



**Parsons  
Brinckerhoff**

16285 Park Ten Place, Suite 400  
Houston, TX 77084  
Main: 281-589-5900

April 7, 2011

Letter No.: A001

File No.: 31212A-1.3.1

Mr. William Jameson  
Fort Bend County Toll Road Authority  
P.O. Box 2789  
Sugar Land, TX 77489-2789

Subject: FORT BEND TOLL ROAD EXTENSION  
Proposal

Dear Mr. Jameson,

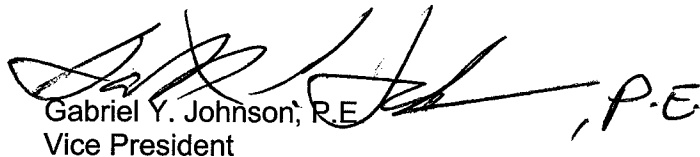
Enclosed are the contract documents for the Fort Bend Toll Road Extension project at State Highway 6 for your review and approval.

In addition, Parsons Brinckerhoff is requesting approval for the following sub-consultants proposed for the project:

- 1) Associated Testing Labs
- 2) Polytech, Inc.
- 3) Lockwood, Andrews & Newman
- 4) Lina T. Ramey and Associates
- 5) TSC Engineering.

Should you have any comments, please contact me at 281-589-5956.

Very truly yours,  
PB AMERICAS, INC. DBA PARSONS BRINCKERHOFF AMERICAS INC.

  
Gabriel Y. Johnson, P.E.  
Vice President

GYJ:WRS:dmb

Attachments

## ENGINEERING SERVICES AGREEMENT

THIS AGREEMENT is made and entered into by and between the Fort Bend County Toll Road Authority, a transportation corporation organized and operating under the laws of the State of Texas, hereinafter called the "FBTRA" and PB Americas, Inc. dba Parsons Brinckerhoff Americas Inc., hereinafter called "Engineer."

### WITNESSETH

WHEREAS, the FBTRA desires to enter into an agreement for the performance by Engineer of services during the Project, and which are within the "Scope of Services" as defined in paragraph 2 below;

WHEREAS, the FBCRA proposes to construct the extension of the Fort Bend Parkway Toll Road from SH 6 to Sienna Parkway in Fort Bend County, called Fort Bend Parkway Toll Road Segment B, Phase 1 ("the Project");

NOW, THEREFORE, in consideration of the mutual covenants and conditions set forth below, the parties agree as follows:

### AGREEMENT

#### 1. General

The Engineer shall render professional services to FBTRA related to the Project as defined in the Scope of Services in Attachment A and Attachment A-1.

The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of Engineer's profession practicing under similar conditions at the same time and in the same locality.

#### 2. Compensation and Payment

- a. The Maximum Compensation under this contract is \$1,263,966.04. The amount paid under this Agreement may not exceed the Maximum Compensation without an approved change order.

Compensation for the performance of services within the Scope of Services described in Attachment A will be paid as a lump sum amount not to exceed \$1,263,966.04, as shown in Attachment B. Progress payments for work detailed in Attachment A will be made when the Engineer has attained a level of completion equal to or greater than agreed upon milestones of completion in the reasonable opinion of FBTRA.

Compensation for services described in Attachment A-1 will be paid per the rates described in Attachment B-1 only for work authorized in writing prior to being performed and only for such work as was actually performed. The Engineer shall

furnish satisfactory documentation of such work (e.g. timesheets, billing rates, classifications, invoices, etc.) as may be required by FBPGTRA.

- b. All performance of the Scope of Services and any Additional Services including changes in the contractual scope of work and revision of work satisfactorily performed, will be performed only when approved in advance and authorized by the FBTRA, and Additional Services will be reimbursed based on the billing rates in effect at that time, to the extent that such labor costs, and subcontracts are reasonable and necessary for the performance of such services. Out-of-pocket expense costs may be reimbursed only when approved in advance and authorized by the FBTRA. Payment will be made on the basis of project completion certificate and, for Additional Services, time and expense records and in accordance with those payment procedures set forth in subparagraph d. below. Billing rates will be inclusive of all direct labor, fringe benefits, general overhead, and profit.
- c. Where subcontractors are employed by the Engineer to perform additional services not within the original Scope of Services, the Engineer will be reimbursed for subcontractors' actual salaries and hourly rates, including overtime rates. Reimbursement to the Subcontractor for non-salary costs incurred by subcontractor will be on the same basis as if the cost was incurred by the Engineer. For subcontractors employed for the convenience of the FBTRA, the Engineer will be paid a subcontract administrative fee equal to ten percent (10%) of all subcontractor invoiced amounts.
- d. It is understood and agreed that monthly payments will be made to the Engineer by the FBTRA based on the following procedures: On or about the fifteenth day of each month during the performance of services hereunder and on or about the fifteenth day of the month following completion of all services hereunder, the Engineer shall submit to the FBTRA two (2) copies of invoices showing the amounts due for services performed during the previous month, set forth separately for work under this Agreement and for additional services (accompanied by supporting certified time and expense records of such charges in a form acceptable to the FBTRA.) It is specifically understood that any requests for travel reimbursements shall comply with those procedures for travel reimbursement to Fort Bend County employees established by the Fort Bend County Auditor. The FBTRA shall review such invoices and approve them within 30 calendar days with such modifications as are consistent with this Agreement and forward same to the Auditor. The County shall pay each such invoice as approved by the FBTRA within thirty (30) calendar days after the FBTRA's approval of same.

### 3. Time of Performance

It is understood and agreed that the time for performance of the Engineer's services under this Agreement shall begin with receipt of the Notice to Proceed and end 365 calendar days from that date.

4. The FBTRA's Option to Terminate

- a. The FBTRA has the right to terminate this Agreement at its sole option at any time, with or without cause, by providing 30 days written notice of such intentions to terminate and by stating in said notice the "Termination Date" which shall be less than 30 days later than the actual receipt of such written notice by the Engineer. Upon such termination, the FBTRA shall compensate the Engineer in accordance with paragraph 3, above, for those services which were provided under this Agreement prior to its termination and which have not been previously invoiced to the FBTRA. The Engineer's final invoice for said services will be presented to and paid by the FBTRA in the same manner set forth in paragraph 3(b), above.
- b. Termination of this Agreement and payment as described in subparagraph (a) of this Paragraph shall extinguish all rights, duties, obligations, and liabilities of the FBTRA and the Engineer under this Agreement and this Agreement shall be of no further force and effect, provided, however, such termination shall not act to release the Engineer from liability for any previous default either under this Agreement or under any standard of conduct set by common law or statute. The obligations in Paragraph 6 shall survive the termination of this Agreement.
- c. If the FBTRA terminates this Agreement as provided in this paragraph, no fees of any type, other than fees due and payable at the Termination Date, shall thereafter be paid to the Engineer.
- d. The FBTRA's rights and options to terminate this Agreement, as provided in any provision of this Agreement shall be in addition to, and not in lieu of, any and all rights, actions and privileges otherwise available under law or equity to the FBTRA by virtue of this Agreement or otherwise. Failure of the FBTRA to exercise any of its said rights, actions, options or privileges to terminate this Agreement as provided in any provision of this Agreement shall not be deemed a waiver of any rights, actions or privileges otherwise available under the law or equity with respect to any continuing or subsequent breaches of this Agreement or of any other standard of conduct set by common law or statute.
- e. Copies of all completed and partially completed documents prepared under this Agreement shall be delivered to the FBTRA within 30 days or upon Engineer's receipt of termination payment, whichever is sooner, when and if this Agreement is terminated.

5. Inspection of the Engineer's Books and Records

The Engineer will permit the FBTRA, or any duly authorized agent of the FBTRA, to inspect and examine the books and records of the Engineer for the purpose of verifying the amount of work performed on the Project. FBTRA's right to inspect survives the termination of this Agreement for a period of four years.

6. Ownership and Reuse of Documents

All documents, including original drawings, estimates, specifications, field notes, and data created, produced, developed or prepared by Engineer or its approved outside advisory or support consultants (collectively, the "Documents") shall be the property of the FBTRA subject to all of the following terms and conditions; provided, however, FBTRA shall not own and shall have no right to receive any documents not deemed "final" by the Engineer until termination of this Agreement. Engineer will deliver the Documents to FBTRA within 30 days of the termination of this agreement and may retain a set of reproducible record copies of the Documents, provided that the Engineer has received full compensation due pursuant to the terms of this Agreement. It is mutually agreed that FBTRA will use the Documents solely in connection with the Project and for no other purposes, except with the express written consent of the Engineer, which consent will not be unreasonably withheld. Any use of the Documents without the express written consent of the Engineer will be at District's sole risk and without liability or legal exposure to Engineer.

FBTRA shall also be the owner of all intellectual property rights of the services rendered hereunder, including all rights of copyright therein. It is the intention of Engineer and FBTRA that the services provided are a "work for hire" as the term is used in the federal Copyright Act. Moreover, Engineer hereby agrees to assign, and by these presents, does assign to FBTRA all of Engineer worldwide right, title and interest in and to such work product and all rights of copyright therein.

Engineer agrees that all trademarks, trade names, service marks, logos, or copyrighted materials of FBTRA that Engineer is permitted to use in connection with the services will not be used without FBTRA's consent and shall remain in the sole and exclusive properties of FBTRA and this Agreement does not confer upon Engineer any right or interest therein or in the use thereof.

7. Personnel, Equipment, and Material

- a. The Engineer represents that it presently has, or is able to obtain, adequate qualified personnel in its employment for the timely performance of the Scope of Services required under this Agreement and that the Engineer shall furnish and maintain, at its own expense, adequate and sufficient personnel and equipment, in the opinion of the FBTRA, to perform the Scope of Services when and as required and without delays. It is understood that the FBTRA will approve assignment and release of all key Engineer personnel and that the Engineer shall submit written notification of all key Engineer personnel changes for the FBTRA's approval prior to the implementation of such changes. For the purpose of this agreement, key Engineer personnel are defined as: Project Manager. Services described in this Agreement shall be performed under the direction of an engineer licensed to practice professional engineering in the State of Texas.
- b. All employees of the Engineer shall have such knowledge and experience as will enable them to perform the duties assigned to them. Any employee of the Engineer who, in the opinion of the FBTRA, is incompetent or by his conduct

becomes detrimental to the Project shall, upon request of the FBTRA, immediately be removed from association with the Project.

- c. Except as otherwise specified, the Engineer shall furnish all equipment, transportation, supplies, and materials required for its operation under this Agreement.

8. Items to be furnished to Engineer by the FBTRA

The following items will be supplied to the Engineer:

- a. Copies of preliminary studies by others.
- b. Assistance in coordination with all utility companies.
- c. Assistance in coordination with all public and governmental entities.

9. Subletting

The Engineer shall not sublet, assign, or transfer any part of its rights or obligations in this Agreement without the prior written approval of the FBTRA. Responsibility to the FBTRA for sublet work shall remain with the Engineer.

10. Conference

At the request of the FBTRA, the Engineer shall provide appropriate personnel for conferences at its offices, or attend conferences at the various offices of the FBTRA, or at the site of the Project, and shall permit inspections of its offices by the FBTRA, or others when requested by the FBTRA.

11. Appearance as Witness

If requested by the FBTRA, or on its behalf, the Engineer shall prepare such engineering exhibits and plans as may be requested for all hearings and trials related to the Project and, further, it shall prepare for and appear at conferences at the office of the FBTRA's Executive Director and shall furnish competent expert engineering witnesses to provide such oral testimony and to introduce such demonstrative evidence as may be needed throughout all trials and hearings with reference to any litigation relating to the Project. Trial preparation and appearance by the Engineer in courts regarding litigation matters are Additional Services and compensation will be made in accordance with the schedule contained in Exhibit B-1.

12. Compliance with Laws

The Engineer shall comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or administrative bodies or tribunals in any matter affecting the performance of this Agreement, including, without limitation, Worker's Compensation laws, minimum and maximum salary and wage

statutes and regulations, licensing laws and regulations. When required, the Engineer shall furnish the FBTRA with certification of compliance with said laws, statutes, ordinances, rules, regulations, orders, and decrees above specified.

13. Insurance

The Engineer shall obtain and maintain, throughout the term of the Agreement, insurance of the types and in the minimum amounts set forth in Attachment C.

