 218,414.94		
TOTAL DANNENBAUM SUBCONSULTANT MANAGEMENT FEE FOR SPECIAL SERVICES (5% OF SUBCONSULTANT FEE) (TASK FROM PREVIOUS SUPP WA 3 TO WA 1)								$ 926.80		
TOTAL ENGINEERING (SUBCONSULTANT) - SPECIAL SERVICES								$ 384,417.14		
GRAND TOTAL - PHASE I SERVICES										$ 567,911.98

ASSUMPTIONS	SPECIAL SERVICES
1. NO DRAINAGE OR CONSTRUCTION EASEMENTS ARE INCLUDED IN THIS SCOPE.	1. PREPARE SCHEMATIC
2. ONLY ONE PUBLIC MEETING AND ONE PUBLIC HEARING	2. GEOTECHNICAL SURVEY/REPORT (PAVEMENT & BRIDGES)
3. NO SURVEY OF OFFSITE DETENTION PONDS AND/OR EASEMENTS, ETC.)	4. SURVEYING SERVICES - PHOTOGRAMMETRY
4. THE TxDOT LAREDO DISTRICT HAS A VRS NETWORK	4. SURVEYING SERVICES - TOPO/AERIAL PLANIMETRICS/AERIAL TARGETS
5. THE PROJECT SURVEYORS CAN UTILIZE VRS IN A TWO ROVER CONFIGURATION	5. SURVEYING SERVICES - ROW DATA
6. NO WETLAND MITIGATION	6. PREPARE HYDROLOGY REPORT - DRAINAGE IMPACT ANALYSIS
7. TxDOT / COUNTY WILL PROVIDE ALL WORKING FILES IN MICROSTATION FORMAT FOR ALL PLANS OF EXISTING ROADWAYS AND HIGHMAST LIGHTING WORKING FILES. TxDOT/COUNTY WILL PROVIDE ALL COMPUTER RUNS (ACTUAL WORKING DATA) OF WINSTRORM FOR EXISTING DRAINAGE.	7. PREPARE HYDRAULIC REPORT AND CULVERT SIZING
8. NO SCHEMATIC CHANGES REQUIRED AFTER PUBLIC MEETING	8. ENVIRONMENTAL ASSESSMENT AND FONSI
	9. TRAFFIC SERVICES - ROUTE AND DESIGN STUDIES • NO ILLUMINATION STUDY • NO ITS STUDY • NO TRAFFIC ENGINEERING STUDY • NO TRAFFIC SIGNAL WARRANTS • NO SKETCH LEVEL TRAFFIC AND REVENUE STUDY • NO ILLUMINATION STUDY
	10. UTILITY INVESTIGATION (LEVEL B, C & D)

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

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Dannenbaum Engineering Corporation

WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 161) HYDROLOGIC TASK DESCRIPTION	Principal/PM	DEPUTY PM	Senior Engineer-Civil	Senior Engineer-Bridge	Engineer	Senior Designer	CADD Operator/ Tech	Clerical	Total Labor Hrs.	Remarks	Task Cost
FC 161 - DRAINAGE											
DRAINAGE IMPACT ANALYSIS	0	0	0	0	0	0	0	0	0		$ -
DATA COLLECTION/ SITE VISITS	0	0	6	0	4	0	9	2	21		$ 2,762.10
COMPUTE ON-SITE DRAINAGE AREAS	0	1	6	0	6	2	1	2	18		$ 2,678.33
COMPUTE ON-SITE PEAK FLOWS FOR EXISTING CONDITIONS	0	1	5	0	4	2	0	1	13		$ 2,170.10
COMPUTE ON-SITE PEAK FLOWS FOR PROPOSED CONDITIONS	0	0	5	0	4	2	0	1	12		$ 1,934.03
DEVELOP RUNOFF HYDROGRAPH FOR EXISTING AND PROPOSED CONDITIONS	0	0	5	0	3	3	0	1	12		$ 1,908.58
COMPUTE PRELIMINARY DETENTION STORAGE BASED ON HYDROGRAPH DIFFERENCES	0	0	0	0	4	4	2	1	11		$ 1,186.69
SELECT DETENTION LOCATION AND SIZE BASED ON PRELIMINARY DETENTION STORAGE	0	0	6	0	4	0	0	1	11		$ 1,948.25
RUN DETENTION POND ROUTING FOR FINAL DETENTION STORAGE AND OUTLET SIZE	0	0	9	0	9	0	5	7	30		$ 4,089.74
PREPARE A DRAFT DRAINAGE IMPACT REPORT	0	0	5	0	6	0	4	11	26		$ 2,867.59
QA/QC (HYDROLOGY/HYDRAULIC IMPACT & AZB CULVERT SIZING)	5	4	3	0	2	1	0	2	17		$ 3,761.03
SUBMIT TO AGENCIES FOR REVIEW AND COMMENTS	2	1	1	0	1	1	0	2	8		$ 1,485.94
ADDRESS COMMENTS AND SUBMIT FINAL REPORT	0	48	61	0	68	0	32	34.49	243		$ 38,976.93
SUB-TOTAL - FC 161 - DRAINAGE	**7**	**55**	**112**	**0**	**115**	**15**	**53**	**63.49**	**420.49**		**$ 65,867.31**
TOTAL DIRECT EXPENSES (FROM BELOW)											**$1,181.44**
TOTAL - FC 161 - DRAINAGE INCLUDING DIRECT EXPENSES											**$ 67,048.75**
TOTAL ENGINEERING (SUBCONSULTANT) - SPECIAL SERVICES (FROM BELOW)											**$ 1,619.02**
TOTAL FC 161 - DRAINAGE											**$ 68,667.77**
HOURS SUB-TOTALS	**7**	**55**	**112**	**0**	**115**	**15**	**53**	**63.49**			
LABOR RATE PER HOUR	$ 327.93	$ 236.07	$ 225.50	$ 225.50	$ 132.09	$ 106.64	$ 83.44	$ 64.89			
DIRECT LABOR COSTS	$ 2,295.51	$ 12,983.85	$ 25,256.00	$ -	$ 15,190.35	$ 1,599.60	$ 4,422.32	$ 4,119.68	$ 65,867.31		
TOTAL	**$ 2,295.51**	**$ 12,983.85**	**$ 25,256.00**	**$ -**	**$ 15,190.35**	**$ 1,599.60**	**$ 4,422.32**	**$ 4,119.68**	**$ 65,867.31**		
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	**3.49%**	**19.71%**	**38.34%**	**0.00%**	**23.06%**	**2.43%**	**6.71%**	**6.25%**	**100.00%**	CHECK	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	**1.66%**	**13.08%**	**26.64%**	**0.00%**	**27.35%**	**3.57%**	**12.60%**	**15.10%**	**100.00%**	**$ 65,867.31**	

