

**GENERAL MEETING OF THE BOARD OF DIRECTORS
OF THE
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

RESOLUTION NO. 09-77

**PBS&J GEC Scope of Services/Work Authorization No. 1 for
Construction Engineering, Inspection and Construction Management Services
Related to Segment 1 of the
290 East Toll Project**

WHEREAS, the Central Texas Regional Mobility Authority ("CTRMA") was created pursuant to the request of Travis and Williamson Counties and in accordance with provisions of the Transportation Code and the petition and approval process established in 43 Tex. Admin. Code § 26.01, *et. seq.* (the "RMA Rules"); and

WHEREAS, the Board of Directors of the CTRMA has been constituted in accordance with the Transportation Code and the RMA Rules; and

WHEREAS, the CTRMA utilizes PBS&J for certain purposes as a General Engineering Consultant ("GEC") pursuant to an existing Agreement for General Consulting Engineering Services with HNTB dated September 1, 2003, under which PBS&J is a subconsultant and Project Manager, and the CTRMA Board of Directors has authorized the negotiation and execution of a new GEC Agreement with PBS&J (the "New GEC Agreement") that will be executed prior to expiration of the existing HNTB Agreement; and

WHEREAS, the GEC provides various services to the CTRMA, including the oversight and management of certain aspects of the development, design, construction and operation of its proposed and existing projects; and

WHEREAS, such GEC services include providing construction engineering, inspection and construction management services during the pre-construction and construction phases of certain projects (the "GEC Construction Services"); and

WHEREAS, the CTRMA has previously caused the design and engineering work to be prepared for Segment 1 of the 290 East Toll Project which includes the construction of four direct connectors at the US 183-US 290 East interchange (the "Project"); and

WHEREAS, Work Authorization No. 1 to the New GEC Agreement, including a Scope of Services ("Work Authorization No. 1") describing the GEC Construction Services to be utilized in connection with the Project has been developed and is in substantially the form attached hereto as Attachment "A", and such Work Authorization No. 1 establishes a "not to exceed" amount to be paid as compensation for the GEC Construction Services; and

WHEREAS, it is necessary that the Board of Directors approve Work Authorization No. 1 and its execution prior to the commencement of construction of the Project, with any approval of Work Authorization No. 1 being subject to the final execution of the New GEC Agreement.

NOW THEREFORE, BE IT RESOLVED, that the Board of Directors of the CTRMA hereby adopts and approves Work Authorization No. 1 and the related Scope of Services in substantially the form attached hereto as Attachment "A"; and

BE IT FURTHER RESOLVED, that Work Authorization No. 1 and the related Scope of Services may be finalized and executed by the Executive Director on behalf of the CTRMA at any time after the final execution of the New GEC Agreement and that Work Authorization No. 1 may be amended from time to time by written amendment as deemed necessary the Board of Directors.

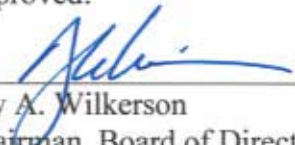
Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 18th day of November, 2009.

Submitted and reviewed by:



Tom Nielson
General Counsel for the Central
Texas Regional Mobility Authority

Approved:



Ray A. Wilkerson
Chairman, Board of Directors
Resolution Number 09-77
Date Passed 11/18/09

ATTACHMENT "A"
TO
RESOLUTION 09-77
PBS&J GEC Scope of Services/Work Authorization No. 1 for Segment 1 of the
290 East Toll Project

EXHIBIT D
WORK AUTHORIZATION

Work Authorization No. 1

This Work Authorization is made as of this 18th day of November, 2009, under the terms and conditions established in the AGREEMENT FOR GENERAL CONSULTING ENGINEERING SERVICES, dated as of _____, 20____ (the Agreement), between the Central Texas Regional Mobility Authority (Authority) and PBS&J (GEC). This Work Authorization is made for the following purpose, consistent with the services defined in the Agreement:

*290 East Toll Project
Construction Engineering & Inspection / Construction Management Services
related to Segment 1*

Section A. - Scope of Services

A.1. GEC shall perform the following Services:

Please reference Attachment A – Services to be Provided by the GEC

A.2. The following Services are not included in this Work Authorization, but shall be provided as Additional Services if authorized or confirmed in writing by the Authority.

Not applicable.

A.3. In conjunction with the performance of the foregoing Services, GEC shall provide the following submittals/deliverables (Documents) to the Authority:

Please reference Attachment A – Services to be Provided by the GEC

Section B. - Schedule

GEC shall perform the Services and deliver the related Documents (if any) according to the following schedule:

Services defined herein are expected to be substantially complete within thirty (30) months from the date this Work Authorization No. 1 becomes effective. This Work Authorization No. 1 will not expire until all tasks associated with the Scope of Services are complete.

Section C. - Compensation

C.1. In return for the performance of the foregoing obligations, the Authority shall pay to the GEC the amount not to exceed \$8,032,525.34, based on Attachment B -Fee Estimate. Compensation shall be in accordance with the Agreement.

C.2. Compensation for Additional Services (if any) shall be paid by the Authority to the GEC according to the terms of a future Work Authorization.

Section D. - Authority's Responsibilities

The Authority shall perform and/or provide the following in a timely manner so as not to delay the Services of the GEC. Unless otherwise provided in this Work Authorization, the Authority shall bear all costs incident to compliance with the following:

Please reference Attachment A – Services to be Provided by the GEC

Section E. - Other Provisions

The parties agree to the following provisions with respect to this specific Work Authorization:

Not applicable.

Except to the extent expressly modified herein, all terms and conditions of the Agreement shall continue in full force and effect.

