

**AMENDMENT NO. 5
TO PROFESSIONAL SERVICES AGREEMENT
BETWEEN COUNTY OF MONTEREY AND
TWINING, INC.**

THIS AMENDMENT NO. 5 to the Professional Services Agreement between the County of Monterey, a political subdivision of the State of California (hereinafter, "County") and Twining, Inc. (hereinafter, "CONTRACTOR") is hereby entered into between the County and the CONTRACTOR (collectively, the "Parties") and effective as of the last date opposite the respective signatures below.

WHEREAS, CONTRACTOR entered into a Professional Services Agreement with County on September 12, 2011 (hereinafter, "Agreement") to provide on-call geotechnical engineering services through September 1, 2013 for an amount not to exceed \$100,000; and

WHEREAS, Agreement was amended by the Parties on August 30, 2013 (hereinafter, "Amendment No. 1", including Exhibit B-1, Federal Provisions) to revise Exhibit B - Federal Provisions and to extend the term for one (1) additional year through September 1, 2014 with no increase to the Agreement's not to exceed amount ; and

WHEREAS, Agreement was amended by the Parties on February 4, 2014 (hereinafter, "Amendment No. 2") to increase the Agreement amount by \$50,000 which resulted in a total not to exceed amount of \$150,000 with no extension to the Agreement's term; and

WHEREAS, Agreement was amended by the Parties on August 25, 2014 (hereinafter, "Amendment No. 3") to extend the term for one (1) additional year through September 1, 2015 with no increase to the Agreement's not exceed to amount; and

WHEREAS, Agreement was amended by the Parties on August 13, 2015 (hereinafter, "Amendment No. 4", including Exhibit B-2 - Federal Provisions) to revise Exhibit B-1 - Federal Provisions and to extend the term for one (1) additional year through September 1, 2016 with no increase in the Agreement's not exceed to amount; and

WHEREAS, additional time is necessary to allow County to complete the laboratory testing of screenings for the Seal Coat Fiscal Year (FY) 2016-2017 Project; and

WHEREAS, due to the increase in prevailing wages, the CONTRACTOR's original Fee Schedule requires an update effective the execution of this Amendment No. 5 to the Agreement; and

WHEREAS, the Parties wish to further amend the Agreement as it relates to the Seal Coat FY 2016-2017 Project to update the Fee Schedule and to extend the term for six (6) additional months to March 1, 2017 with no associated dollar amount increase to allow CONTRACTOR to

continue to provide services identified in the Agreement and as amended by this Amendment No. 5.

NOW, THEREFORE, the Parties agree to amend the Agreement as follows:

1. Amend the first sentence of Paragraph 3, "Term of Agreement", to read as follows:

The term of this Agreement is from September 1, 2011 to March 1, 2017, unless sooner terminated pursuant to the terms of this Agreement.

2. Amend Paragraph 4, effective execution of this Amendment No. 5, "Additional Provisions/Exhibits", to delete original Fee Schedule on Pages 2, 3, 6, 7, 8, 9 and 10 of "Exhibit A, Scope of Services/Payment Provisions" and add "Exhibit A-1, Revised Fee Schedule".
3. Invoices under this Agreement shall be submitted monthly and promptly, and in accordance with Paragraph 6, "Payment Conditions", of the Agreement. All invoices shall reference the Multi-Year Agreement (MYA) number #3000*192, Project name and associated Purchase Order number, and an original hardcopy shall be sent to the following:

County of Monterey
Resource Management Agency (RMA) – Finance Division
168 West Alisal Street, 2nd Floor
Salinas, California 93901

Any questions pertaining to invoices under this Agreement shall be directed to the RMA Finance Division at (831) 755-4800.

4. All other terms and conditions of the Agreement remain unchanged and in full force.
5. This Amendment No. 5 and all previous amendments shall be attached to the Agreement and incorporated therein as if fully set forth in the Agreement.
6. The recitals to this Amendment No. 5 are incorporated into the Agreement and this Amendment No. 5.

IN WITNESS WHEREOF, the Parties hereto have executed this Amendment No. 5 to the Agreement which shall be effective as of the last date opposite the respective signatures below.

COUNTY OF MONTEREY

CONTRACTOR*

By: _____
Contracts/Purchasing Officer

Twining, Inc.

Contractor's Business Name

Date: _____

By: _____
(Signature of Chair, President or Vice President)

Its: _____
(Print Name and Title)

Date: _____

**Approved as to Form and Legality
Office of the County Counsel**

By: _____
(Signature of Secretary, Asst. Secretary, CFO,
Treasurer or Assistant Treasurer)

By: _____
Mary Grace Perry
Deputy County Counsel

Its: _____
(Print Name and Title)

Date: _____

Date: _____

Approved as to Fiscal Provisions

By: _____
Auditor/Controller

Date: _____

Approved as to Indemnity and Insurance Provisions

By: _____
Risk Management

Date: _____

*INSTRUCTIONS: IF CONTRACTOR is a corporation, including limited liability and non-profit corporations, the full legal name of the corporation shall be set forth above together with the signatures of two specified officers. IF CONTRACTOR is a partnership, the name of the partnership shall be set forth above together with the signature of a partner who has authority to execute this Agreement on behalf of the partnership. IF CONTRACTOR is contracting in an individual capacity, the individual shall set forth the name of the business, if any, and shall personally sign the Agreement.

