

WORK AUTHORIZATION

WORK AUTHORIZATION NO. 1

PROJECT: On Call Geotechnical and Lab Testing Services

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated February 18, 2015 and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and Raba Kistner Consultants, Inc. (the "Engineer").

Part 1. The Engineer will provide the following Engineering Services set forth in Attachment "B" of this Work Authorization.

Part 2. The maximum amount payable for services under this Work Authorization without modification is \$20,000.

Part 3. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the Contract.

Part 4. This Work Authorization shall become effective on the date of final acceptance and full execution of the parties hereto and shall terminate on September 30, 2016. The Engineering Services set forth in Attachment "B" of this Work Authorization shall be fully completed on or before said date unless extended by a Supplemental Work Authorization.

Part 5. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

Part 6. County believes it has sufficient funds currently available and authorized for expenditure to finance the costs of this Work Authorization. Engineer understands and agrees that County's payment of amounts under this Work Authorization is contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to continue to make payments under this Contract. It is further understood and agreed by Engineer that County shall have the right to terminate this Contract at the end of any County fiscal year if the governing body of County does not appropriate sufficient funds as determined by County's budget for the fiscal year in question. County may effect such termination by giving written notice of termination to Engineer.

Part 7. This Work Authorization is hereby accepted and acknowledged below.

EXECUTED this 5th day of February, 2016

ENGINEER:

COUNTY:

Raba Kistner Consultants, Inc.

Williamson County, Texas

By: 

Signature

Gabriel Ornelas Jr.

Printed Name

Vice President

Title

By: 

Signature

DAN A CAFFIER

Printed Name

County Engineer
02-05-2016

Title


EXECUTED this ____ day of _____, 20__.

ENGINEER:

COUNTY:

Raba Kistner Consultants, Inc.

Williamson County, Texas

By: 
Signature
Gabriel Ornelas Jr.
Printed Name
Vice President
Title

By: 
Signature
DAVE A. GATTO
Printed Name
County Judge
Title

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

Attachment A - Services to be Provided by County

1. County will direct type of services to be provided.
2. County will provide timely reviews and decisions necessary to enable Raba Kistner to maintain an agreed upon project schedule as developed in attached Attachment C.
3. County will provide points of contact, to be identified upon Notice to Proceed.
4. County will provide project management.

Attachment B - Services to be Provided by Engineer

1. Perform services and related reports associated with Attachment D.
2. Miscellaneous.

Attachment C - Work Schedule

Raba Kistner shall provide a work schedule for the assigned tasks. Work shall begin immediately upon receipt of agreement between County and Raba Kistner on the work schedule and authorization to proceed on assigned services.

Attachment D - Fee Schedule

TITLE	HOURLY Rate
Principal	\$ 200.00
Senior Engineer/Consultant	\$ 200.00
Project Manager	\$ 175.00
Project Engineer	\$ 135.00
Engineer	\$ 100.00
Engineer in Training	\$ 90.00
Geotechnical Technician	\$ 60.00
CADD Operator	\$ 80.00
Clerical	\$ 55.00
Geologist	\$ 110.00
Environmental Scientist	\$ 105.00
Lead Technician	\$ 60.00
CMT Technician	\$ 50.00
Archaeologist	\$ 110.00
GIS	\$ 90.00

DIRECT EXPENSES

Copies 8 1/2 x 11, 11 x 17	\$0.16/page
Mylar 11 x 17	\$2.10/page
Schematic Plots	\$1.58/sq ft

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FIELD DRILLING SERVICES

-1 Auger Drilling (Does not include logging)		
soil	per ft	\$16.00
soft rock	per ft	\$19.00
-2 Standard Wet Rotary (Does not include logging)		
	per ft	\$21.00
-3 Nx Rock Core (Does not include logging)		
Soft rock (marl, shale)	per ft	\$32.00
Hard rock (limestone, sandstone)	per ft	\$42.00
-4 Non-conventional drilling (barge drilling or unusual time consuming drilling i.e. through bridge)		
	per hr	\$279.30
-5 Field Logging Services		
Geotechnical Technician	per hr	\$60.00
Geologists	per hr	\$110.00
Engineer in Training	per hr	\$90.00
-6 Field Coordination		
Field Engineer	per hr	\$100.00
Flagman	per hr	\$65.00
-7 Mobilization		
Mobilization or truck-mounted rig, rill crew and support	per mile	\$4.00
Field logger trip charge	per mile	\$1.00
Mobilization non-standard equipment (4x4 all terrain rig)		At cost
Barge mobilization and rental		At cost
-8 Sampling		
Standard Penetration Test (ASTM D1586)	per test	\$22.00
Shelby Tube (ASTM D1587)	per test	\$22.00
Texas Cone Penetrometer Test (THD, Tex-132-E)	per test	\$26.00
-9 Other Expenses/Charges		
Standby Time	per hr	\$225.00
Mileage - non-drilling equipment	per mile	\$1.00
Grout backfill	per ft	\$3.25
Dozer/clearing cost		At cost
Logger truck charge	per day	\$55.00
Standard pavement coring	each	\$75.00
Concrete/AC patch	each	\$64.00
Traffic control - signs, barricades		At cost
All other outside expenses		At cost