Authority: Central Texas Regional Mobility Authority

GEC: PBS&J

By: _____

By: _____

Signature: _____

Signature: _____

Title: _____

Title: _____

Date: _____

Date: _____

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY
WORK AUTHORIZATION NO. 1
PBS&J
EXHIBIT A
SERVICES TO BE PROVIDED BY THE GEC

General

The services to be performed by the GEC will include, but not be limited to, construction engineering & inspection and construction management services necessary to oversee the construction of the 290 East Toll Project – Segment No. 1 through a Design-Bid-Build construction contract. This will entail those professional services and associated deliverables required to complete the inspection and oversight activities associated with the management of the contractor(s) (hereinafter referred to as the Contractor).

The GEC will maintain a Construction Management staff at the Contractor-provided Project Field Office to manage and administer the planning, execution, and control of the construction engineering and inspection, including invoicing and administrative support for activities required to complete the overall construction oversight efforts. This staff will represent the CTRMA's interests as defined in the construction contract. To effectively perform the tasks associated with this scope, it is anticipated that the GEC will provide a core fulltime Construction staff at the Field Office.

1. Construction Supervision, Inspection and Testing (Code 13620)

The GEC will be the single point of contact between the CTRMA and the respective Contractor(s) and the Engineer(s) of Record, acting as an extension of CTRMA staff by providing qualified technical and professional personnel to perform the duties and responsibilities assigned under the terms of this Agreement. The GEC shall not control or direct the construction under the construction contract. Field inspections, testing and oversight reviews by the GEC will not relieve the Contractor of sole responsibility for the means and methods of construction, or for health or safety precautions in connection with the work under the construction contract. The Engineer(s) of Record will remain responsible for design related services.

1.1. Construction Inspection and Engineering

The GEC will provide quality control and assurance oversight for the construction of the project through construction inspection and engineering services in accordance with the Construction Quality Management Plan. Included with this task will be the following efforts:

- Establish and maintain the Project Field Office operation within the Contractor-provided facility; including the purchase, installation and maintenance of IT equipment; leasing and maintenance of project vehicles; and any additional expenses required by the Project.
- Review the Contractor's plan for construction Quality Control to be used in the field.
- Inspect Contractor's construction operations.
- Maintain diary and associated required documentation.
- Schedule and hold Pre-Construction conference for the project.
- Document pre-project conditions via still photography and video.

- Review concrete, asphalt and lime mix designs as submitted by the Contractor for concurrence with contract documents as required by the project design and specifications. The Engineer(s) of Record will be responsible for final approval.
- Coordinate, prepare, and attend weekly Project Construction Progress Meetings with the Contractor. Prepare meeting minutes and required action items for distribution and archive.

1.2. Project Controls

Specific tasks will include:

1.2.1. Database Maintenance and EDMS Interface

- Develop project document control protocol.
- Perform training of field personnel in the use of EDMS applications and work processes.
- Maintain a database and software associated with the Electronic Document Management System (EDMS) and the user interfaces with EDMS.
- Develop and maintain Dashboard access for real-time project financial, schedule and other data status.
- Provide security monitoring of network access.
- Provide maintenance of servers, workstations, and network equipment as required for field staff.

1.2.2. Tracking Maintenance

- Maintain the tracking database for correspondence, transmittals, requests for information, meeting minutes, action items, submittals, Inspector daily reports, project diary, project schedule, change orders, pay estimates, lien waivers, shop drawings, working drawings, erection drawings, catalog cut sheets, mix designs, non-conformance reports, payment certifications, Insurance and Bonds, issues, material test data, schedules, audits, related technical data, and issues associated with the Project.

1.2.3. Data Backups

- Perform backup of Project database on a daily basis.

1.2.4. Document Distribution

- Assign identification coding to incoming and outgoing project related documentation and perform entry into the EDMS.
- Prepare, manage, record, distribute and archive documentation of project activities, progress, and related communications.
- Log and track submittals and deliverables.

1.2.5. Response to Open Records Requests

- Perform retrieval of documents as a result of open records requests.

1.2.6. Mail Services

- Provide mail services for the Project (US, Priority, Courier, Internal and External).

1.3. Materials Testing

The GEC will provide Quality Control and Quality Assurance testing of materials incorporated into the project. Coordinate materials testing operations, and review Material Test Reports. Materials Testing procedures will include:

1.3.1. Quality Control & Assurance

- Provide a Qualification Program for materials utilized by the project for the construction of the Project in accordance with the Construction Quality Management Plan.
- Develop procedures and requirements for handling, storage, shipping, and preservation of materials incorporated into the work; including Corrective Action procedures for test or inspection failures, malfunctions or deficiencies.
- Submit construction QC/QA Material Certification letter monthly to CTRMA.
- All material test results will be reviewed by the Resident Engineer.

1.3.2. Verification

- Develop and implement a testing plan in compliance with TxDOT's Guide Schedule of Sampling and Testing for the Project.
- Perform the testing of construction materials utilized on the project.
- Prepare and manage Non-Compliance Reports (NCRs) for failing tests as appropriate.
- Prepare control charts for applicable test values.
- Provide materials advice as deemed necessary.
- Maintain a material testing data base.
- Review mill and shop inspection and laboratory tests and field tests of construction materials performed by the testing engineer and the off-site materials testing agency.

1.4. Survey Support

The GEC will:

- Provide control points and associated vertical and horizontal quality assurance survey checks with documentation for the Contractor's use to establish line and grade.
- Perform miscellaneous spot checks as needed during the duration of the project.

1.5. Geotechnical Support & Investigation

The GEC will:

- Provide geotechnical exploration, engineering and technical services as needed during construction.
- Document geotechnical involvement on the project.

1.6. Traffic Control Assurance

The GEC will:

1.6.1. Quality Control and Assurance

- Review, monitor and recommend modifications to the Contractor's maintenance of traffic/traffic control operations according to applicable specifications and standards.

1.6.2. Compliance

- Document and issue deficiency reports to the Contractor on any non-compliance of traffic control devices or layouts.

1.6.3. Coordination

- Coordinate with the Contractor, affected third parties, interested agencies, emergency responders and CTRMA for major traffic disruptions.