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20 from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

Dannenbaum Engineering Corporation

WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 161) HYDROLOGIC TASK DESCRIPTION	Principal/PM	DEPUTY PM	Senior Engineer-Civil	Senior Engineer-Bridge	Engineer	Senior Designer	CADD Operator/ Tech	Clerical	Total Labor Hrs.	Remarks	Task Cost
DIRECT EXPENSES: BALANCE FROM PREVIOUS WA #1											
REPRO -400 SHEETS X $0.20 / PAPER SHEET x 10 Sets										$ 800.00	
REPRO -200 8 1/2" x 11" COLOR COPIES X $1.00 / PAPER SHEET x 10 Sets										$ 200.00	
PER DIEM - $121 /NIGHT STAY X 2 PERSON X 4 NIGHT ($85 hotel/$36 meals)										$ 96.80	
DELIVERY SERVICES - $50 / PACKAGE X 4 PACKAGES										$ 20.00	
MILEAGE 4 TRIP x 286 MI / TRIP @ $0.565/mile										$ 64.64	
TOTAL DIRECT EXPENSES										$ 1,181.44	
SPECIAL SERVICES (SUBCONSULTANTS)											
- ARREDONDO, ZEPEDA & BRUNZ, LLC FC 161 (CULVERT SIZING)											$ 1,619.02
TOTAL ENGINEERING (SUBCONSULTANT) - SPECIAL SERVICES											$ 1,619.02

ASSUMPTIONS:

1. Number of outfalls 16, if number of outfalls increase; then increase will be handled as separate work authorization, increasing fee.
2. Detention Pond design is not included, if rquired, will be handled as a separate Work Authorization, increasing fee

EXHIBIT D
DETAILED FEE SCHEDULE (ADVANCED PROJECT DEVELOPMENT SRVCS) SUPPORTING LUMP SUM CALCULATIONS
DANNENBAUM ENGINEERING CORP
WORK AUTH NO. 2

Cont No.
PHASE I
WA NO.2

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20

from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

Arredondo, Zepeda & Brunz, LLC

WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 161) HYDROLOGIC TASK DESCRIPTION	Principal	DEPUTY PM (Eng VI)	Senior Engineer (Eng V)	Project Engineer (Eng IV)	Senior Designer	Eng/Tech/CADD	Admin Assistant	Total Labor Hrs.	Task Cost
FC 161 - HYDROLOGY/HYDRAULIC REPORT									
TASK SCOPE: CROSS DRAINAGE CULVERTS (APPROX. 16) SIZING									
PREPARE CROSS DRAINAGE CULVERT TECH MEMO	0	0	1	0	1	0	3	5	$ 480.09
QA/QC	0	1	1	0	0	0	1	3	$ 422.61
SUB-TOTAL - TASK SCOPE: CROSS DRAINAGE CULVERTS (APPROX. 16) SIZING	0	1	2	0	1	0	4	8	$ 902.70
HOURS SUB-TOTALS	0	1	2	0	1	0	4	8	
LABOR RATE PER HOUR	$ 224.83	$ 183.50	$ 171.62	$ 142.37	$ 106.00	$ 102.97	$ 67.49		
DIRECT LABOR COSTS	$ -	$ 183.50	$ 343.24	$ -	$ 106.00	$ -	$ 269.96	$ 902.70	
TOTAL	$ -	$ 183.50	$ 343.24	$ -	$ 106.00	$ -	$ 269.96	$ 902.70	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	0.00%	20.33%	38.02%	0.00%	11.74%	0.00%	29.91%	100.00%	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	0.00%	12.50%	25.00%	0.00%	12.50%	0.00%	50.00%	100.00%	
TOTAL DIRECT EXPENSES (FROM BELOW)									$ 716.32
GRAND TOTAL									$ 1,619.02
DIRECT EXPENSES: BALANCE FROM PREVIOUS WA #1									
REPRO -200 SHEETS X $0.20 / CHECK PLOTS x 10 Sets									$ 100.00
PER DIEM - $121 /NIGHT STAY X 2 PERSON X 4 NIGHT ($85 hotel/$36 meals)									$ 177.32
DELIVERY SERVICES - $50 / PACKAGE X 8 PACKAGES									$ 100.00
MILEAGE 4 TRIP x 600 MI / TRIP @ $0.565/mile									$ 339.00
TOTAL DIRECT EXPENSES									$ 716.32

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Various Traffic Studies/Warrants; Illumination Study, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