14. Indemnification

With respect to claims brought by third parties against either Engineer of the FBTRA relating to the property or facilities with respect to which this Agreement pertains, Engineer and the FBTRA agree as follows:

- a. **ENGINEER WILL INDEMNIFY AND HOLD HARMLESS THE FBTRA, ITS DIRECTORS, OFFICERS, AND EMPLOYEES AGAINST ANY CLAIMS, DEMANDS OR CAUSES OF ACTION; AND COSTS, LOSSES, LIABILITIES, EXPENSES AND JUDGMENTS INCURRED IN CONNECTION THEREWITH, INCLUDING REASONABLE ATTORNEY'S FEES AND COURT COSTS, BROUGHT BY ANY OF ENGINEER'S EMPLOYEES OR REPRESENTATIVES, OR BY ANY OTHER THIRD PARTY, BASED UPON, IN CONNECTION WITH, RESULTING FROM OR ARISING OUT OF THE NEGLIGENT ACTS, ERRORS OR OMISSIONS OF ENGINEER; HOWEVER, ENGINEER'S CONTRACTUAL OBLIGATION OF INDEMNIFICATION SHALL NOT EXTEND TO THE NEGLIGENCE OR OTHER FAULT OF THE FBTRA OR STRICT LIABILITY IMPOSED UPON THE FBTRA AS A MATTER OF LAW (INCLUDING STRICT LIABILITY IMPOSED UPON THE FBTRA AS A RESULT OF THE CONDITION OF THE PROPERTY OR FACILITIES WITH RESPECT TO WHICH THIS AGREEMENT PERTAINS).**
- b. In the event that both the FBTRA and Engineer are adjudicated negligent or otherwise at fault or strictly liable without fault with respect to damage or injuries sustained by the claimant, each shall be responsible for its own costs of litigation and pro rata share of damages as determined by the proceedings.

It is a condition precedent to the indemnitor's contractual obligation of indemnification under this Agreement that the party seeking indemnity shall provide written notice of a third party claim, demand or cause of action within 30 days after such third party claim, demand or cause of action is received by the party seeking indemnity. It is a further condition precedent to the indemnitor's contractual obligation of indemnification under this Agreement that the indemnitor shall thereafter have the right to participate in the investigation, defense and resolution of such third party claim.

15. Dispute Resolution

Except as expressly provided in Section 4. Termination, if a dispute arises out of, or relates to, the breach thereof, and if the dispute cannot be settled through negotiation, then the FBTRA and the Engineer agree to submit the dispute to mediation. In the event the FBTRA or the Engineer desires to mediate any dispute, that party shall notify the other party in writing of the dispute desired to be mediated. If the parties are unable to resolve their differences within 10 days of the receipt of such notice, such dispute shall be submitted for mediation in accordance with the procedures and rules of the American Arbitration Association (or any successor organization) then in effect. The deadline for submitting the dispute to mediation can be changed if the parties mutually agree in writing to extend the time between receipt of notice and submission to mediation. The expenses of the mediator shall be shared 50 percent by the FBTRA and 50 percent by the Engineer. This requirement to seek mediation shall be a condition required before filing an action at law or in equity.

16. Delivery of Notices, Etc.

- a. All written notices, demands, and other papers or documents to be delivered to the FBTRA under this Agreement shall be delivered to the Fort Bend Grand Parkway Toll Road Authority, P.O. Box 2789, Sugar Land, Texas 77487-9740, Attention: Bill Jameson, or at such other place or places as it may from time to time designate by written notice delivered to the Engineer. For purposes of notice under this Agreement, a copy of any notice or communication hereunder shall also be forwarded to the following address: Fort Bend County Clerk, 301 Jackson Street, Richmond, Texas 77469, Attention: County Judge.
- b. All written notices, demands, and other papers or documents to be delivered to the Engineer under this Agreement shall be delivered to PB Americas, Inc. dba Parsons Brinckerhoff Americas Inc., Attention: W. Russell Smart, P.E., or such other place or places as the Engineer may designate by written notice delivered to the FBTRA.

17. Reports of Accidents, Etc.

Within 24 hours after the occurrence of any accident or other event which results in, or might result in, injury to the person or property of any third person (other than an employee of the Engineer), whether or not it results from or involves any action or failure to act by the Engineer or any employee or agent of the Engineer and which arises in any manner from the performance of this Agreement, the Engineer shall send a written report of such accident or other event to the FBTRA, setting forth a full and concise statement of the facts pertaining thereto. The Engineer shall also immediately send the FBTRA a copy of any summons, subpoena, notice, other documents served upon the Engineer, its agents, employees, or representatives, or received by it or them, in connection with any matter before any court arising in any manner from the Engineer's performance of work under this Agreement.

18. The FBTRA's Acts

Anything to be done under this Agreement by the FBTRA may be done by such persons, corporations, or firms as the FBTRA may designate.

19. Limitations

Notwithstanding anything herein to the contrary, all covenants and obligations of the FBTRA under this Agreement shall be deemed to be valid covenants and obligations only to extent authorized by the Act creating the FBTRA and permitted by the laws and the Constitution of the State of Texas. This Agreement shall be governed by the laws of the State of Texas, and no officer, director, or employee of the FBTRA shall have any personal obligation hereunder.

20. Captions Not a Part Hereof

The captions of subtitle of the several sections and divisions of this Agreement constitute no part of the content hereof, but are only labels to assist in locating and reading the provisions hereof.

21. Controlling Law, Venue

This Agreement shall be governed and construed in accordance with the laws of the State of Texas. The parties hereto acknowledge that venue is proper in Fort Bend County, Texas, for all disputes arising hereunder and waive the right to sue or be sued elsewhere.

22. Successors and Assigns

The FBTRA and the Engineer bind themselves and their successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of the other party, in respect to all covenants of this Agreement.

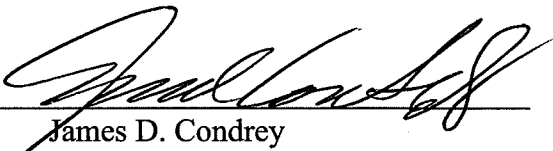
23. Appendices

The Appendices attached to this Agreement, which consists of:

Attachment A	Scope of Services
Attachment A-1	Additional Services
Attachment B	Compensation for Scope of Services
Attachment B-1	Compensation for Additional Services
Attachment C	Insurance Requirements

IN WITNESS WHEREOF, the parties hereto have signed or have caused their respective names to be signed to multiple counterparts to be effective on the 20th day of April, 2011.


FORT BEND COUNTY TOLL ROAD  
AUTHORITY, a local government Texas  
corporation

By:   
James D. Condrey  
Chairman, Board of Directors

ATTEST:

By:   
Asst. Secretary, Board of Directors

PB Americas, Inc dba Parsons Brinckerhoff  
Americas Inc.  
ENGINEER

By:  P.E.  
Name: Gabriel Y. Johnson, P.E.  
Title: Vice President

## ATTACHMENT "A"

### SCOPE OF SERVICES

The Engineer shall perform work generally consisting of preliminary engineering, design field survey, hydraulic studies, environmental studies, intersection layouts, subsurface utility engineering, utility coordination, and preparation of complete Plans, Specifications and Estimates (PS&E) for approximately 1.49 miles of Ft. Bend Parkway where it intersects State Highway 6 located in Ft. Bend County.

#### **ROUTE AND DESIGN STUDIES** (Function Code 110)

**A. Data Collection.** The Engineer shall collect, review and evaluate data described below.

1. Data from the State, including "as-built plans", existing schematics, right-of-way maps, SUE mapping, existing cross sections, existing planimetric mapping, environmental documents, existing channel and drainage easement data, existing traffic counts, accident data, BRINSAP records, PMIS data, identified endangered species, identified hazardous material sites, current unit bid price information, current special provisions, special specifications, and standard drawings.
2. Documents for existing and proposed development along proposed route from local municipalities and local ordinances related to project development.
3. Utility plans and documents from appropriate municipalities and agencies.
4. Readily available flood plain information and studies from the Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers, local municipalities and other governmental agencies in addition to that provided by the GEC.

**B. Field Reconnaissance.** The Engineer shall conduct field reconnaissance and collect data including a photographic record (maintain in Engineer's office) of notable existing features.

**C. Boring Data.** The Geotechnical Engineer will analyze a total of 10 borings: 8 located near the proposed retaining walls and 2 -100' borings located around the proposed bridges.

**D. Design Criteria.** The Engineer, in cooperation with the FBTRA shall develop design criteria for the following items.

1. Roadway and drainage design parameters
2. Engineering and environmental constraints
3. Project development schedule
4. Other issues as identified by FBTRA

**E. Preliminary Cost Estimate.** The Engineer shall prepare a preliminary construction cost estimate for the project.

#### **ENVIRONMENTAL STUDIES** (Function Code 120)

The Engineer upon approval by FBTRA (which shall be identified as an additional service) shall perform environmental services for the project.

## **UTILITY AND RIGHT-OF-WAY (Function Code 130)**

- A. **Right-of-Way Map.** The Engineer shall review and evaluate proposed right-of-way map to verify that all construction staging and alignment considerations have been taken into account. The Engineer shall make every effort to prevent detours and utility relocations from extending beyond the proposed Right-of-way lines. If it is necessary to obtain additional construction easements and/or right-of-entry, the Engineer shall notify the FBTRA in writing of the need and justification for such action. The Engineer shall identify and coordinate with all utility companies for relocations required within these construction easements and/or right-of entries (short of litigation).
- B. **Utility Coordination.** Upon approval by FBTRA, the Engineer shall perform the utility investigation work involving the research and identification of all private and public utilities within the project limits. The process shall involve researching the City of Houston GIMS database for the existence of public utilities such as sanitary, storm sewers, and waterlines within the project limits. For private utilities, request for information letters containing, project location maps and required forms, shall be sent out to all utilities companies informing them of the pending improvement project and requesting specific information such as-built drawings. Upon receipt from the utility companies of their existing utility information a design file is created illustrating all utilities within the project limits. This file is then used to create a "conflict list" which identifies all potential conflicts between the existing utilities and the proposed project improvements. The Engineer shall then coordinate the utility company's relocation plans and provide continuous updated project design information.
- C. **Utility Design.** The Engineer upon approval by FBTRA (which shall be identified as an additional service) shall perform all necessary design services for the relocation of any and all required public utilities.

## **FIELD SURVEYING (Function Code 150)**

- A. **Field Surveying.** The Engineer shall verify the benchmark coordinates and establish the horizontal and vertical control for the project. The Engineer shall coordinate control with the adjacent Engineers for consistency and accuracy of the project.
- B. **Control Survey**
  - 1. CPTS Static Survey for establishing elevation datum – GPS observations using NGS CORS
  - 2. Establish/recover and verify position of existing horizontal control points furnished. All control points set will be with semi-permanent material such as iron rods. GPS VRS and Conventional Traversing Methods will be used to establish or verify horizontal coordinates.
  - 3. Level loops to establish or verify elevations on existing control points furnished. Perform level loop circuits through control points to establish or verify elevations.
  - 4. Prepare Survey Control Map- Prepare survey Control Map showing control points, project baseline, datum notes, etc.

**C. The Engineer shall:**

1. Stake Project Baseline: The project baseline must be coincidental with, or parallel to, the stationed "Design Center Line." Baseline control points shall be established using iron rods, 36 inches long, at P.C.'s, P.I.'s and P.T.'s of horizontal curves and at 1000 feet maximum intervals on tangents. Baseline control points shall be offset with set iron rods on both sides near the existing ROW lines at a measured distance. Coordinate to field tie to the Project baseline set by adjacent Engineers for consistency and accuracy. Survey Control Map will be updated with the baseline information staked.
2. Cross Section – Cross Section will be taken at 50 to 100-foot intervals, plus at any low and high cross sections
3. Utilities- Contact DigTest and locate tone marks, and locate visible utilities.
4. Tie Bore Holes (12 locations)- Provide Northing, Easting and Elevation
5. Topographic Survey- Locate visible existing features (Trees, signs, fences, driveways, parking lots, etc.) For Bridge Overpasses, locate bridge columns and low chord elevations of bridges.
6. Drainage Outfall Ditch (Approx. 200-300LF)- Cross sections will be taken at 50-foot intervals. The sections will extend 50 feet outside the ditch top of bank.
7. Obtain top of manhole and flowline elevations, type and size, etc. of manholes, inlets, and valves of existing drainage facilities.
8. Prepare or update planimetric 2S DGN file with new survey data obtained.
9. Prepare or updated DTM/TIN file (Geopak) and 3D DGN file with new survey data obtained.

**ROADWAY DESIGN (Function Code 160)**

- A. **Refine Schematic.** The Engineer shall review the schematic provided by FBTRA and verify its completeness and accuracy. The Engineer shall refine the horizontal and vertical alignment of the design schematic within the project limits stated above. The Engineer shall determine vertical clearances at grade separations and overpasses, taking into account the appropriate superelevation rate. Minor modifications in the alignments will be considered to provide optimal design. Modifications must be coordinated with FBTRA and adjacent Engineers.
- B. **Typical Sections.** The Engineer shall provide typical sections sheets prepared for the existing and proposed roadways necessary to provide a thorough understanding to the contractor of the work intended. Typical section information shall include:
  1. Station limits
  2. Profile Grade Line location
  3. Centerline and Baseline locations
  4. Widths of travel lanes and shoulders
  5. Pavement section design (provided by FBTRA)
  6. Pavement Cross slopes
  7. Traffic barriers and curbs
  8. Mow strips
  9. Typical ditch side slopes

10. Sodding/seeding limits
11. Retaining wall structures
12. Riprap

**C. Roadway Plan and Profiles.** The Engineer shall provide roadway plan and profile drawings using CADD standards as required by FBTRA. The drawings shall consist of a planimetric file of existing features and files of the proposed improvements. The roadway base map shall contain line work that depicts existing surface features obtained from the schematic drawing and survey, existing major subsurface and surface utilities, and existing and proposed right-of-way lines shall be shown. Plan and profile sheets will be prepared to a scale of 1"=100' horizontal and 1"=10' vertical on 11"x17" format sheets.

