

EXHIBIT D

-Work Authorization Form

HIDALGO COUNTY

Professional Engineering Services

Agreement #C-15-125-04-14

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Section I.A. 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 "engineering services" to provide Construction Materials Testing and Construction Inspection of Hidalgo County Pct. 2 – Equipment and Maintenance Facility Parking Lot & Access 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 \$54,993.36. This amount is based upon the costs outlined in the Estimated **Cost Proposal** attached hereto as **EXHIBIT "D"**.

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. 5-1342-431-00-122-053-0-740

Requisition Number 275976

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.**

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.2, Commissioner, Eduardo Cantu, as to content and detail of this **Work Authorization No. 1**.

**HIDALGO COUNTY
COMMISSIONER PRECINCT No. 2:**

BY: Eduardo Cantu

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on _____ as indicated below and effective as of ____ day of _____, 201____.

**THE ENGINEER:
L&G ENGINEERING**

Jacinto Garza
By: Jacinto Garza, P.E., President

**THE OWNER:
HIDALGO COUNTY**

Ramon Garcia
By: Ramon Garcia, County Judge

ATTEST:

Arturo Guajardo Jr.
By: Arturo Guajardo Jr., County Clerk

Approved by Commissioners' Court
on 4-28-15

LIST OF ATTACHMENTS

- Exhibit A – Services to be Provided by the Owner
- Exhibit B – Services to be Provided by the Engineer
- Exhibit C – Work Schedule
- Exhibit D – Fee Schedule

EXHIBIT A

-Scope of Services to be provided by the County

The following provides an outline of the services to be provided by the Owner in the development of Projects (as defined and more particularly identified in Exhibit "A" attached to this Agreement).

General:

The Owner will provide to the Engineer the following:

- 1) Provide the authorization to proceed with services through coordination with the project consulting and design Engineer.
- 2) Payment for work performed by the Engineer and accepted by the Owner in accordance with Article 3 of this Agreement.
- 3) Assistance to the Engineer, as necessary, to obtain the required data and information from other local, regional, State and Federal agencies the Engineer cannot easily obtain.
- 4) Provide any available relevant data the Owner may have on file concerning the projects.
- 5) Provide timely review and decisions in response to the Engineer's request for information and/or required submittals and deliverables, in order for the Engineer to maintain the agreed upon work schedule prepared in accordance with Exhibit "A" attached to this Agreement.
- 6) Attend and participate in progress meetings as required and as coordinated and conducted by Engineer.
- 7) Provide the authorization to proceed with services on project by project basis through consulting design and construction Engineer.

EXHIBIT B

Scope of Services to be provided by the Engineer

SECTION 1 - 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

PROJECT/DESCRIPTION: On-Call Geotechnical & Construction Materials Testing Services for
“Road and Bridge, C.I.P. and Other Projects in General”

Pct. 2 – Equipment & Facility Parking Lot & Access Road (CMT & Inspection)

ENGINEER shall mean L&G Engineering.

STATE shall mean Texas Department of Transportation.

COUNTY shall mean Hidalgo County.

EXHIBIT B

Scope of Services to be provided by the Engineer

SECTION 2 ROUTE AND DESIGN STUDIES – N/A

(Function Code 110)

Services
Provided By:
ENGINEER COUNTY

- 1. ~~Soil Core Hole Drilling~~
 - ~~a. Pavement (See Section 3, page 3-1 for requirements)~~
 - ~~b. Retaining Walls (See Section 4, page 4-1 for requirements)~~
 - ~~c. Miscellaneous Structures (See Section 4, page 4-1 for requirements)~~
 - ~~d. Bridges (See Section 5, page 5-1 for requirements)~~

EXHIBIT B

Scope of Services to be provided by the Engineer

SECTION 3 - ROADWAY DESIGN CONTROLS - ~~N/A~~

(Function Code 160)

