

HIDALGO COUNTY
Professional Engineering Services
Contract # C-14-364-05-05
Work Authorization Form

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 1 of the Agreement made by and between HIDALGO COUNTY, action herein by and through the Commissioner's Court, hereinafter called the "Owner," and, L&G Consulting Engineers, Inc. d/b/a L&G Engineering, professional engineers of Mercedes, Texas hereinafter called "Engineer".

PART 1. SCOPE OF WORK

The purpose of this Work Authorization is for the Engineer to provide Engineering Services required for Construction Management Services, Construction Inspection and Construction Material Testing for the Mile 2 North Roadway Reconstruction project from La Homa (SH 364) to Moorefield Road.

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

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

PART 2. ESTIMATED COST

The estimated cost for services under this Work Authorization is \$226,373.22. This amount is based upon the costs outlined in the Estimated **Cost Proposal** attached hereto as *EXHIBIT "D-1" - Estimated Man-hour Breakdown*.

PART 3. PAYMENT

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

PART 4. FUNDING

This Work Authorization No. 1 shall be funded through funding source:

Account No. _____

Requisition Number _____ (MUST BE INCLUDED AFTER CC APPROVAL)

PART 5. PERIOD OF SERVICE

This Work Authorization shall become effective on the date of final acceptance of the parties hereto, and terminate upon completion of scopes of the work authorization, as identified on *EXHIBIT "C" - Work Schedule*.

PART 6. RESPONSIBILITIES AND OBLIGATIONS

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

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

Acknowledgement and confirmation by Hidalgo County Precinct No. 3, Commissioner Joe Flores as to the content and detail of this Work Authorization No. 1.

**HIDALGO COUNTY
COMMISSIONER PRECINCT NO. 3**

BY:_____

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on _____ as indicated below.