1. The Plan view should include

- Roadway centerlines and baselines
- Pavement edges for all improvements
- Pavement width dimensions
- Proposed structure locations
- Direction of traffic flow on all roadways, and arrows indicating the number of lanes
- Control of access line, ROW lines and easements
- Limits of riprap, block sod, and seeding
- Existing utilities and structures
- Benchmark information
- Radii callouts, curb locations, guard rail, guard fence, crash safety items, as required

2. The Profile view should include:

- Calculated profile grade including grade, vertical curve data, and K values shall be shown
- Calculated vertical clearances for bridges taking into account superstructure depth, cross slopes, and any superelevation

**D. Cut and Fill Quantities/Cross Sections.** The Engineer shall develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 100 feet intervals and 50 feet intervals in curves. Cross sections shall be delivered in standard GEOPAK format on 11"x17" sheets and electronic files at each of respective deliverable.

**E. Pavement Design.** The Engineer shall incorporate the pavement design as supplied by the FBTRA to match the adjacent engineer.

## **DRAINAGE DESIGN (Function Code 161)**

**A. Drainage Study.** The Drainage Impact Study for the FBCTR Underpass Section will include the impact analysis and mitigation for the new roadway section as well as the reinvestigation of the impact analyses previous performed due to the relocation of these existing detention basins. The study mitigation investigation will include multiple basin locations and configurations as well as the utilization of roadside ditches for mitigation. The study will provide the following analyses:

1. Drainage area delineation and maps: watershed, contributing drainage areas, and project area.

2. Existing and proposed condition runoff rates and hydrographs
3. Allowable runoff rates for the project area
4. Runoff routing calculations and potential impact quantification
5. Detention basin routing
6. Required storage volume for mitigation of runoff impacts
7. Pump station hydraulic calculations
8. Cross-culvert hydraulics
9. New outfall channel hydraulics/sizing
10. Receiving streams hydraulic modeling
11. Revetment/hydraulic structure sizing
12. Any potential floodplain cut/fill calculations

The proposed depressed section reach will increase the impervious area within the right-of-way and displace the existing three detention basins within the corridor. The imperviousness increase will be limited with the existing basins, which are considered as impervious areas, being located within the proposed mainlane alignment. The main contributor to the increase in impervious area will consist of any new ramps and the new detention basin(s) to be constructed. The proposed mitigation basin(s) will potentially receive flow from the at-grade storm sewer systems, roadside ditches, SH 6 systems, adjacent property, and pump station.

- B. Culvert and Storm Drain Design.** The Engineer shall develop design details that minimize the interference with the passage of traffic or incur damage to the highway and local property. The Engineer shall design using TxDOT Hydraulic Design Manual criteria all drainage components and provide storm sewer plan and profiles, drainage area maps, and detention pond plans, calculations, sections and details. Storm drain design shall be performed using GEOPAK Drainage or comparable. The Engineer shall coordinate with the FBTRA any proposed changes as describe in existing drainage studies to detention systems.
- C. Pump Station.** The design of a storm water pump station will be necessary. The design of the pump station shall be done according to TxDOT criteria. The design of the pump station shall involve all relevant hydraulic data sheets specifying the size and number of pumps as well as the on/off elevations. The Engineer shall also provide all necessary drawings showing the site layout, and all structural, mechanical, instrumentation, control, piping, and electrical sheets and/or details necessary to construct the pump station building.

The Pump station design is broken up in 3 steps:

1. Field examination, verification of data and drainage analysis
  - Collect and review available information, reports, drainage studies, plans, drafting standard
  - Conduct site examination and verify existing conditions
  - Coordinate with utility authorities to determine applicable utility standards and constraints
2. Alternatives, Recommendations and preliminary design report
  - Identify issues, alternatives and options
  - Develop a minimum of two alternatives with advantages and disadvantages
  - Evaluate adequacy of available site and define needs for additional space
  - Prepare and QA/QC draft Basis of Design Report (six copies to submit)
  - Incorporate comments and Submit Final Basis of Design Report (six copies)
3. Preparation of Plans, Specifications and Opinions of Cost (PSOC)

- Electrical work would include consideration of reliability of the primary and backup power supply, switchgear, controls, all electric wiring and connections, and the necessary instrumentation to interface equipment into the existing SCADA system. Desired or necessary features such as intrusion alarms and various environmental sensors would be part of the design.
- The mechanical work will include screens, piping, pump units, ventilation, and temperature control. Ventilation and environmental controls would be provided to comply with all applicable regulations
- Prepare, QA/QC, incorporate comments, and submit 30%, 60%, 90%, and 100% plans

**D. Storm Water Pollution Prevention Plans (SW3P).** The Engineer shall prepare drawings based on the latest NPDES, Harris County Stormwater Quality Standards (HCSWQS) requirements, and TxDOT standards to minimize impact on receiving waterways and developments outside the ROW. The SW3P sheets will include the location of erosion control devices and any required permanent erosion control measures.

### **SIGNING, MARKINGS AND TRAFFIC (Function Code 162)**

- A. Signing.** The Engineer shall prepare drawings, specifications and details for all signs. Sign detail sheets shall be prepared for large guide signs showing dimensions, lettering, shields, borders, corner radii, etc., and shall provide a summary of large and small signs. The Engineer shall also designate the shields to be attached to guide signs. The proposed signs shall be illustrated and numbered on plan sheets. Sign poles, attachments, and details shall be designed per the Urban Planner's recommendations and standards.
- B. Pavement Markings.** The Engineer shall detail permanent and temporary pavement markings and channelization devices on plan sheets.

The Engineer shall provide the following information on sign/pavement marking layouts:

1. Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
  2. Quantities of existing pavement markings to be removed.
  3. Proposed delineators and object markers.
  4. The location of interchanges, mainlanes, grade separations, frontage roads and ramps.
  5. The number of lanes in each section of proposed highway and the location of changes in numbers of lanes. ROW limits.
  6. Direction of traffic flow on all roadways.
- C. Traffic Signals.** The Engineer shall identify and prepare modification to existing traffic signal Plans for all traffic signals at State Highway 6 / Fort Bend Parkway Toll Road. The Engineer shall develop all quantities, general notes, and specifications and incorporate appropriate agency standards required to complete construction.
- D. Illumination.** The Engineer shall provide illumination layout plans, electrical circuit plans and details for continuous and safety lighting at intersections and along the project limits, as well as at all other locations identified by the FBTRA within the project limits. The Engineer shall prepare exhibits as required to obtain agreements with adjacent municipalities. The Engineer shall tabulate all quantities and provide summary sheets. Lighting poles, fixtures,

and attachment details shall be designed per the Urban Planner's recommendations and standards.

- E. **Traffic Control Plan.** The Engineer shall prepare Traffic Control Plans (TCP) in coordination with adjacent section. These plans shall also be prepared in accordance with the Texas Manual on Uniform Traffic Control Devices for Streets and Highways (latest edition). The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers:
1. The Engineer shall provide a written narrative of the construction sequencing and work activities per phase and determine the existing and proposed traffic control devices (regulatory signs, warning signs, guide signs, route markers, construction pavement markings, barricades, flag person, temporary traffic signals, etc.) to be used to handle traffic including at grade intersections during each construction sequence. The Engineer shall show temporary roadways, ramps and detours required to maintain lane continuity throughout the construction phasing.
  2. Where detours are required, the Engineer shall develop typical cross sections, calculate quantities, and show horizontal and vertical alignment information. The Engineer shall provide a detailed layout and arrangement of construction signs, construction pavement marking, traffic control devices (including temporary signals and signal heads).
  3. The Engineer shall be responsible to coordinate with the adjacent engineer in scheduling a Traffic Control Workshop. The Engineer shall assist FBTRA in coordinating mitigation of impacts to adjacent schools, emergency vehicles, pedestrians, bicyclists and neighborhoods
  4. Continuous, safe access to all properties during all phases of construction is mandatory. The Engineer shall develop TCP to preserve existing curb cuts (if applicable). The Engineer shall design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The Engineer shall show horizontal and vertical location of culverts and required cross sectional area of culverts.

#### **MISCELLANEOUS ROADWAY (Function Code 163)**

- A. **Construction Cost Estimate.** The Engineer shall independently develop and report quantities at submittal 60%, 90% and Final PS&E submittals. The estimate will be based on latest unit prices at the time of the estimate.
- B. **Retaining Walls.** All permanent retaining walls shall be mechanically stabilized earth retaining walls. The Engineer shall provide layouts, elevations, summary of quantities, typical cross sections and any structural details of the retaining walls within the project.
- C. **Specifications.** The Engineer shall identify necessary standard specifications, special specifications, special provisions and the appropriate reference items. The Engineer shall prepare General Notes for the project.

#### **PROJECT MANAGEMENT (Function Code 164)**

- A. **Project Management.** The purpose of this task is to provide the overall management of the contract including scheduling, invoicing, and progress reports. The progress report will list outstanding issues that need resolution as well as progress of the tasks and estimated completion dates for the work.

The Engineer will attend coordination and interim progress review meetings to be scheduled on an as needed basis. Meeting minutes will be prepared and distributed within five working days after the meeting.

- B. **Coordination/Meeting.** The Engineer will provide overall coordination with subconsultants and attend coordination with adjacent engineers as needed (2 per month over 8 months).

**BRIDGE DESIGN** (Function Code 170)

All bridge structures shall be designed for HL 93 loading.

The project includes the following three structures:

1. NB SH6 Frontage road over Ft. Bend Parkway Toll Road. This proposed structure shall be approximately 125' long and 38' wide, shall consist of one span and shall utilize prestressed concrete beams.
2. SB SH6 Frontage road over Ft. Bend Parkway Toll Road. This proposed structure shall be approximately 125' long and 38' wide, shall consist of one span and shall utilize prestressed concrete beams.
3. SB to NB Ft. Bend Parkway U-turn. This proposed structure shall be approximately 125' long and 26' wide, shall consist of a single span and shall utilize prestressed concrete beams.
4. NB to SB Ft. Bend Parkway U-turn. This proposed structure shall be approximately 125' long and 26' wide, shall consist of a single span and shall utilize prestressed concrete beams.

- A. **Bridge Layout.** The Engineer shall:

Prepare Bridge Layout plans and elevations for all bridge types listed below in accordance with the latest edition of the TxDOT's Bridge Design Manual, Bridge Project Development Manual, Bridge Detailing Manual, and AASHTO LRFD Bridge Design Specifications. Submit to the County for approval before proceeding to structural detail design. The Bridge layouts in Plan View shall contain the following information, where applicable:

1. Horizontal curve information or bearing of centerline/baseline, including horizontal, vertical and template information of all roadways or railroads crossed
2. Including horizontal, vertical and template information of all roadways or railroads crossed
3. Bearing of centerline or reference line
4. Skew angle(s)
5. Slope for header banks and approach fills
6. Control stations at beginning and ending of bridge (with deck elevation)
7. Approach pavement and crown width
8. Bridge roadway width and curbs, face of rail, shoulders or sidewalks
9. Approach slab and curb returns
10. Limits and type of riprap
11. Proposed features under structure
12. Location of profile grade line
13. North Arrow
14. Typical bridge roadway section including preliminary proposed beam types and spacings.
15. Cross slope and superelevation data

16. Minimum horizontal clearance
17. Location of soil core holes (station and offset)
18. Bent stations and bearings
19. Retaining wall locations
20. Traffic flow directional arrows
21. Railing types shown
22. Joint types and seal size, if used
23. Beam line numbers consistent with span details
24. Critical horizontal clearances (location of railroad tracks, nearby structures and utilities)

Bridge Layouts in Elevation View should contain the following:

1. Type of foundation
  2. Finished grade elevations at beginning and end of bridge
  3. Overall length of structure
  4. Length, type of spans and units
  5. Type of railing
  6. Minimum calculated vertical clearance(s)
  7. Existing and proposed ground lines clearly marked
  8. Grid elevations and stations
  9. Bent numbers encircled
  10. Standard Title
  11. Profile grade data
  12. Type of riprap
  13. Soil Core Hole information with penetrometer test data
  14. Fixed/expansion condition of all bents
  15. Number, size and length of foundations
- B. Bridge Design and Details.** The Engineer shall perform designs and prepare detail drawings in accordance with standard requirements of the County. All bridge design shall be in conformance with the latest edition of TxDOT's Bridge Design Manual, Bridge Project Development Manual, Bridge Detailing Manual, and AASHTO LRFD Bridge Design Specifications.
- C. Final Design Calculations and Details.** The Engineer shall make final design calculations and final detail drawings, per structure, in accordance with standard requirements of the County. All bridge design shall be in conformance with the latest edition of the TxDOT's Bridge Design Manual, Bridge Project Development Manual, Bridge Detailing Manual, and AASHTO LRFD Bridge Design Specifications. The Engineer's designer and checker shall both check all calculations and initial each page. The Engineer shall submit for review all structural design calculations and quantity calculations at the 90% submittal.