Services
Provided By:
ENGINEER COUNTY

- ~~_____~~ 1. ~~Pavement Design Embankment and Subgrade Analysis~~
- ~~_____~~ ~~a. Embankment and Subgrade~~
- ~~_____~~ ~~(1) Soil Core Holes (Show cost estimate with Function Code 110)~~
- ~~_____~~ ~~(a) Along center line~~
- ~~_____~~ ~~(b) Along center line of each roadway~~
- ~~_____~~ ~~The location and minimum number of soil core holes required for this project are as follows: (To be determined by Engineer during Preliminary Engineering)~~
- ~~_____~~ ~~(2) Identify, interpret and summarize geologic features that affect engineering design (PI, Sulfate content, % of lime)~~
- ~~_____~~ ~~d. Traffic Data for Pavement Design (To be provided by others)~~
- ~~_____~~ ~~e. Basic Design Criteria~~
- ~~_____~~ ~~f. Life Cycle Cost Analysis(es)~~
- ~~_____~~ ~~g. Cost Data~~
- ~~_____~~ ~~h. Pavement Material Properties~~
- ~~_____~~ ~~i. Rehabilitation Investigations~~
- ~~_____~~ ~~(1) Core Hole Survey (Show cost estimate with Function Code 110)~~
- ~~_____~~ ~~(a) Determine type and depth of existing material, pavement, etc. The Engineer will determine whether to salvage ACP and FLEXBASE as well as their properties and provide this information to Client.~~

EXHIBIT B

Scope of Services to be provided by the Engineer

SECTION 4 - MISCELLANEOUS (ROADWAY) – N/A

(Function Code 163)

Services

Provided By:

ENGINEER COUNTY

- _____ 1. Retaining Walls and Embankments

_____ a. Foundation Studies (Show cost estimate with Function Code 110)

_____ (1) The soil core holes shall be obtained at approximately 200 foot intervals along retaining wall alignments. The core holes shall extend 25 feet or more below the footing elevation.

_____ (2) The soil core holes shall be obtained at locations provided by the Engineer along the embankment locations.

_____ b. Stability Analysis

_____ c. Estimate

_____ d. Summary of Quantities

_____ e. Typical X-section.

_____ f. General Guidelines for Retaining Walls

_____ (1) The ground water level should be observed at the water strike.

_____ (2) Soil core hole data shall be shown on boring logs & layouts as illustrated in the TxDOT Geotechnical Manual (2012).

_____ (3) Foundation exploration shall conform to the requirements set forth in Administrative Circular No. 25-84, Administrative Circular 33-87 and Administrative Circular No. 25-92.
- _____ 2. Miscellaneous Structures

_____ a. Foundation Studies (Show cost estimate with Function Code 110)
_____ The soils exploration requirements for miscellaneous structures on this project are as follows: (To be provided by the Engineer on an as-needed basis)

_____ b. Foundation Analysis
_____ To be determined based on miscellaneous structure type and requirements.

EXHIBIT B

Scope of Services to be provided by the Engineer

SECTION 5 - BRIDGE DESIGN – N/A

(Function Code 170)

Services

Provided By:

ENGINEER COUNTY

- ~~_____ 1. Foundation Studies (Show cost estimate with Function Code 110)
The minimum number of soil core holes shall be obtained in accordance with TxDOT Geotechnical Manual (2012). Soil core holes shall be obtained at approximately (300 foot) intervals along bridge alignments. Texas cone penetrometer (TCP) tests shall be conducted in all soil types encountered at a maximum of (5 foot) intervals.~~
- ~~_____ 2. Foundation Analysis
Shall include analyses of bridge foundation options (drilled shafts, piling, etc.) and for water crossings shall include recommendations for scour predictions.~~

EXHIBIT B

Scope of Services to be provided by the Engineer

SECTION 6 - CONSTRUCTION PHASE SERVICES

(Function Code 320)

Services
Provided By:
ENGINEER COUNTY

Yes Yes **CONSTRUCTION INSPECTION SERVICES:**

The ENGINEER will provide engineering and support services (Inspection & Observation) during the construction of the Project or portions of the Project approved by the COUNTY.