**THE ENGINEER:
L&G ENGINEERING**

**THE OWNER:
HIDALGO COUNTY**



By: Jacinto Garza, P.E.
President

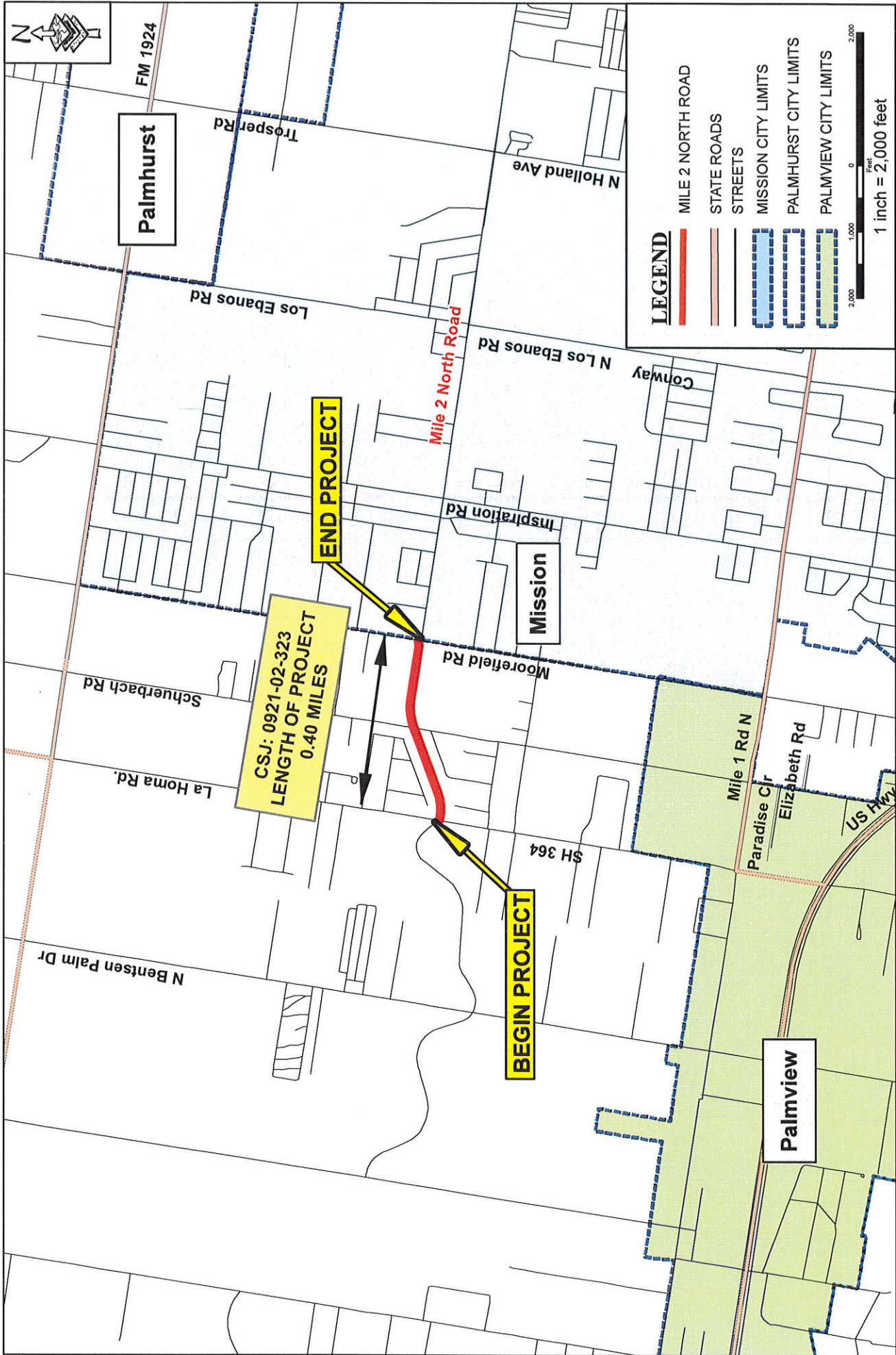
By: Ramon Garcia,
County Judge

ATTEST:

By: Arturo Guajardo, Jr., County Clerk

LIST OF EXHIBITS

- Location Map
- Exhibit A - Services to be provided by Owner
- Exhibit B - Services to be provided by Engineer
- Exhibit C - Work Schedule
- Exhibit D-1 - Estimated Man-hour Breakdown



MILE 2 NORTH ROAD PROJECT LOCATION MAP
 APPROX. LENGTH: 0.60 MILES

CSJ: 0921-02-323 - FROM LA HOMA RD TO MOOREFIELD RD APPROX. LENGTH: 0.60 MILES

L & G Engineering
 Transportation Consulting Engineers








EXHIBIT "A"
SERVICES TO BE PROVIDED BY THE OWNER

The following provides an outline of the services to be provided by the **County** in the development of the **Project**.

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

- 1) Authorization to the Engineer to begin.
- 2) Payment for work performed by the Engineer.
- 3) Assistance to the Engineer, as necessary, to obtain required data and information from other local, regional, and state agencies that the Engineer cannot easily obtain.
- 4) Provide timely review and decisions in response to the Engineers request for information and/or submittals and deliverables.
- 5) Attend and participate in progress meetings as required and as coordinated and conducted by the Engineer.
- 6) Attend pre-construction conferences coordinated and conducted by the Engineer.
- 7) Review and approve monthly and final estimates, developed by the Engineer, for payment to the Contractor.
- 8) Compensate and pay the Contractor for work performed as identified in the approved monthly and final estimates.

PROJECT DESCRIPTION

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

County/City: Hidalgo County

Control: _____

Project/Description: Construction Management Services, Construction Inspection and Construction Material Testing for the Mile 2 North Roadway Reconstruction Project

Length: 0.60 Miles

Highway: Mile 2 North

Limits: from SH 364 (La Homa) to Moorefield Road

PROJECT CLASSIFICATION

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

NOTES

ENGINEER shall mean L&G Engineering.

STATE shall mean Texas Department of Transportation.

COUNTY shall mean the Hidalgo County.

CONSTRUCTION PHASE SERVICES
(Function Code 320)

Services
Provided By:
ENGINEER COUNTY

YES NO **CONSTRUCTION MANAGEMENT SERVICES:**

The ENGINEER will provide engineering, geotechnical testing and support services for and during the construction of the Project or portions of the Project approved by the COUNTY. Specific (basic and special) services for CONSTRUCTION MANAGEMENT AND SUPPORT by the ENGINEER will include the following:

N/A N/A **Construction Bidding:**

- 1) The ENGINEER will furnish the COUNTY the necessary copies of approved plans, specifications, notices to bidders, and proposals as prepared under PS&E.
- 2) The ENGINEER will assist the COUNTY on the tabulation of bids, recommendations to the Owner as to the proper action on all bid proposals received, and the preparation of formal contract documents for the award of each construction contract.

YES NO **Construction Contract Administration and Inspection:**

- 3) In general, the ENGINEER will provide the management and engineering support/data required for consultation and advisement to the COUNTY and act as the COUNTY's representative as provided in the General Condition of the Construction Contract.
- 4) The ENGINEER will coordinate and conduct a pre-construction conference (as required).
- 5) Defects and Deficiencies. The ENGINEER will use his best efforts to protect the COUNTY against defects and deficiencies in the work of the Contractor. The ENGINEER will promptly notify the COUNTY of any such defect or deficiency, and take all steps possible to require the Contractor to correct the defect or deficiency.
- 6) Contractor Payment. The ENGINEER will review quantities as submitted by the Contractor and will coordinate with the COUNTY for the preparation of the monthly and final estimates for payment to the Contractor.
- 7) The ENGINEER will provide Project site inspection of the authorized construction contract as follows:
 - a) Project Engineer. The ENGINEER will provide visits by the Project Engineer or a competent representative of the ENGINEER to the site of construction for the purpose of monitoring the Contractor's progress and conformance to the construction contract plans and specifications.
 - b) Resident Engineer and/or Construction Inspector(s). The ENGINEER will furnish the services of a Resident Engineer and/or Construction Inspector(s) for on the site inspection construction to monitor/inspect the Contractor's daily progress and conformance to TxDOT's PS&E specifications.