EXHIBIT A-1 – REVISED FEE SCHEDULE

Schedule of Fees 2016 - 2017 Prevailing Wage

NOTE: Twining's rates will be adjusted annually each July 1st to reflect increased costs.

Personnel Rates: Per Hour Unless Otherwise Noted

Task Code	Engineering and Consulting Personnel	Rate
10026	Senior Principal Advisor/Consultant	\$ 280.00
10001	Principal Engineer/Geologist	\$ 180.00
10017	Metallurgical Engineer	\$ 175.00
70000	Registered Geotechnical Engineer	\$ 175.00
10010	Technical Advisor	\$ 175.00
10011	Material Scientist, Welding/NDT Consultant	\$ 190.00
70003	Registered Geologist/Certified Engineering Geologist	\$ 165.00
10003	Senior Engineer/Geologist	\$ 160.00
10009	Registered Civil Engineer	\$ 155.00
60003	Roofing/Waterproofing Consultant	\$ 130.00
10013	Project Engineer/Manager	\$ 145.00
30000	Quality Control Manager	\$ 135.00
10005	Senior Staff Engineer/Geologist	\$ 130.00
10007	Staff Engineer/Geologist	\$ 125.00
10015	Quality Control Administrator	\$ 115.00
10019	Metallurgical Technician	\$ 90.00
90001	CADD Operator/Draftsperson	\$ 80.00
70107	Field Supervisor/Safety Manager	\$ 110.00
20000	Laboratory Manager	\$ 100.00
98000	Laboratory Technician	\$ 88.00
90005	Expert Witness Testimony	\$ 380.00
91010	Qualified SWPPP Developer	\$ 125.00
91000	Qualified SWPPP Practitioner	\$ 115.00

Task Code	Field Inspection Personnel	Rate
10101	Concrete/Reinforced Steel Inspector	\$ 90.00
10103	Prestressed/Post Tensioned Inspector	\$ 90.00
10105	Concrete ICC Inspector	\$ 90.00
10109	Drilled-In-Anchors Inspector	\$ 90.00
10111	Gunite/Shotcrete Inspector	\$ 90.00
10113	Masonry Inspector	\$ 90.00
10201	Structural Steel/Welding Inspector	\$ 90.00
10203	AWS Certified Welding Inspector	\$ 99.00
10207	Fireproofing Inspector	\$ 90.00
10501	Lead Inspector	\$ 99.00
75001	Asphalt Field and Plant Inspector/Technician	\$ 89.00
70103	Pile Driving Inspector	\$ 95.00
70101	Soils Technician	\$ 89.00
10107	Concrete Quality Control (ACI/Calttrans Technician)	\$ 89.00
60001	Roofing/Waterproofing Inspector	\$ 107.00
10515	Mechanical Inspector	\$ 125.00
10519	Electrical Inspector	\$ 125.00
10521	Plumbing Inspector	\$ 125.00
10523	Building Inspector	\$ 125.00
60003	Field Engineering Technician	\$ 89.00

Task Code	Shop Inspection Personnel	Rate
10301	Structural Steel Fabrication Inspector	\$ 87.00
10309	Batch Plant Quality Control Technician/Inspector	\$ 87.00
10325	Glyc-Laminated Fabrication Inspector	Quotation
10328	Pre-cast concrete/Pipe Fabrication Inspector	\$ 87.00

Task Code	Non-Destructive Testing Personnel	Rate
10401	NDE Ultrasonic Testing Technician	\$ 99.00
10403	NDE Magnetic Particle Testing Technician	\$ 99.00
10405	NDE Dye Penetrant Testing Technician	\$ 99.00
10305	Combination NDE Technician/Welding Inspector	\$ 99.00
10409	Radiographic Testing (crew of 2)	\$ 375.00
10020	NDE Engineer	\$ 180.00