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 (08/10). 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 inspection, sampling and laboratory testing of asphalt materials to determine their material properties and their compliance with project plans and specifications.
- (f) The ENGINEER will be responsible for concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site.
- (g) Any additional laboratory testing as required/requested by the COUNTY and the project plans and specifications.
- (h) Providing accurate and timely reports to the COUNTY and all/other recipients as designated by the COUNTY.
- (i) The ENGINEER will verify the concrete and asphalt designs to assure it is in accordance with TxDOT specifications to be developed by the contractor.

EXHIBIT B

Scope of Services to be provided by the Engineer

SECTION 7 - ADDITIONAL RESONSIBILITIES

Document and Information Exchange

Geotechnical Reports, Data, Plan Sheets, General Notes and/or Specifications provided to the COUNTY shall be furnished on 8GB USB flash drives or CD/DVD medium. Each flash drive or CD/DVD shall have a file titled Table of Contents (as applicable). The Table of Contents shall indicate the locations of files within the directory structure of the documentation (as applicable).

General Notes and specifications shall be provided in MS Office 2007 format. Plan sheets shall be provided in Microstation DGN or GEOPAK GPK format. PDF copies of plan sheets shall also be provided.

CMT Reports and Inspection documentation shall be provided in PDF format.

Two copies of the documentation shall be provided to the COUNTY.

If required, the ENGINEER shall provide to the COUNTY, a CD that contains all the plan sheets for the project. The graphics tape shall be compatible with the COUNTY's computer system.

CD Tape Required (YES or NO): YES

Proposal Time

The time indicated in the proposal and the contract shall include time necessary for reviews, approval, etc.

Office Location

The ENGINEER will perform the services to be provided under this agreement out of their office or offices listed below:

<u>Service</u>	<u>Office Location</u>
Geotechnical	Mercedes Office
CMT	Mercedes Office
Inspection	Mission Office

The work effort will be managed out of the _____ Mercedes _____
(City)

office located at 2100 West Expressway 83 _____,
(Address)

Mercedes _____, _____ Texas _____.
(City) (State)

EXHIBIT B

Scope of Services to be provided by the Engineer

APPENDIX A – GENERAL SERVICES OUTLINE

The following is a general outline of the services to be provided by the ENGINEER in providing Geotechnical Laboratory services, Construction Materials Testing Services, and Construction Inspection Services:

A. Preliminary Phase: ~~N/A~~

- ~~1) Attend preliminary conferences with the COUNTY and, if requested, with the funding agency and other government agencies or interested parties regarding the Project.~~
- ~~2) Provide for the necessary geotechnical investigation and testing necessary to develop design.~~
- ~~3) Provide assistance to the COUNTY in providing material requirements and specifications for design, construction and maintenance projects.~~
- ~~4) Provide assistance to the COUNTY in providing pavement design and/or rehabilitation recommendations for the design, construction and maintenance projects.~~

B. Design Phase: ~~N/A~~

- ~~1) Attend the COUNTY'S and respective Party's meeting as requested for the purpose of explaining geotechnical investigation report recommendations and preliminary testing results and their impact to proposed design activities.~~
- ~~2) Perform any additional geotechnical investigations, testing and environmental studies necessary to collect information required in the design of the Project.~~
- ~~3) Provide assistance to the COUNTY in providing material requirements and specifications for design, construction and maintenance projects.~~
- ~~4) Provide assistance to the COUNTY in providing pavement design and/or rehabilitation recommendations for the design, construction and maintenance projects.~~
- ~~5) Furnish the COUNTY all necessary reports for preliminary design, design, and construction and maintenance projects.~~

C. Construction/Maintenance Phase:

- 1) Attend the COUNTY'S and respective Party's pre-construction and construction meetings as requested for the purpose of explaining geotechnical investigation report recommendation and preliminary testing results and their impact to proposed construction activities and establish coordination and lines of communication for proposed construction materials testing during construction activities.
- 2) Consult and advise with the COUNTY during construction.
- 3) Provide construction materials testing for construction and maintenance project as required by the project plans and specifications and/or specified by the project design Laboratory.
- 4) Review all material designs as requested by the COUNTY and/or project design Laboratory.
- 5) Furnish the COUNTY all necessary reports for construction and maintenance projects.
- 6) Provide construction inspection and observation services as requested by the COUNTY on construction and maintenance projects.