FIELD AND LABORATORY UNIT FEES

ASPHALTIC CONCRETE

REFERENCE FIELD SERVICES

ASTM D 75	Sampling Raw Materials of Composite Mix Technician Time	\$ 50.00/hr
Asphalt Institute Manual	Asphaltic Plant Observation - To Verify Aggregate Size and Quality, Batch Weights and Temperature Technician Time	60.00/hr
Asphalt Institute Manual	Asphaltic Site Observation - To Observe Preparation, Laydown Operations, Asphaltic Concrete Temperatures, Mat Thickness and Mat Density Determination Technician Time	60.00/hr
ASTM D 2950	Nuclear Density Test with Inspection	16.00/ea
	Nuclear Density Test.....	25.00/ea
	Coring (See Coring Fee Schedule)	

REFERENCE LABORATORY SERVICES

ASTM D 2172; TxDOT, TEX-210-F	Extraction Test, Bitumen Content and Aggregate Siege Analysis of Asphaltic Concrete.....	\$ 190.00/ea
ASTM D 2172; TxDOT, TEX-210-F	Extraction Test, Bitumen Content Only	131.00/ea
	Asphaltic Concrete Extraction; Bitumen Content and Aggregates; Siege Analysis of Asphaltic Concrete; Molding Specimens (Hveem or Marshall); Laboratory Density (Molded Specimen); Stability Test (Hveem); and Maximum Theoretical Specific Gravity (Rice Gravity).....	459.00/set
Hveem, TxDOT, TEX-206-F; Marshall, ASTM D 1559	Molding Specimens Hveem or Marshall	60.00/set
	Superpave (2 per set).....	124.00/set
TxDOT, TEX-207-F; ASTM D 2726	Laboratory Density Test.....	60.00/set
	a) Molded Specimen.....	60.00/set
	b) Asphalt Core	51.00/ea
	c) Superpave (2 per set).....	72.00/set
Hveem, TxDOT, TEX-208-F; Marshall, ASTM D 1559	Stability Test Marshall.....	58.00/set
	Hveem	73.00/set
Asphalt Institute Manual and TxDOT; Mix Designs	Corp of Engineers or FAA.....	1,914.00/ea
	TxDOT Quality Control/Quality Assurance.....	1,914.00/ea
	TxDOT CMHB.....	2,719.00/ea
	TxDOT Calibration Mix and Pans.....	320.00/ea
	TxDOT Black Base Design, Item 345	1,433.00/ea

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Original Date: 8/4/15
Revision Date: 1/29/16

ASPHALTIC CONCRETE, continued

<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	
TxDOT, TEX-200-F; ASTM C 136	Sieve Analysis of Aggregate	\$ 39.00/ea
TxDOT, TEX-203-F; ASTM D 2419	Sand Equivalent Test.....	83.00/ea
AASHTO TP 33	Fine Aggregate Angularity.....	49.00/ea
ASTM D 4791-95	Flat and Elongated Particle	49.00/ea
TxDOT, TEX-201-F; ASTM C 127	Specific Gravity (Coarse or Fine Aggregate).....	39.00/ea
TxDOT, TEX-201-F; ASTM C 127	Absorption (Coarse or Fine Aggregate) (Includes Specific Gravity)	60.00/ea
TxDOT, TEX-411-A; ASTM C 88	Sulfate Soundness (Time and Test) Preparation Time.....	51.00/hr
	a) Magnesium - 5 Cycle	484.00/ea
	b) Sodium - 5 Cycle	431.00/ea
ASTM C 131; ASTM C 535	Los Angeles Abrasion Test (Time and Test) Los Angeles Abrasion Test (Small or Large Coarse Aggregate).....	187.00/ea
Asphalt Inst. SP-2 TxDOT, Item 3066 AASHTO PP 28-95	Superpave TM Mix Design (Includes Aggregate, Specific Gravity and Sieve Analysis) (Does Not Include TSR)	5,913.00/ea
TxDOT, TEX-227-F; AASHTO T 209; ASTM D 2041	Maximum Theoretical Specific Gravity (Rice Gravity).....	90.00/ea
TxDOT, TEX-226-F; AASHTO T 283; ASTM D 4867	Moisture Sensitivity Test (Tensile Strength Ratio Test) with Freeze/Thaw	513.00/ea
	without Freeze/Thaw	401.00/ea
TxDOT, Item 3157	Cold Processed – Recycled Paving Material (RPM) Mixture Design	As Requested
	Mixture Verification (QC) Strength, Stability (Hveem, Modified Marshall)	755.00/set
TxDOT, TEX-126-E (Modified)	Molding and Strength.....	367.00/set
TxDOT, TEX-208-F (Modified)	Molding and Hveem	139.00/set
ASTM D 1559	Molding and Marshall.....	131.00/set
TxDOT, TEX-103-E	Molded Moisture Content.....	13.00/ea