Arredondo, Zepeda & Brunz, LLC

WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 120) ENVIRONMENTAL SERVICES TASK DESCRIPTION	Project Engineer (IV)	Project Engineer (IV)	Civil Engineer	Scientist (Community Impact)	Scientist (Haz. Material Review)	Civil Engineer (Air Quality)	Civil Engineer (Noise Analyses)	CADD Technician	Administration/ Clerical	Total LABOR HOURS	Task Cost
III. SOCIAL, ECONOMIC AND EVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT											
FC 120 - SOCIAL, ECONOMIC AND EVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT											
PROJECT MANAGEMENT											
PROJECT MANAGEMENT AND DOCUMENT PREPARATION	4	2							0	6	$ 854.22
AZB COORDINATION	3	1	1					1	2	8	$ 941.85
COORDINATION WITH AMATERRA, TXDOT STAFF	2	2						1		5	$ 672.45
CONTRACT ADMINISTRATION	4								0	4	$ 569.48
EA PREPARATION										0	$ -
PRELIMINARY REPORT PREP/COMMENT RESPONSE	2	2						1	6	11	$ 1,077.39
EXHIBITS/FIGURES/COORDINATION (figures provided by dannenbaum)									2	2	$ 134.98
PERMIT IDENTIFICATION (ACTUAL PERMITS NOT INCLUDED)								1	2	3	$ 237.95
GIS/GRAPHICS (figures provided by Dannenbaum)									2.10	2	$ 141.90
DRAFT REPORT PREP/COMMENT RESPONSE	1	4						1		6	$ 814.82
FINAL REPORT PREP/COMMENT RESPONSE	2								2	4	$ 418.72
11-PAGE TXDOT FORM	1								1	2	$ 209.86
DRAFT ENV. DECISION DOCUMENT	3	2							1	6	$ 779.34
FINAL ENV. DECISION DOCUMENT	1						1		1	3	$ 344.28
QUALITY ASSURANCE/QUALITY CONTROL	2								1	3	$ 352.23
SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES										0	$ -
POPULATION AND EJ ANALYSIS				3				3		6	$ 736.02
LAND USE AND DEVELOPMENT REVIEW (DOCUMENTS PROVIDED BY DANNENBAUM)	1								1	2	$ 209.86
AIR QUALITY	2	4				6			1	13	$ 1,728.23
EXISITNG CONDITIONS TRAFFIC NOISE MODELING			1			2	5		1	9	$ 1,142.85
DESIGN YEARCONDITIONS TRAFFIC NOISE MODELING		1	1				7		1	10	$ 1,285.22
BARRIER ANALYSIS							3		1	4	$ 470.75
PREDCITED SOUND LEVELS AT UNDEVELOPED LANDS									1	1	$ 67.49
PREPARE NOISE IMPACT ASSESSMENT		3					3		1	7	$ 897.86
QA/QC								1		1	$ 102.97
BIOLOGICAL AND WATER RESOURCES (review of existing environmental documents)										0	$ -
SOILS AND FARMLANDS review		2			1					3	$ 427.11
GEOLOGY review		1						1		2	$ 245.34
CONSTRUCTION IMPACTS						3				3	$ 403.26
HAZARDOUS MATERIALS REVIEW		4						1		5	$ 672.45
ADJACENT LAND USE					3					3	$ 427.11
REPORT PREP/COMMENT RESPONSE					3				1	4	$ 494.60
REVIEW PLANNING DOCUMENTS									1	1	$ 67.49
PREPARE MPO/CITY QUESTIONNAIRE	1	1						1		3	$ 387.71
MEETING WITH MPO AND CITY	1	1						1		3	$ 387.71
COLLECT DATA, DOCUMENT, AND SUMMARIZE MEETINGS	2	2								4	$ 569.48
MPO/CITY FOLLOW-UP								1	1	2	$ 170.46
REVIEW RESOURCE IMPACTS PREVIOUSLY PREPARED		2							1	3	$ 352.23
DOCUMENTATION		5							1	6	$ 779.34
GRAPHICS (BY dannenbaum)	2	2								4	$ 569.48
PUBLIC INVOLVEMENT (by dannenbaum)	2	1						1		4	$ 530.06
TOTAL FC 120 - SOCIAL, ECONOMIC AND EVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	36	42	3	3	7	11	19	15	32.10	168.10	$ 20,675.57
HOURS SUB-TOTALS	36	42	3	3	7	11	19	15	32.10	168.10	
LABOR RATE PER HOUR	$ 142.37	$ 142.37	$ 134.62	$ 142.37	$ 142.37	$ 134.62	$ 134.62	$ 102.97	$ 67.49		
DIRECT LABOR COSTS	$ 5,125.32	$ 5,979.54	$ 403.26	$ 427.11	$ 996.59	$ 1,478.82	$ 2,553.98	$ 1,544.55	$ 2,166.60	$ 20,675.57	
TOTAL	$ 5,125.32	$ 5,979.54	$ 403.26	$ 427.11	$ 996.59	$ 1,478.82	$ 2,553.98	$ 1,544.55	$ 2,166.60	$ 20,675.57	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	24.79%	28.92%	1.95%	2.07%	4.82%	7.15%	12.35%	7.47%	10.48%	100.00%	CHECK
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	21.42%	24.95%	1.78%	1.78%	4.16%	6.54%	11.30%	8.92%	19.10%	100.00%	$ 20,675.57

EXHIBIT D
DETAILED FEE SCHEDULE (ADVANCED PROJECT DEVELOPMENT SRVCS) SUPPORTING LUMP SUM CALCULATIONS
DANNENBAUM ENGINEERING CORP
WORK AUTH NO. 2

Cont No.
PHASE I
WA NO.2

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Various Traffic Studies/Warrants; Illumination Study, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

Arredondo, Zepeda & Brunz, LLC

WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 120) ENVIRONMENTAL SERVICES TASK DESCRIPTION	Project Engineer (IV)	Project Engineer (IV)	Civil Engineer	Scientist (Community Impact)	Scientist (Haz. Material Review)	Civil Engineer (Air Quality)	Civil Engineer (Noise Analyses)	CADD Technician	Administration/ Clerical	Total LABOR HOURS	Task Cost
DIRECT EXPENSES: BALANCE FROM PREVIOUS WA #1	**Rate**	**Unit**	**Amount**								
Mileage (8 RT)	$ 0.52	miles	3,000								$ 1,560.00
Air Travel	$ 600.00	Each	1								$ 600.00
Hotel	$ 82.00	each	8								$ 656.00
Per Diem	$ 51.00	day	10								$ 510.00
Rental Car	$ 65.00	day	4								$ 260.00
Fuel for Rental Car	$ 3.75	gallons	96								$ 360.00
Overnight Carrier Cost (Letter Size)	$ 22.00	each	6								$ 132.00
Overnight Carrier Cost (Oversized Box)	$ 50.00	each	2								$ 100.00
CDs	$ -	each	0								$ 7.06
TOTAL DIRECT EXPENSES											$ 4,185.06
TOTAL ENVIRONMENTAL SERVICES											$ 24,860.63

ASSUMPTIONS:

Environmental Services to Be Performed as summarized in the summary of hours.

Services not provided include NONE or NOT INCLUDED.Dannenbaum will develop tasks as desribed in the summary of hours and in this section

Obtain right of entry to perform environmental services (Dannenbaum)
Develop letters or other materials for seeking right of entry (Dannenbaum)
Compile and maintain mailing list (Dannenbaum)
Develop public involvement plan (Dannenbaum)
Public Involvement activities: (Dannenbaum)

Make arrangements for public meeting (Dannenbaum)
Provide one staff member to attend one Public Meeting and one Public Hearing

Develop summary of public meeting and responses to comments (Dannenbaum)

Make arrangements for public hearing (Dannenbaum)
Provide one staff member to attend a public hearing.

Develop comment and response report, summary and analysis and other information from public hearing (Dannenbaum)
Develop and send acknowledgement / response letters to commenters (Dannenbaum)
Develop and maintain web site (Dannenbaum)
Develop, publish, and distribute newsletter (Dannenbaum)

Analysis of social and economic impacts, including:
Identify and evaluate social and economic impacts

Identify property owners and tenants adjacent to the roadway project
Identify potential displacements (none)

Perform public contact and public involvement to gather information from individuals and communities regarding social impacts (by dannenbaum)
Estimate the losses and gains to tax revenues (by dannenbaum)
Estimate losses and gains using a computer model (NOT INCLUDED)
Identify current and anticipated land uses with surveys and land use plans (by dannenbaum)
Incorporate subdivision plats into identification of current and anticipated land uses. (by dannenbaum)
Evaluate travel modes and patterns. Evaluation also shall incorporate:
Predictive models (NOT INCLUDED)
Observation
Public contact
Identify and evaluate the potential for impacts to disabled and elderly individuals and populations
Perform indirect and cumulative impact studies
Perform Environmental Justice analysis

Identify considerations impacting pedestrians and bicycles
Perform air quality analysis to include a qualitative MSAT analysis

Special Provisions:

Management and Coordination

Environmental Document development project duration schedule assumed to be no longer than 6 months. Draft and Pre-Final or Final Environmental Document will be submitted within 6 months. Additional time will require supplemental to further develop or finalize environmental document, or Dannenbaum can update the environmental document, finalize and coordinate with agencies for FONSI if supplemental is not executed. Assumes 1-hour conference call attendance by one Subconsultant staff, once a week for project duration.