D. Miscellaneous/Other:

- 1) Promptly submit formal construction materials testing reports for all tests, observations and services performed indicating where applicable, compliance with COUNTY specifications or other documents. Such reports shall be completed and factual, citing the tests performed, methods employed, values obtained, parts of the structure and location at which tests were made.
- 2) The plans, specifications, and Geotechnical/CMT reports prepared under this Agreement shall become the property of the COUNTY upon completion of the work and payment in full of all monies due to the ENGINEER.
- 3) Retain all pertinent records relating to the services performed for a period of five (5) years following submission of all reports, during which period the records will be made available to the COUNTY within a reasonable time.

EXHIBIT "C"
PROJECT SCHEDULE
WA #1 - CMT and Inspection Services for HC Pct. 2 - Equip. and Maint. Facility Parking Lot and Access Road

Function Code 320 ~ Construction Phase Services (Construction Inspection CMT)

TASK AND DESCRIPTION	2015											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
HC Pct. 2 - Equip. & Maint. Facility Parking Lot & Access Road CMT & Inspection												
Construction Inspection												
Construction Material Testing (CMT)												

~ Estimated Time for Project Construction = 4 months (All services noted will be provided during the full duration of Construction)
 ~ Start Date and NTP estimated for May 1, 2015 (4 month window will move with NTP date as required)

Hydraulic Cement Concrete Misc. - Curb & Gutter/Valley Gutter/Aprons/Spillways (Class A)

• Field sampling and testing of fresh concrete and laboratory testing of hardened concrete to determine compliance with project plans and specifications.

	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Concrete							
*Strength	Tex-418-A	Each 180 CY(1 Set = 2 Cyl.)	Adjust Per Str & Placement	Each	16	\$27.92	\$446.72
Slump	Tex-415-A	Not Required	Not Required	Each	0	\$0.00	\$0.00
Entrained Air	Tex-416-A	One per Set		Each	8	\$23.86	\$190.88
Temperature	Tex-422-A	Not Required	Not Required	Each	0	\$0.00	\$0.00
Reports							
Tech Time (Aggr)			Conc.	Each	16	\$23.59	\$377.44
Tech Time (Conc)		Not Required		Hour	0	\$0.00	\$0.00
# of Trips (Tech)			8 Trips (40 Miles RT)	Hour	32	\$52.95	\$1,694.40
**Admin/Clerical				Miles	320	\$0.55	\$176.00
				Hour	6	\$62.30	\$373.80
						Item Subtotal	\$3,259.24

Batching for Asphalt Concrete Pavement (ACP) - Inspection of Batching at Plant (1 Tech per Plant, Reports)

• Concrete batching as well as the asphalt testing at the plants to ensure delivery of acceptable material to the job site (as required).

	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Concrete							
Tech Time (Conc)			None - Class A Only	Hour		\$52.95	\$0.00
# of Trips (Tech)				Mile		\$0.55	\$0.00
Hot Mix				Reports		\$23.59	\$0.00
Tech Time (Asph)			3 Trips (40 Miles RT)	Hour	36	\$52.95	\$1,906.20
# of Trips (Tech)				Mile	120	\$0.55	\$66.00
**Admin/Clerical				Reports	4	\$23.59	\$94.36
				Hour	6	\$62.30	\$373.80
						Item Subtotal	\$2,440.36

Construction Inspection (Minimal Job Presence - QA/QC Construction Operations)

• Construction Inspection to consist of QC/QA project inspector for 4 hours per day 3 days per week = 12 hours per week for Construction Schedule
 • All other job control inspection to be completed by Hidalgo County

	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Construction Inspection							
Senior Project Manager				Hour	28	\$218.04	\$6,105.12
Project Inspector				Hour	192	\$87.22	\$16,746.24
# of Trips (Proj. Insp.)			48 Trips (40 Miles RT)	Mile	1920	\$0.55	\$1,056.00
Reports				Reports	48	\$23.59	\$1,132.32
**Admin/Clerical				Hour	24	\$62.30	\$1,495.20
						Item Subtotal	\$26,534.88

• 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) =	\$25,493.00
Eng. Lab Mgr. (Coor. w/Area Eng./Rpt. Rev.) (28 hrs x 105.91 Hr.)	\$2,965.48
Sub-Total (Const. Inspection) =	\$26,534.88
CMT & Const. Inspection Total :	\$54,993.36

WA #1 - Hidalgo County Pct. 2 - Equipment and Maintenance Facility Parking Lot & Access Road
Construction Materials Testing & Construction Inspection

Embankment (Test All Fill Material Including Cut From Job) (ITEM 132)

- 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 proper compaction as required by project plans and specifications.