1.6.4. Meetings

- Attend meetings pertaining to the traffic control and maintenance of traffic that are held by the Contractor, designers or interested parties.

1.7. Environmental Compliance

The GEC will:

1.7.1. Document Review

- Review applicable Environmental Permits.

1.7.2. Quality Control & Assurance

- Verify that the Contractor is conforming to permit requirements while performing the required construction operations.
- Monitor Contractor's compliance with the SWPPP plans and requirements; coordinate other environmental concerns during construction.
- Verify adherence to environmental commitments contained within the environmental studies.

1.7.3. Coordination

- Coordinate with the Contractor to verify that they are adhering to the project permits and documenting as such. The GEC will issue non-compliant documentation in instances where permit requirements fall below requirements.
- Coordinate environmental commitments consistently throughout the CTRMA Projects.
- Coordinate permit close-out activities.

1.7.4. Meetings

- Attend, hold and/or document any environmental compliance meetings as deemed appropriate.

1.8. Utility Engineering

The GEC will:

1.8.1. Utility Adjustment Coordination

- Participate in meetings as necessary to effectively manage the utility coordination process.
- Schedule periodic meetings with utility owner's representatives for coordination purposes.
- Attend meetings with CTRMA and other interested parties as directed.

- Meet with the Contractor and/or designer as necessary to resolve matters relating to schedules, utility identification, design changes, conflict resolution, and negotiation with utility owners.
- Assist CTRMA with negotiating the details of utility agreements with the utility companies. Details will include any necessary betterment percentages, indirect costs, plans, estimates and schedules for the utility companies' activities. The GEC will also prepare draft agreements for CTRMA's use including the necessary exhibits and information concerning the project (such as reports, plans and surveys).
- Monitor and report utility adjustment status.

1.8.2. Utility Engineering

- Review existing utility information for conflicts with the proposed Project and provide a utility conflict analysis.
- Provide a conceptual utility relocation plan.
- Review utility plans for compliance with the TxDOT Utility Accommodation Policy, compatibility with the Project features, betterment inclusion and constructability.
- Provide oversight review of location, materials, and backfilling of trenches associated with utility adjustments; not responsible for actual location of utilities.

1.9. Technical Advice

The GEC will:

- Advise and assist the CTRMA on matters of construction related to interpretation of design details, construction techniques and procedures, specifications, standard construction details, and construction plans prepared by the Design Engineer(s).
- Seek clarifications from the Design Engineer(s) on the intent reflected in the designs, plans, and specifications. The Engineer of Record will remain responsible for design related services.

1.10. Final Punch List / Final Inspection

The GEC will:

- Coordinate with the Contractor in the generation of preliminary and final punch lists.
- Monitor the resolution of outstanding construction items.
- Verify and certify final inspection reports of the completed construction; issue recommendations and certification of completion of construction.

1.11. Deliverables

- Diary (objective and consisting of documented facts and statements only)
- Inspector Daily Reports
- Pay Item Computation (if needed)
- Field Books – Indexed and Numbered
- Embankment, Sub-grade, Sub-base and Base Course Testing

- Concrete Plant and Concrete Related Field Inspection Reports (calibrations, gradations, admixtures, slump, air content, etc.)
- Concrete Delivery Tickets with an attached adding machine tape indicating date, pay item(s), placement location and cumulative quantity
- HMA Plant Reports
- HMA and Concrete Mix Designs
- HMA Tickets (for HMA binder, surface or leveling course binder mixes and tack coat) indicating date, pay item(s), placement location, cumulative total, and any additional information needed
- Drilled Shaft drilling logs
- Concrete Volume Checks
- Miscellaneous and Material Certifications
- Off-Site Testing and Inspection Reports
- Accident Reports for major accidents within the work zone (fatality or medical treatment required)
- Miscellaneous documents (source of aggregate, Shop Drawings, Subcontractor acceptance and purchase orders)
- Weekly Progress Reports and Weekly Meeting Minutes

Construction Litigation - Dispute/Claims Support (Code 13680)

The GEC will provide consultation and assistance to the CTRMA, the testing engineer, the general counsel of the CTRMA, and the Construction Manager related to aspects of the design, construction, duties, and services required during the construction of the Project.

1.12. Dispute Analysis

- The GEC will assemble supporting documentation, review, analyze and provide recommendations to CTRMA on the Contractor's submittal of a dispute.

1.13. Claim Package Analysis

- The GEC will review, analyze and make recommendations to CTRMA on the Contractor's claim package submittal.
- Participate as needed in preparation and presentation to Dispute Resolution Board.

Project Oversight – Construction (Code 13720)

1.14. Pre-Letting Coordination

The GEC will:

- Participate in the management and administration of the project letting activities. This includes participation in constructability reviews and meetings during the pre-bid process.

- Facilitate the pre-bid meetings and follow-up activities that result from the meetings.
- Prepare correspondence (letters, email, memos, addendums etc.) necessitated by the project bidding process, as required.
- Evaluate Bid Packages.
- Present the project to perspective bidders, answer questions and document both questions and responses.

1.15. Project Management

The GEC will:

- Develop and maintain a staffing plan for consistency and appropriate levels of field staffing. Provide staff to manage the daily activities of the program according to the Construction Quality Management Plan.
- Work with CTRMA, TxDOT, GEC, design consultants, third party consultants, utility companies, public agencies, contractors and the general public to coordinate construction activities.
- Coordinate the details of and participate in project's partnering meeting to be held prior to beginning of construction. The costs associated with the partnering meetings, such as venue and facilitator, will be the responsibility of CTRMA.
- Coordinate, contract and provide oversight for any required sub-consultants.