YES NO **Miscellaneous Technical Activities:**

- 8) Shop Drawings. The ENGINEER will review and check all shop or working drawings furnished by the Contractor.

- 9) Control of Materials & Equipment. The ENGINEER will provide inspection of all materials and equipment furnished/used by the Contractor as follows:
 - a) Review and record all laboratory, shop and mill tests of materials and equipment for compliance with the construction contract specifications.
 - b) Observe and/or perform Project record testing and/or independent assurance testing as outlined in the construction contract specifications.
 - c) Verify the concrete and asphalt design to assure it is in accordance with TxDOT specifications to be developed by the contractor.
- 10) Change Orders. When applicable the ENGINEER will prepare the engineering data, including plan sheet drawings, specifications, and estimates, for the preparation of construction contract change orders, which may be required due to actual field conditions encountered or new requirements directed by the COUNTY.
- 11) Final Acceptance. Following the completion of construction by the Contractor, the Engineer will provide the services required for the final inspection and recommendation for project acceptance. This will include coordinating the activities required for the inspection for conformance and recordkeeping of the necessary performance tests required by the construction contract specification. The Engineer will also review and approve all as-built drawings (to show the work as actually constructed) and furnish to the county three sets (3) of prints of the as-built drawings.

YES

NO

CONSTRUCTION MATERIAL TESTING:

The ENGINEER will provide the COUNTY with construction material testing services for the Project. The services to be provided include sampling and testing of all construction materials as required by the project plans and specifications. All sampling frequencies and test procedures will be performed in general accordance with the Texas Department of Transportation TEX methods (or ASTM methods as required) as outlined in the Guide Schedule for Sampling and Testing. The construction material testing includes, but is not limited to the following:

- (a) Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.
- (b) Field density testing of soils and base materials to ensure proper compaction as required by project plans and specifications.
- (c) Field sampling and testing of fresh concrete, and laboratory testing of hardened concrete to determine compliance with project plans and specifications.
- (d) Field compaction testing of asphalt to ensure proper compaction during lay down operations.
- (e) Field sampling and laboratory testing of asphalt materials to determine their material properties and their compliance with project plans and specifications.
- (f) Concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site (as required).

Exhibit “B”

Scope of Services

Services to be Provided by the Engineer

General Project Information

B2Z, through this scope of services, shall provide Assistant Project Management Activities w/ Respect to Laboratory Operations. The scope of said services is anticipated to be geared towards Construction Material Testing & Geotechnical Engineering Oversight for the Mile 2 roadway improvement project from SH 364 (La Homa) to Moorefield Rd. in Hidalgo County, hereinafter denoted as the **Project**.

B2Z shall provide all engineering services as noted under this scope of services for the **Engineer**. **B2Z** shall maintain a direct line of communication and coordinate with the **Engineer** throughout the project.

B2Z shall furnish all equipment, materials, supplies, and incidentals as needed to perform the services required, except as otherwise specified to be provided by the **Engineer**.

Specific activities to be performed by **B2Z** include the following:

Task 1 – Field Visits & Record Audits (Bi-Monthly)

Field Visits:

B2Z will conduct field visits on the **Project** to assure that acceptable tolerance limits specified for the following materials are being met in accordance with TxDOT requirements (this may include verification testing):

- Embankment, Existing Subgrade, Flexible Base
- Asphalt Concrete Pavement (ACP)
- Concrete (Structural & Non-Structural)

Record Audits:

B2Z will perform random audits of the **Engineer’s** records to ensure that full documentation exists for accepting all materials on the job. These may include but not be limited to the following:

- Documentation required to support payment of “Material on Hand” requests
- Material Certifications received from manufactures (i.e. pipes, boxes, etc.)
- Verification that materials received on the **Project** are from TxDOT Approved Sources
- Ensure that all material sourcing documents are available for all materials brought to the **Project**
- All required tests on structural concrete components have either been performed or are originated from TxDOT approved sources (Quality Monitoring Program)
- Review of Mix Designs Certifications and Batching Reports for ACP & Concrete
- Ensure that all failing test reports are documented and retested in accordance with ASTM and/or TxDOT testing procedures

Task 2 – Assist in Construction Related Issues (Geotechnical & Structural)

B2Z will provide necessary guidance to the **Engineer** on all construction related issues having to do with the following:

- Stabilization of in situ materials (i.e. lime stabilization of subgrade, high P.I. materials, etc.)
- Ensure appropriate concrete mix design for construction of siphons on the **Project**
- Verify adequate foundation material at the location of the box placement prior to installation of bedding material

B2Z will assist in the review and processing of any Request for Information (RFI) documents related to Geotechnical and/or Structural issues.

Task 3 – Coordination & Compliance w/ Respect to Specifications Between Field Related Activities & Lab Techs

B2Z will assure that all field test results are within acceptable tolerances of the **Project's** specifications prior to acceptance. The **Engineer** will also conduct random field and laboratory visits to ensure that all testing procedures are being done in accordance with the governing specifications.