CEMENT TREATED BASE

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	
PCA	Sampling Raw Materials for Mix Verification Technician Time	\$ 50.00/hr
	Sampling Contractor Processed Material Technician Time	50.00/hr
<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	
PCA	Molding Controlled Processed Material	\$ 69.00/ea
PCA	Unconfined Compressive Strength Testing.....	31.00/ea
ASTM D 559; ASTM D 560	Durability (2 Specimens per Set) (Percent Loss in 12 Cycles) Wet Dry/Freeze Thaw	589.00/set
	<u>Mix Design</u>	
PCA; TxDOT, TEX-120-E; ASTM D 558	Mix Design - Cement Treated Base (Does Not Include Durability)	\$ 1,171.00/ea

CONCRETE

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	
ASTM C 31; ASTM C 172; ASTM C 143	Sampling Concrete to Conduct Slump Test, Measure Concrete Temperature, Cast Test Specimen and Transport Test Specimen to Laboratory Next Day Technician Time	\$ 50.00/hr
	Pick-Up of Test Specimen	50.00/hr
	Standby Time	50.00/hr
ASTM C 39; ASTM C 617	Cylinder Compressive Strength Testing and Reporting (In Conjunction with Sampling)	
	a) 6x12 or 4x8 - Normal Weight or Lightweight Structural (Minimum of 4)	17.00/ea
	b) 3x6 - Lightweight Insulating Cellular (Minimum of 6 - Includes Two Dry Densities)	25.00/ea
	c) "Hold" Cylinder (Additional Charge).....	11.00/ea
	d) "Strip" Cylinder (Additional Charge).....	13.00/ea
	e) Compressive Strength - 2x2 Cubes.....	24.00/ea
	f) Dry Density - Concrete Cylinder	44.00/ea
ASTM C 78	Flexural Strength Testing and Reporting (In Conjunction with Sampling Beams)	49.00/ea
	Air Content (In Conjunction with Sampling)	
ASTM C 231	a) Pressure	32.00/ea
ASTM C 173	b) Volumetric	38.00/ea
AASHTO T 199	c) Chase	17.00/ea
ASTM C 138	Unit Weight	29.00/ea
ASTM C 143	Additional Slump Test	24.00/ea

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CONCRETE, continued

ACI 311; ACI 304	Concrete Plant Observation - To Observe and Record Aggregate Types, Batch Weights, Concrete Consistency and Mixing Time Technician Time	50.00/hr
ACI 311; ACI 304	Concrete Site Observation - To Record the Consistency of Concrete, Verify and Adjust Slump within Project Specifications and Sample for Test Specimens Technician Time	50.00/hr

REFERENCE**LABORATORY SERVICES**

ACI 211.1	Hardrock Concrete Mix Design Calculations and Proportioning to Include Six Confirmatory Cylinders (Physical Properties Not Included).....	\$ 301.00/ea
ACI 211.1 (303.R)	Architectural Mix Design	330.00/ea
ACI 211.2	Lightweight Structural Mix Design.....	310.00/ea
ASTM C 270	Masonry Mortar Mix Design Including Six Cubes and Water Retention (Physical Properties Not Included).....	\$ 330.00/ea
ASTM C 1202	Chloride Ion Permeability	262.00/set
ASTM C 39	Cylinders Compressive Strength Testing and Reporting F.O.B. Cylinders to Our Laboratory.....	28.00/ea
ASTM C 496	Splitting Tensile Strength of Concrete Cylinders Tensile Test.....	44.00/ea
ASTM C 666	Freeze-Thaw Test.....	364.00/set
ASTM C 469	Determination of Young's Modulus of Elasticity (Time, Test and Set-Up).....	83.00/ea
ASTM C 803	Windsor Probe (Includes Surface Preparation).....	85.00/hr
ASTM C 805	Schmidt Rebound Number.....	85.00/hr