## **DELIVERABLES**

- A. Submittals.** The Engineer shall deliver each submittal in accordance with the milestones shown in the Work Schedule. The Engineer shall provide both original and processed data to the County on approved medium. Each data set shall be fully compatible with the computer system and program formats in use by the County at the time of submission, without further modification or conversion. The program formats used by Engineer: Microsoft Word for word processing; MicroStation V8 for graphics applications and Computer Aided Civil

Engineering (CAiCE), GEOPAK, and Survey Data Management System (SDMS) for survey data.

- B. PS&E Deliverables.** The Engineer shall develop all PS&E deliverable shall deliver five (5) copies of the 30%, 60%, and 95% project completion phase submittals to the FBTRA project manager unless otherwise directed. For the final 100% submittal, the Engineer shall submit one set in Mylar accompanied by ten (10) paper copies. In addition each submittal will include (1) copy of the plans in PDF format.

30% Submittal. Each 30% PS&E submittal shall include:

1. Title Sheet
2. Typical Sections (existing and proposed)
3. Project Control Layout Sheets
4. Topographic Design Survey
5. Traffic Control Plan- Conceptual
6. Utility Layout (conflicts identified)
7. Horizontal Alignment Data
8. Roadway Plan & Profile
9. Drainage Area Maps
10. Bridge Layouts (including bridge class structures)
11. Retaining Wall Plan Sheets
12. Preliminary Estimate
13. Preliminary Hydrologic and Hydraulic Report(s)
14. Design Exceptions/Waivers required
15. Preliminary Cross Sections

60% Submittal. Each 60% submittal shall include items submitted on previous submittal in addition to the following:

1. Index Sheet
2. Summary Sheets
3. Traffic Control Plan Sheets
4. Roadway Detail Sheets
5. Hydrologic Computation Sheets
6. Hydraulic Data Sheets Drainage Plan & Profile
7. Drainage Structure Details
8. Storm Sewer Details
9. Storm Water Pollution Prevention Plan
10. Temporary Construction Drainage
16. Intersection\Contour Layouts
11. Bridge Details
12. Retaining Walls Plan and Profile
13. Traffic Signals-Modifications
14. Miscellaneous Details
15. Corresponding Quantity Summary Sheets
16. Updated Estimate
17. Final Hydraulic Report
18. Additional Topographic Design Survey as Required
19. Updated Cross Sections

95% Submittal. For all practical purposes, the 95% submittal will be a 100% complete set of plans, in the opinion of the engineer, but will be plotted on paper instead of Mylars. Each 95% submittal shall include items submitted on previous submittals in addition to the following:

1. Final Index of Sheets
2. Summary Sheets
3. Pavement Marking Layout/Details
4. Signalization (existing and proposed)
5. Illumination
6. Traffic Management Items
7. Miscellaneous Details
8. Corresponding Quantity Summary Sheets
9. Corresponding Detail Sheets for all Items of Work in this submittal
10. Final Estimate
11. General Notes
12. Cross Sections

100% Submittal. The 100% submittal shall include:

1. PS&E Package 100% complete.
2. Construction Estimate in Excel format
3. General Notes (to include Environmental Permits, Issues and Commitments (EPIC) information)
4. Special Specifications, Special Provisions and applicable reference items to all items involved in the PS&E in Excel spreadsheet format
5. Final Cross Sections
6. Electronic files of the GPK file, all the sheets, and reference files.

The Engineer shall forward to FBTRA, upon completion two (2) sets of Compact Discs (CDs/DVDs) with all the files containing the information and layouts used to prepare the PS&E.

## Attachment B

## Compensation for Scope of Services

Contract/P.O. \_\_\_\_\_

CONTRACT SUMMARY	TOTAL COST	CONSULTANT CONTRACT PERCENTAGE
<b>FINAL DESIGN (PS&amp;E)</b>		
PB Americas, Inc.	\$ 769,027.66	61.0%
Associated Testing - Geotech	\$ 45,039.00	3.6%
Lina T. Ramey and Associates	\$ 109,667.00	8.7%
Lockwood, Andrews, Newman, Inc.	\$ 170,720.00	13.5%
PTI, Inc.	\$ 106,394.52	8.4%
TSC Engineering - Surveying	\$ 59,876.50	4.7%
<b>Sub-Total</b>	<b>\$ 1,260,724.68</b>	<b>100.0%</b>
<b>TOTAL CONTRACT</b>	<b>\$ 1,260,724.68</b>	

Estimate Construction  
 Final Design Services (PS&E) \$ 18,425,360.65  
 Comparison Fee v. Estimated Constructin Cost \$ 1,260,724.68  
 6.8%

**Attachment B**  
**Compensation for Scope of Services**

CONSULTANT: PB Americas, Inc.

FUNCTION CODE	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER/PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/CLERICAL	TOTAL HOURS	NO OF SHTS
FC-110 Route and Design Studies	0	2	11	22	0	12	0	0	47	
FC-130 Utility ROW	0	0	16	0	0	48	16	0	80	
FC-160 Roadway Design	3	28	74	241	0	425	214	0	985	40
FC-161 Drainage Study	0	14	94	152	180	0	80	4	524	
FC-161 Drainage Design	7	43	73	242	173	469	292	0	1,299	90
FC-161 Drainage Design - Pump Station (PB Part)	5	32	49	94	29	127	74	8	418	39
FC-162 SIGNING, MARKING & TRAFFIC	0	18	122	150	8	193	140	0	631	42
FC-163 Miscellaneous Roadway	1	10	20	0	12	8	24	6	81	
FC-164 Project Management	7	89	68	100	0	0	70	40	374	
FC-170 Bridge Design	8	30	212	872	0	724	500	0	2,346	94
SUBTOTAL	31	266	739	1,873	402	2,006	1,410	58	6,785	305
RAW LABOR/HOUR	\$68.60	\$60.00	\$52.00	\$45.61	\$36.82	\$25.75	\$34.00	\$17.00		
MULTIPLIER ( 2.965)	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40		
TOTAL LABOR	\$6,304.47	\$47,316.08	\$113,924.24	\$253,267.06	\$43,882.32	\$153,138.04	\$142,128.00	\$2,923.20	\$762,883.41	
DIRECT COST									\$6,144.25	
TOTAL INCLUDING DIRECT COST									\$769,027.66	

FUNCTION CODE 110	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER/PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Route and Design Studies											
Preliminary Cost Estimate		1	4	8					13	LS	0
FEMA/Corp/Others - Review Flood Plain Data & Studies		1	5	2					8	LS	0
Field Reconnaissance & Photographic Record			2	12		12			26	LS	0
SUBTOTAL		2	11	22		12			47		
Percents Distribution	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
LABOR RATE / HOUR	\$0.00	\$355.76	\$1,695.76	\$2,974.84	\$0.00	\$916.08	\$0.00	\$0.00	\$5,942.44		
TOTAL LABOR COST											

**Attachment B  
Compensation for Scope of Services**

Contract/P.O. \_\_\_\_\_

FUNCTION CODE 130	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
UTILITY /ROW											
ROW MAP			8			24	8		40	LS	0
Utility Coordination			8			24	8		40	LS	
<b>SUBTOTAL</b>			16			48	16		80		
LABOR RATE / HOUR	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
TOTAL LABOR COST	\$0.00	\$0.00	\$2,466.56	\$0.00	\$0.00	\$3,664.32	\$1,612.80	\$0.00	\$7,743.68		

**Attachment B**  
**Compensation for Scope of Services**

FUNCTION CODE 160	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Roadway Design											
Title Sheet			1	4			8		13	1	13
Detailed Index of Sheets (4 Submittals)		1		4		12			17	1	17
Quantity Summary		2	2	4		14	6		28	1	28
Typical Sections (Existing & Proposed) (1 Existing & 3 Proposed)	1	6	12	20		36	24		99	4	25
Project Layout - Survey Control		1	4				8		13	2	7
Geometric Data Summary				2		6	4		12	1	12
Schematic Refinement		2		24		18	12		56	LS	0
Plan & Profiles											
SH 6 Mainlanes	1	4	24	56		80	56		221	8	28
EB SH 6 Frige		1	2	16		24	12		55	2	28
WB SH 6 Frige		1	2	16		24	12		55	2	28
Uturn at Hwy 6-South		1	2	10		16	6		35	1	35
Knight Access Road		2	4	12		16	10		44	2	22
Intersections											
SH 6 AT FT. BEND TOLLWAY	1	2	6	20		32	14		75	2	38
Miscellaneous Roadway Details		2	4	12		16	10		44	2	22
Roadway Standards			1	3		3	2		9	10	1
Removal Layouts		2	2	6		8	6		24	1	24
Cross Sections (1"=40' H, 1"=10V/120 Sections @ 100' Intervals)		1	8	32		120	24		185	LS	0
<b>SUBTOTAL</b>	3	28	74	241		425	214		985	40	
<b>LABOR RATE / HOUR</b>	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$610.11	\$4,980.64	\$11,407.84	\$32,588.02	\$0.00	\$32,444.50	\$21,571.20	\$0.00	\$103,602.31		

**Attachment B**  
**Compensation for Scope of Services**

FUNCTION CODE 161	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
<b>Drainage Study</b>											
<b>Drainage Study</b>											
Data collection & review			4	4					8	LS	
Field investigation			4	8	4			8	26	LS	
Previous studies, models, maps, gis, lidar, aerials, etc.		2									
Existing Condition Analysis											
Drainage area delineation			4	8	12				32	LS	
Drainage area parameters: tc, impervious			2	4	4			6	16	LS	
Runoff computations & hydrographs			2	8	16				26	LS	
Existing storage volume computation				2	4			4	10	LS	
Existing routing analysis - allowable flow			4	12	22			4	42	LS	
Proposed Condition Analysis											
Drainage area delineation			4	8	12			8	32	LS	
Drainage area parameters: tc, impervious			2	4	4			6	16	LS	
Runoff computations & hydrographs			2	8	16				26	LS	
Receiving outfall ditch modeling				4	8				12	LS	
Proposed routing analysis			4	12	22			4	42	LS	
Mitigation Analysis											
Proposed detention basin configurations			2	4	4			8	18	LS	
Roadside ditch routing			2	4	8			4	18	LS	
Detention basin routing: multiple scenarios		2	8	16	24			4	54	LS	
Cost estimate of scenarios			2	6					8	LS	
Finalization of recommended scenario		2	6	12	4			4	28	LS	
Drainage Report - draft/final text, exhibits, appendices		8	40	20	12			8	92	LS	
Hydraulic structures - outfall ditch armoring, cross-culverts			2	8	4			4	18	LS	
<b>SUBTOTAL</b>		14	94	152	180		80	4	524		
<b>LABOR RATE / HOUR</b>	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$0.00	\$2,490.32	\$14,491.04	\$20,553.44	\$19,648.80	\$0.00	\$8,064.00	\$201.60	\$65,449.20		

**Attachment B**  
**Compensation for Scope of Services**

FUNCTION CODE 161	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
<b>Drainage Design</b>										40	
<b>Storm Sewer Design</b>											
Summary of Storm Sewer, Pond, Temporary Drainage Quantities			2	8		16	8		34	1	34
Overall Drainage Area Map		1	2	8		24	8		43	1	43
General Drainage Area Map		1	2	8		24	8		43	1	43
Drainage Area Maps	4	6	13	40	13	54	32		162	8	20
Hydraulic Computations ( 2 sys * 60+ 1 sys * 80-200)	1	8	16	50	16	80	40		211	1	211
Plan and Profile	2	24	32	96	124	232	160		670	24	28
Laterals (7700/300=25 laterals - 15/sheet = 2+1=3)		1	4	24	12	28	18		87	3	29
Miscellaneous Drainage Details		1	2	8	2	11	6		30	1	30
Standard Details		1			6		12		19	10	2
<b>SUBTOTAL</b>	7	43	73	242	173	469	292		1,299	90	
<b>LABOR RATE / HOUR</b>	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$1,423.59	\$7,648.84	\$11,253.68	\$32,723.24	\$18,884.68	\$35,803.46	\$29,433.60	\$0.00	\$137,171.09		

FUNCTION CODE 161	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
<b>Drainage Design - Pump Station (PB Part)</b>											
<b>Pump Station Design</b>											
Pump Station Computations		1	2	8	2				13	1	13
Pump Station Layout and Points	1	2	8	24	24	44	26		129	1	129
Site Plan & Profile Outfall		1	3	8	3	11	6		32	1	32
Control / Generator Bldg Plan/Site Layout	1	2	6	18		24	14		65	8	8
Control / Generator Bldg Elevation Layout	1	24	6	18		24	14		87	1	87
Control / Generator Bldg Foundation Plan	1	2	12	18		24	14		71	24	3
Pump Station Reports	1		12					8	21	3	7
<b>SUBTOTAL</b>	5	32	49	94	29	127	74	8	418	39	
<b>LABOR RATE / HOUR</b>	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$1,016.85	\$5,692.16	\$7,553.84	\$12,710.68	\$3,165.64	\$9,695.18	\$7,459.20	\$403.20	\$47,696.75		