B2Z will work with the **Engineer's** field representative to ensure that all testing is ordered in accordance with 2010 TxDOT's Guide for Testing Frequencies (i.e. appropriate number of tests for the amount of material installed).

Task 4 – Quality Assurance & Quality Control of Lab Testing Procedures, Reports & Frequencies (Field & Laboratory)

B2Z will ensure compliance with the **Engineers** in-house QA/QC manual. The various aspects of QA/QC include, but are not limited to the following:

- Provide frequent verification with the materials (i.e. flex base) that it is originating from an approved stock pile
- Provide visits to concrete/asphalt plants to assure materials that are being used for structural concrete and ACP are what has been submitted with the certification documents
- **B2Z** will provide monthly reports on the QA/QC review of all test reports conducted on the **Project**

Task 5 – Meetings / Coordination / Management Oversight

B2Z will attend and participate in all construction meetings with the **Engineer** on the **Project**. **B2Z** will provide guidance for material related concerns to minimize construction delays and/or issues. **B2Z** will continuously coordinate with the **Engineer** and report any non-compliance issues that may arise during the course of the construction phase of the **Project**.

EXHIBIT D-1

ESTIMATED PROJECT FEE SCHEDULE AND MAN-HOUR BREAKDOWN MILE 2 NORTH ROADWAY RECONSTRUCTION PROJECT

SECTION III (from SH 364 (La Homa) to Moorefield Road) – CSJ: 0921-02-323:

- L&G Construction Management and Inspection Services: \$172,829.62 *(see Page 2 & 3 of 8 for breakdown)*
- Construction Material Testing Services: \$ 39,708.12 *(see Page(s) 4,5,6 & 7 of 8 for breakdown)*
- Sub-consultant Cost (B2Z) \$ 13,835.48 *(see Page 8 of 8 for breakdown)*

SECTION I ---- SUB-TOTAL: \$226,373.22

TOTAL OF WORK AUTHORIZATION NO. 1:	\$226,373.22
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EXHIBIT D-1

**ESTIMATED PROJECT FEE SCHEDULE AND MAN-HOUR BREAKDOWN
MILE 2 NORTH ROADWAY RECONSTRUCTION PROJECT**

(CSJ: 0921-02-323): from La Homa (SH 364) to Moorefield Road

	MANHOURS													TOTAL HOURS	TOTAL LINE ITEM COST
	Senior Project Manager	Engineer (V)	Senior Environmental Scientist	Engineer III	Engineering Lab Manager	Engineer Tech	Project Inspector V	Record Keeper	Project Inspector I	CADD Operator / GISAnalyst	Admin / Clerical	Soil & Aggregate Technician	Concrete & Asphalt Technician		
CONTRACT RATE	211.81	180.66	152.63	133.94	105.91	93.45	87.22	84.10	68.53	68.53	62.30	52.95	52.95		
(CSJ: 0921-02-323):															
CONSTRUCTION MANAGEMENT & INSPECTION SERVICES: (Est. 6 months for utility delay start, 1 month pre-construction, 6 months construction and 1 month for post construction)															
CONSTRUCTION BIDDING:															
1) The ENGINEER will furnish the County the necessary copies of approved plans, specifications, notices to bidders and proposals as prepared under PS&E.															
2) The ENGINEER will assist the County on the tabulation of recommendations to the Owner as to the proper action on all bid proposals received, and the preparation of formal contract documents for the award of each construction contract.															
ADMINISTRATION:															
3) Maintain communication and coordinate with Municipality, Design Engineer, Hidalgo County, TxDOT and Construction Contractor(s) on a regular basis.															
4) Review, approve or reject project submittals and invoices for processing.															
5) Coordinate with the public and any affected property owners															
6) Provide review, feedback, or guidance on Change Orders as prepared by the contractor.															
7) Accompany Design Engineer, State or Federal representatives and Municipality representatives on visits to the project.															
8) Attend and conduct all job related meetings, Construction Status meetings and Final Inspection with the Design Engineer, State or Federal representatives and Municipality representatives. to include final inspection.															
9) Calculate and verify the final contract quantities.															
10) Review and submit to the Design Engineer any suggestions or requests made by the contractor to change or modify any requirements of the Plans or Contract Documents.															
11) Prepare a Contractors progress payment estimate on a bi-weekly basis.															
12) Issue a Certificate of Substantial Completion at the appropriate time.															
13) Provide certification to the Municipality and TxDOT that this project was constructed as designed, subject to appropriate and necessary revisions during construction, in conformance with all project specifications and that all necessary contract provisions were fully complied with.															
CONSTRUCTION MANAGEMENT:															
Construction Phase Services:															
1) Attend meetings as necessary, provide written reports (Performed in task Administration #8)															
2) Provide cost control and value management on change orders															
3) Assure quality and completeness of the work with continued on-site and office support monitoring and inspections															
4) Maintain job safety measures															
5) Monitor project schedule, provide weekly updates															
Post Construction Phase Services:															
1) Provide all closeout documents															
2) Coordinate final acceptance of projects															