Task Code	Equipment Usage (Daily Unless Otherwise Noted)	Rate
95313	Skidmore	\$ 40.00
95309	Torque Wrench, Small	\$ 15.00
95312	Torque Wrench, Large	\$ 25.00
95315	Torque Multiplier	\$ 40.00
95321	Air Meter	\$ 20.00
95324	Brass Mold	\$ 20.00
95343	Nuclear Gauge (Per Hour)	\$ 9.00
95333	Pull Test Equipment	\$ 60.00
95348	Concrete/Asphalt Coring Equipment (Per hour)	\$ 120.00
95327	Pachometer	\$ 55.00
95336	Floor Flatness (Dipstick)	\$ 45.00
95330	Schmidt Hammer	\$ 20.00
95341	Vapor Emission Test Kits	\$ 30.00
95342	Relative Humidity Probe	\$ 45.00
95339	V-Meter	\$ 100.00
95361	Fireproofing Adhesion/Cohesion (Per Test)	\$ 20.00
95300	A Scan Ultrasonic Equipment and Consumables	\$ 65.00
95303	Magnetic Particle Equipment and Consumables	\$ 30.00

95305	Liquid Penetrant Consumables	\$ 25.00
95307	Phased Array Ultrasonic Equipment (Per Hour)	\$ 60.00
95347	Ground Penetrating Radar (Per Hour)	\$ 50.00
95345	Impact Echo	\$ 280.00
95359	California Pavement Profileograph (Per Hour)	\$ 115.00
95349	Inertial Profiler (Per Hour)	\$ 250.00
95357	Project Dedicated Vehicle	\$ 75.00

Task Code	Specimen Pick-Up	Rate
20102	Standard Sample: Concrete Cylinders (Each)	\$ 25.00
20101	Standard Sample: Mortar/Grout Cubes and Cores, Fireproofing, Rebar, and Epoxy Prisms (Each)	\$ 25.00
20103/20104	Oversize Sample: Masonry Prisms, Shotcrete Panels, Flexural Beams (Each)	\$ 40.00
20107	Technician for Specimen Pick-Up Not Listed Above (Per Hour, 2-Hour Minimum)	\$ 75.00
20109	Technician for Specimen Pick-Up Before 5:00 a.m. or After 5:00 p.m. Monday thru Friday, or All Day Saturday (Per Hour, 2-Hour Minimum Plus Mileage)	\$ 98.00

Task Code	Jobsite Trailer, Mobile or On-site Laboratory	Rate
95360	Mobile laboratory for rapid set concrete (per shift not exceeding 12 hours) All others by quotation	\$ 375.00