**Attachment B**  
**Compensation for Scope of Services**

FUNCTION CODE 162	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
<b>SIGNING, MARKING &amp; TRAFFIC</b>											
Signalization											
Signal SH6 WB at FBTR NB (modify existing)		1	2	6		12	4		25	1	25
Signal SH6 WB at FBTR SB (modify existing)		1	2	6		12	4		25	1	25
Signal SH6 EB at FBTR NB (modify existing)		1	2	6		12	4		25	1	25
Signal SH6 EB at FBTR SB (modify existing)		1	2	6		12	4		25	1	25
Temporary Signals during construction (for TCP)		1	8	24			12		45	2	23
Traffic Signal Quantities Summary		1	1	4		6	4		16	1	16
Traffic Signal Notes and Legend			1			6	4		11	1	11
Standards				2			4		6	10	1
<b>Illumination</b>											
Plan, Lighting [855-787 =6,800' for 100-sc. @1100/sh. = 7(rnd.)x1 =8 sh.]		8	16	52		72	56		204	8	26
Plan, ramps [836-819 =1,700' for 100-sc. @1100/sh. = 2 sh. ]		1	74	15		20	12		122	2	61
Underpass lighting at SH6 [822-814 =800' for 50-sc. @550/sh. = 2 sh. ]		2	7	21		28	17		75	2	38
Electrical Service Summary		1	3	8		13	7		32	1	32
Illumination Quantities Summary			2		8				10	1	10
Standards (not included in sheet totals)			2				8		10	10	1
<b>SUBTOTAL</b>	\$203.37	18	122	150	8	193	140		631	42	
<b>LABOR RATE / HOUR</b>	\$177.88	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$0.00	\$3,201.84	\$18,807.52	\$20,283.00	\$873.28	\$14,733.62	\$14,112.00	\$0.00	\$72,011.26		

FUNCTION CODE '63	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Miscellaneous Roadway											
PS & E Submittal											
General Notes & Specifications	1	4	16					2	23	LS	0
Estimate Summary(30%, 60%, 90%, Final		2	4			8		2	16	LS	0
PS&E Preparation (30, 60, 90, Final)		4			12		24	2	42	LS	0
<b>SUBTOTAL</b>	1	10	20		12	8	24	6	81		
<b>LABOR RATE / HOUR</b>	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$203.37	\$1,778.80	\$3,083.20	\$0.00	\$1,309.92	\$610.72	\$2,419.20	\$302.40	\$9,707.61		

FUNCTION CODE 164	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER/PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Project Management Meetings											
Kick Off Meeting	2	6	6								
30% Completion Meeting	1	4	4				4	2	20		
60% Completion Meeting	1	4	4					6	15		
95% Completion Meeting	2	6	6					2	11		
100% Completion Meeting (MyJar)	1	8	8					2	16		
Meeting Notes/Action Item List (9 Months)		16	24					2	19		
Monthly Progress Reporting/Invoices (9 Months)		12						9	49		
Coordination with SubConsultants (12 Months)								8	20		
Associated Testing Labs (Geotech) ( 2 Migs x 2 Hrs xt 2 person)		1		4			2	1	8		
Lina T. Ramsey & Associates ( 12 Migs x 2 Hrs xt 2 person)		8		24			24	2	58		
Lockwood Andrews & Newman ( 4 Migs x 2 Hrs xt 2 person)		8	16	32			12	2	70		
Polytech, Inc. ( 12 Migs x 2 Hrs xt 2 person)		8		24			24	2	58		
TSC Engineering (Survey) ( 3 Migs x 2 Hrs xt 2 person)		4		12			4	2	22		
Coordination Meetings with Adjacent Engineer (Brown&Gay)		4		4					8		
<b>SUBTOTAL</b>	7	89	68	100			70	40	374		
<b>LABOR RATE / HOUR</b>	\$203.37	\$177.88	\$154.16	\$135.22	\$109.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$1,423.59	\$15,831.32	\$10,482.88	\$13,522.00	\$0.00	\$0.00	\$7,056.00	\$2,016.00	\$50,331.79		

**Attachment B**  
**Compensation for Scope of Services**

FUNCTION CODE 170	SENIOR PROJECT MANAGER	PROJECT MANAGER/PLANNER	SENIOR ENGINEER / PLANNER	PROJECT ENGINEER	DESIGN ENGINEER	EIT	CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
<b>Bridge Design</b>											
<b>Northbound Frtge Rd Bridge</b>											
Bridge Layout	2	1	4	24			8	8	47	1	47
Quantity Summary/Bearing Seat Elevations		1	4	24			8	8	45	1	45
Soil Boring Sheets							4	4	8	1	8
Foundation Layout			4				12	8	24	1	24
Foundation Details			4				12	8	24	1	24
Abutment 1 (Plan & Elevation)		1	8	18			16	8	51	1	51
Abutment 2 (Plan & Elevation)		1	8	18			16	8	51	1	51
Abutment 1 & 2 Details		1	8	18			16	8	51	1	51
Concrete Slab plan			8	16			12	6	42	1	42
Concrete Framing plans			4	16			8	6	34	1	34
Slab Details/Typical section			4	16			8	6	34	1	34
Concrete Beam Design (U-Beams)		1	8	18			16	10	53	1	53
MSE Walls At Abutment		1	8	16			16	10	51	1	51
Standard sheets			2					8	10	10	1
<b>Southbound Frtge Rd Bridge</b>											
Bridge Layout	2	1	4	24			8	8	47	1	47
Quantity Summary/Bearing Seat Elevations		1	4	24			8	8	45	1	45
Soil Boring Sheets							4	4	8	1	8
Foundation Layout			4				12	8	24	1	24
Foundation Details			4				12	8	24	1	24
Abutment 1 (Plan & Elevation)		1	8	18			16	8	51	1	51
Abutment 2 (Plan & Elevation)		1	8	18			16	8	51	1	51
Abutment 1 & 2 Details		1	8	18			16	8	51	1	51
Concrete Slab plan			8	16			12	6	42	1	42
Concrete Framing plans			4	16			8	6	34	1	34
Slab Details/Typical section			4	16			8	6	34	1	34
Concrete Beam Design (U-Beams)		1	8	18			16	10	53	1	53
MSE Walls At Abutment		1	8	16			16	10	51	1	51
Standard sheets			2					8	10	10	1
<b>Northbound Turnaround Bridge</b>											
Bridge Layout	2	1	4	16			20	10	53	1	53
Quantity Summary/Bearing Seat Elevations		1	2	14			12	8	37	1	37
Soil Boring Sheets			2				2	4	8	1	8
Foundation Layout			2	16			12	8	38	1	38
Foundation Details			2	16			12	8	38	1	38
Abutment 1 (Plan & Elevation)		1	2	30			24	18	75	1	75
Abutment 2 (Plan & Elevation)		1	2	20			16	10	49	1	49
Abutment 1 & 2 Details		1	2	20			16	10	49	1	49
Concrete Slab plan		1	2	30			24	18	75	1	75
Concrete Framing plans			2	20			16	10	48	1	48
Slab Details/Typical section			2	20			16	10	48	1	48
Concrete Beam Design (U-Beams)		1	2	20			16	10	49	1	49
MSE Walls At Abutment		1	2	20			16	10	49	1	49
Standard sheets			2					8	10	10	1
<b>Southbound Turnaround Bridge</b>											
Bridge Layout	2	1	4	16			20	10	53	1	53
Quantity Summary/Bearing Seat Elevations		1	2	14			12	8	37	1	37
Soil Boring Sheets			2				2	4	8	1	8
Foundation Layout			2	16			12	8	38	1	38
Foundation Details			2	16			12	8	38	1	38

**Attachment B  
Compensation for Scope of Services**

Contract/P.O. \_\_\_\_\_

Abutment 1 (Plan & Elevation)		1	2	20		16	10		49	1	49
Abutment 2 (Plan & Elevation)		1	4	40		32	20		97	2	49
Abutment 1 & 2 Details		1	2	20		16	10		49	1	49
Concrete Slab plan		1	4	40		32	20		97	2	49
Concrete Framing plans			2	20		16	10		48	1	48
Slab Details/Typical section			2	20		16	10		48	1	48
Concrete Beam Design (U-Beams)		1	2	20		16	10		49	1	49
MSE Walls At Abutment		1	2	20		16	10		49	1	49
Standard sheets			2				8		10	10	1
<b>SUBTOTAL</b>	8	30	212	872		724	500		2,346	94	
<b>LABOR RATE / HOUR</b>	\$203.37	\$177.88	\$154.16	\$135.22	\$105.16	\$76.34	\$100.80	\$50.40			
<b>TOTAL LABOR COST</b>	\$1,626.96	\$5,336.40	\$32,681.92	\$117,911.84	\$0.00	\$55,270.16	\$50,400.00	\$0.00	\$263,227.28		

DIRECT EXPENSES	UNIT	COST PER UNIT	NUMBER OF UNITS	TOTAL DIRECT COST
CADD Plotting (Rolls)	SF	\$1.75		\$0.00
Mylar Plots	LF	\$2.00		\$0.00
11 X17 Mylar	SHEET	\$2.00	478	\$956.00
8 1/2 X11 B/W Paper Copies	SHEET	\$0.10		\$0.00
11X17 B/W Paper Copies	SHEET	\$0.15	8,280	\$1,242.00
8 1/2 X11 Color Paper Copies	SHEET	\$0.50	550	\$275.00
11X17 Color Paper Copies	SHEET	\$1.00	90	\$90.00
Binders (3 Ring)	EACH	\$5.00	10	\$50.00
Standard Postage	EACH	\$0.45	25	\$11.25
Overnight express-letter size	EACH	\$25.00		\$0.00
Overnight express-oversized box	EACH	\$35.00		\$0.00
Local Deliveries/Courier	EACH	\$25.00	8	\$200.00
Mileage	MILE	\$0.51	500	\$255.00
Parking	DAY	\$10.00	5	\$50.00
Public Involvement Facility Rental (if Necessary)	EVENT	\$750.00	4	\$3,000.00
Reproduction of CD/DVD	each CD/DVD	\$1.00	15	\$15.00
<b>TOTAL DIRECT COST</b>				\$6,144.25

**Attachment B**  
**Compensation for Scope of Services**

CONSULTANT: Associated Testing Labs

FUNCTION CODE 110		UNIT FEE	UNIT MEASURE	ESTIMATED QUANTITY	ESTIMATED TOTAL
<b>Route Study / Data Collection</b>					
<b>Field Work</b>					
Mobilization/Demobilization		\$300	LS	1	\$300.00
Geotechnical Drilling					
Continuous		\$18	FT	200	\$3,600.00
Intermittent		\$16	FT	360	\$5,760.00
Technician for utility markings, field work, piezometer monitoring		\$50	HR	60	\$3,000.00
Piezometer		\$14	FT	90	\$1,260.00
Piezometer Abandonment		\$11	FT	90	\$990.00
Grouting		\$5	FT	470	\$2,350.00
<b>Sub-total</b>					<b>\$17,260.00</b>
<b>LABORATORY TESTING</b>					
Moisture Content		\$8	EA	118	\$944.00
Dry Density and Moisture		\$19	EA	54	\$1,026.00
Atterberg Limits		\$53	EA	54	\$2,862.00
Unconfined Compression		\$39	EA	27	\$1,053.00
Percent Passing #200 Sieve		\$41	EA	40	\$1,640.00
Unconsolidated Undrained Triaxial		\$54	EA	27	\$1,458.00
Multi-Staged Consolidated Undrained Triaxial		\$500	EA	6	\$3,000.00
<b>Sub-total</b>					<b>\$11,983.00</b>
<b>ENGINEERING</b>					
PRINCIPAL ENGINEER, P.E.		\$167.00	HR	8	\$1,336.00
PROJECT ENGINEER, P.E.		\$123.00	HR	60	\$7,380.00
CIVIL ENGINEER, P.E.		\$82.00	HR	60	\$4,920.00
WORD PROCESSING & DRAFTING		\$36.00	HR	60	\$2,160.00
<b>Sub-total</b>					<b>\$15,796.00</b>
<b>TOTAL COST</b>					<b>\$45,039.00</b>

