

HIDALGO COUNTY
Professional Engineering Services for Geotechnical & Construction Material Testing
Agreement No. C-24-0384-10-29

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of the Professional Engineering Services Agreement No. C-24-0384-10-29, incorporated herein by reference, for the “[ARPA-21-123-028] - **Geotechnical and Construction Material Testing Services - Hidalgo County Precinct 3 Farm to Market Rd. 2221 (FM2221) Stormwater Project**” made by and between HIDALGO COUNTY, action herein by and through the Commissioner’s Court, hereinafter called the “**Owner**,” and **B2Z Engineering, LLC**, hereinafter called “**Engineer**”.

PART 1. SCOPE OF WORK

The purpose of this Work Authorization is for the **Engineer** to provide Geotechnical Drilling and Miscellaneous Field Services, Geotechnical Laboratory Testing Services and Geotechnical Engineering Services and Construction Material Testing.

The **Engineer** is to provide the scope of Services as required by the Agreement with Owner.

The scope of services to be provided by the **Engineer** is identified in **Attachment “A”** – “*Scope of Services to be provided by Engineer*” attached hereto and incorporated by reference.

PART 2. ESTIMATED COST

The estimated cost for services under this Work Authorization is **\$ 29,629.30**. This amount is based upon the costs outlined in the **Attachment “B”** – “*Fee Proposal*” attached hereto and incorporated by reference.

PART 3. PAYMENT

Compensation and payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the **Professional Engineering Services Agreement No. C-24-0384-10-29** between the **Owner** and the **Engineer**.

PART 4. FUNDING

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

Account No. 4-1290-431-50-115-221-3-723

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 the scopes of the Work Authorization, within the limits of Agreement No. C-24-0384-10-29, provided in this Work Authorization; or on** (DATE). *If applicable*: Engineer shall conform to the approved “Work/Project Schedule”, attached hereto and incorporated by reference herein as **Attachment “C”**.

PART 6. RESPONSIBILITIES AND OBLIGATIONS

This Authorization does not waive the parties’ responsibilities and obligations provided under the Agreement No. C-24-0384-10-29

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

Acknowledgement and confirmation by **Hidalgo County Precinct 3, Commissioner Everardo “Ever” Villarreal**, as to content and detail of this **Work Authorization No. 1**.

HIDALGO COUNTY PRECINCT No. 3

By: _____
Everardo “Ever” Villarreal, Commissioner

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners’ Court on **October 29, 2024** as indicated below and effective as of **29** day of **October, 2024**.

EXECUTED as of the day and year first written above.

APPROVED BY COMMISSIONERS’ COURT ON OCTOBER 29, 2024.

Agenda Item No. 97136

Executive Office: _____

ENGINEER:
B2Z ENGINEERING, LLC

COUNTY:
COUNTY OF HIDALGO

Aisha Gonzalez, President

Hon. Richard F. Cortez, County Judge

ATTEST:

Arturo Guajardo, Jr., County Clerk

LIST OF ATTACHMENTS:

Attachment “A” – *Scope of Services to be provided by Engineer*

Attachment “B” – *Fee Proposal*

Attachment “C” – *Approved Work/Project Schedule (If applicable)*



ATTACHMENT A

PROJECT SPECIFIC SCOPE OF SERVICES TO BE PROVIDED BY ENGINEER

ATTACHMENT A

Scope of Services to be provided by the Engineer

GENERAL SCOPE OF WORK

The work to be performed by the **Engineer** under this Work Authorization shall consist of; Geotechnical Drilling and Miscellaneous Field Services, Geotechnical Laboratory Testing Services and Geotechnical Engineering Services for the Hidalgo County FM 2221 Project hereinafter denoted as the **Project**.

The **Engineer** shall provide all services required (as noted under this Work Authorization) for usage by the **Owner** in the preparation of plans, specification and estimate, and related documents for the **Project**. The **Engineer** shall maintain a direct line of communication and coordinate with the **Owner** throughout the project.

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

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

I. Geotechnical Drilling Services and Miscellaneous Field Services

The **Engineer** will coordinate with the **Owner** for verification of project vicinity map indicating general boring site locations.