1.16. Construction Quality Management Plan (CQMP)

The GEC will:

- Develop a CQMP consisting of GEC's Quality Control/Quality Assurance Plan integrated with the Contractor's Quality Plan; including at a minimum:
 - Identification of Contractor's Construction Quality Manager
 - Qualification of the GEC Quality Control personnel
 - Checklists for quality inspections for specific work items including inspection "hold-points"
 - Documentation procedures for field inspections, materials testing, and EDMS interface
 - Generation, tracking, and resolution of non Conformance Reports (NCRs)
 - Issue resolution escalation structure
- Maintain the CQMP as a living document by the addition, modification, or deletion of provisions as necessary and issue revisions as the program progresses.

1.17. Document Controls

The GEC will:

- Develop and implement a document control plan.
- Maintain project files for the duration of the Project.
- Transfer program files to CTRMA upon completion of the work or as directed by the CTRMA.

1.18. Program Reporting

The GEC will:

- Prepare and issue monthly status reports on the Project's construction status which will document any issues, delays encountered, and corrective actions as necessary.
- Provide a monthly update to CTRMA on key milestones accomplished during the preceding month, meetings and key activities for the upcoming month, and identify outstanding issues requiring resolution.
- Track, monitor, and report on contracts and budgets for the GEC and sub consultants.
- Track, monitor, and prepare reports on DBE/HUB utilization for the GEC and sub contractors, and DBE/HUB programs for other program contracts including construction contracts.
- Prepare reports as required for ARRA funding.

1.19. Trust Indenture Obligations

The GEC will:

- Perform all duties and services, render opinions, and issue certificates specified for the GEC in the Trust Agreement(s) necessary for securing the revenue bonds issued by the CTRMA to finance the project.
- Prepare a Quarterly Report with an Executive Summary that provides a comprehensive summary of the monthly reports and the overall Project progress.

1.20. Project Meetings & Documentation

1.20.1. Meetings

The GEC will facilitate the following project meetings to assess progress, schedule, and quality of services being provided as well as identify issues:

- Project Construction Progress Meetings (Weekly)
- Program Construction Progress Meetings (As Needed)
- Issue Resolution Meetings (As Needed)

1.20.2. Documentation

The GEC will prepare agendas, meeting minutes, action items and follow-up action item status for each of the project meetings and distribute to attendees and appropriate personnel.

1.21. CTRMA Construction Coordination Support

The GEC will support CTRMA in coordination and any interlocal agency agreements including exhibit preparation and supporting document preparation and assembly with the following agencies:

- Texas Department of Transportation (TxDOT)
- Federal Highway Administration (FHWA)
- Capital Area Metropolitan Planning Organization (CAMPO)
- Capital Metropolitan Transportation Authority (CAPMETRO)
- Williamson County

- Travis County
- Local Municipalities and Municipal Utility Districts
- Other Agencies as identified and as directed by CTRMA

1.22. General Technical Support

The GEC will provide technical support and management assistance as required by the CTRMA toward the successful completion of the project; including:

- Advise the CTRMA on matters of engineering related to interpretation of design details, construction techniques and procedures, specifications, standard construction details, and construction plans prepared by the Design Engineer(s).
- Seek clarifications from the Design Engineer(s) when necessary on the intent reflected in the design plans and specifications. The Engineer of Record will remain responsible for design related services.

1.23. Project Scheduling

The GEC will:

- Evaluate, monitor and verify according to contractual requirements, the construction schedule (baseline and updates) as submitted by the Contractor.
- Report and verify the Contractor's progress and upcoming milestones on a monthly basis to CTRMA.
- Identify, catalog, and archive Baseline Schedule and schedule revisions. Evaluate time impacts and report recommendations to CTRMA.

1.24. Contract Management and Administration

The GEC will:

1.24.1. Change Order Processing & Management

- Provide review of change orders on the Project and process in accordance with the Project Construction Management Plan and coordinate with external agencies as required.
- Review change order cost estimates prepared by the Contractor, evaluate Contractor claims for extension of time, and provide comments to CTRMA.
- Maintain, log and retain all documents associated with change orders.
- Provide constructability reviews of Work Sequence Plans submitted by the Contractor. The Contractor will be responsible for final approval.
- Assist in review of Contractor initiated alternative design or substitution proposals. The Engineer(s) of Record will be responsible for the design and approval of any design alternative, alteration or revision.
- Coordinate with the Engineer(s) of Record.

1.24.2. Requests for Information (RFI) Processing and Management

- Review and respond to RFIs on the Project.
- Maintain, log and retain all documents associated with RFIs.
- Coordinate with the Engineer(s) of Record.

1.24.3. Shop Drawing / Submittals Processing and Management

- Review shop drawings, erection drawings, working drawings, samples, material and product certifications, and catalog cuts and brochure submittals for general conformance with the design plans and specifications submitted by the Contractor prior to forwarding to the Design Engineer. The Engineer of Record will be responsible for final approval.
- Maintain, log and retain all documents associated with shop drawings.
- Coordinate with the Engineer(s) of Record.

1.24.4. Contractor Pay Requests

- Review and provide required certifications to the CTRMA for processing of the Contractor's partial and final pay requests.
- Evaluate the pay requests for proper documentation and signature by the Contractor in accordance with the requirements of the Contract and to assure it accurately reflects monies due for acceptable work completed.

1.24.5. Records Management

- Maintain and retain pertinent documentation on the project.
- At the completion of the project return all such documentation to CTRMA for their storage.
- Coordinate document integration with the CTRMA EDMS.

1.25. Record Drawings

- Compile and provide the CTRMA with Record Plans incorporating construction revisions into the original "as bid" construction plans. The GEC is not responsible for any errors or omission in the information provided by the Contractor that are incorporated into the record drawings.

1.26. Deliverables

- Change Orders, Partial and Final Pay Estimates.
- Correspondence.
- RFI files and Log.
- Submittal log.
- Approved DBE Utilization Plan, all DBE / EEO related correspondence, and Contractor daily headcounts.
- Letters from the CTRMA to the Contractor documenting acceptance, time extension(s), and/or assessment of Liquidated Damages for all Interim Completion Dates, Substantial Completion Dates, and/or Final Completion Date, as applicable.
- Final Record Drawings.
- Comprehensive construction contract progress reporting with weekly frequency of reporting for all large contracts.