Literature Review and Secondary Data Collection

Data collection to consist of one site visit for 3 days to collect data (includes meetings with TxDOT to obtain copies of Feasibility Study, EA, CE, DCIS, review TxDOT project file.). It is assumed that the prime consultant will provide a list of adjacent property owners, obtain and provide ROE for all necessary environmental field surveys.

Natural Resources

It is assumed that one windshield survey will be scheduled and conducted. This scope of work does not include USACE 404 permitting. It is assumed that permitting under the Nationwide Permit 14 will be required for impacts to waters of the U.S. This scope of work does not include presence absence surveys for threatened and endangered species at the request of resource agency consultations. This scope of work does not include a hydrologic model or letter of map revision (LOMR) from the Federal Emergency management Agency. This scope of work does not include a pre-nesting bird survey prior to construction. This scope of work does not include the development of a Stormwater Pollution Prevention Plan (SWPPP)

Cultural Resources

No windshield or other site/field surveys are included in this scope and contract.

Field Surveys and Environmental Investigations

Existing field surveys will be reviewed for the proposed new right of way and additional buffer area for survey is no greater than 400 feet in width.

Alternatives

Assume no build and widening alternatives will be considered only in the vicinity of US 59 to University Blvd, each of approximate length of 3.75 miles.

Public Involvement:

Dannenbaum will perform all public involvement, including exhibits. One professional of the Subconsultant will attend one public meeting and one public hearing. Each is assumed to require 16 hours per meeting/hearing for travel, attendance, and related coordination. Subconsultant will not be responsible for the preparation of any materials for display or presentation at the meetings, other than contract deliverables.

Air Quality:

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Various Traffic Studies/Warrants; Illumination Study, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass

Arredondo, Zepeda & Brunz, LLC

WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 120) ENVIRONMENTAL SERVICES TASK DESCRIPTION	Project Engineer (IV)	Project Engineer (IV)	Civil Engineer	Scientist (Community Impact)	Scientist (Haz. Material Review)	Civil Engineer (Air Quality)	Civil Engineer (Noise Analyses)	CADD Technician	Administration/ Clerical	Total LABOR HOURS	Task Cost
Take field measurements of existing noise levels (NOT INCLUDED)											
Perform computer modeling of existing (if not obtained through field measurements) and predicted noise levels. Modeling shall be accomplished with the Federal Highway Administration (FHWA) approved Traffic Noise Model					Air Quality Analysis includes a qualitative Mobile Source Air Toxics (MSAT) analysis. MSAT quantitative analysis is not included in this scope.						
Technical Expert: Determine predicted noise impact contours for undeveloped property											
Technical Expert: Water Quality studies					Noise:						
Perform wetland delineations (NONE) Perform wild and scenic river studies (NOT INCLUDED) Perform coastal barrier studies (NOT INCLUDED) Perform floodplain impact studies (by dannenbaum)					provide the latest aerial maps, topography files, contour data,	provide the latest aerial maps, topography files, contour data,	provide the latest aerial maps, topography files, contour data,	provide the latest aerial maps, topography files, contour data,	provide the latest aerial maps, topography files, contour data,	provide the latest aerial maps, topography files; contour data, hourly	the latest aerial maps, topography files, contour data, hourly volumes (if available), truck
Perform coastal zone impact studies (NOT INCLUDED)											
United States Coast Guard Section 9 Permit (NOT INCLUDED)					Materials/Phase	Materials/Phase	Materials/Phase	Materials/Phase	Materials/Phase	Materials/Phase I	Materials/Phase I ESA
Section 10 of the Rivers and Harbors Act (33 U.S.C. 403) (NOT INCLUDED)											
Perform water body modifications and wildlife impact studies (NOT INCLUDED)											
Threatened and endangered species: NONE Survey for protected species habitat NONE Survey shall be performed for T & E species on the Webb County TPWD and USFWS lists (no species specific surveys are anticipated). NONE Check for presence of designated critical habitat (NONE) Habitat analysis (Entire project area not just Threatened and Endangered Species) NONE					No detailed legal descriptions of property boundaries will be utilized. No interior inspections of structures will be completed. Historic land use will be limited to review of aerial photography. It is assumed landowners will not be potentially impacted by the project and no interviews will be conducted by members of the project team. Only sites of environmental concern within the 400' ROW and within the ASTM Standard search distances for the project area will be reviewed. Asbestos was banned in most friable building materials (spray-applied surfacing materials and thermal system insulation) in 1978. Physical inspection of the interior of buildings or the identification of asbestos containing materials will not be conducted. The scope of work does not include air, surface water, groundwater, lead-based paint, or polychlorinated biphenyl (PCB) sample collection or testing, nor does it include a title search.					
Analysis of stream modifications (if any) and associated habitats: NONE											
which) (coordination with both USFWS and TPWD)					Socioeconomics						
Perform invasive species studies NONE					Only windshield surveys will be conducted. No door-to-door, mailer, or phone surveys will be conducted to obtain information from residence or business owners.						
Perform essential fish habitat studies (NOT INCLUDED)											
					Section 4(f) Evaluation						
Perform beneficial landscaping studies NONE Determine farmland impacts NONE					This scope and contract includes necessary coordination, analysis, and documentation related to a de minimis finding only. No avoidance alternatives development or analysis, or Section 4(f) statement preparation is included.						
Perform hazardous materials studies											
Archeological studies: NONE					Environmental Decision Document:						
Perform archeological background studies NONE											
Perform archeological background studies NONE Perform an archeological reconnaissance survey (NOT INCLUDED) Perform an archeological intensive survey (NOT INCLUDED) Identify Native American tribes for consultation (NOT INCLUDED) Identify and seek the views of consulting parties (NOT INCLUDED) Identify and seek the views of local historical and archeological societies, county historical commissioners, and other individuals or organizations (NOT INCLUDED) Perform early coordination with the State Historic Preservation Officer (SHPO) (NOT INCLUDED)					The Subconsultant shall prepare a draft environmental decision document for review by ENV and a final environmental decision document for approval by FHWA. The decision document will succinctly summarize the prime aspects of the project that influence FHWA's environmental decision. At a minimum the decision document shall include a brief description of the project (including project location and termini), a summary of the Need and Purpose statement, an explanation of why the preferred alternative was chosen over the no build alternative studied, a listing of anticipated impacts from the preferred alternative, a summary of all the proposed mitigation actions (if any) for the project impacts, and a justification as to why the impacts of the project are not considered significant. The environmental decision document shall be prepared in accordance with the February 20, 2009 memorandum from the FHWA Texas Division. One hardy copy deliverable will be submitted to Dannenbaum to copy document and provide copies to stakeholders, agencies, client, etc.					
Historic Resource Studies: Consultant will prepare the Pre-coordination Request (PCR) form NONE											
Reconnaissance Survey (NOT INCLUDED)					Deliverables:						
Intensive Survey (NOT INCLUDED)											
Perform visual impact studies (NOT INCLUDED)					The Subconsultant shall conduct an internal quality assurance and quality control review on each deliverable before it is submitted to the County/State for review. After the draft deliverables are submitted and reviewed by TxDOT, the Subconsultant shall revise and resubmit the deliverables to address all comments received from Environmental Affairs Division, TxDOT Laredo District and the Federal Highway Administration.						
Perform construction impact studies (NOT INCLUDED)											
Perform Section 4(f) evaluations					Assume classification letter results in Environmental Assessment document and project obtains FONSI.						
Perform services as summarized in the preliminary at hours shown					Copies of the Draft and Final Environmental Assessment for FHWA review will be printed double sided. Subconsultant is not responsible for						
Alternatives to be considered:											
A. No build											
B. Widening along the existing corridor											