EXHIBIT A-1 – REVISED FEE SCHEDULE

Task Code	Concrete Tests (Field Made Specimens)	Rate	Task Code	Chemical Analysis and Petrographic Examination of Concrete, continued	Rate
20201	6" x 12" or 4" x 8" Cylinder: Compression Strength (ASTM C39)	\$ 40.00	80126	Chemical Analysis for Water Soluble Chlorides (ASTM C1218) (Includes sample prep)	\$ 130.00
20203	Density of Structural Lightweight Concrete Equilibrium or Oven Dry Method (ASTM C867)	\$ 75.00	80123	Chemical Analysis for Acid Soluble Chlorides (ASTM C1152) (Includes sample prep)	\$ 140.00
20205	Core Compression including Trimming (ASTM C42)	\$ 60.00	80193	Chloride Diffusion Coefficient of Cementitious Mixtures by Bulk Diffusion (ASTM C1555)	\$ 2,000.00
20207	6" x 6" x 18" Flexural Beams Not Exceeding Referenced Size (ASTM C78, C293 or CTM 623)	\$ 90.00	80129	Petrographic Examination of Hardened Concrete (ASTM 856)	Quotation
20208	6" x 6" x 30" Flexural Beams (CTM 623)	\$ 110.00			
20209	Splitting Tensile Strength (ASTM C495)	\$ 100.00	Task Code	Physical and Chemical Analysis of Cement	Rate
20211	Modulus of Elasticity Test (ASTM C489)	\$ 150.00	80195	Physical Testing and Chemical Analysis of Portland Cement per Standard Requirements (ASTM C150)	\$ 1,000.00
80003	Rapid Chloride Permeability Test: Cylinders or Cores (ASTM C1202)	\$ 450.00	80100	Chemical Analysis of Portland Cement per Standard Requirements (ASTM C150)	\$ 550.00
80006	Density, Absorption, and Voids in Hardened Concrete (ASTM C642)	\$ 350.00	80103	Physical Testing of Portland Cement per Standard Requirements (ASTM C150)	\$ 550.00
40005	Flexural Toughness (ASTM C1608, Formerly ASTM C1013)	\$ 700.00	80194	Physical Testing of Type K Cement, Mortar Expansion (ASTM C806)	\$ 500.00
40009	Coefficient of Thermal Expansion of Concrete (ICRD 39, AASHTO T326)	\$ 500.00	80106	Partial Analysis of Specific Physical Tests	Quotation
			80110	Sulfates Resistance of Hydraulic Cement (ASTM C1012) - 6 months	\$ 2,000.00
			80111	Sulfates Resistance of Hydraulic Cement (ASTM C1012) - 12 months	\$ 2,200.00
Task Code	Concrete Specimen Preparation	Rate	Task Code	Physical and Chemical Analysis of Fly Ash	Rate
20151	Sawing of Specimens (Each)	\$ 25.00	80140	Chemical Analysis of Fly Ash per Standard Requirements (ASTM C618)	\$ 550.00
20157	Coring of Specimens in Lab (Each)	\$ 25.00	80143	Physical Testing of Fly Ash per Standard Requirements (ASTM C618)	\$ 530.00
Task Code	Laboratory Trial Batch: Concrete, Cement and Mortar	Rate	80146	Partial Analysis or Specific Physical Tests	Quotation
30217	Compression Test Cylinders Made and Tested in Laboratory (ASTM C192, C35)	\$ 45.00	80147	Chemical Analysis and Physical Testing of Fly Ash per Standard Requirements (ASTM C618)	\$ 1,000.00
30219	6" x 6" x 18" Flexural Beams Made and Tested in Laboratory (ASTM C192, C78)	\$ 85.00	Task Code	Physical Testing of Chemical Admixtures for Concrete	Rate
30221	6" x 6" x 30" Flexural Beams Made and Tested in Laboratory (ASTM C192, C293)	\$ 95.00	80196	Qualification of Admixture per ASTM C494	Quotation
30223	Splitting Tensile Strength Cylinders Made and Tested in Laboratory (ASTM C192, C495)	\$ 100.00	Task Code	Soils and Aggregate Tests	Rate
30225	Modulus of Elasticity Test Cylinders Made and Tested in Laboratory (ASTM C192, C469)	\$ 155.00	30503	Abrasion: LA Rattler (ASTM C131)	\$ 185.00
30227	Density of Structural Lightweight Concrete Made in the Laboratory, Equilibrium or Oven Dry Method (ASTM C867)	\$ 85.00	30505	Abrasion: LA Rattler (ASTM C535)	\$ 195.00
30201	Laboratory Trial Batch (ASTM C192)	\$ 450.00	70301	Aterberg Limits/Plasticity Index (ASTM D4318, CTM204)	\$ 150.00
30203	Laboratory Trial Batch: Packaged Dry Concrete Including Verification of Slump, Air Content, Plastic Unit Weight, Six Cylinders for Compressive Strength (ASTM C387 and C192)	\$ 800.00	70303	California Bearing Ratio Excluding Maximum Density (ASTM D1533): Soil	\$ 550.00
30205	Drying Shrinkage Up to 28 Days: Three 3" x 3" or 4" x 4" Bars, Five Readings up to 28 Dry Days (ASTM C157)	\$ 450.00	70304	California Bearing Ratio Excluding Maximum Density (ASTM D1533): Cement-Treated Soil	\$ 650.00
30230	Additional Reading, Per Set of Three Bars	\$ 45.00	70344	Cement-Treated Soil/Base Mix Design: includes three trial cement contents with three unconfined compressive strength specimens per cement content	\$ 2,950.00
30231	Storage over Ninety (90) Days, Per Set of Three Bars, Per Month	\$ 30.00	70305	Chloride and Sulfate Content (CTM 417, CTM 422)	\$ 130.00
30207	Setting Time Up to 7 Hours (ASTM C403)	\$ 125.00	30403	Clay Lumps and Friable Particles (ASTM C142)	\$ 175.00
30209	Bleeding (ASTM C232)	\$ 125.00	30321	Cleaness Value: 1" x #4 (CTM 227)	\$ 175.00
30229	Concrete Restrained Expansion (ASTM C678)	\$ 475.00	30322	Cleaness Value: 1.5" x .75" (CTM 227)	\$ 275.00
30211	Mix, Make and Test Mortar or Grout Specimens for Compressive Strength: Set of 6 (ASTM C109, C842)	\$ 400.00	70393	Collapse Potential/Index (ASTM D6333)	\$ 175.00
20263	Non-Shrink Grout: Height Change after Final Set (ASTM C1090)	\$ 450.00	70396	Compressive Strength of Molded Soil-Cement Cylinders (ASTM D1633)	\$ 105.00
20266	Non-Shrink Grout: Height Change at Early Age (ASTM C827)	\$ 700.00	70309	Consolidation Test: Full Cycle (ASTM D2435, CTM 219)	\$ 195.00
30232	Cracking Resistance, Set of Three Rings, Laboratory Trial Batching, Test Until Cracking or up to 28 Days (ASTM 1531)	\$ 4,000.00	70311	Consolidation Test: Time Rate per Load Increment (ASTM D2435, CTM 219)	\$ 45.00
30233	Evaluation of Pre-Packaged Masonry Mortars (ASTM C270)	\$ 1,100.00	70313	Corrosivity Series: Sulfate, Cl, pH, Resistivity	\$ 245.00
Task Code	Chemical Analysis and Petrographic Examination of Concrete	Rate	70315	Crushed/Fractured Particles (ASTM D5821, CTM 205)	\$ 175.00
80120	Chemical Analysis for Water Soluble Sulfates (ASTM C114) (Includes sample prep)	\$ 130.00	70317	Direct Shear Test: Remolded and/or Residual (ASTM D3060)	\$ 245.00