**Attachment B**  
**Compensation for Scope of Services**

CONSULTANT: LAN

FUNCTION CODE	Principal P	Sr. Project Manager PM	Sr. Specialty Engineer SPE	Design Engineer PE	Graduate Engineer	Designer D	Administrator A	Secretary S	TOTAL HOURS	NO OF SHTS
FC-161 PUMP STATION - Structures Below Surface/Mech/Elect	12	118	262	371	174	308	40	4	1,289	120
<b>SUBTOTAL</b>	12	118	262	371	174	308	40	4	1,289	120
RAW LABOR/HOUR	\$200.00	\$185.00	\$170.00	\$140.00	\$95.00	\$95.00	\$90.00	\$60.00	\$170,340.00	
TOTAL LABOR	\$2,400.00	\$21,830.00	\$44,540.00	\$51,940.00	\$16,530.00	\$29,260.00	\$3,600.00	\$240.00	\$380.00	
DIRECT COST										
<b>TOTAL INCLUDING DIRECT COST</b>									\$170,720.00	

FUNCTION CODE 161	Principal P	Sr. Project Manager PM	Sr. Specialty Engineer SPE	Design Engineer PE	Graduate Engineer	Designer D	Administrator A	Secretary S	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
<b>PUMP STATION - Structures Below Surface/Mech/Elect</b>											
Pump Station Design											
Task 1.0 Field Examinations, Verification of Data & Drainage Analysis									0	1	0
Meetings with client and prime consultant		8	8	8					24	1	24
Collect and review existing information			8	8	16				32	1	32
Site visit (2 total)			8	8					16	1	16
<b>Task 2.0 Alternatives, Recommendations &amp; Preliminary Design Report</b>											
Develop limited alternatives and options		12	16	16					44	LS	0
Review alternative and options with client and prime consultant		8	8						16	LS	0
Prepare preliminary design report	2	6	18	20	20	20		4	90	LS	0
Meetings with client and prime consultant	2	8	8						18	LS	0
<b>Task 3.0 Preparation Plans, Specifications, Estimate</b>											
Prepare preliminary plans and specifications (30%)											
Area Plan (coordination) (by PB)		2		8					10	LS	0
Site Plan (coordination) (by PB)		2		8					10	LS	0
Prepare preliminary plans and specifications (60%)											
Hydraulic Data and Design Sheet (by PB)											
Area Plan (coordination)		4		8					12	1	12
Site Plan (coordination)		4		8					12	1	12
Wet Well & Piping Layout				1		2			3	1	3
Wet Well Plan View				1		2			3	1	3
Wet Well Section(s)				1		2			3	1	3
Wet Well Detail Sheet				1		2			3	1	3
Wet Well Steel Details				1		2			3	1	3
Wet Well Equipment Layout Sheet				1		2			3	1	3
Trash Rack Plan and Details				1		2			3	1	3
Trash Rack Access Door Details				1		2			3	1	3
Bar Screen Details				1		2			3	1	3
Pump Column Detail(s)				1		2			3	1	3
Walkway Detail(s)				1		2			3	1	3
Sludge Pump Details				1		2			3	1	3
Misc. Detail(s)			2	4		4			10	1	10
Structural Wet Well Plan			4	4		4			12	1	12
Structural Wet Well X-Section(s)			2	4		4			10	1	10
Structural Detail			4	4		4			12	1	12
Station Conduit & Access Door Layout				2		4			6	1	6

Elec. Site Plan																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</
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**Attachment B**  
**Compensation for Scope of Services**

CONSULTANT: LTRA

FUNCTION CODE	PROJECT MANAGER	SENIOR ENGINEER	DESIGN ENGINEER	EIT	SENIOR TECH	CADD OPERATOR	CLERICAL	TOTAL HOURS	NO OF SHTS
FC-161 Route Study / Data Collection	6	16	20	0	8	0	2	52	15
FC-162 Signing, Pavement Markings & Traffic	6	25	78	120	28	120	0	375	10
FC-163 Miscellaneous Roadway	4	28	56	32	8	91	0	219	287
FC-164 Project Management	61	96	52	0	0	36	42		
<b>SUBTOTAL</b>	77	165	204	152	44	247	44	881	25
<b>CONTRACT LABOR RATE</b>	\$180.00	\$165.00	\$126.00	\$90.00	\$108.00	\$84.00	\$72.00	\$109,137.00	
<b>TOTAL LABOR</b>	\$13,860.00	\$27,225.00	\$25,704.00	\$13,680.00	\$4,752.00	\$20,748.00	\$3,168.00	\$530.00	
<b>DIRECT COST</b>									
<b>TOTAL INCLUDING DIRECT COST</b>								\$109,667.00	

FUNCTION CODE 110	PROJECT MANAGER	SENIOR ENGINEER	DESIGN ENGINEER	EIT	SENIOR TECH	CADD OPERATOR	CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Route Study / Data Collection	1	2	8		8			19	15	
Data Collection (as-builts, electronic files, project setup, etc)		8	8					16	15	
Field Reconnaissance / Ground Photos	4	4					2	10	15	
Kick-off meeting	1	2	4					7	15	
Design Criteria										
<b>SUBTOTAL</b>	6	16	20		8		2	52		
<b>LABOR RATE / HOUR</b>	\$180.00	\$165.00	\$126.00	\$90.00	\$108.00	\$84.00	\$72.00	\$7,248.00		
<b>TOTAL LABOR COST</b>	\$1,080.00	\$2,640.00	\$2,520.00	\$0.00	\$864.00	\$0.00	\$144.00			

FUNCTION CODE 162	PROJECT MANAGER	SENIOR ENGINEER	DESIGN ENGINEER	EIT	SENIOR TECH	CADD OPERATOR	CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Signing, Pavement Markings & Traffic	4	16	28	56	28	56		188	7	27
Signing & Pavement Marking Layouts (7 sheets)			4	8	8	8		20	1	20
Summary of Small Signs			4	8		8		20	1	20
Sign Removal Summary			4	8	8			20	1	20
Summary of Pavement Markings & Delineators			4	16		16		52	2	26
Prepare Large Sign Layouts (2 OSB)	2	4	16	16		16		54	2	27
Prepare Large Sign Details (Elevation)		1	4	8		8		21	1	21
Prepare Large Sign Summary Table										
<b>SUBTOTAL</b>	6	25	76	120	28	120		375	15	
<b>LABOR RATE / HOUR</b>	\$180.00	\$165.00	\$126.00	\$90.00	\$108.00	\$84.00	\$72.00	\$38,685.00		
<b>TOTAL LABOR COST</b>	\$1,080.00	\$4,125.00	\$9,576.00	\$10,800.00	\$3,024.00	\$10,080.00	\$0.00			

**Attachment B**  
**Compensation for Scope of Services**

FUNCTION CODE 163	PROJECT MANAGER	SENIOR ENGINEER	DESIGN ENGINEER	EIT	SENIOR TECH	CADD OPERATOR	CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Miscellaneous Roadway										
Retaining Walls										
Prepare Retaining Wall Layouts (2 MSE walls, 8 sheets)	2	16	40	24		64		146	4	37
Temporary Shoring (2 walls, 1300' each)	2	8	16		8	24		58	4	15
Quantity Summary		4		8		3		15	2	8
<b>SUBTOTAL</b>	4	28	56	32	8	91		219	10	
<b>LABOR RATE / HOUR</b>	\$180.00	\$165.00	\$126.00	\$90.00	\$108.00	\$84.00	\$72.00			
<b>TOTAL LABOR COST</b>	\$720.00	\$4,620.00	\$7,056.00	\$2,880.00	\$864.00	\$7,644.00	\$0.00	\$23,784.00		

FUNCTION CODE 164	PROJECT MANAGER	SENIOR ENGINEER PLANNER	DESIGN ENGINEER PLANNER	EIT	SENIOR TECH	CADD OPERATOR	CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Project Management										
Assemble Applicable Standards		1	4			4		9	LS	0
Const Cost Estimate, Basis of Estimate	1	2	4					7	LS	0
General Notes & Specifications	2	8						10	LS	0
Milestone Submittals								0	LS	0
30% plan review / submittal	2	4	8			4		18	LS	0
Disposition and implement review comments	1	4	4			4		13	LS	0
60% plan review / submittal	2	4	8			4		18	LS	0
Disposition and implement review comments	1	8	4			4		17	LS	0
95% plan review / submittal	2	4	8			4		18	LS	0
Disposition and implement review comments	1	8	4			4		17	LS	0
Final PS&E Submittal / Mylars	4	8	8			8		28	LS	0
								0	LS	0
Coordination / Correspondence	18	18					12	48	LS	0
Meetings (monthly -3)	18	18					18	54	LS	0
Monthly Invoicing / Progress Report	9	9					12	30	LS	0
<b>SUBTOTAL</b>	61	96	52			36	42	287		
<b>LABOR RATE / HOUR</b>	\$180.00	\$165.00	\$126.00	\$90.00	\$108.00	\$84.00	\$72.00			
<b>TOTAL LABOR COST</b>	\$10,980.00	\$15,840.00	\$6,552.00	\$0.00	\$0.00	\$3,024.00	\$3,024.00	\$39,420.00		

**Attachment B**  
**Compensation for Scope of Services**

CONSULTANT: PolyTech, Inc.

FUNCTION CODE	PROJECT PRINCIPAL	PROJECT MANAGER	SENIOR ENGINEER	CIVIL ENGINEER	CAD / DESIGNER	ADMIN/ CLERICAL	TOTAL HOURS	NO OF SHTS
FC-161 Drainage Design	14	56	68	216	184	0	538	20
FC-163 SIGNING, MARKING & TRAFFIC	4	16	32	80	128	0	260	8
FC-164 Project Management	7	56	86	0	0	20	169	
SUBTOTAL	25	128	186	296	312	20	967	28
Personnel Classification %	3%	13%	19%	31%	32%	2%		
CONTRACT LABOR RATE	\$178.50	\$174.75	\$116.85	\$111.63	\$75.12	\$67.50		
TOTAL LABOR	\$4,462.50	\$22,368.00	\$21,734.10	\$33,042.48	\$23,437.44	\$1,350.00	\$106,394.52	
DIRECT COST								
TOTAL INCLUDING DIRECT COST							\$106,394.52	

FUNCTION CODE 161	PROJECT PRINCIPAL	PROJECT MANAGER	SENIOR ENGINEER	CIVIL ENGINEER	CAD / DESIGNER	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
<b>Drainage Design</b>									
<b>A-Drainage Design</b>									
Overall Drainage Area Map, Scale 1" = 200 ft	0.5	4.0	4.0	12.0	12.0		32.5	1	33
Drainage Area "A" Scale 1" = 100 ft	0.5	4.0	4.0	12.0	12.0		32.5	1	33
Drainage Area "B" Scale 1" = 100 ft	0.5	4.0	4.0	12.0	12.0		32.5	1	33
Drainage Area "C" Scale 1" = 100 ft	0.5	4.0	4.0	12.0	12.0		32.5	1	33
Drainage Area "D" Scale 1" = 100 ft	0.5	4.0	4.0	12.0	12.0		32.5	1	33
Drainage Calculation - Sheet 1 of 4	1.0	2.0	4.0	10.0	4.0		21.0	1	21
Drainage Calculation - Sheet 2 of 4	1.0	2.0	4.0	10.0	4.0		21.0	1	21
Drainage Calculation - Sheet 3 of 4	1.0	2.0	4.0	10.0	4.0		21.0	1	21
Drainage Calculation - Sheet 4 of 4	1.0	2.0	4.0	10.0	4.0		21.0	1	21
<b>B-Deflection Pond</b>									
Site Plan and Calculation	2.0	8.0	8.0	32.0	24.0		74.0	1	74
Detention Pond Sections & Details	1.0	4.0	8.0	24.0	24.0		61.0	1	61
<b>D-Temporary Drainage</b>									
Plan and Piping Layout Sheet 1 of 2	0.5	2.0	2.0	8.0	8.0		20.5	1	21
Plan and Piping Layout Sheet 2 of 2	0.5	2.0	2.0	8.0	8.0		20.5	1	21
Details	0.5	2.0	2.0	4.0	4.0		12.5	1	13
<b>E-SWPPP</b>									
SWPPP Plan Sheet 1 of 4	1.0	2.0	2.0	8.0	8.0		0.0	1	0
SWPPP Plan Sheet 2 of 4	0.5	2.0	2.0	8.0	8.0		21.0	1	21
SWPPP Plan Sheet 3 of 4	0.5	2.0	2.0	8.0	8.0		20.5	1	21
SWPPP Plan Sheet 4 of 4	0.5	2.0	2.0	8.0	8.0		20.5	1	21
SWPPP Details	0.5	2.0	2.0	8.0	8.0		20.5	1	21
SUBTOTAL	14.0	56.0	68.0	216.0	184.0	0.0	538.0	20	
LABOR RATE / HOUR	\$178.50	\$174.75	\$116.85	\$111.63	\$75.12	\$67.50			
TOTAL LABOR COST	\$2,499.00	\$9,786.00	\$7,945.80	\$24,112.08	\$13,822.08	\$0.00	\$58,164.96		