Public Involvement (Code 13750)

Support CTRMA in the administration, management and coordination of the overall public involvement efforts.

1.27. Public Information and Construction Updates

Coordinate and assist with public outreach concerning project information and construction updates, including:

- Work with the Contractor to develop Public Information Plan (PIP) for the project.
- Respond to public inquiries regarding the project, specifically with the use of a telephone hotline phone number and an e-mail hotline address.
- Coordinate with the Contractor to prepare and conduct monthly briefings to stakeholders, as needed.

1.28. Public Outreach Support

Coordinate / support / assist various public outreach meetings and events, as requested by the CTRMA; including:

- Small meetings and one-on-ones with stakeholders.
- Project tours for visitors and other delegations.

1.29. Media Outreach Support

Assist the CTRMA Director of Communications, as requested, with the following public and media outreach tasks:

- Update the project web site.
- Issuance of public notices of traffic phase changes and local road detours and closures with the Contractor.
- Respond to media inquiries.
- Respond to open record requests.

**ATTACHMENT B
FEE ESTIMATE
CTRMA 290E SEGMENT 1
SUMMARY**

Provider Name	Services to be Provided		
PBS&J	1. Construction Supervision, Inspection and Testing	Total Labor, Overhead & Profit	6,696,763.29
		Expenses	0.00
		Sub-Total Fee	<u>\$ 6,696,763.29</u>
Rodriguez Transportation Group, Inc.*	1. Construction Supervision, Inspection and Testing	Total Labor, Overhead & Profit	525,976.00
		Expenses	0.00
		Sub-Total Fee	<u>\$ 525,976.00</u>
EarthCam, Inc.	1. Construction Supervision, Inspection and Testing	Total Labor, Overhead & Profit	0.00
		Expenses	60,000.00
		Sub-Total Fee	<u>\$ 60,000.00</u>
PaveTex Engineering and Testing, Inc.*	1.3 Materials Testing	Total Labor, Overhead & Profit	694,801.25
		Expenses	0.00
		Sub-Total Fee	<u>\$ 694,801.25</u>
Terracon Consultants, Inc.	1.3 Materials Testing	Total Labor, Overhead & Profit	40,005.50
		Expenses	0.00
		Sub-Total Fee	<u>\$ 40,005.50</u>
McGray & McGray Land Surveyors, Inc.*	1.4 Survey Support	Total Labor, Overhead & Profit	14,979.30
		Expenses	0.00
		Sub-Total Fee	<u>\$ 14,979.30</u>
		Total Fee (Construction Management)	<u>\$ 8,032,525.34</u>

*DBE Firm registered with TxDOT
 * Anticipated DBE Fee = \$ 1,235,756.55
 * Anticipated DBE Percentage = 15%

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
PBS&J**

1. Construction Supervision, Inspection and Testing - Labor Detail

SCOPE SERVICE NO.	POSITION/TITLE	FULL/PART TIME	REQUIRED DURATION (Months)	ESTIMATED HOURS	REMARKS (# Hours/Week)	RATE	EXTENDED
1	Regional Business Sector Manager/Program Manager	PT	27	697	6	\$ 98.00	200,704.39
1	Group Manager/QA Manager	PT	27	929	8	\$ 68.00	185,685.70
1.12/1.13	Group Manager/Claims Analyst	PT	24	100		\$ 60.00	17,640.00
1.23	Sr. Estimator/Scheduler II/Scheduler	PT	24	1651	16	\$ 52.00	252,435.46
1	Sr. Contracts Administrator/Records Manager	FT	27	4644	40	\$ 39.00	532,481.04
1.7	Sr. Technical Coordinator/SW3P Inspector	PT	24	150		\$ 40.00	17,640.00
1.4	Sr. Group Manager/Survey Manager	PT	23	80		\$ 55.00	12,936.00
1.4	Survey Crew- 3 man crew	PT	23	80		\$180.00	42,336.00
1.4	Senior Surveyor II/Surveyor Supervisor	PT	23	40		\$ 45.00	5,292.00
1.4	Senior Survey Technician/Sr. Survey Technician	PT	23	40		\$ 23.00	2,704.80
1.4	Survey Technician/Survey Technician	PT	23	40		\$ 21.00	2,469.60
							Sub-Total \$ 1,272,324.98
1	Sr. Program Manager/Construction Manager	FT	27	4644	40	\$ 68.00	877,901.76
1	Sr. Resident Engineer/Resident Engineer	FT	27	4644	40	\$ 61.00	787,520.52
1	Sr. Engineer I/Office Engineer	FT	27	4644	40	\$ 38.00	490,592.16
1	Construction Management Rep. II/Construction Management Rep. II	FT	25	4300	40	\$ 44.00	525,976.00
1.1	Sr. Field Representative II/Field Representative	FT	24	4541	44	\$ 32.00	403,949.57
1.1	Sr. Field Representative II/Field Representative	FT	14	2649	44	\$ 32.00	235,637.25
1.1	Sr. Field Representative III/Field Representative	FT	18	3406	44	\$ 32.00	302,962.18
1.1	Sr. Field Representative II/Sr. Field Representative II	FT	17	3216	44	\$ 34.00	304,014.13
1.1	Sr. Field Representative III/Sr Field Representative	FT	24	4541	44	\$ 36.00	454,443.26
1.1	Field Representative/Field Representative	FT	18	3406	44	\$ 31.00	293,494.61
1.1	Sr. Field Representative II/Sr. Field Representative	FT	24	4541	44	\$ 36.00	454,443.26
1.1	Field Representative/Field Representative	FT	18	3406	44	\$ 31.00	293,494.61
							Sub-Total \$ 5,424,438.30
							TOTAL \$ 6,696,763.29