EXHIBIT A-1 – REVISED FEE SCHEDULE

Task Code	Soils and Aggregate Tests, continued	Rate	Task Code	Soils and Aggregate Tests, continued	Rate
70319	Direct Shear Test: Undisturbed - Slow [CD] (ASTM D3080)	\$ 225.00	30317	Unit Weight Per Cubic Foot (ASTM C29, CTM 212)	\$ 80.00
70321	Direct Shear Test: Undisturbed - Fast [CU] (ASTM D3080)	\$ 195.00	30319	Voids In Aggregate with Known Specific Gravity (ASTM C29, CTM 212)	\$ 80.00
70328	Durability Index: Per Method - A,B,C, or D (CTM 228, ASTM D3744)	\$ 210.00			
70325	Expansion Index (ASTM D4829, UEC 16-2)	\$ 160.00	Task Code	Asphalt Concrete Tests	Rate
75004	Fine Aggregate Angularity (AASHTO T304, ASTM C1252, CTM 234)	\$ 185.00	75031	HMA Mixing and Preparation	\$ 125.00
30507	Flat and Elongated Particle (ASTM D4791)	\$ 225.00	75032	HMA Mixing and Preparation with Aggregate Treatment	\$ 175.00
30508	Flat or Elongated Particle (ASTM D4791)	\$ 195.00	75033	Bulk Specific Gravity of Compacted Sample or Core: SSD (CTM 308C and ASTM D2726)	\$ 45.00
70331	Maximum Density: Methods A/B/C (ASTM D1557, D698, CTM 216)	\$ 250.00	75036	Bulk Specific Gravity of Compacted Sample or Core: Paraffin Coated (CTM 308A and ASTM D1188)	\$ 70.00
70333	Maximum Density: Check Point (ASTM D1557, D698)	\$ 85.00	75040	Emulsion Residue, Evaporation (ASTM D244)	\$ 150.00
70336	Maximum Density: AASHTO C [Modified] (AASHTO T-180)	\$ 250.00	75024	Extraction: % Bitumen (CTM 382, ASTM D6307)	\$ 155.00
70337	Moisture Content (ASTM D2216, CTM 226)	\$ 25.00	75027	Extraction: % Bitumen and Gradation (CTM 382, CTM 202, ASTM D6307, ASTM D5444)	\$ 200.00
70339	Moisture and Density: Ring Sample (ASTM D2937)	\$ 30.00	75028	Extraction: % Bitumen, Correction Factor (CTM 382, ASTM D6307)	\$ 325.00
70341	Moisture and Density: Shelby Tube Sample (ASTM D2937)	\$ 40.00	75030	Chemical Extraction: % Bitumen and Sieve Analysis (ASTM D2172 Method A or B, ASTM D6444)	\$ 245.00
70340	Moisture-Density Relations of Soil-Cement Mixtures Premixed in the Field (ASTM D558)	\$ 225.00	75042	Lab Tested Maximum Density: Hveem, 3 briquettes (CTM 304, CTM 308, ASTM D1561, ASTM D1188)	\$ 200.00
70342	Moisture-Density Relations of Soil-Cement Mixtures Mixed in the Lab (ASTM D558)	\$ 295.00	75057	Hveem Stabilometer Test, Premixed, 3 briquettes (CTM 304, CTM 386, ASTM D1560, ASTM D1661)	\$ 200.00
30401	Organic Impurities (ASTM C40, CTM 213)	\$ 90.00	75048	Lab Tested Maximum Density: Marshall, 3 briquettes (ASTM D6926, ASTM D2726)	\$ 200.00
70343	Permeability (ASTM D5084)	\$ 250.00	75049	Lab Tested Maximum Density: Marshall 6" Specimen, 3 briquettes (ASTM D5581, ASTM D2726)	\$ 215.00
80001	Potential Reactivity: Chemical Method (ASTM C289)	\$ 475.00	75060	Lab Tested Maximum Density: Superpave Gyrotory Compacted Briquette, SSD, 1 briquette (ASTM D6925, ASTM D2726)	\$ 75.00
70394	Potential Reactivity: Mortar Bar Expansion Method, 14-Day Exposure (ASTM C1260)	\$ 750.00	75052	Lab Tested Maximum Density: Superpave Gyrotory Compacted Briquette, Paraffin, 1 briquette (ASTM D6925, ASTM D1188)	\$ 85.00