CONCRETE AGGREGATES

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	
ASTM D 75; TxDOT, TEX-400-A	Sampling Concrete Aggregates Technician Time	\$ 50.00/hr
<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	
ASTM C 566	Moisture Content	\$ 13.00/ea
ASTM C 29; TxDOT, TEX-404-A	Unit Weight (Coarse or Fine) a) Loose..... b) Rodded.....	33.00/ea 33.00/ea
ASTM C 127; ASTM C 128; TxDOT, TEX-201-F	Specific Gravity (Coarse or Fine)	39.00/ea
ASTM C 123	Lightweight Particles (Plus Cost of Materials)	58.00/test
	Absorption	
ASTM C 127; ASTM C 128; TxDOT, TEX-201-F	a) Normal Weight Aggregate (Coarse or Fine)	25.00/ea
	b) Lightweight Aggregate (Coarse).....	28.00/ea
ASTM C 136; TxDOT, TEX-401-A	Sieve Analysis (Dry) for ASTM C 33 Specifications a) Coarse, Per Sample	44.00/ea
	b) Fine, Per Sample.....	52.00/ea
ASTM C 117; TxDOT, TEX-406-A	Amount Finer than No. 200 (Decantation)	37.00/ea
ASTM C 131; ASTM C 535	Los Angeles Abrasion (Time and Test).....	187.00/ea
ASTM C 88; TxDOT, TEX-411-A	Sulfate Soundness (Time and Test) Preparation Time	51.00/hr
	a) Magnesium - 5 Cycle.....	484.00/ea
	b) Sodium - 5 Cycle	431.00/ea
ASTM C 117; ASTM C 29; ASTM C 127; ASTM C 128; ASTM C 566; TxDOT, TEX-406-A; TxDOT, TEX-404-A; TxDOT, TEX-201-F; TxDOT, TEX-401-A	Physical Properties of Aggregates - Includes Decantation, Rodded Unit Weight, Specific Gravity, Absorption, Sieve Analysis and Moisture Content (Per Aggregate Type and Size) Conducted in Conjunction with Concrete Mix Design..... Conducted Separate from Concrete Mix Design	144.00/ea 187.00/ea
ASTM C 40; TxDOT, TEX-408-A	Organic Impurities	38.00/ea
ASTM C 2419; TxDOT, TEX-203-F	Sand Equivalent Values	83.00/ea
ASTM C 142	Clay Lumps and Friable Particles	56.00/ea
ASTM C 641	Staining Materials in Lightweight Concrete Aggregate.....	56.00/ea

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CORING

REFERENCE

ASTM C 42;
ACI 318

FIELD SERVICES

Technician Time and Equipment

a) One Man.....	\$	60.00/hr
b) Two Men.....		94.00/hr
c) Reinforcing Steel Detector.....		29.00/day
d) Coring.....		92.00/day
e) Generator		95.00/day

Bit Wear

a) Limestone Aggregate	6.00/in.in.
b) Quartz Aggregate (River Gravel).....	7.00/in.in.

REFERENCE

ASTM C 42

Sawed Ends for Compressive Strength Test

a) Limestone Aggregate	2.00/sq.in.
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ASTM C 39;
ASTM C 42;
ASTM C 174;
ASTM C 617

Compressive Strength of Concrete Core Includes Measurements, Capping and Testing

25.00/ea

Report Photographs..... At Cost

Laboratory Air-Dried Unit Weight 17.00/ea

LIME

REFERENCE

National Lime
Association

FIELD SERVICES

Continuous Observation to Monitor and Record Equipment Functions, Specific Gravity of the Lime Slurry and Observation of Stabilization Location and Depth

Technician Time	\$	50.00/hr
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REFERENCE

ASTM D 422;
TxDOT, TEX-101-E,
Pt. II

LABORATORY SERVICES

Sieve Analysis of Pulverized Materials for Gradation Compliance.....

\$ 63.00/ea

ASTM D 4318;
TxDOT, TEX-112-E

Lime Series Curve Determination Including Five Atterberg Limits

435.00/ea

PORTLAND CEMENT

<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	
ASTM C 183	Standard Method of Sampling Hydraulic Cement.....	\$ 50.00/hr
ASTM C 109	Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50mm Cube Specimen).....	24.00/ea
ASTM C 185	Air Content of Hydraulic Cement Mortar	49.00/ea
ASTM C 266; ASTM C 191	Time of Setting of Hydraulic Cement by Gillmore/Vicat Needles	59.00/ea
ASTM C 151	Autoclave Expansion of Portland Cement	197.00/ea
ASTM C 187	Normal Consistency of Hydraulic Cement	49.00/ea
ASTM C 188	Specific Gravity of Hydraulic Cement	57.00/ea
ASTM C 430	Fineness of Hydraulic Cement by the No. 325 Sieve.....	57.00/ea
ASTM C 451	Early Stiffening of Portland Cement (Paste Method)	49.00/ea
ASTM C 114	Chemical Analysis	361.00/ea
ASTM C 91	Water Retention of Masonry Cement.....	92.00/ea
ASTM C 150	Chemical Analysis	361.00/ea
	Physical Analysis	717.00/ea