	TxDOT/ASTM Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	No Quant - Assume Total
Liquid Limit	Tex-104-E	PI>15 - Every 5,000 CY	included with PI	Each		\$53.15	\$0.00
Plasticity Index	Tex-106-E	PI>15 - Every 5,000 CY	1 per Job	Each	1	\$79.66	\$79.66
Gradation	Tex-110-E	Every 10,000 CY	1 per Job	Each	1	\$95.76	\$95.76
Moisture/Density	ASTM D 698/Tex-114-E	One per Each Material	1 Exist (Assume Borrow)	Each	1	\$205.82	\$205.82
In-Place Density	ASTM D 6938/Tex-115-E	Every 5,000 CY or 6,000	At Least 4 on Job	Each	4	\$23.91	\$95.64
Reports			LL/PI, Grad, MD, FD	Each	5	\$23.59	\$117.95
Tech Time (Soils)			4 hrs - PI, Gr, MD, 2 hrs - FD	Hour	16	\$52.95	\$847.20
# of Trips (Tech)			3 Trips (40 Miles RT)	Mile	120	\$0.55	\$66.00
**Admin/Clerical				Hour	2	\$62.30	\$124.60
						Item Subtotal	\$1,632.63

Subgrade (Lime Treated) (ITEM 260)

- 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 proper compaction as required by project plans and specifications.

	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	5,100 CY Total
Liquid Limit	Tex-104-E	Each 5,000 CY	included with PI	Each		\$53.15	\$0.00
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	1	\$79.66	\$79.66
Gradation	Tex-110-E	Each 5,000 CY		Each	1	\$95.76	\$95.76
Moisture/Density	ASTM D 698/Tex-114-E	Every 20,000 CY	assume 1 on Prj	Each	1	\$205.82	\$205.82
In-Place Density	ASTM D 6938/Tex-115-E	Every 3,000 CY	At Least 8 on Job	Each	8	\$23.91	\$191.28
Reports			LL/PI, MD, FD	Each	7	\$23.59	\$165.13
Tech Time (Soils)			4 hrs - PI, Gr, MD, 2 hrs - FD	Hour	24	\$52.95	\$1,270.80
# of Trips (Tech)			5 Trips (40 Miles RT)	Mile	200	\$0.55	\$110.00
**Admin/Clerical				Hour	4	\$62.30	\$249.20
						Item Subtotal	\$2,367.65

Flexible Base (Untreated - Stockpile Testing) (ITEM 247)

- 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 proper compaction as required by project plans and specifications.

	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	5,825 CY Total
Liquid Limit	Tex-104-E		included with PI	Each		\$53.15	\$0.00
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	1	\$79.66	\$79.66
Gradation	Tex-110-E	Each 5,000 CY		Each	1	\$95.76	\$95.76
Moisture/Density	ASTM D 698	Every 20,000 CY		Each	1	\$205.82	\$205.82
Wet Ball Mill	Tex-116-E	Every 20,000 CY		Each	1	\$232.55	\$232.55
Triaxial	Tex-117-E	Every 20,000 CY		Each	1	\$350.00	\$350.00
Reports			LL/PI, MD, WB, Triaxial	Each	5	\$23.59	\$117.95
Tech Time (Soils)			4 hrs - LL, PI, MD & WB/Triax.	Hour	12	\$52.95	\$635.40
# of Trips (Tech)			1 Trip (40 Miles RT)	Mile	40	\$0.55	\$22.00
**Admin/Clerical				Hour	2	\$62.30	\$124.60
						Item Subtotal	\$1,863.74