COMPLETED BY COUNTY

CONSTRUCTION INSPECTION:														
1) Maintain a presence on the project during times when contractor activities are underway and be on-site at all times during construction activities of the project requiring certification to be able to certify, on completion of the project, that the project was built as designed. Prepare Daily Reports, including quantities, locations of work, weather conditions, and weekly progress reports. Review and verify traffic control activities to include inspection of barricades and traffic control devices.							212	266	1210				1688	\$ 123,782.54
2) Check that the contractor is in compliance with all construction contract requirements. Municipality permits and ordinances; property rights agreements; erosion and sediment control and stormwater management plans state permits, regulations and statutes; and federal regulations and statutes; and exercise the engineer's authority as provided in the contract documents and report immediately any deviations to the City and Construction Manager (CM).				16				8					24	\$ 2,815.84
3) Maintain a photographic record of the progress of construction, annotating such photos to indicate their content and context including date. This photographic record must be available for reference by the Construction Manager, Design Engineer, State or Federal representatives, and Municipality representatives.						12							12	\$ 1,121.40
4) Inspect and approve material sources and water, borrow and staging areas.			2				4	4					10	\$ 953.16
5) Receive materials certifications, computations and reference materials submitted by the Contractor. Verify compliance with the Buy America Act. Maintain files on the project site of all items submitted by the contractor and of work done on behalf of the Municipality.								4					4	\$ 336.40
6) Track utility relocations and plot final facility locations on the final as-built plans (if any).						24							24	\$ 2,242.80
7) Erosion control monitoring in accordance with applicable permits.									8				8	\$ 672.80
8) Develop final as-built plans by marking up a set of contract plans.						24							24	\$ 2,242.80
9) Check that completed work complies with the plans and specifications and is true to line and grade.				8									8	\$ 1,071.52
10) Organize an inspection of work completed at such time as contractor may claim substantial completion, with a contractor's representative, Design Engineer, State, Federal & Local representatives, and issue a list of items to be corrected or completed.				4									4	\$ 535.76
SUB-TOTAL	0	50	0	210	0	60	216	298	1210	0	52	0	0	2,096 \$ 172,829.62

Construction Management & Inspection Sub-Total:	\$ 172,829.62
Construction Material Testing (CMT) Sub-Total:	\$ 39,708.12
B2Z Engineering (See Detailed Proposal) Sub-Total:	\$ 13,835.48
Grand Total:	\$ 226,373.22

EXHIBIT D-1
ESTIMATED MAN-HOURS AND TEST BREAKDOWN

Hidalgo County - Mile 2 North Project (From SH 364 (La Homa Rd.) to Moorefield Rd.) - <u>CSJ: 0921-02-323</u> Construction Materials Testing								
Embankment (Test All Fill Material Including Cut From Job) (ITEM 132)								
<ul style="list-style-type: none"> • Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications. • Field density testing of soils and base materials to ensure proposer compaction as required by project plans and specifications. 								
								9362C/939F CY
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total	
Liquid Limit	Tex-104-E	PI>15 ~ Every 5,000 CY	included with PI	Each		\$47.70	\$0.00	
Plasticity Index	Tex-106-E	PI>15 ~ Every 5,000 CY	1 per Cut & 1 per Fill (Job)	Each	2	\$68.90	\$137.80	
Gradation	Tex-110-E	Every 10,000 CY	1 per Cut & 1 per Fill (Job)	Each	2	\$68.90	\$137.80	
Moisture/Density	Tex-114-E	One per Each Material	1 Exist (Assume Borrow)	Each	1	\$174.90	\$174.90	
In-Place Density	Tex-115-E	Every 5,000 CY or 6,000	At Least 3 on Job	Each	3	\$26.50	\$79.50	
Reports			LL/PI, Grad, MD, FD	Each	7	\$20.00	\$140.00	
Tech Time (Soils)			4 hrs - PI,Gr,MD, 2 hrs - FD	Hour	18	\$52.95	\$953.10	
# of Trips (Tech)			4 Trips (50 Miles RT)	Mile	200	\$0.55	\$110.00	
**Admin/Clerical				Hour	3	\$62.30	\$186.90	
							Item Subtotal	\$1,920.00
Subgrade (Lime Treated) (ITEM 260)								
<ul style="list-style-type: none"> • Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications. • Field density testing of soils and base materials to ensure proposer compaction as required by project plans and specifications. 								
								7,045 CY
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total	
Liquid Limit	Tex-104-E		included with PI	Each		\$47.70	\$0.00	
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	2	\$68.90	\$137.80	
Gradation	Tex-110-E	Each 5,000 CY		Each	2	\$68.90	\$137.80	
Moisture/Density	Tex-114-E	Every 20,000 CY	assume 1 on Prj	Each	1	\$174.90	\$174.90	
In-Place Density	Tex-115-E	Every 3,000 CY	Use thru Prj - 1 Lift	Each	3	\$26.50	\$79.50	
Reports			LL/PI, MD, FD	Each	8	\$20.00	\$160.00	
Tech Time (Soils)			4 hrs - PI,Gr,MD, 2 hrs - FD	Hour	18	\$52.95	\$953.10	
# of Trips (Tech)			4 Trips (50 Miles RT)	Mile	200	\$0.55	\$110.00	
**Admin/Clerical				Hour	3	\$62.30	\$186.90	
							Item Subtotal	\$1,940.00
Flexible Base (Untreated - Stockpile Testing) (ITEM 247)								
<ul style="list-style-type: none"> • Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications. • Field density testing of soils and base materials to ensure proposer compaction as required by project plans and specifications. 								
								4,742 CY
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total	
Liquid Limit	Tex-104-E		included with PI	Each		\$47.70	\$0.00	
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	1	\$68.90	\$68.90	
Gradation	Tex-110-E	Each 5,000 CY		Each	1	\$68.90	\$68.90	
Moisture/Density	Tex-113-E	Every 20,000 CY		Each	1	\$174.90	\$174.90	
Wet Ball Mill	Tex-116-E	Every 20,000 CY		Each	1	\$165.00	\$165.00	
Triaxial	Tex-117-E	Every 20,000 CY		Each	1	\$370.00	\$370.00	
Reports			LL/PI, MD, WB, Triaxial	Each	5	\$20.00	\$100.00	
Tech Time (Soils)			4 hrs - LL,PI,MD & WB/Triax.	Hour	12	\$52.95	\$635.40	
# of Trips (Tech)			1 Trip (50 Miles RT)	Mile	50	\$0.55	\$27.50	
**Admin/Clerical				Hour	3	\$62.30	\$186.90	
							Item Subtotal	\$1,797.50