The **Engineer** will provide drilling/excavation and sampling of subsurface materials as follows in accordance with this Work Authorization and in conformance with ASTM guidelines:

- Pavement Boring – Two (2) Borings will be drilled at approximate locations of the proposed roadway on the project (Borings will be advanced to a depth of approximately 6 feet below the existing top of natural ground) (Boring Designation B-PV-01 through B-PV-02)

The **Engineer** will stake the boring locations and provide utility clearances prior to performing the field exploration portion of the project. The **Owner** will be responsible for providing any necessary permits or authorization to access areas (right of entry) where borings are to be drilled. All borings will be located in the field by a representative of the **Engineer**. All boring locations will be documented with GPS coordinates. Field survey and tie-down locations of all borings will be the responsibility of the **Owner**.

The borings will be advanced to the specified depth(s) and in-situ soil testing will be performed in general accordance with ASTM and/or TxDOT Standard Test Procedures and Geotechnical Manual (ASTM D1586 – Standard Penetration Testing (SPT) and/or Tex-132-E – Texas Cone Penetration (TCP)). In addition, where applicable, thin-walled Shelby tube samples may be collected (ASTM D1587 – Thin-Walled Tube Sampling). The soils will be sampled as needed to verify subsurface materials and strata changes. Final drilling depths and elevations will be based on topographic conditions at the time of drilling operations.

All samples will be removed from the sample apparatus during drilling operations. The **Engineer** will conduct various field tests on the recovered samples, visually classify the samples, and record the appropriate data on a field boring log. The samples will be appropriately packaged to minimize loss of natural moisture content and to reduce the possibility of damage during transportation to the soil testing laboratory facility.

Drilling services will include an initial water strike depth at each boring location. Following completion of drilling and sampling, all boreholes will be backfilled with soil cuttings from the completed borings. If there is insufficient soil cuttings available, alternate fill will be used to backfill the completed boreholes.

This proposal does not include activities and corresponding costs that may be associated with the following:

- Providing an ATV mounted drill rig, dozer or special equipment to clear areas of vegetation and debris or re-grading the site to gain access to the boring locations;
- Re-grading the site or portions of the site after drilling activities are completed;
- Site safety meetings that may be required;
- Encountering hazardous or contaminated soils or substances during our field activities.

The **Engineer** will notify the **Owner** should these services become necessary to complete field exploration activities, and if approved by the **Owner**, additional negotiated fee and scope will be incorporated through Supplemental Work Authorization.

II. Geotechnical Laboratory Testing Services

Geotechnical Laboratory Testing will be performed by the **Engineer** on the samples recovered during the field study to evaluate their physical and engineering properties. Laboratory testing will be performed in general accordance with ASTM and/or TxDOT Standard Test Procedures. Testing shall include the following test procedures:

- (1) Atterberg Limits (ASTM D4318 or Tex-104-E, 105-E, 106-E)
- (2) Gradation (-200) (ASTM D1140 or Tex-111-E)
- (3) Lab. Determination of Moisture in Soils (ASTM D2216 or Tex-103-E)
- (4) Sulfate Content of Soil (ASTM C1580 or Tex-145-E)

III. Geotechnical Engineering Services

The **Engineer** will utilize information gathered from the field and laboratory testing to provide the **Owner** with Geotechnical Engineering results and analyses for the **Project**. The findings and conclusions derived from the results and analyses will be presented in an engineering report/memo and provided to the **Owner** (electronic .pdf medium only). The report will include a boring location plan, boring logs with laboratory classification of recovered soil samples at the boring locations and subsurface water conditions encountered.

IV. Construction Material Testing (CMT) Services

The **Engineer** shall provide Construction Material Testing (CMT) services during the proposed construction of the Project. The CMT services to be provided include sampling and testing of all construction materials as required by the project contract documents, plans and specifications. All sampling frequencies and test procedures will be performed in general accordance with required project specifications. CMT services may include:

- (a) Sampling and laboratory testing of soils and soil foundation materials proposed for use in the construction of Project to determine compliance of these materials with project plans and specifications.
- (b) Field density testing of soils and soil foundation 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.