**Attachment B**  
**Compensation for Scope of Services**

FUNCTION CODE 162	PROJECT PRINCIPAL	PROJECT MANAGER	SENIOR ENGINEER	CIVIL ENGINEER	CAD / DESIGNER	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
SIGNING, MARKING & TRAFFIC									
C-Traffic C									
TCP Sta 772+00 to Sta 792+00	0.5	2.0	4.0	10.0	16.0		32.5	1	33
TCP Sta 792+00 to Sta 812+00	0.5	2.0	4.0	10.0	16.0		32.5	1	33
TCP Sta 812+00 to SH 6	0.5	2.0	4.0	10.0	16.0		32.5	1	33
TCP Trammel Fresno Road Phase 1	0.5	2.0	4.0	10.0	16.0		32.5	1	33
TCP Trammel Fresno Road Phase 2	0.5	2.0	4.0	10.0	16.0		32.5	1	33
TCP SH 6 Phase 1	0.5	2.0	4.0	10.0	16.0		32.5	1	33
TCP SH 6 Phase 1	0.5	2.0	4.0	10.0	16.0		32.5	1	33
TCP Standard Barricade Details	0.5	2.0	4.0	10.0	16.0		32.5	1	33
<b>SUBTOTAL</b>	<b>4</b>	<b>16</b>	<b>32</b>	<b>80</b>	<b>128</b>		<b>260</b>	<b>8</b>	
<b>LABOR RATE / HOUR</b>	<b>\$178.50</b>	<b>\$174.75</b>	<b>\$116.85</b>	<b>\$111.63</b>	<b>\$75.12</b>	<b>\$67.50</b>			
<b>TOTAL LABOR COST</b>	<b>\$714.00</b>	<b>\$2,796.00</b>	<b>\$3,739.20</b>	<b>\$8,930.40</b>	<b>\$9,615.36</b>	<b>\$0.00</b>	<b>\$25,794.96</b>		

FUNCTION CODE 164	PROJECT PRINCIPAL	PROJECT MANAGER	SENIOR ENGINEER	CIVIL ENGINEER	CAD / DESIGNER	ADMIN/ CLERICAL	TOTAL HOURS	TOTAL SHEETS	HRS PER SHEET
Project Management									
Project Management	4	10	10				24		
Quality Control QA/QC	0	10	24	0	0	0	34	LS	0
Specification	2	8	16			12	38	LS	0
Cost Estimate	1	4	12			8	25	LS	0
Meetings with PB	0	16	16				32	LS	0
Meetings with FBTRA	0	8	8				16	LS	0
<b>SUBTOTAL</b>	<b>7</b>	<b>56</b>	<b>86</b>			<b>20</b>	<b>169</b>		
<b>LABOR RATE / HOUR</b>	<b>\$178.50</b>	<b>\$174.75</b>	<b>\$116.85</b>	<b>\$111.63</b>	<b>\$75.12</b>	<b>\$67.50</b>			
<b>TOTAL LABOR COST</b>	<b>\$1,249.50</b>	<b>\$9,786.00</b>	<b>\$10,049.10</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,350.00</b>	<b>\$22,434.60</b>		

**Attachment B  
Compensation for Scope of Services**

Contract/P.O. \_\_\_\_\_

CONSULTANT: TSC (Survey)

FUNCTION CODE	PROJECT MANAGER (RPLS)	SURVEY TECHNICIAN	CADD OPERATOR	4-PERSON SURVEY CREW	3-PERSON SURVEY CREW	2-PERSON SURVEY CREW	FLAGGER	ADMIN/ CLERICAL	TOTAL HOURS
FC-150 FIELD SURVEYING	60	70	160	0	212	0	0	13	515
<b>SUBTOTAL</b>	60	70	160		212			13	515
CONTRACT RATE PER HOUR	\$133.00	\$85.00	\$75.00	\$161.00	\$138.00	\$102.00	\$102.00	\$47.00	\$55,797.00
TOTAL LABOR	\$7,980.00	\$5,950.00	\$12,000.00	\$0.00	\$29,256.00	\$0.00	\$0.00	\$611.00	\$55,797.00
<b>DIRECT COST</b>									\$4,079.50
<b>TOTAL INCLUDING DIRECT COST</b>									\$59,876.50

FUNCTION CODE 150	PROJECT MANAGER (RPLS)	SURVEY TECHNICIAN	CADD OPERATOR	4-PERSON SURVEY CREW	3-PERSON SURVEY CREW	2-PERSON SURVEY CREW	FLAGGER	ADMIN/ CLERICAL	TOTAL HOURS
<b>FIELD SURVEYING</b>									
A. Project Setup	3	0	0	0	0	0	0	3	6
B. Secure Right-of-Entry (By Others)	0	0	0	0	0	0	0	0	0
C. Control Survey									
C-1 GPS Static Survey for Establishing Elevation Datum	2	2	0	0	8	0	0	0	12
C-2 Establish or Recover & Verify Position of Existing Horizontal Control Points Furnished.	3	6	0	0	16	0	0	1	26
C-3 Level Loops to Establish Elevations or Verify Elevations on Existing Control Points Furnished	2	4	0	0	8	0	0	1	15
C-4 Prepare Survey Control Map	2	0	24	0	0	0	0	1	27
D. Topographic Survey - Locate Visible Existing Physical Features	6	20	0	0	80	0	0	1	107
E. Cross Section - Ft Bend Toll Way Extension	4	12	0	0	40	0	0	0	56
F. Utilities - Contact Dig Test and Locate Tone Marks, Locate Visible Utilities.	4	12	0	0	24	0	0	3	43
G. Drainage Outfall Ditch (Approx. 200-300L.F.)	1	2	0	0	4	0	0	0	7
H. Prepare or Update Planimetric 2D DGN File w/ New Survey Data Obtained	8	0	96	0	0	0	0	1	105
I. Prepare or Updated DTMTIN File Geopak and 3D DGN File w/ New Survey Data Obtained	6	0	32	0	0	0	0	1	39
J. Stake Project Baseline (Update Control Map)	3	6	8	0	16	0	0	0	33
K. Tie Bore Holes (12 Locations)	2	4	0	0	8	0	0	1	15
L. Coordination With Adjacent Surveyors	2	2	0	0	8	0	0	0	12
M. Project Management (4 Meetings)	12	0	0	0	0	0	0	0	12
<b>SUBTOTAL</b>	60	70	160		212			13	515
LABOR RATE / HOUR	\$133.00	\$85.00	\$75.00	\$161.00	\$138.00	\$102.00	\$102.00	\$47.00	\$55,797.00
<b>TOTAL LABOR COST</b>	\$7,980.00	\$5,950.00	\$12,000.00	\$0.00	\$29,256.00	\$0.00	\$0.00	\$611.00	\$55,797.00

**Attachment B**  
**Compensation for Scope of Services**

<b>DIRECT COST</b>	<b>NUMBER OF UNITS</b>	<b>COST PER UNIT</b>	<b>TOTAL DIRECT COST</b>
<b>FIELD SURVEYING</b>			
<b>DIRECT EXPENSES</b>			
MILEAGE (@ \$0.505 per mile)	2,250	\$0.510	\$1,147.50
GPS Receiver (Static)	16	\$22.00	\$352.00
GPS RTK	16	\$25.00	\$400.00
Traffic Control (Post and Take Down Signs - No lane Closures)	0	\$300.00	\$0.00
Desktop & Microcomputer w/Plotter	0	\$12.50	\$0.00
Microstation CADD System w/Plotter	168	\$12.50	\$2,100.00
Total Station with Data Collector	0	\$10.00	\$0.00
Robotic Total Station	0	\$12.50	\$0.00
Digital Level	8	\$10.00	\$80.00
Laser Scanning (equipment and personnel)	0	\$4,011.75	\$0.00
<b>TOTAL DIRECT COST</b>			<b>\$4,079.50</b>

Activity ID		Description		Orig Dur	Start	Finish	% Compl	Total Float	2011											
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
General																				
G000	Notice to Proceed	0	03MAY11				0	8d	◆ Notice to Proceed								▲ 30% QA/QC Review (Internal & Subs)			
G005	30% QA/QC Review (Internal & Subs)	10	05JUL11	18JUL11			0	8d	◆ Bridge Layout Submittal								◆ 30% Submittal			
G015	Bridge Layout Submittal	0		18JUL11			0	8d	▲ 30% Plan Review								▲ Bridge Layout Review			
G020	30% Submittal	0		18JUL11			0	8d	▲ 60% QA/QC Review (Internal & Subs)								◆ 60% Submittal			
G025	30% Plan Review	10	19JUL11	01AUG11			0	8d	▲ 60% Plan Review								▲ 60% Submittal			
G026	Bridge Layout Review	10	02AUG11	15AUG11			0	141d	▲ 90% QA/QC Review (Internal & Subs)								▲ 90% Submittal			
G030	60% QA/QC Review (Internal & Subs)	10	06SEP11	19SEP11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G035	60% Submittal	0		19SEP11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G040	60% Plan Review	10	20SEP11	03OCT11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G045	90% QA/QC Review (Internal & Subs)	12	03NOV11	18NOV11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G050	90% Submittal	0		18NOV11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G055	90% Plan Review	15	21NOV11	09DEC11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G060	Incorp Comments / Asmbd Final PS&E	8	12DEC11	21DEC11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G065	100% Submittal	0		21DEC11			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G066	100% Plan Review (Internal & Subs)	15	22DEC11	11JAN12			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G070	Final Review & Processing	5	12JAN12	18JAN12			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G075	Final Submittal	0		18JAN12			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G080	FTBC PS&E Review	20	19JAN12	15FEB12			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
G090	Contract Termination	1	16FEB12	16FEB12			0	8d	▲ 90% Plan Review								▲ 90% Submittal			
110 - Route and Design Studies																				
110000	Data Collection	5	03MAY11	09MAY11			0	8d	▲ Data Collection								▲ Field Reconnaissance			
110005	Field Reconnaissance	2	05MAY11	06MAY11			0	8d	▲ Agency Coordination								▲ Purpose & Need			
120 - Social, Econ & Envir Studies & Public Inv																				
120000	Agency Coordination	15	09MAY11	27MAY11			0	8d	▲ Environmental Research								▲ Public Involvement			
120010	Purpose & Need	5	30MAY11	03JUN11			0	18d	▲ Prepare Draft Report								▲ Prepare Final Draft Report			
120020	Environmental Research	5	30MAY11	03JUN11			0	18d	▲ Prepare Final Draft Report								▲ Prepare Final Draft Report			
120030	Public Involvement	15	30MAY11	17JUN11			0	8d	▲ Prepare Final Draft Report								▲ Prepare Final Draft Report			
120040	Prepare Draft Report	10	20JUN11	01JUL11			0	8d	▲ Prepare Final Draft Report								▲ Prepare Final Draft Report			
120050	Prepare Final Draft Report	8	05JUL11	14JUL11			0	45d	▲ Prepare Final Draft Report								▲ Prepare Final Draft Report			
130 - Right-of-Way Data																				
130000	Utility Conflict List	130	03MAY11	01NOV11			0	9d	▲ Utility Conflict List								▲ Utility Conflict List			
150 - Field Survey																				
150000	Field Surveying	40	03MAY11	27JUN11			0	57d	▲ Field Surveying								▲ Field Surveying			
160 - Roadway Design																				
Activity ID		Description		Orig Dur	Start	Finish	% Compl	Total Float	2011											
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
Fort Bend Toll Road Authority County Ft. Bend Toll Road Extension Project Schedule (Draft)																				
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
		02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05																		
									MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
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▲ Early start point

▲ Early finish point

▲ Early bar

▲ Target bar

▲ Progress bar

▲ Critical bar

Summary bar

Progress point

Critical point

Summary point

Start milestone point

Finish milestone point

Run date

07APR11

Finish date

16FEB12

Data date

03MAY11

Report name

Gantt Chart

Project name

SH6v1

Number/Version

SeedFile

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Fort Bend Toll Road Authority County  
Ft. Bend Toll Road Extension  
Project Schedule (Draft)