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20

from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

HOWLAND ENGINEERING AND SURVEYING CO.
WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 130/150) (ROE/SET AERIAL CONTROL) ROW SERVICES/AERIAL TOPO TASK DESCRIPTION	Principal Manager	Surveying PM/RPLS	Surveying Supervisor	Field Crew (3-man)	CADD Designer	Admin Asst	Total Labor Hrs.	Task Cost
FC 150 - FIELD SURVEYING								
ESTABLISH PRIMARY CONTROL NETWORK								
SET 4 PERMANENT CONTROL MONUMENTS			3	3		1	7	$ 771.45
PREPARE PROJECT CONTROL MANUAL WITH PRIMARY CONTROL DATA SHEETS (4)		2	2	1	3	1.29	9	$ 946.11
ESTABLISH SECONDARY CONTROL NETWORK							0	$ -
PERFORM GPS/RTK/VRS HORIZONTAL TIES TO THE SECONDARY CONTROL, DOUBLE OCCUPANCY		3	6	13	5		27	$ 3,369.78
ESTABLISH AERIAL TARGET NETWORK							0	$ -
DEVELOP AERIAL CONTROL REPORT FOR AERIAL PHOTOGRAMMETRY PROVIDER		2	5		8		15	$ 1,422.63
SUB-TOTAL - FC 150 - FIELD SURVEYING	**0**	**7**	**16**	**17**	**16**	**2.29**	**58.29**	**$ 6,509.97**
HOURS SUB-TOTALS	**0**	**7**	**16**	**17**	**16**	**2.29**	**58.29**	
LABOR RATE PER HOUR	$ 200.04	$ 156.78	$ 93.75	$ 148.98	$ 80.04	$ 43.26		
DIRECT LABOR COSTS	$ -	$ 1,097.46	$ 1,500.00	$ 2,532.66	$ 1,280.64	$ 99.21	$ 6,509.97	
TOTAL	**$ -**	**$ 1,097.46**	**$ 1,500.00**	**$ 2,532.66**	**$ 1,280.64**	**$ 99.21**	**$ 6,509.97**	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	**0.00%**	**16.86%**	**23.04%**	**38.90%**	**19.67%**	**1.52%**	**100.00%**	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	**0.00%**	**12.01%**	**27.45%**	**29.16%**	**27.45%**	**3.93%**	**100.00%**	
DIRECT EXPENSES: BALANCE FROM PREVIOUS WA #1								
DELIVERY SERVICES - $50 / PACKAGE X 10 PACKAGES								$ 325.00
MILEAGE (APPROX 1,000 MI @ $0.565/mile								$ 367.25
TRAFFIC CONTROL								$ 1,000.00
								$ -
TOTAL DIRECT EXPENSES								**$ 1,692.25**
GRAND-TOTAL	**(LABOR, CADD & DIRECT EXPENSE)**							**$ 8,202.22**

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20

from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

TASKS FROM PREVIOUS SUPP WA 3 TO WA 1
HOWLAND ENGINEERING AND SURVEYING CO.
WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 130/150) (ROE/SET AERIAL CONTROL) ROW SERVICES/AERIAL TOPO TASK DESCRIPTION	Principal Manager	Surveying PM/RPLS	Surveying Supervisor	Field Crew (3-man)	CADD Designer	Admin Asst	Total Labor Hrs.	Task Cost
FC 130 - ROW DATA								
PRELIMINARY DATA ACQUISITION								
OBTAIN OWNERSHIP INFORMATION		8			24	16	48	$ 3,857.35
OBTAIN RIGHTS-OF-ENTRY FOR SURVEY/GEOTECHNICAL/ENVIRONMENTAL		12	25			56	93.49	$ 6,668.70
SUB-TOTAL - FC 130 - ROW DATA	0	20	25	0	24	72	141.49	$ 10,536.06
FC 150 - FIELD SURVEYING								
ESTABLISH PRIMARY CONTROL NETWORK								
SET 4 PERMANENT CONTROL MONUMENTS							EACH AT $2,000	$ 8,000.00
								$ -
								$ -
SUB-TOTAL - FC 150 - FIELD SURVEYING	0	0	0	0	0	0	0	$ 8,000.00
HOURS SUB-TOTALS	0	0	0	0	0	0	0	
LABOR RATE PER HOUR	$ 200.04	$ 156.78	$ 93.75	$ 148.98	$ 80.04	$ 43.26		
DIRECT LABOR COSTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
GRAND-TOTAL	(LABOR, CADD & DIRECT EXPENSE)							$ 18,536.06

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20 from Approximately STA 554+00 to University Boulevard