70391	Potential Reactivity: Mortar Bar Expansion Method, 28-Day Exposure (ASTM C1260)	\$ 800.00	75061	Maximum Theoretical Specific Gravity (RICE) (CTM 309, ASTM D2041)	\$ 150.00
70398	Potential Reactivity: Concrete Bar Expansion, Method (ASTM C1293), 12 month	\$ 2,400.00	75066	Marshall Stability and Flow, Cored Sample, each (ASTM D6927)	\$ 75.00
70399	Potential Reactivity: Concrete Bar Expansion, Method (ASTM C1293), 24 month	\$ 2,600.00	75069	Marshall Stability and Flow, Premixed, 3 briquettes (ASTM D6926, ASTM D6927)	\$ 200.00
70397	Potential Reactivity of Aggregate Combination, 14-Day Exposure, Mortar (ASTM C1567)	\$ 900.00	75106	Marshall Stability and Flow, Gyrotory Compacted Specimen Pre-Mixed, 3 briquettes (ASTM D6925, ASTM D5581)	\$ 225.00
70392	Potential Reactivity of Aggregate Combination, 28-Day Exposure, Mortar (ASTM C1567)	\$ 950.00	75107	Marshall Stability and Flow 6" Specimen, Premixed, 3 briquettes (ASTM D5581)	\$ 215.00
70346	R-Value: Soil (ASTM 2844, CTM 301)	\$ 325.00	75053	Moisture Content (CTM 370)	\$ 85.00
70347	R-Value: Aggregate Base (ASTM D2644, CTM 301)	\$ 355.00	75005	Wet Track Abrasion Test (ASTM D3910)	\$ 150.00
70349	Sand Equivalent (ASTM D2419, CTM 217)	\$ 125.00	75093	Hveem Mix Design (Excluding Aggregate Quality Tests)	\$ 3,000.00
70351	Sieve #200 Wash Only (ASTM D1140, CTM 202)	\$ 90.00	75095	Hveem Mix Design, with RAP (Excluding Aggregate Quality Tests, RAP Qualification)	\$ 3,300.00
70353	Sieve with Hydrometer: 3/4" Gravel to Clay (ASTM D422, CTM 203)	\$ 225.00	75099	Hveem Mix Design, with Lime (Excluding Aggregate Quality Tests)	\$ 3,550.00
70355	Sieve with Hydrometer: Sand to Clay (ASTM D422, CTM 203)	\$ 215.00	75094	Hveem Mix Design Caltrans Untreated Mix (Including Aggregate Quality Tests)	\$ 4,200.00
70357	Sieve Analysis Including Wash (ASTM C136, CTM 202)	\$ 140.00	75095	Hveem Mix Design Caltrans Lime Treated Mix (Including Aggregate Quality Tests)	\$ 4,300.00
70359	Sieve Analysis Without Wash (ASTM C136, CTM 202)	\$ 105.00	75084	Marshall Mix Design (Excluding Aggregate Quality Tests)	\$ 3,000.00
70360	Sieve Analysis: Split Sieve (ASTM C136, CTM 202)	\$ 215.00	75067	Marshall Mix Design with RAP (Excluding Aggregate Quality Tests)	\$ 3,300.00
70361	Sieve Analysis Without Wash: With Cobbles (ASTM C136, CTM 202)	\$ 210.00	75090	Marshall Mix Design with Lime (Excluding Aggregate Quality Tests)	\$ 3,550.00
70363	Soundness: Sodium or Magnesium Sulfate, 5 Cycles (ASTM C98)	\$ 450.00	75083	Open Grade Asphalt Concrete Mix Design (CTM 362, ASTM D7064)	\$ 1,350.00
70365	Specific Gravity and Absorption: Coarse (ASTM C127, CTM 206)	\$ 100.00	75109	Superpave Mix Design (Excluding Aggregate Quality Tests)	\$ 4,770.00
70367	Specific Gravity and Absorption: Fine (ASTM C128, CTM 207)	\$ 165.00	75113	Superpave Mix Design, with RAP (Excluding Aggregate Quality Tests)	\$ 5,050.00
70368	Swell/Settlement Potential: One Dimensional (ASTM D4546)	\$ 105.00	75114	Superpave Mix Design, with Rubber (Excluding Aggregate Quality Tests)	\$ 5,200.00
70371	Triaxial	Quotation			
70373	Unconfined Compression (ASTM D2166, CTM 221)	\$ 135.00			