Activity ID		Description	Orig Dur	Start	Finish	% Compl	Total Float	2011 MAYJUNJULAUGSEPOCTNOVDEC 02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05 1																	
160000	Geometric Refinement		5	09MAY11	13MAY11	0	23d	▲ Geometric Refinement																	
160010	Typical Sections		5	16MAY11	20MAY11	0	38d	▲ Typical Sections																	
160020	Prepare Plan & Profiles		20	16MAY11	10JUN11	0	23d	▲ Prepare Plan & Profiles																	
160030	Prepare Design XSections		15	23MAY11	10JUN11	0	23d	▲ Prepare Design XSections																	
160040	Update Typical Sections		10	02AUG11	15AUG11	0	13d	▲ Update Typical Sections																	
160050	Update Plan & Profiles		15	09AUG11	29AUG11	0	13d	▲ Update Plan & Profiles																	
160060	Update Design XSections		10	16AUG11	29AUG11	0	23d	▲ Update Design XSections																	
160070	Develop Rdwy Details		5	23AUG11	29AUG11	0	13d	▲ Develop Rdwy Details																	
160100	Finalize Typical Sections		8	04OCT11	13OCT11	0	22d	▲ Finalize Typical Sections																	
160110	Finalize Plan & Profiles		8	04OCT11	13OCT11	0	22d	▲ Finalize Plan & Profiles																	
160120	Finalize Rdwy Details		8	04OCT11	13OCT11	0	22d	▲ Finalize Rdwy Details																	
160130	Finalize Design XSections		8	04OCT11	13OCT11	0	22d	▲ Finalize Design XSection																	
161 - Drainage Design																									
161000	Preliminary Drainage Study		4	03MAY11	06MAY11	0	48d	▲ Preliminary Drainage Study																	
161001	Prepare Dm Area Maps & Calcs		10	03MAY11	16MAY11	0	22d	▲ Prepare Dm Area Maps & Calcs																	
161002	Prepare Dm Plan & Profiles		12	17MAY11	01JUN11	0	22d	▲ Prepare Dm Plan & Profiles																	
161003	Prepare Pump Station Calcs		5	02JUN11	08JUN11	0	25d	▲ Prepare Pump Station Calcs																	
161004	Prepare Detention Pond Layout		8	02JUN11	13JUN11	0	22d	▲ Prepare Detention Pond Layout																	
161600	Update Dm Area Maps & Calcs		5	02AUG11	08AUG11	0	8d	▲ Update Dm Area Maps & Calcs																	
161610	Update Dm Plan & Profiles		18	08AUG11	31AUG11	0	11d	▲ Update Dm Plan & Profiles																	
161620	Update Pump Station Details		20	09AUG11	05SEP11	0	8d	▲ Update Pump Station Details																	
161630	Update Detention Pond Details		10	23AUG11	05SEP11	0	8d	▲ Update Detention Pond Details																	
161800	Finalize Dm Area Maps & Calcs		12	04OCT11	19OCT11	0	18d	▲ Finalize Dm Area Map																	
161810	Finalize Dm Plan & Profiles		12	04OCT11	19OCT11	0	18d	▲ Finalize Dm Plan & Profiles																	
161820	Finalize Pump Station Details		20	04OCT11	31OCT11	0	10d	▲ Finalize Pump Station Details																	
161830	Finalize Detention Pond Details		12	14OCT11	31OCT11	0	10d	▲ Finalize Detention Pond Details																	
162 - Signing, Marking & Signalization																									
162000	Prepare Preliminary SPM Layouts		12	16MAY11	31MAY11	0	31d	▲ Prepare Preliminary SPM Layouts																	
162010	Prepare Preliminary Signal Layouts		12	16MAY11	31MAY11	0	31d	▲ Prepare Preliminary Signal Layouts																	
162020	Update SPM Layouts & Details		18	02AUG11	25AUG11	0	15d	▲ Update SPM Layouts & Details																	
162030	Update Signal Layouts		18	02AUG11	25AUG11	0	15d	▲ Update Signal Layouts																	
162040	Finalize SP& Layouts & Details		20	04OCT11	31OCT11	0	10d	▲ Finalize SP& Layouts & Details																	
162050	Finalize Signal Layouts		20	04OCT11	31OCT11	0	10d	▲ Finalize Signal Layouts																	
163 - Miscellaneous Roadway Design																									
163000	Prepare Traffic Control Conceptual Layout		8	03MAY11	12MAY11	0	39d	▲ Prepare Traffic Control Conceptual Layout																	

▲ Early start point

▼ Early finish point

■ Early bar

□ Target bar

■ Progress bar

■ Critical bar

■ Summary bar

▲ Progress point

▲ Critical point

▲ Summary point

◆ Start milestone point

◆ Finish milestone point

Fort Bend Toll Road Authority County

Ft. Bend Toll Road Extension

Project Schedule (Draft)

Run date	07APR11
Finish date	16FEB12
Data date	03MAY11
Report name	Garnt Chart
Project name	Sh-ftv1
Number/Version	SeedFile
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▲ Early start point	Summary bar
▲ Early finish point	Progress point
▲ Target bar	Critical point
▲ Progress bar	Summary point
▲ Critical bar	Start milestone point
	Finish milestone point

**Fort Bend Toll Road Authority County**  
**Ft. Bend Toll Road Extension**  
**Project Schedule (Draft)**

Run date	07APR11
Finish date	16FEB12
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Report name	Gantt Chart
Project name	SHv1
Number/Version	SeedFile
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Activity ID	Description	Orig Dur	Start	Finish	% Compl	Total Float	2011											
							MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
163015	Prepare TCP Layouts & Details	15	13MAY11	02JUN11	0	39d	02 09 16 23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05 11											
163017	Prepare Preliminary Illumination Layouts	13	16MAY11	01JUN11	0	40d	Prepare TCP Layouts & Details											
163018	Prepare Preliminary RW Layouts	8	23MAY11	01JUN11	0	40d	Prepare Preliminary Illumination Layouts											
163025	Update TCP Layouts & Details	15	02AUG11	22AUG11	0	18d	Prepare Preliminary RW Layouts											
163026	Update Illumination Layouts & Details	20	02AUG11	29AUG11	0	13d	Update TCP Layouts & Details											
163027	Update RW Layouts & Details	20	02AUG11	29AUG11	0	13d	Update Illumination Layouts & Details											
163070	Finalize TCP Layouts & Details	15	04OCT11	24OCT11	0	15d	Update RW Layouts & Details											
163075	Finalize Illumination Layouts & Details	15	04OCT11	24OCT11	0	15d	Finalize TCP Layouts & Details											
163080	Finalize RW Layouts & Details	8	04OCT11	13OCT11	0	22d	Finalize Illumination Layouts & Details											
163100	General Notes & Specifications	5	04OCT11	10OCT11	0	60d	Finalize RW Layouts & Details											
170 - Bridge Design							General Notes & Specifications											
170000	Geotechnical	10	03MAY11	16MAY11	0	205d	Geotechnical											
170002	Prepare Preliminary Bridge Layouts	10	16MAY11	27MAY11	0	33d	Prepare Preliminary Bridge Layouts											
170004	Prepare Bridge Details	15	02AUG11	22AUG11	0	18d	Prepare Bridge Details											
170006	Update Bridge Details	25	02AUG11	05SEP11	0	8d	Update Bridge Details											
170008	Update Bridge Quantities	15	18AUG11	07SEP11	0	75d	Update Bridge Quantities											
170010	Finalize Bridge Details	20	04OCT11	31OCT11	0	8d	Finalize Bridge Details											
170012	Final Bridge Quantities	5	27OCT11	02NOV11	0	8d	Finalize Bridge Quantities											

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Early start point

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Early finish point

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Early bar

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Target bar

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Progress bar

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Critical bar

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Summary bar

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Progress point

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Critical point

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Summary point

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Start milestone point

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Finish milestone point

Run date

07APR11

Finish date

16FEB12

Data date

03MAY11

Report name

Gantt Chart

Project name

SH6v1

Number/Version

SeedFile

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Fort Bend Toll Road Authority County

Ft. Bend Toll Road Extension

Project Schedule (Draft)

**Fort Bend Toll Road at SH 6**  
**STA. 787+00 to STA. 850+00**  
**(UNDERPASS)**

<b>Estimate Date:</b>	<b>November 23, 2010</b>
Sub Totals:	<b>15,886,692</b>
R.O.W. Cost *	<b>950,000</b>
Contingency: 10%	<b>1,588,669</b>
<b>Grand Total</b>	<b>18,425,361</b>

ITEM DESCRIPTION		UNIT	QUANTITY	UNIT COST	COST
<b>ROADWAY</b>					
	PREPARE R.O.W.	STA	64.00	\$2,500.00	\$160,000.00
	REMOVING CONCRETE (PAVEMENT)	SY	16,500.00	\$6.00	\$99,000.00
	EMBANKMENT	CY	10,000.00	\$5.50	\$55,000.00
	EXCAVATION WORK	CY	175,400.00	\$8.00	\$1,403,200.00
	SURFACE, F.B.T.R. MAINLANES (CRCP)(14")	SY	59,860.00	\$52.50	\$3,142,650.00
	BASE, F.B.T.R. MAINLANES	SY	58,662.00	\$26.25	\$1,539,877.50
	SURFACE, RAMPS (CRCP)(10")	SY	10,342.00	\$42.00	\$434,364.00
	BASE, RAMPS	SY	10,859.10	\$22.00	\$238,900.20
	SURFACE, KNIGHT RD (CRCP)(8")	SY	7,858.00	\$40.00	\$314,320.00
	BASE, KNIGHT RD	SY	8,250.90	\$22.00	\$181,519.80
	FILTER LAYER (7", TY F)	SY	33,000.00	\$15.00	\$495,000.00
	FILTER FABRIC, GEOTEXTILE	SY	66,000.00	\$1.50	\$99,000.00
	PERFORATED UNDERDRAIN (8")	LF	6,880.00	\$17.00	\$116,960.00
<b>Sub-Total</b>					<b>\$8,279,791.50</b>

<b>BRIDGE</b>					
	BRIDGE (SH 6 FRONTAGES & F.B.T.R. U-TURN)	SF	16,500.00	\$65.00	\$1,072,500.00
<b>Sub-Total</b>					<b>\$1,072,500.00</b>

<b>TRAFFIC CONTROL</b>					
	ASSUME 1.5-YEAR CONSTRUCTION	MO	18.00	\$7,000.00	\$126,000.00
<b>Sub-Total</b>					<b>\$126,000.00</b>

<b>TRAFFIC SIGNALS</b>					
	MODIFY 2 EXISTING SIGNALS	EA	2.00	\$80,000.00	\$160,000.00
<b>Sub-Total</b>					<b>\$160,000.00</b>

<b>DRAINAGE</b>					
	STORM SEWER, UNDERDRAIN, & DETENTION	MI	1.20	\$1,625,000.00	\$1,950,000.00
	PUMP STATION [-6.3 ac @ 12" ~ 6 pumps]	EA	1.00	\$1,550,000.00	\$1,550,000.00
	STORMWATER POLLUTION PREVENTION PLAN	MI	1.20	\$72,000.00	\$86,400.00
<b>Sub-Total</b>					<b>\$3,586,400.00</b>

<b>RETAINING WALLS</b>					
	RETAINING WALL (MSE)	SF	60,800.00	\$30.00	\$1,824,000.00
<b>Sub-Total</b>					<b>\$1,824,000.00</b>

<b>ILLUMINATION</b>					
	MOUNTED ON TRAFFIC BARRIER	MI	1.20	\$170,000.00	\$204,000.00
<b>Sub-Total</b>					<b>\$204,000.00</b>

<b>SIGNING AND STRIPING</b>					
	SIGNING, MAINLANES	MI	1.20	\$20,000.00	\$24,000.00
	SIGNING, INTERCHANGE (PER PAIR OF RAMPS)	EA	1.00	\$400,000.00	\$400,000.00
	PAVEMENT MARKINGS, ALL	MI	1.20	\$175,000.00	\$210,000.00
<b>Sub-Total</b>					<b>\$634,000.00</b>

### Attachment C

The Engineer shall furnish certificates of insurance to the FBTRA evidencing compliance with the insurance requirements hereof. Certificates shall indicate name of the Engineer, name of insurance company, policy number, term of coverage and limits of coverage. The Engineer shall cause its insurance companies to provide the FBTRA with at least 30 days prior written notice of any reduction in the limit of liability by endorsement of the policy, cancellation or non-renewal of the insurance coverage required under this Agreement. The Engineer shall obtain such insurance from such companies having a Bests rating of B+/VII or better, licensed or approved to transact business in the State of Texas, and shall obtain such insurance of the following types and minimum limits:

- a. Workers' Compensation insurance in accordance with the laws of the State of Texas, or state of hire/location of Services, and Employers' Liability coverage with a limit of not less than \$500,000 each employee for Occupational Disease, \$500,000 policy limit for Occupational Disease; and Employer's Liability of \$500,000 each accident.
- b. Commercial General Liability insurance including coverage for Products/Completed Operations, Blanket Contractual, Contractors' Protective Liability Broad Form Property Damage, Personal Injury/Advertising Liability, and Bodily Injury and Property Damage with limits of not less than:

\$3,000,000	general aggregate limit
\$2,000,000	each occurrence, combined single limit
\$2,000,000	aggregate Products, combined single limit
\$2,000,000	aggregate Personal Injury/Advertising Liability
\$50,000	Fire Legal Liability
\$5,000	Premises Medical
- c. Business Automobile Liability coverage applying to owned, non-owned and hired automobiles with limits not less than \$1,000,000 each occurrence combined single limit for Bodily Injury and Property Damage combined.
- d. Umbrella Excess Liability insurance written as excess of Employer's Liability, with limits not less than \$3,000,000 each occurrence combined single limit.
- e. Professional Liability insurance with limits not less than \$5,000,000 each claim/annual aggregate.

The FBTRA and the FBTRA's Directors shall be named as additional insureds to all coverages required above, except for those requirements in paragraphs "a" and "e." All policies written on behalf of the Engineer shall contain a waiver of subrogation in favor of the FBTRA and the FBTRA's Directors, with the exception of insurance required under paragraph "e."