HOWLAND ENGINEERING AND SURVEYING CO.
WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 150)(SUPPLEMENTAL TOPO/UTILITIES) FIELD SURVEYING TOPO SERVICES (FROM APPROX STA 554+00 TO UNIVERSITY BOULEVARD) TASK DESCRIPTION	Principal Manager	Surveying PM/RPLS	Surveying Supervisor	Field Crew (3-man)	EIT	CADD Designer	Admin Asst	Total Labor Hrs.	Task Cost
FC 150 - FIELD SURVEYING									
SUPPLEMENTAL TOPOGRAPHY								0	$ -
VERIFY ELEVATIONS OF CONTOURS (SPOT CHECK)			1	1			3	5	$ 372.51
PROFILE AND CROSS-SECTION INTERSECTING STREETS FOR TIE INTO PROJECT			1	5	2	2		10	$ 1,151.31
FIELD TIE ALL HARD SURFACES WHERE TIE-INS OCCUR AT DRIVEWAYS AND TURNOUTS				2		1		3	$ 378.00
FIELD TIE ALL DRAINAGE FEATURES: SIDE DRAINS, CULVERTS, DITCHES, INLETS, MANHOLES, ETC.				2		1		3	$ 378.00
FIELD TIE ALL DRAINAGE STRUCTURES: BRIDGES, BOX CULVERTS, ETC.			2					2	$ 187.50
WALK SITE TO INSURE ALL TOPOGRAPHIC FEATURES HAVE BEEN LOCATED			2			2		4	$ 347.58
PRODUCE DTM		2					3	5	$ 537.09
FIELD LOCATION OF UTILITIES AND PIPELINES (FUNCTION 163- SUE)								0	$ -
RESEARCH UTILITY AND PIPELINE LOCATIONS (WET & DRY)			3					3	$ 281.25
CONTACT TEXAS811 TO HAVE DRY UTILITIES LOCATED			4		1			5	$ 451.29
CONTACT PIPELINE COMPANIES FOR PIPELINE LOCATIONS, SIZES, PRODUCTS AND DEPTHS (PLANS?)			5				2	7	$ 555.27
CONTACT CITY, COUNTY AND UTILITY DISTRICTS FOR INFORMATION OF WET UTILITIES			6			1	1.86	8	$ 620.74
FIELD TIE ALL UTILITIES FOR INCLUSION INTO THE DTM AND PLANIMETRICS			9	7		10	3	20	$ 1,873.04
PREPARE UTILITY BASE MAPS	4						1	7	$ 1,003.50
ADDITIONAL FIELD STAKING (PHASE II)								0	$ -
STAKE CORE HOLES AND FIELD TIE FINAL LOCATIONS			4	30		8		42	$ 5,484.72
STAKE CENTERLINE AS REQUIRED FOR USE BY GEOTECHNICAL, ENVIRONMENTAL ETC, SUB-CONSULTANTS			12	40		20		72	$ 8,685.00
STAKE RIGHT-OF-WAY FOR FENCING (AS REQUIRED)			15	75		20		110	$ 14,180.55
COORDINATION MEETINGS								0	$ -
GENERAL PROJECT MANAGEMENT		10						10	$ 1,567.80
REDUCTION OF SURVEY DATA		2	20					22	$ 2,188.56
SURVEY QA/QC		5						5	$ 783.90
SUB-TOTAL - FC 150 - FIELD SURVEYING	**4**	**19**	**75**	**162**	**3**	**67**	**13.66**	**343.66**	**$ 41,127.61**
TOTALS - SURVEY TOPO	**4**	**19**	**75**	**162**	**3**	**67**	**13.66**	**343.66**	**$ 41,127.61**
HOURS SUB-TOTALS	**4**	**19**	**75**	**162**	**3**	**67**	**13.66**	**343.66**	
LABOR RATE PER HOUR	$ 200.04	$ 156.78	$ 93.75	$ 148.98	$ 76.29	$ 80.04	$ 43.26		
DIRECT LABOR COSTS	$ 800.16	$ 2,978.82	$ 7,031.25	$ 24,134.76	$ 228.87	$ 5,362.68	$ 591.07	$ 41,127.61	
TOTAL	**$ 800.16**	**$ 2,978.82**	**$ 7,031.25**	**$ 24,134.76**	**$ 228.87**	**$ 5,362.68**	**$ 591.07**	**$ 41,127.61**	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	**1.95%**	**7.24%**	**17.10%**	**58.68%**	**0.56%**	**13.04%**	**1.44%**	**100.00%**	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	**1.16%**	**5.53%**	**21.82%**	**47.14%**	**0.87%**	**19.50%**	**3.98%**	**100.00%**	
DIRECT EXPENSES: BALANCE FROM PREVIOUS WA #1									
DELIVERY SERVICES - $50 / PACKAGE X 10 PACKAGES									$ 425.00
MILEAGE (APPROX 1,000 MI @ $0.565/mile									$ 480.25
TRAFFIC CONTROL									$ 2,000.00
TOTAL DIRECT EXPENSES									**$ 2,905.25**
GRAND TOTAL - SURVEY TOPO ENGINEERING SERVICES	**(LABOR, CADD & DIRECT EXPENSE)**								**$ 44,032.86**

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20 from University Boulevard to Just North of LP 20/US 59 Overpass