Flexible Base (Lime Treated) (ITEM 247)							
<ul style="list-style-type: none"> • Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications. • Field density testing of soils and base materials to ensure proposer compaction as required by project plans and specifications. 							
							4,742 CY
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Liquid Limit	Tex-104-E		included with PI	Each		\$47.70	\$0.00
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	1	\$68.90	\$68.90
Gradation	Tex-110-E	Each 5,000 CY		Each	1	\$68.90	\$68.90
Moisture/Density	Tex-113-E	Every 20,000 CY	Complete Mixture	Each	1	\$174.90	\$174.90
In-Place Density	Tex-115-E	Every 3,000 CY	Inc. to at Least 3 on Job	Each	3	\$26.50	\$79.50
Reports			MC, LL/PI, MD, FD	Each	6	\$20.00	\$120.00
Tech Time (Soils)			4 hrs - PI,Gr,MD, 2 hrs - FD	Hour	14	\$52.95	\$741.30
# of Trips (Tech)			4 Trips (50 Miles RT)	Mile	200	\$0.55	\$110.00
**Admin/Clerical				Hour	3	\$62.30	\$186.90
Item Subtotal							\$1,550.40
Asphalt Concrete Pavement (Item 3268 - HMA-QC/QA)							
<ul style="list-style-type: none"> • Field compaction testing of asphalt to ensure proper compaction during lay down operations. • Field sampling and laboratory testing of asphalt materials to determine their material properties and their compliance with project plans and specifications. 							
							3,228 Tons
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Coarse Aggr.			Stockpile				
L.A. Abrasion	Tex-410-A	1 Per Project Per Source	if BRSQC meets Project Spec ~	Each	0	\$530.00	\$0.00
Soundness	Tex-411-A	1 Per Project Per Source	if BRSQC meets Project Spec ~	Each	0	\$530.00	\$0.00
Gradation	Tex-200-F	1 Per Project Per Source		Each	1	\$68.90	\$68.90
MicroDeval	Tex-461-A	1 Per every 12 Sublots	May be Eliminated based on	Each	0		
Flat & Elongated Particles	Tex-280-F	1 Per Project Per Source		Each	1	\$63.60	\$63.60
Coarse Aggr. Angularity	Tex-460-A (Part I)	1 Per Project Per Source		Each	1	\$61.00	\$61.00
Del. Matl. and Decant	Tex-217-F	1 Per Project Per Source		Each	1	\$42.40	\$42.40
Fine Aggr.			Stockpile				
Bar Linear Shrinkage	Tex-107-E	1 Per Project Per Source		Each	1	\$68.90	\$68.90
Organic Impurities	Tex-408-A	1 Per Project Per Source		Each	1	\$35.00	\$35.00
Gradation	Tex-200-F	1 Per Project Per Source		Each	1	\$68.90	\$68.90
Mineral Filler			Bin or Silo				
Bar Linear Shrinkage	Tex-107-E	1 Per Project Per Source	Assume No Filler	Each	0	\$68.90	\$0.00
Gradation	Tex-200-F	1 Per Project Per Source	Assume No Filler	Each	0	\$68.90	\$0.00
Combined Aggr.			Stockpile or Feeder Belt				
Sand Equivalent	Tex-203-F	1 Per Project Per Source		Each	1	\$79.50	\$79.50
Complete Mix			Truck Sample				
Asphalt Content (%)	Tex-236-F	1 Per Lot Per Design		Each	4	\$95.40	\$381.60
Voids in Mineral Aggr. (VMA)	Tex-207-F	1 Per Sublot Per Design	with 227-F Rice Gravity	Each	16	\$116.60	\$1,865.60
Gradation	Tex-236-F	Min 1 Per 12 Sublots Per		Each	2	\$95.40	\$190.80
Boil Test	Tex-530-C	1 Per Project Per Source	Waived by Engineer	Each	0	\$84.80	\$0.00
Indirect Tensile - Dry	Tex-226-F	1 Per Project Per Source	Waived by Engineer	Each	0	\$636.00	\$0.00
Moisture Content	Tex-212-F (Part II)	1 Per Project Per Source		Each	1	\$15.90	\$15.90
Lab Molded Density	Tex-207-F	1 Per Sublot Per Design		Each	16	\$62.00	\$992.00
Hamburg Wheel Tracker	Tex-242-F	1 Per Project Per Source	Make Contractor Perform Test	Each	0	\$700.00	\$0.00
Roadway			At Site				
Field Coring		2 Cores Per Sublot Per	For Tex-207-F	Each	32	\$58.30	\$1,865.60
In-Place Air Voids	Tex-207-F	2 Cores Per Sublot Per		Each	32	\$26.50	\$848.00
Segregation Profile	Tex-207-F (Part V)	1 Per Project Per Source	Inc. to 1 per Lot (3268)	Each	1	\$320.00	\$320.00
Joint Density	Tex-207-F (Part VII)	1 Per Project Per Source	Inc. to 1 per Lot (3268)	Each	1	\$320.00	\$320.00
Tack Coat Adhesion	Tex-243-F	1 Per Project Per Source	Waived by Engineer	Each	0	\$105.00	\$0.00
Thermal Profile	Tex-244-F	1 Per Project Per Source	Inc. to 1 per Lot (3268)	Each	1	\$60.00	\$60.00
Ride Quality	Tex-1001-S	Engineer may verify	Make Contractor Perform Test	Each	0		\$0.00
Reports				Each	82	\$20.00	\$1,640.00
Tech Time (Aggr)			16 hours per 1 days (trips/test -	Each	16	\$52.95	\$847.20
Tech Time (Asph)			12 hours per 4 days	Hours	48	\$52.95	\$2,541.60
# of Trips (Tech)			5 Trips (50 Miles RT)	Mile	250	\$0.55	\$137.50
**Admin/Clerical				Hours	24	\$62.30	\$1,495.20
Item Subtotal							\$14,009.20