EXHIBIT A-1 – REVISED FEE SCHEDULE

Task Code	Asphalt Concrete Tests, continued	Rate
75115	Superpave Mix Design, with Additives (Excluding Aggregate Quality Tests)	\$ 9,590.00
75075	Effect of Moisture on Asphalt Paving Mixtures, Pre-Mixed (AASHTO T283, ASTM D4867)	\$ 900.00
75111	Hamburg Wheel Track Test, 20,000 passes, 4 briquettes (AASHTO T324)	\$ 1,500.00
75116	Hamburg Wheel Track Test, 25,000 passes, 4 briquettes (AASHTO T324)	\$ 1,600.00
75039	Raveling Test of Cold Mixed Emulsified Asphalt (ASTM D7195)	\$ 200.00
75067	Marshall Stability, wet set, 3 replicates (AASHTO T245)	\$ 325.00
75066	Marshall Stability, dry set, 3 replicates (AASHTO T245)	\$ 275.00
75070	Cold Recycled Asphalt Mix Design: 2 gradings each, 3 emulsion content (Caltrans LP-3)	\$ 9,500.00

Task Code	Brick Masonry Tests, ASTM C87	Rate
20301	Modulus of Rupture: Flexural (5 Required Per ASTM)	\$ 45.00
20303	Compression Strength (5 Required Per ASTM)	\$ 45.00
20305	Absorption: 5 Hour or 24 Hour (5 Required)	\$ 50.00
20307	Absorption (Bolt): 1, 2 or 5 Hours (5 Required)	\$ 60.00
20309	Initial Rate of Absorption (5 Required)	\$ 40.00
20311	Efflorescence (5 Required)	\$ 60.00
20313	Cores: Compression	\$ 55.00
20315	Shear Test on Brick Cores: 2 Faces	\$ 80.00

Task Code	Concrete Block, ASTM C140	Rate
20321	Compression (3 Required Per ASTM)	\$ 50.00
20323	Absorption/Moisture Content/Oven Dry Density (3 Required Per ASTM)	\$ 80.00
20327	Linear Shrinkage (ASTM C425)	\$ 200.00
20335	Web and Face Shell Measurements	\$ 40.00
20329	Tension Test	\$ 150.00
20331	Core Compression	\$ 55.00
20333	Shear Test of Masonry Cores: 2 Faces	\$ 75.00
20339	Efflorescence Tests (3 Required)	\$ 40.00

Task Code	Masonry Prisms, ASTM C1314	Rate
20341	Compression Test: Composite Masonry Prisms Up To 8" x 16"	\$ 155.00
20343	Compression Test: Composite Masonry Prisms Larger Than 8" x 16"	\$ 245.00
20345	Prism Cord Modulus of Elasticity	\$ 505.00
20347	Prism Cord Modulus of Elasticity with Transverse Strain (for double-width specimen)	\$ 630.00

Task Code	Mortar and Grout	Rate
20351	Compression: 2" x 4" Mortar Cylinders (ASTM C780)	\$ 30.00
20353	Compression: 3" x 3" x 8" Grout Prisms, Includes Trimming (ASTM C119)	\$ 32.00
20355	Compression: 2" Cubes (ASTM C109)	\$ 30.00
20357	Compression: Cores (ASTM C42)	\$ 55.00

Task Code	Masonry Specimen Preparation	Rate
20155	Cutting of Cubes or Prisms	\$ 45.00

Task Code	Fireproofing Tests	Rate
20401	Oven Dry Density (Per Sample) (ASTM E605)	\$ 60.00

Task Code	Gunite and Shotcrete Tests	Rate
20351	Core Compression Including Trimming (ASTM C42)	\$ 55.00
20353	Compression: 6" x 12" Cylinders	\$ 32.00
20355	Compression: Cubes (includes Saw Cutting)	\$ 74.00

Task Code	Concrete Roof Fill: Gypsum, Vermiculite, Perlite, Lightweight Insulating Concrete, Etc.	Rate
20371	Compression Test (ASTM C495 and C472)	\$ 39.00
20373	Air Dry Density (ASTM C472)	\$ 30.00
20379	Oven Dry Density (ASTM C495)	\$ 65.00

Task Code	Reinforcing Steel, ASTM A615, A706	Rate
20501	Tensile Test: # 11 or Smaller	\$ 52.00
20503	Bend Test: # 11 or Smaller	\$ 46.00
20504	Bend Test #14 or #18	\$ 300.00
20505	Tensile Test: # 14	\$ 200.00
20507	Tensile Test: # 18	\$ 300.00

Task Code	Reinforcing Steel - Welded or Coupled Specimens	Rate
20521	Tensile Test: Welded/Coupled #11 and Smaller	\$ 52.00
20523	Tensile Test: Welded/Coupled #14	\$ 220.00
20525	Tensile Test: Welded/Coupled #18	\$ 320.00
20529	Weld: Macroetch	\$ 65.00
20531	Slippage Test - Caltrans (CTM 670)	\$ 175.00

Task Code	Metal and Steel Testing	Rate
20501	Tensile Strength: Up to 100K Pounds (Each)	\$ 50.00