ATTACHMENT B

FEE PROPOSAL

ATTACHMENT B



Geotechnical Drilling, Testing and Engineering Services

<i>Engineering Services Hidalgo County - FM 2221 Project</i>			MANHOURS					
			Project Manager	Geotechnical Engineer	Project Engineer	CADD Tech	Admin/ Clerical	Total
TASKS								
	1	Geotechnical Report/Memo (Including Soil Survey/Geog./All Analyses/Mtg/Coord.)	2	2	6	2	4	16
Labor Hours			2	2	6	2	4	16
Contract Rate FY 2024			\$ 238.24	\$ 210.22	\$ 157.66	\$ 92.85	\$ 80.58	
Total Labor Costs			\$ 476.48	\$ 420.44	\$ 945.96	\$ 185.70	\$ 322.32	\$ 2,350.90

Line Item	Expenses Geotechnical Field and Laboratory Services <i>(See Page 2 of 4 for Breakdown)</i>	\$ 4,162.48
	Construction Materials Testing <i>(See Page 3 of 4 for Breakdown)</i>	\$ 23,115.92

Total Expenses \$ 27,278.40

B2Z Engineering Total Cost

\$ 29,629.30

ATTACHMENT B
Geotechnical Field and Laboratory Services
Hidalgo County - FM 2221 Project

	SERVICES	UNITS	UNITS	UNIT COST	TOTAL COST
I.	Project Manage / Review / ODE				
	A. Principal / Project Manager / Review	Hours			
	B. Geo Engineer (Staff) (Field Oversight)	Hours			
	C. Typing and Clerical (Report)	Hours			
	D. Lodging (Est 2 Nights - 3 person Crew)	Nights			
	E. Mileage	Mile			
	F. Air Travel	Trip			
	G. Per-Diem (Meals) (Match Lodging)	Each			
	H. Traffic Control for Drilling	Each			
II.	Utility Clearances / Boring Locates				
	A. Technician (Locate Borings)(Util Clr)	Hours	2	\$ 101.60	\$ 203.20
	B. Staff Engineer/Geologist/Scientist	Hours			
	C. Rebar (stakes with impalement covers)	Cost +12.5%			
	D. Vehicle Charge	Mile			
	E. Mileage	Mile	40	\$ 0.67	\$ 26.80
	F. Survey Locate Borings (X,Y,Z)	LS			\$ -
	G. Clear Site for Access (Dozer)	LS			\$ -
III.	Field Exploration				
A	Mobilization/Demobilization	Day	1	\$ 475.00	\$ 475.00
B	Field Exploration				
	1. ASTM Drill & SPT/Tube Sampling (SS)	Feet	12	\$ 38.00	\$ 456.00
	2. TxDOT TCP Field Test (BL/ft)	Ea.			\$ -
	3. Field Logger / Engineering Tech	Hour	4	\$ 101.60	\$ 406.40
	4. 24 Hr. Water Level Observations	Hour			\$ -
	5. Piezometers	Each			\$ -
	6. Supp. Vehicle-Trailer, Tools Water Supply	Mile	40	\$ 1.75	\$ 70.00
	7. Vehicle Charge	Mile	40	\$ 0.67	\$ 26.80
C	Miscellaneous Field Services				
IV.	Engineering Data Analysis / Report				
	1. Staff Engineer	Hours			
	2. Sen. Eng Tech. (Soil Classification)	Hours	1	\$ 133.14	\$ 133.14
	3. Sen. Eng Tech. (Logs & Summaries)	Hours	1	\$ 133.14	\$ 133.14
	4. Moisture Content (ASTM D 2216)	Ea.	6	\$ 12.00	\$ 72.00
	5. Atterberg Limits (ASTM D 4318)	Ea.	6	\$ 135.00	\$ 810.00
	6. -200 Determination (ASTM D 1140)	Ea.	6	\$ 60.00	\$ 360.00
	7. Sieve Analysis (w/ Hydrometer) (ASTM D 422)	Ea.			\$ -
	8. Modified Proctor (ASTM D 1557)	Ea.			\$ -
	9. Lime Series Testing (pH) (Tex-121-E Part III)	Ea.	2	\$ 400.00	\$ 800.00
	10. Soils Sulfate Content	Ea.	2	\$ 95.00	\$ 190.00
Project Sub-Total (Geo Field and Lab)					\$ 4,162.48

ESTIMATED MAN-HOURS AND TEST BREAKDOWN

Hidalgo County Pct. 3

**Stormwater Infrastructure on FM 2221 Phase I
Construction Materials Testing**

Subgrade Roadway

- 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.