Hydraulic Cement Concrete Drilled Shafts ~ Traffic Signal (Class C)

- Field sampling and testing of fresh concrete and laboratory testing of hardened concrete to determine compliance with project plans and specifications.
- Concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site (as required).

							16 CY (2 Loc.)	
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total	
Coarse Aggr.			QA Test. (QC by Source)					
Decantation	Tex-406-A	Each 20,000 CY(or source)		Each	1	\$42.40	\$42.40	
Sieve Analysis	Tex-401-A	Each 1,000 CY(ea source)	5 Sieve	Each	1	\$68.90	\$68.90	
Deleterious Matl.	Tex-413-A	Each 20,000 CY(or source)		Each	1	\$42.40	\$42.40	
L.A. Abrasion	Tex-410-A	Two Each Source	if CRSQC meets Project Spec ~	Each	0	\$275.00	\$0.00	
Soundness	Tex-411-A	Two Each Source	if CRSQC meets Project Spec ~	Each	0	\$400.00	\$0.00	
Fine Aggr.			QA Test. (QC by Source)					
Sand Equivalent	Tex-203-F	Each 1,000 CY(ea source)		Each	1	\$79.50	\$79.50	
Organic Imp.	Tex-408-A	One Per Project Per Source		Each	1	\$35.00	\$35.00	
Sieve Analysis	Tex-401-A	Each 1,000 CY(ea source)	9 Sieve	Each	1	\$119.90	\$119.90	
Fineness Mod.	Tex-402-A	Each 1,000 CY(ea source)		Each	1	\$15.90	\$15.90	
Deleterious Matl.	Tex-413-A	Each 20,000 CY(or source)		Each	1	\$42.40	\$42.40	
Acid Insoluble	Tex-612-J	Two Each Source	if CRSQC meets Project Spec ~	Each	0	\$79.50	\$0.00	
Mineral Filler			QA Test. (QC by Source)					
Sieve Analysis	Tex-401-A	Two Each Source	if No Mineral Filler utilized in	Each	0	\$68.90	\$0.00	
Concrete								
*Strength	Tex-418-A	Each 60 CY(2 Sets = 4 Cyl.)	Assume 2 Sets per Loc.	Each	8	\$26.50	\$212.00	
Slump	Tex-415-A	One per 2 Sets		Each	2	\$0.00	\$0.00	
Entrained Air	Tex-416-A	One per 2 Sets		Each	2	\$26.50	\$53.00	
Temperature	Tex-422-A	One per 2 Sets		Each	2	\$0.00	\$0.00	
Reports								
			CA,FA,MF,Conc.	Each	14	\$20.00	\$280.00	
Tech Time (Aggr)				Hour	8	\$52.95	\$423.60	
Tech Time (Conc)				Hour	16	\$52.95	\$847.20	
# of Trips (Tech)			4 Trips (50 Miles RT)	Mile	200	\$0.55	\$110.00	
**Admin/Clerical				Hour	4	\$62.30	\$249.20	
						Item Subtotal	\$2,621.40	