ATTACHMENT B
FEE ESTIMATE

CTRMA 290E SEGMENT 1
Rodriguez Transportation Group, Inc.
1. Construction Supervision, Inspection and Testing - Labor Detail

SCOPE SERVICE NO.	POSITION/TITLE	FULL/PART TIME	REQUIRED DURATION (Months)	ESTIMATED HOURS	REMARKS (# Hours/Week)	RATE	EXTENDED
1	Construction Mangement Rep. II/Construction Management Rep. II	FT	25	4300	40	\$ 44.00	525,976.00
TOTAL							\$ 525,976.00

ATTACHMENT B
FEE ESTIMATE

CTRMA 290E SEGMENT 1
EarthCam

1. Construction, Supervision, Inspection and Testing - Expense Detail

SCOPE SERVICE NO.	DIRECT EXPENSE	UNIT	QUANTITY	RATE	EXTENDED
1	Mobile TrailerCam, Megapixel Robotic, Installation, Data Service, Website, Support and Archiving	Lump Sum	1	\$60,000.00	60,000.00
				TOTAL	\$ 60,000.00

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
PaveTex Engineering and Testing, Inc.
1.3 Materials Testing**

Engineering Services (Unit Cost)	Unit	Unit Cost	Quantity	Extended
Project Engineer, P.E.	hr.	\$ 130.00	750	97,500.00
Materials/ Records QA	hr.	\$ 85.00	3,500	297,500.00
Laboratory & Field Tech. Reg Hrs				
HMAC LEVEL 1A Certified Technician	hr.	\$ 48.00	100	4,800.00
HMAC LEVEL 1B Certified Technician	hr.	\$ 48.00	100	4,800.00
HMAC LEVEL 2 Certified Technician	hr.	\$ 65.00	5	325.00
CONCRETE Technician	hr.	\$ 48.00	1,500	72,000.00
Laboratory & Field Tech. Overtime Hours	hr.	\$ 58.00	300	17,400.00
Transportation				
Vehicle- Daily	day	\$ 50.00	420	21,000.00
Vehicle- Monthly	month	\$ 1,100.00	12	13,200.00
Field Testing				
Ride Quality	hr.	\$ 150.00	25	3,750.00
Pavement Coring				
Hot Mix Asphalt	ea.	\$ 80.00	13	1,040.00
Concrete	ea.	\$ 120.00	150	18,000.00
Soils and Base Testing				
Sampling	ea.	\$ 100.00	13	1,250.00
Sample Preparation	ea.	\$ 50.00	13	625.00
Moisture Content	ea.	\$ 10.00	13	125.00
Atterberg Limits	ea.	\$ 50.00	13	625.00
Linear Bar Shrinkage	per bar	\$ 25.00	3	62.50
Sieve Analysis	ea.	\$ 45.00	13	562.50
Sieve Analysis	ea.	\$ 55.00	13	687.50
Percent Passing No. 200 Sieve	ea.	\$ 30.00	3	75.00
Moisture-Density Relationship	ea.	\$ 250.00	13	3,125.00
Moisture-Density Relationship	ea.	\$ 200.00	13	2,500.00
Field Density Measurements	ea. (min 3 tests)	\$ 35.00	150	5,250.00
Wet Ball Mill Test	ea.	\$ 210.00	2	420.00
Texas Triaxial Compression	ea.	\$ 1,100.00	2	2,200.00
Texas Triaxial Compression	ea.	\$ 1,000.00	2	2,000.00
QA Series for Flexible Base	ea.	\$ 2,000.00	2	4,000.00
Soil-Cement Testing	ea.	\$ 1,100.00	3	2,750.00
Soil-Cement Testing	ea.	\$ 300.00	3	750.00
Soil-Lime Testing	ea.	\$ 1,100.00	6	6,875.00
Soil-Lime Testing	ea.	\$ 300.00	6	1,875.00
Soil-Lime Testing	ea pH.	\$ 20.00	6	125.00
Lime-Fly Ash Compression	ea.	\$ 1,100.00	1	1,375.00
Soil pH	ea.	\$ 20.00	13	250.00
Resistivity of Soils	ea.	\$ 50.00	50	2,500.00

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
PaveTex Engineering and Testing, Inc.
1.3 Materials Testing**

Thickness of Pavement Layers	per hr. (min 4 hrs.)	\$ 95.00	13	1,187.50
Triaxial Testing	ea.	\$ 950.00	1	950.00
Tube Suction Test	ea.	\$ 100.00	0	0.00
Sulfate Content in Soils	ea.	\$ 20.00	50	1,000.00
Conductivity of Sulfate Soils	ea.	\$ 10.00	13	125.00
Seismic Modulus-Moisture Curve	ea. curve	\$ 200.00	0	0.00
Tube Suction/Seismic Combo	ea. point	\$ 200.00	0	0.00
Aggregate Testing				
Sampling	hr.	\$ 47.00	3	117.50
Dry sieve	ea.	\$ 50.00	3	125.00
Washed sieve	ea.	\$ 50.00	3	125.00
Bulk Specific Gravity	ea.	\$ 70.00	1	87.50
Apparent Specific Gravity	ea.	\$ 70.00	1	87.50
Deleterious material	ea.	\$ 10.00	6	62.50
Decantation	ea.	\$ 90.00	6	562.50
Los Angeles abrasion	ea.	\$ 250.00	1	312.50
Magnesium sulfate soundness	ea.	\$ 250.00	1	312.50
Micro-Deval abrasion	ea.	\$ 250.00	1	312.50
Coarse aggregate angularity		\$ 30.00	1	37.50
	ea. (includes		1	
Flat and elongated particles	gradation)	\$ 100.00		125.00
Linear shrinkage	per bar	\$ 5.00	1	5.00
Sand equivalent	ea.	\$ 60.00	6	375.00
HMAC Testing				
Mix Design	ea.	\$ 2,500.00	0	0.00
Design Verification (Plant Mix)	ea.	\$ 250.00	1	250.00
Design Verification (Lab Mix)	ea.	\$ 600.00	1	750.00
Design Verification (Superpave)	ea.	\$ 750.00	0	0.00
Mixing	set of 3	\$ 75.00	2	150.00
Molding (TGC)	set of 3	\$ 60.00	13	750.00
Core Lock	set of 2	\$ 75.00	38	2,812.50
Laboratory-molded density	set of 3	\$ 40.00	13	500.00
VMA (calculation only)	ea.	\$ 5.00	13	62.50
HMA Stability	set of 3	\$ 45.00	1	56.25
Asphalt Content by Extraction	ea.	\$ 175.00	0	0.00
Asphalt Recovery	ea.	\$ 200.00	0	0.00
Moisture Content	ea.	\$ 25.00	1	31.25
Hydrocarbon Volatile Content	ea.	\$ 150.00	1	75.00
Deleterious Material & Decant	ea.	\$ 100.00	1	125.00
Flakiness Index or Flat/Elongated	ea.	\$ 100.00	1	125.00
Indirect Tensile Strength	ea.	\$ 50.00	1	62.50
Rice gravity	ea.	\$ 60.00	13	750.00
Asphalt Content by Nuclear Method	ea.	\$ 100.00	0	25.00
Mix Design for CMHB	ea.	\$ 2,500.00	1	1,250.00