SOILS

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	
ASTM D 75	Sampling Subgrade, Fill or Base Technician Time	\$ 50.00/hr
	In-Place Moisture-Density Test Technician Time	50.00/hr
ASTM D 2922	Nuclear Density	25.00/ea
ASTM D 2167; ASTM D 1556	Volumetric Density (Sand Cone)	72.00/ea
	Fill and Embankment Observation - Testing for Compliance with the Project Specifications to Verify Proper Moisture and Compaction Conditions in Order to Produce a Quality Fill and Uniform Workmanship (Time, Test and Mileage) Technician Time (Hourly Rate)	50.00/hr
ASTM D 2922	Proof Rolling Observation	50.00/hr
	Nuclear Density Test with Observation	16.00/ea

<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	
ASTM D 2216; TxDOT, TEX-103-E	Moisture Content.....	\$ 13.00/ea

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SOILS, continued

ASTM D 4318	Atterberg Limits	
	a) ASTM or TxDOT (TEX-104, TEX-105-E, TEX-106-E).....	83.00/ea
ASTM D 427	Shrinkage Limit in Conjunction with Atterberg Limits	
	a) Volumetric.....	102.00/ea
	b) Linear (TxDOT, TEX-107-E).....	102.00/ea
ASTM D 422; TxDOT, TEX-101-E; TxDOT, TEX-110-E	Sieve Analysis	
	a) Washed through No. 40 (Up to 5 Sieves).....	56.00/ea
	b) Washed through No. 200 (Up to 4 Sieves).....	83.00/ea
	c) Additional Sieves.....	13.00/ea
ASTM D 1140	Amount Finer than No. 200 Sieve.....	56.00/ea
ASTM D 698; ASTM D 1557 AASHTO T 99; AASHTO T 180 TxDOT, TEX-113-E; TxDOT, TEX-114-E MIL STD CE 55A	Moisture-Density Relationship	
	Preparation Time.....	51.00/hr
	ASTM	249.00/ea
	AASHTO.....	249.00/ea
	TxDOT.....	249.00/ea
	Corps of Engineers.....	249.00/ea
ASTM C 131; ASTM D 535	Los Angeles Abrasion (Time and Test).....	187.00/ea
ASTM D 1883	California Bearing Ratio - Short Method; Includes	
	Moisture-Density Relationship and Three Test Specimens	\$ 791.00/set
	Each Additional Specimen.....	163.00/ea
TxDOT, TEX-117-E	TxDOT Triaxial – Short Method; Includes Moisture-Density	
	Relationship and Up to Six Test Specimens	
	Part I.....	1,314.00/set
	Part II	1,206.00/set
	Each Additional Specimen.....	148.00/ea
ASTM D 854; TxDOT, TEX-108-E	Specific Gravity	83.00/ea
ASTM D 422; TxDOT, TEX-110-E	Hydrometer Analysis (Includes Sample Preparation, Grain Size Curve and Specific Gravity).....	273.00/ea
ASTM D 5084	Hydraulic Conductivity	421.00/ea
ASTM D 2166	Unit Weight	29.00/ea
TxDOT, TEX-116-E	Wet Ball Mill.....	206.00/ea
	Water Content and Visual Classification	13.00/ea
	Unconfined Compression (includes unit dry weight)	
	a) Soil Shelby Tube Specimens.....	43.00/ea
	b) Rock Core Specimens.....	51.00/ea
	(1) Sawed Specimen Ends	11.00/end

SOILS, continued

Triaxial Compression	
a) Unconsolidated-Undrained, Per Specimen.....	78.00/ea
b) Unconsolidated-Undrained, Multistage.....	273.00/ea
Direct Shear	
a) Unconsolidated-Undrained	217.00/ea
b) Consolidated-Drained (Sand)	459.00/ea
Consolidation (Not Including Specific Gravity)	565.00/ea
Swell Test	
a) Pressure Method	296.00/ea
b) Free Swell.....	156.00/ea

GENERAL EXPENSES

Vehicle Trip Charge	\$ 40.00/trip
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