Hydraulic Cement Concrete Misc. - Curb/Valley Gutter/Sidewalk/Riprap/Curb Ramps (Class A)							
<ul style="list-style-type: none"> Field sampling and testing of fresh concrete and laboratory testing of hardened concrete to determine compliance with project plans and specifications. Concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site (as required). 							
							435 CY+Curb Ramp
Concrete	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
*Strength	Tex-418-A	Each 180 CY(1 Set = 2 Cyl.)	Adjust Per Str & Placement	Each	22	\$26.50	\$583.00
Slump	Tex-415-A	Not Required	Not Required	Each	0	\$0.00	\$0.00
Entrained Air	Tex-416-A	One per Set		Each	11	\$26.50	\$291.50
Temperature	Tex-422-A	Not Required	Not Required	Each	0	\$0.00	\$0.00
Reports			Conc.	Each	22	\$20.00	\$440.00
Tech Time (Aggr)		Not Required		Hour	0	\$52.95	\$0.00
Tech Time (Conc)				Hour	68	\$52.95	\$3,600.60
# of Trips (Tech)			14 Trips (50 Miles RT)	Miles	700	\$0.55	\$385.00
**Admin/Clerical				Hour	9	\$62.30	\$560.70
Item Subtotal							\$5,860.80
Batching for Hydraulic Cement Concrete (Class A & C) & Asphalt Concrete Pavement (ACP) - Inspection of Batching at Plant (1 Tech per Plant, Reports)							
<ul style="list-style-type: none"> Field sampling and testing of fresh concrete and laboratory testing of hardened concrete to determine compliance with project plans and specifications. Concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site (as required). 							
Concrete	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Tech Time (Conc)				Hour	30	\$52.95	\$1,588.50
# of Trips (Tech)			13 Trips (50 Miles RT)	Mile	650	\$0.55	\$357.50
				Reports	13	\$20.00	\$260.00
Hot Mix				Hour	48	\$52.95	\$2,541.60
Tech Time (Asph)			4 Trips (50 Miles RT)	Mile	200	\$0.55	\$110.00
# of Trips (Tech)				Reports	4	\$20.00	\$80.00
**Admin/Clerical				Hour	10	\$62.30	\$623.00
Item Subtotal							\$5,560.60

- * Concrete Strength testing includes strength testing of cylinder specimens (breaks) as well as preparation, holding and curing of strength specimen costs
 - ~ 1 Set is defined as 2 Cylinders (7-day or 28-day)
 - ~ All Structural Concrete requires a minimum 2 Sets per Test Location (4 Cyl.)
- ** Project Administrative Fee is assessed on a per invoice basis and involves engineering review, evaluation, management and administration

Summary

Sub-Total (CMT Items) =		\$35,259.90
Eng. Lab Mgr. (Coor. w/Area Eng./Rpt. Rev.)	(42 hrs x 105.91 Hr.)	\$4,448.22
Construction Materials Testing Total :		\$39,708.12



**Exhibit D-1
FEE PROPOSAL**

**Assistant Project Management Role for Lab Operations
(Construction Material & Geotechnical Engineering Oversight)**

		MANHOURS				
		Senior Construction Engineer	Engineering Field Tech	Admin/Clerical	Total	
Mile 2 North Project (From SH364 (La Homa) to Moorefield Rd.) CSJ: 0921-02-323						
TASK						
1	Field Visits & Record Audits (Bi-Monthly)	12	20		32	
2	Assist in Construction Related Issues (Geotechnical & Structural)	16			16	
3	Coordination & Compliance w/ Respect to Specifications Between Field Related Activities & Lab Techs	8	30		38	
4	Quality Assurance & Quality Control of Lab Testing Procedures, Reports & Frequencies (Field & Laboratory)	14		8	22	
5	Meetings/Coordination/Management Oversight	12	12		24	
					0	
	Subtotal	62	62	8	132	
Labor Hours						
	Hourly Base Rates	\$ 55.00	\$ 24.00	\$ 18.00		
	Contract Rate FY2015-2017	\$ 150.92	\$ 65.86	\$ 49.39		
	Total Labor Costs	\$ 9,357.04	\$ 4,083.32	\$ 395.12	\$ 13,835.48	

B2Z Engineering Total Cost

\$ 13,835.48