20503	Tensile Strength: Up to 200K Pounds (Each)	\$ 55.00
20505	Tensile Strength: Up to 300K Pounds (Each)	\$ 65.00
20507	Tensile Strength: Up to 400K Pounds (Each)	\$ 110.00
20509	Tensile Strength: 400K to 500K Pounds (Each)	\$ 300.00
20511	Tensile Strength: Stress-Strain Percent Offset	\$ 150.00
20545	Weld: Macroetch	\$ 65.00
20547	Weld: Fracture	\$ 30.00
20515	Bend Test	\$ 46.00
20517	Flattening Test	\$ 65.00
20519	Brinell and Rockwell Hardness Test (ASTM E18) (Per Test)	\$ 72.00

20530	Bolt: Axial Tensile Test (Up to 7/8" diameter)	\$ 40.00
20531	Bolt: Wedge Tensile Test (Up to 7/8" diameter)	\$ 55.00
20532	Bolt: Axial Tensile Test (Greater than 7/8" up to 1" diameter)	\$ 50.00
20533	Bolt: Wedge Tensile Test (Greater than 7/8" up to 1" diameter)	\$ 75.00
20534	Bolt: Axial Tensile Test (Greater than 1" diameter)	Quotation
20535	Bolt: Wedge Tensile Test (Greater than 1" diameter)	Quotation
20536	Bolt: Proof Load Test (Up to 7/8")	\$ 65.00
20537	Bolt: Proof Load Test (Greater than 7/8" up to 1" diameter)	\$ 85.00
20538	Bolt: Proof Load Test (Greater than 1")	Quotation
20539	Nut: Proof Load Test (Up to 7/8")	\$ 45.00
20540	Nut: Proof Load Test (Greater than 7/8" up to 1" diameter)	\$ 65.00
20541	Nut: Proof Load Test (Greater than 1")	Quotation

Task Code	Chemical Testing of Metal and Steel	Rate
80170	Steel Chemical Analysis	\$ 135.00
80173	Weight of Galvanized Coating (ASTM A95)	\$ 75.00

EXHIBIT A-1 – REVISED FEE SCHEDULE

Task Code	Machining and Preparation of Tensile and Bend Sample: Carbon Steel	Rate
20751	Machinist: Initial Preparation from Mock-up, Etc. (Per Hour)	\$ 80.00
20753	Sawcut to Overall Width (Per 0.5" Thickness or Fraction Thereof)	\$ 40.00
20755	Machinist to Test Configuration: Milled Specimens (Per 0.5" Thickness or Fraction Thereof)	\$ 55.00
20757	Machinist to Test Configuration: Turned Specimens (Per 0.5" Thickness or Fraction Thereof)	\$ 110.00
20759	Prepare Subsize Specimens (Per 0.5" Thickness or Fraction Thereof)	\$ 72.00

Task Code	Charpy Impact	Rate
20621	Charpy Impact Ambient Temperature, per sample (Average of 3 Samples Typically Required)	\$ 60.00
20623	Charpy Impact Reduced Temperature, per sample (Average of 3 Samples Typically Required)	\$ 100.00

Task Code	Machining of Charpy Samples: Carbon Steel	Rate
20780	Cutting and Milling (Per 0.5" or Fraction Thereafter) (Average of 3 Samples Typically Required)	\$ 72.00
20783	Final Machining to Sample Configuration (Average of 3 Samples Typically Required)	\$ 82.00

Task Code	Prestressing Wires and Tendons, ASTM A416	Rate
20701	Stress-Strain Analysis: Wire or Strands (Including Chart and Percent Offset)	\$ 170.00
20703	Tensile Test Only	\$ 125.00
20705	Tendons	Quotation

Task Code	Polymer Matrix Composite Materials (Fiberwrap)	Rate
20706	Tensile Strength – Set of 5 Specimens/batch/direction (ASTM D3039)	\$ 1,350.00
20707	Tensile Strength – Additional Specimens (ASTM D3039)	\$ 250.00
20708	Heating Chamber Time – Per 24 hr period (ASTM D3039)	\$ 65.00

Task Code	Calibration Services and Universal Machine Usage	Rate
20801	Calibration/Verification Services	Quotation
20803	Universal Test Machine Usage (Per Hour)	\$ 250.00

Ceramic Tile Testing Division

The Ceramic Tile Institute of America (CTIOA) and Twining worked together to advance and develop technology designed to enhance the quality of materials and workmanship in the ceramic tile industry. A separate schedule of fees for these services is available upon request.

Cyclic and Fatigue Testing Programs on Special Products/Parts	Quotation
Engineering and Technical support/Design of Prototypes and Special Fastener/Coupling Full Testing Program Per New Regulations: Tension, Tension/Bend, Shear, Double Shear, & Compressions	Quotation
Fiberglass/Composite Materials Field Testing Program (ASTM D4065, D1143, D4923, D2584, D4476, D1242, D7901, D7921, and D732)	Quotation
Field Testing of Structures and Structural Elements	Quotation
In-Place Shear Testing	Quotation
Materials and/or Product Evaluation Per Specifications	Quotation
Structural Dynamic Testing and Durability Analysis	Quotation