	Test	Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Atterberg Limits of Soils	ASTM D-4318/Tex-106E	One Per Phase		Each	2	\$135.00	\$270.00
Lime Series Determination	ASTM D6276/Tex-121 PART III	One Per Phase		Each	1	\$400.00	\$400.00
Moisture/Density	ASTM D698/Tex-114-E	One Per Phase		Each	1	\$225.00	\$225.00
In-Place Density	ASTM D6938/Tex-115-E	Every 1,000 Square Yard	Assuming 3 FD per trip	Each	12	\$28.00	\$336.00
Reports			LD, PI, MD & FD	Each	8	\$25.00	\$200.00
Tech Time (Soils)			LD, PI, MD & FD	Hour	28	\$101.60	\$2,844.80
# of Trips (Tech)			7 Trips (42 R/T)	Miles	294	\$0.67	\$196.98
**Admin/Clerical				Hour	9	\$80.58	\$725.22
Item Subtotal							\$5,198.00

Flex Base Roadway

- 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.

	Test	Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Atterberg Limits of Soils	ASTM D-4318/Tex-106E	One Per Phase		Each	1	\$135.00	\$135.00
Moisture/Density	ASTM D1557/Tex-113-E	One Per Phase		Each	1	\$225.00	\$225.00
In-Place Density	ASTM D6938/Tex-115-E	Every 1,000 Square Yard	Assuming 3 FD per trip	Each	12	\$28.00	\$336.00
Reports			PI, MD & FD	Each	6	\$25.00	\$150.00
Tech Time (Soils)			PI, MD & FD	Hour	18	\$101.60	\$1,828.80
# of Trips (Tech)			6 Trips (42 R/T)	Miles	252	\$0.67	\$168.84
**Admin/Clerical				Hour	7	\$80.58	\$564.06
Item Subtotal							\$3,407.70

Pipe Final Backfill Material 12" Lifts Waterlines, Drainage and Man Holes

- 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.

	Test	Guide Spec	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Atterberg Limits of Soils	ASTM D-4318/Tex-106E	One Per Phase		Each	2	\$135.00	\$270.00
Moisture/Density	ASTM D698/Tex-114-E	One Per Phase	1 Assume Material Changes	Each	1	\$225.00	\$225.00
In-Place Density	ASTM D6938/Tex-115-E		Assuming 3 FD per trip	Each	9	\$28.00	\$252.00
Test Reports			MD, PI & FD	Each	6	\$25.00	\$150.00
Tech Time (Soils)			MD, PI & FD	Hour	21	\$101.60	\$2,133.60
# of Trips (Tech)			6 Trips (42 R/T)	Miles	252	\$0.67	\$168.84
**Admin/Clerical				Hour	6	\$80.58	\$483.48
Item Subtotal							\$3,682.92

Asphalt Concrete Pavement

- 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.

	Test	Guide Spec	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Roadway							
Pavement Thickness	ASTM D3549	Every 1500 SY	1 core per location	Each	4	\$65.00	\$260.00
Density of Cores	Tex-207-F	Every 1500 SY	Set of 2	Each	2	\$80.00	\$160.00
Rolling Pattern	Tex-207-F Part IV			Each	8	\$45.00	\$360.00
Reports				Each	4	\$25.00	\$100.00
Tech Time (Asph)		Every 1500 SY		Hour	18	\$101.60	\$1,828.80
# of Trips (Tech)			4 Trips (42 R/T)	Miles	168	\$0.67	\$112.56
**Admin/Clerical				Hour	4	\$80.58	\$322.32
Item Subtotal							\$3,143.68

Hydraulic Cement Concrete Riprap

- 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).

	Test	Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Concrete							
Strength	ASTM C 39/C192	1 set per 120 CY	1 Set=3 Cyl	Each	12	\$30.00	\$360.00
Reports				Each	8	\$25.00	\$200.00
Tech Time (Conc)				Hour	24	\$101.60	\$2,438.40
# of Trips (Tech)			8 Trips (42 R/T)	Miles	336	\$0.67	\$225.12
**Admin/Clerical				Hour	8	\$80.58	\$644.64
Item Subtotal							\$3,868.16

Summary

Sub-Total (CMT Items) =	\$19,300.46
Sr. Engineering Tech (18 hrs x \$133.14/hr):	\$2,396.52
Project Engineering (9 hrs x 157.66/hr):	\$1,418.94

** Project Administrative Fee is assessed on a per invoice basis and involves engineering review, evaluation, management and administration

Constuction Materials Testing Total : \$23,115.92



ATTACHMENT C

APPROVED WORK/PROJECT SCHEDULE

ATTACHMENT “C” WORK SCHEDULE

The Work Schedule will mirror the Contractors work schedule for this Work Authorization.