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
PaveTex Engineering and Testing, Inc.
1.3 Materials Testing**

Draindown Test	ea.	\$ 85.00	1	106.25
Ignition oven calibration1	ea.	\$ 600.00	1	750.00
Gradation & asphalt content	ea.	\$ 160.00	5	800.00
Indirect tensile strength	ea.	\$ 50.00	1	62.50
Superpave Compaction	set	\$ 100.00	3	300.00
Hamburg wheel test	ea.	\$ 400.00	3	1,200.00
Overlay Test	ea.	\$ 600.00	3	1,800.00
Penetration of Bituminous Material	ea.	\$ 100.00	1	100.00
Boil test	ea.	\$ 50.00	1	50.00
Concrete Testing				
Sampling Fresh Concrete	hr,	\$ 48.00	220	10,560.00
Slump of Fresh Concrete	hr.	\$ 48.00	220	10,560.00
Air Content of Fresh Concrete	hr.	\$ 48.00	185	8,880.00
Unit Weight of Concrete	ea.	\$ 60.00	20	1,200.00
Strength Concrete Specimens	ea.	\$ 20.00	2,050	41,000.00
Temperature of Fresh Content	hr.	\$ 48.00	200	9,600.00
Pavement Thickness	ea.	\$ 120.00	10	1,200.00
Testing Drilled Cores of Concrete	ea.	\$ 50.00	25	1,250.00
Strength of Grouts	ea.	\$ 30.00	13	375.00
			TOTAL	10,399 \$ 694,801.25

Fee Conditions

The above engineering and technician fee rates, includes all labor, equipment and transportation to complete the specified services. Minimum of four (4) hours charged for field work. Overtime rates will apply when personnel works more than eight (8) hours within a twenty-four (24) hour period. All weekend hours will be charged as overtime hours. Weekends beginning from Friday to 6:00 P.M. to Monday 6:00 A.M.

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
Terracon Consultants, Inc.
1.3 Materials Testing**

Personnel	Unit	Price	Quantity	Extended
Consultant, Principal, Officer, P.E.	hr.	\$176.80	2	353.60
Senior, Engineer, P.E./Geologist	hr.	\$132.34	10	1,323.40
Project Manager	hr.	\$ 99.64	38	3,786.32
Project Engineer /Geologist	hr.	\$ 84.84	2	169.68
Transportation				
Vehicle Charge	day	\$ 55.00	70	3,850.00
Mileage (outside Travis Co.), IRS Rate	mile	\$ 0.06	0	0.00
Construction Materials Field Technicians (3 hr. minimum)				
Soil Technician	hr.	\$ 56.86	24	1,364.64
Soil Technician, overtime	hr.	\$ 85.29	4	341.16
Structural Steel Technician				
CWI	hr.	\$ 65.00	10	650.00
CWI, overtime	hr.	\$ 97.50	2	195.00
NDT,	hr.	\$ 80.00	10	800.00
NDT, overtime	hr.	\$120.00	2	240.00
Bolting Inspection	hr.	\$ 65.00	4	260.00
Bolting Inspection, overtime	hr.	\$ 97.50	2	195.00
Ultrasonic Test Equipment	day	\$ 90.00	2	180.00
Reinforcing Steel Detection Equipment (Hilti Ferroscon)	day	\$220.00	1	220.00
Geotechnical Field Services for Conventional Truck-Mounted Drill Rig				
Mobilization of Drill Rig (within 50-mile radius of office)	ea.	\$300.00	2	600.00
Additional Mileage of Rig (beyond 50-mile radius from office)	mile e/way	\$ 3.50	2	7.00
Mobilization of Drill Crew Support Vehicle (within 25-mile radius of office)	day	\$ 40.00	2	80.00
Addl Mileage of Support Vehicle (beyond 25-mile radius)	mile e/way	\$ 1.50	2	3.00
Drill Crew Hourly Rate (two-man crew)	hr	\$200.00	2	400.00
Drill Crew Per Diem	man-day	\$125.00	0	0.00
Grouting of Borings with bentonite or sak-crete	ft	\$ 5.00	4	20.00
Minimum Drilling Fee	project	\$700.00	2	1,400.00
Soil Sampling, using either 3-inch thin-wall tube sampling (Shelby tube) or 2-inch split-barrel sampling (SPT) in soil, at approximate 2-foot intervals from 0 to 10 feet in depth and at approximate 5-foot intervals beyond 10 feet.				
0 to 50 feet	ft	\$ 14.00	45	630.00
50 to 100 feet	ft	\$ 17.00	2	34.00
Auger boring (no sampling)	ft	\$ 12.00	2	24.00
Additional charge for using Hollow Stem Augers (if required)				
0 to 50 feet	ft	\$ 4.00	2	8.00
50 to 100 feet	ft	\$ 6.00	2	12.00
Additional Shelby Tube or SPT samples				
0 to 50 feet	sample	\$ 20.00	2	40.00
50 to 100 feet	sample	\$ 25.00	2	50.00