GILPIN ENGINEERING COMPANY
WORK AUTHORIZATION NO. 2

SPECIAL SERVICES (FC 150)(SUPPLEMENTAL TOPO/UTILITIES) FIELD SURVEYING TOPO SERVICES (FROM UNIVERSITY BOULEVARD TO JUST NORTH OF LP 20/US 59 OVERPASS) TASK DESCRIPTION	Principal	PM	SIT	RPLS	Survey Crew (3-Man) w/GPS	CADD Operator/ Tech	Clerical	Total Labor Hrs.	Task Cost
FC 150 - FIELD SURVEYING									
SUPPLEMENTAL TOPOGRAPHY									
VERIFY ELEVATIONS OF CONTOURS (SPOT CHECK)				4	20	6		30	$ 3,988.56
PROFILE AND CROSS-SECTION INTERSECTING STREETS FOR TIE INTO PROJECT				12	40	16		68	$ 8,815.92
FIELD TIE ALL HARD SURFACES WHERE TIE-INS OCCUR AT DRIVEWAYS AND TURNOUTS				0	0	0		0	$ -
FIELD TIE ALL DRAINAGE FEATURES: SIDE DRAINS, CULVERTS, DITCHES, INLETS, MANHOLES, ETC.				0	0	0		0	$ -
FIELD TIE ALL DRAINAGE STRUCTURES: BRIDGES, BOX CULVERTS, ETC.				0	0	0		0	$ -
WALK SITE TO INSURE ALL TOPOGRAPHIC FEATURES HAVE BEEN LOCATED				0		0		0	$ -
PRODUCE DTM		0		0				0	$ -
FIELD LOCATION OF UTILITIES AND PIPELINES (FUNCTION 163-SUE)								0	$ -
RESEARCH UTILITY AND PIPELINE LOCATIONS (WET & DRY)				10		5	2	17	$ 1,762.58
CONTACT TEXAS811 TO HAVE DRY UTILITIES LOCATED				4				4	$ 493.68
CONTACT PIPELINE COMPANIES FOR PIPELINE LOCATIONS, SIZES, PRODUCTS AND DEPTHS (PLANS?)				4			2	6	$ 590.64
CONTACT CITY, COUNTY AND UTILITY DISTRICTS FOR INFORMATION OF WET UTILITIES				10		2	2	14	$ 1,503.72
FIELD TIE ALL UTILITIES FOR INCLUSION INTO THE DTM AND PLANIMETRICS				0	36	18	2.67	54	$ 6,720.00
PREPARE UTILITY BASE MAPS		4						18	$ 2,012.88
ADDITIONAL FIELD STAKING (PHASE II)								0	$ -
STAKE CORE HOLES AND FIELD TIE FINAL LOCATIONS				4	30	8		42	$ 5,649.72
STAKE CENTERLINE AS REQUIRED FOR USE BY GEOTECHNICAL, ENVIRONMENTAL, ETC, SUB-CONSULTANTS				12	40	20		72	$ 9,161.04
STAKE RIGHT-OF-WAY FOR FENCING (AS REQUIRED)				15	75	20		110	$ 14,741.40
								0	$ -
COORDINATION MEETINGS								0	$ -
GENERAL PROJECT MANAGEMENT		20						20	$ 3,593.40
REDUCTION OF SURVEY DATA		2		20				22	$ 2,627.74
SURVEY QA/QC		5						5	$ 898.35
SUB-TOTAL - FC 150 - FIELD SURVEYING	0	31	0	95	240	108	8.67	482.67	$ 62,759.61
								0	
TOTALS - SURVEY UTILITIES	0	31	0	95	240	108	8.67	482.67	$ 62,759.61
HOURS SUB-TOTALS	0	31	0	95	240	108	8.67	482.67	
LABOR RATE PER HOUR	$ 205.32	$ 179.57	$ 97.56	$ 123.42	$ 148.86	$ 85.28	$ 48.48		
DIRECT LABOR COSTS	$ -	$ 5,569.77	$ -	$ 11,724.90	$ 35,726.40	$ 9,318.24	$ 420.30	$ 62,759.61	
TOTAL	$ -	$ 5,569.77	$ -	$ 11,724.90	$ 35,726.40	$ 9,318.24	$ 420.30	$ 62,759.61	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	0.00%	8.87%	0.00%	18.68%	56.93%	14.85%	0.67%	100.00%	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	0.00%	6.42%	0.00%	19.68%	49.72%	22.38%	1.80%	100.00%	
DIRECT EXPENSES: BALANCE FROM PREVIOUS W/A #1									
DELIVERY SERVICES - $50 / PACKAGE X 10 PACKAGES									$ 500.00
MILEAGE (APPROX 1,000 MI @ $0.565/mile									$ 565.00
TRAFFIC CONTROL									$ 4,000.00
TOTAL DIRECT EXPENSES									$ 5,065.00
GRAND TOTAL - ENGINEERING SERVICES	(LABOR, CADD & DIRECT EXPENSE)								$ 67,824.61

EXHIBIT D
DETAILED FEE SCHEDULE (ADVANCED PROJECT DEVELOPMENT SRVCS) SUPPORTING LUMP SUM CALCULATIONS
DANNENBAUM ENGINEERING CORP
WORK AUTH NO. 2

Cont No.
PHASE I
WA NO.2

MAXIMUM AMOUNT PAYABLE

LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)

REMAINING PHASE I WORK - ADVANCED PROJECT DEVELOPMENT SERVICES

Provide Advanced Project Development Services, Develop Separate Schematic, Environmental Assessment, Public Involvement, Value Engineering, Drainage Studies, Culvert Sizing and Surveying Topo/Aerial Flight, Utility Investigations (Quality Level A, B, C & D), for Extension of Loop 20

from Approximately STA 554+00 to just North of the Loop 20 / US 59 Overpass.

ARIAS
WORK AUTHORIZATION NO. 2

NO. OF DWGS	SHEET	SPECIAL SERVICES (FC 110) GEOTECHNICAL SERVICES TASK DESCRIPTION	Principal	PM	Senior Engineer	Geotechnical Engineer/ Senior Eng Geologist	Senior Designer/ Senior Eng Tech	Field/Lab Tech	Admin Assistant	Total Labor Hrs.	Remarks	Task Cost
		FC 110 - ROUTE AND DESIGN STUDIES										
		Project Set Up	0	6	4	0	0	0	0	10		$ 1,536.82
		Utility Coordination	0	2	0	4	0	20	0	26		$ 1,629.06
		Field & Laboratory	0	0	0	24	0	160	0	184		$ 9,976.56
		Boring Logs	0	0	0	36	4	45	0	85		$ 6,539.97
		Perform Global Stability Analys on fill areas	0	14	70	165	20	0	0	268		$ 35,630.05
		Report/Meetings	0	14	40	120	0	0	0	174		$ 23,154.70
		Review/Edits	0	14	10	16	0	0	0	40		$ 5,563.24
		Final Review/Sign	0	0	4	6	0	0	0	10		$ 1,433.86
		Deliverables	0	0	0	12	0	0	0	12		$ 1,390.68
		SUB-TOTAL - FC 110 - ROUTE AND DESIGN STUDIES	0	50	128	383	24	225	0	810		$ 86,854.94
		HOURS SUB-TOTALS	0	50	128	383	24	225	0	810		
		LABOR RATE PER HOUR	$ 220.40	$ 133.05	$ 184.63	$ 115.59	$ 86.07	$ 44.97	$ 45.94			
		DIRECT LABOR COSTS	$ -	$ 6,652.50	$ 23,632.64	$ 44,385.87	$ 2,065.68	$ 10,118.25	$ -	$ 86,854.94	CHECK	
		TOTAL	$ -	$ 6,652.50	$ 23,632.64	$ 44,385.87	$ 2,065.68	$ 10,118.25	$ -	$ 86,854.94	$ 86,854.94	
		DIRECT EXPENSES	QTY	UNIT	RATE	TOTAL						
		Mobilization for Personnel & Equipment (2 RT at 300 MI)	2	TRIPS	$ 1,200.00	$ 2,400.00					$ 2,400.00	
		Deep Drilling (170)(40 FT - 75FT) X $25	270	FT	$ 25.00	$ 6,750.00					$ 6,750.00	
		Drilling (LF)(1670)(UP TO 40 FT) X $19 / LF	1,490	FT	$ 19.00	$ 28,310.00					$ 28,310.00	
		Grout Boring Holes (1660 LF) X $6 / LF	1,660	FT	$ 6.00	$ 9,960.00					$ 9,960.00	
		TxDOT Test method TEX 132-E, Texas Cone Penetrometer Test	374	EA	$ 30.00	$ 11,220.00					$ 11,220.00	
		Determination of Moisture Content in Soil Materials (TEX-103-E)	350	TEST	$ 16.00	$ 5,600.00					$ 5,600.00	
		Method of Calculating Plasticity Index of Soils (TEX-106-E) Atterberg Limits	277	TEST	$ 85.00	$ 23,545.00					$ 23,545.00	
		Determination of Amount of Material in Soil Finer than the No. 200 sieve (TEX-111-E)	125	TEST	$ 45.00	$ 5,625.00					$ 5,625.00	
		Determination of Sulfate Content in Soils	80	TEST	$ 40.00	$ 3,200.00					$ 3,200.00	
		CU Triaxial Shear Test , ASTM D 4767 (for Stability Analysis)	3	TEST	$ 1,100.00	$ 3,300.00					$ 3,300.00	
		Traffic Control (17 DAYS)	16	DAYS	$ 1,500.00	$ 24,000.00					$ 24,000.00	
		PER DIEM - $150/DAY X 3 PEOPLE X 16 DAYS	16	DAYS	$ 450.00	$ 7,200.00					$ 7,200.00	
		MILEAGE - 3 TRIPS X 300MI PER TRIP X 0.50/MI (Trips for Locating & Utilities)	3	TRIPS	$ 150.00	$ 450.00					$ 450.00	
		TOTAL DIRECT EXPENSES									$ 131,560.00	
		TOTAL SPECIAL SERVICES	(LABOR, CADD & DIRECT EXPENSE)								$ 218,414.94	