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
Terracon Consultants, Inc.
1.3 Materials Testing**

TxDOT Cone Penetrometer tests

0 to 50 feet	sample	\$ 25.00	5	125.00
50 to 100 feet	sample	\$ 30.00	2	60.00

Rock Coring, using either carbide or diamond-impregnated bits with Nx core barrels obtaining continuous samples:

Soft formations:

0 to 50 feet,	ft	\$ 18.00	4	72.00
50 to 100 feet	ft	\$ 22.00	2	44.00

Hard formations:

0 to 50 feet,	ft	\$ 20.00	2	40.00
50 to 100 feet	ft	\$ 24.00	2	48.00

NOTE: a. Drilling with All-Terrain Vehicle (ATV) or Track-Mounted rigs in unusually soft, wet, and/or steep areas can be quoted upon request.
b. Drilling to depths beyond 100 feet can be quoted upon request.
c. Rock coring of very hard formations such as granite and marble can be quoted upon request.
d. Any other special sampling or drilling technique can be quoted upon request, as needed.

Laboratory Strength and Volume Change Tests

Unconfined Compression Test (soil)	ea.	\$ 30.00	7	210.00
Unconfined Compression Test (rock)	ea.	\$ 35.00	2	70.00

Triaxial Compression Tests:

Unconsolidated - Undrained	circle	\$185.00	2	370.00
Consolidated - Undrained (with pore-pressure measurements)	circle	\$440.00	2	880.00

Direct Shear Test:

Consolidated - Undrained	point	\$160.00	1	160.00
Consolidated - Drained	point	\$250.00	1	250.00

Absorption Swell Tests:

Single Pressure	test	\$ 50.00	1	50.00
Additional Pressures	ea.	\$ 50.00	1	50.00
Consolidation Test, regular with increasing load increments (max 7 loads)	ea.	\$440.00	2	880.00
Additional Load Increments	ea.	\$ 50.00	2	100.00
Plotted Time Curves	ea.	\$ 70.00	2	140.00
Additional Unload-Reload Cycles	ea.	\$110.00	2	220.00

Testing of Soils and Base Materials

Sample Preparation (Tex-101-E)	ea.	\$ 52.00	4	208.00
Natural Moisture Content	ea.	\$ 9.00	4	36.00
Sieve Analysis (Tex-110-E, Part I)	ea.	\$ 60.00	4	240.00
Sieve Analysis (Tex-110-E, Part III)	ea.	\$ 60.00	4	240.00
Atterberg Limits (Liquid & Plastic Limits Tex-104-E, 105-E, & 106-E)	ea.	\$ 55.00	6	330.00
Percent Passing No. 200 Sieve (Tex-111-E)	ea.	\$ 40.00	6	240.00
Bar Linear Shrinkage of Soils (Tex-107-E)	ea.	\$ 37.00	5	185.00
Moisture Density Relationship (Tex-113-E)	ea.	\$215.00	2	430.00
Moisture Density Relationship (Tex-114-E, Part I or Part II)	ea.	\$215.00	2	430.00

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
Terracon Consultants, Inc.
1.3 Materials Testing**

Permeability of Silt or Clay (ASTM D 5084)	ea.	\$340.00	2	680.00
Soil Specific Gravity (Tex-108-E)	ea.	\$ 57.00	4	228.00
Chloride & Sulfate Content (Tex-620-J)	ea.	\$ 70.00	5	350.00
Soil pH value (Tex-128-E)	ea.	\$ 26.00	5	130.00
Soil Resistivity (Tex-129-E)	ea.	\$105.00	5	525.00
Density Determination (Shelby tube sample)	ea.	\$ 15.00	2	30.00
Hydrometer Analysis (ASTM D 422)	ea.	\$120.00	4	480.00
Laboratory CBR Tests	ea.	\$315.00	2	630.00
Soil-lime Relationship: PI Method	ea.	\$420.00	5	2,100.00
Soil-lime Relationship: pH Method	ea.	\$210.00	2	420.00
Soils Field Services				
In place density / moisture test, nuclear method (ASTM D 2922 / ASTM D 3027), per hour	hr	\$ 56.86	150	8,529.00
Soils Technician, overtime, per hour	hr	\$ 85.29	30	2,558.70
		TOTAL	551	\$40,005.50

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
McGray & McGray Land Surveyors, Inc.
1.4 Survey Support**

SCOPE SERVICE NO.	POSITION/TITLE	FULL/PART TIME	REQUIRED DURATION (Months)	ESTIMATED HOURS	RATE	EXTENDED
1.4	Sr. Group Manager/Survey Manager	PT	23	20	\$ 55.00	3,234.00
1.4	Survey Crew- 3 man crew	PT	23	15	\$ 180.00	7,938.00
1.4	Senior Surveyor II/Surveyor Supervisor	PT	23	19	\$ 45.00	2,513.70
1.4	Senior Survey Technician/Sr. Survey Technician	PT	23	10	\$ 23.00	676.20
1.4	Survey Technician/Survey Technician	PT	23	10	\$ 21.00	617.40
TOTAL						\$ 14,979.30

**ATTACHMENT B
FEE ESTIMATE**

**CTRMA 290E SEGMENT 1
Construction Management - Fee Estimate - Expense Detail**

All expenses to be incurred on this project are incorporated into the corresponding company's overhead rates.