Assumptions:

Bores	No.	Depth	Totals (LF)	Atterbergs (EA)	TX-132 (EA)
Bridge	2	75	150	26	44
Bridge	8	65	520	88	154
RW	11	20	220	12	21
RW	17	25	425	62	107
RW	12	30	360	72	126
RW	2	35	70	37	65
Pavement - Lake	5	25	125	21	37
Pavement	7	10	70	12	21
Miscellaneous	0	0	0	0	0
Total	64		1940	330	575

* RW = Retaining Wall

SPECIAL SERVICES

1. GEOTECHNICAL SERVICES

ASSUMPTIONS

1. SUBSURFACE UTILITY INVESTIGATION ASSUMED NOT TO BE NEEDED (FOR BORINGS ONLY).
2. TRAFFIC CONTROL REQUIRED DURING GEOTECHNICAL FIELD WORK
3. ASSUMES EXISTING EMBANKMENT AT AIRPORT DRIVE LOCATED ON ALIGNMENT & IS ENGINEERED FILL
4. NO WETLAND MITIGATION
5. ASSUMES PAVEMENT CORES NOT REQUIRED FOR EXISTING PAVEMENT
6. ASSUME RETAINING WALL/PAVEMENT AND BRIDGES SUBMITTED IN 2 SEPARATE REPORTS.

DELIVERABLES

I. GEOTECHNICAL
a. Provide Soil Core Hole Drilling
b. Provide field sampling and laboratory analysis
c. Provide boring logs
d. Provide slope stability at fill locations
e. Geotechnical Report signed and sealed by a State of Texas PE
f. Traffic control required

EXHIBIT H-2

Subprovider Monitoring System Commitment Agreement

This commitment agreement is subject to the award and receipt of a signed contract from Webb County. ***NOTE: Exhibit H-2 is required to be attached to each contract that does not include work authorizations. Exhibit H-2 is required to be attached with each work authorization. Exhibit H-2 is also required to be attached to each supplemental work authorization. If DBE/HUB Subproviders are used, the form must be completed and signed. If no DBE/HUB Subproviders are used, indicate with "N/A" on this line: _____ and attach with the work authorization or supplemental work authorization.***

Contract #: CSJ: 0086-14-058 Assigned Goal: 10% Prime Provider Dannenbaum Engineering Corporation

Work Authorization (WA)#: 2 WA Amount: **$567,911.98** Date: January 15, 2016

Supplemental Work Authorization (SWA) #: _____ to WA #: _____ SWA Amount: _____

Revised WA Amount: _____

Description of Work *(List by category of work or task description. Attach additional pages, if necessary.)*	**Dollar Amount** *(For each category of work or task description shown.)*
FC 161 Drainage	**$ 1,619.02**
FC 120 Social Economic and Environmental Studies and Public Involvement	**$ 24,860.63**
Total Commitment Amount *(Including all additional pages.)*	**$26,479.65**

IMPORTANT: The signatures of the prime and the DBE/HUB and Second Tier Subprovider, if any (both DBE and Non-DBE) and the total commitment amount must always be on the same page.

Provider Name: Dannenbaum Engineering Corporation **Address: 8610 McPherson, Laredo, Texas 78040** **Phone # & Fax #: PH: (956)712-9817; FX: (956)712-9857** **email: louis.jones@dannenbaum.com**	**Name:** Louis H. Jones Jr., P.E. *(Please Print)* **Title:** Principal _____ 1/15/2016 **Signature** **Date**
DBE/HUB Sub Provider **Subprovider Name: Arredondo, Zepeda & Brunz, LLC** **VID Number: 1432072424900** **Address: 11355 McCree Road** **Dallas, Texas 75238** **Phone # & Fax #: PH: 214-341-9900;** **FX: 214-341-9925** **Email: agarza@azb-engrs.com**	**Name:** Alfonso P. Garza, P.E. *(Please Print)* **Title:** President Alfonso P. Garza 1/15/2016 **Signature** **Date**
Second Tier Sub Provider **Subprovider Name:** **VID Number:** **Address:** **Phone #& Fax #:** **Email:**	**Name:** _____ *(Please Print)* **Title:** _____ _____ **Signature** **Date**

VID Number is the Vendor Identification Number issued by the Comptroller. If a firm does not have a VID Number, please enter the owner's Social Security or their Federal Employee Identification Number (if incorporated).

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Revised WA Amount: _____

Description of Work *(List by category of work or task description. Attach additional pages, if necessary.)*	**Dollar Amount** *(For each category of work or task description shown.)*
FC 110 Route and Design Studies	**$218,414.94**
Total Commitment Amount *(Including all additional pages.)*	**$218,414.94**

IMPORTANT: The signatures of the prime and the DBE/HUB and Second Tier Subprovider, if any (both DBE and Non-DBE) and the total commitment amount must always be on the same page.

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DBE/HUB Sub Provider **Subprovider Name: Arias & Associates** **VID Number:** 17427718394 **Address: 142, Chula Vista, San Antonio, Texas 78232** **Phone # & Fax #: PH: (210)308-5884; FX: (210)303-5886** **Email: Agarza@ariasinc.com**	**Name:** Amy Garza *(Please Print)* **Title:** Marketing Coordinator _____ 01.15.16 **Signature** **Date**
Second Tier Sub Provider **Subprovider Name:** **VID Number:** **Address:** **Phone #& Fax #:** **Email:**	**Name:** _____ *(Please Print)* **Title:** _____ _____ **Signature** **Date**

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