

### Laboratory Certification For

### Afghanite Geo & Mining Engineering Services Laboratory

Lab ID: LCP-015

Issue date: Oct 13, 2016

Expiry date: April 13, 2017

This Extension letter confirms the completion of inspection and certification for Afghanite Geo & Mining CMT Laboratory, which is located at End of Weda School Alley, Next to Kuwaiti Mosque, Khushal Khan Mina, District 5, Kabul, Afghanistan. This laboratory should now be considered as certified for use by the US Army Corps of Engineers Transatlantic Afghanistan District (USACE TAA) and other clients, for all tests listed in Table 1 to Table 6, as attached to this letter. This certification will be included with records that are maintained at the ABA and USACE TAA Headquarters in Bagram Airbase, Afghanistan. Retaining the certification will require yearly inspections by the ABA. This certification is also contingent upon the following conditions:

- A. Continued employment of the following individuals while without their oversight, the laboratory will require recertification:
  1. Mr. Mohammad Mirzaee the laboratory manager; and
  2. Other Senior Technicians who were inspected and certified during the inspection, a list of certified technicians can be provided upon request;
- B. If the calibration certificates of equipments expire or become invalid as per the relevant ASTM or AASHTO standard;
- C. If the laboratory is moved to a new location, it will require recertification; and
- D. If the laboratory fails to comply by the approved lab quality management plan, safety standards, and other criteria set forth in the most up-to-date ABA lab certification manual, the lab certification may be suspended.

For verification and good standing of this certification please check our online directory of laboratories at <http://aba.af/Lab-certification-program>. The inspection and certification process for the Afghanite adhered to procedures outlined by the Materials Testing Center (MTC), which is located at the Geotechnical and Structures Laboratory (GSL), U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi, USA. The MTC is the USACE-authorized agency for certifying laboratories for use in quality control testing for USACE construction projects. To facilitate construction in Afghanistan, the USACE TAA has authorized the ABA to conduct laboratory certifications with strict adherence to MTC protocol. Qualifications of the authors for conducting these: 12 years of laboratory experience, 12 years of teaching classes on construction materials, and six years of teaching university-level construction classes.

Regards,

Naeem Yassin

President of Afghanistan Builders Association  
(ABA)



### Afghanite Certified Laboratory Tests

Table 1. List of Certified Soil Tests for Afghanite

No	Test Method	Test Procedure Title
1	AASHTO T 089	Standard Method of Test for Determining the Liquid Limit of Soils
2	AASHTO T 090	Standard Method of Test for Determining the Plastic Limit and Plasticity Index of Soils
3	AASHTO T 92	Standard Method of Test for Determining the Shrinkage Factors of Soils
4	AASHTO T 093	Standard Specification for Determining the Field Moisture Equivalent of Soils
5	AASHTO T 224	Standard Method of Test for Correction for Coarse Particles in the Soil Compaction Test
6	ASTM D 421-85	Standard Practice for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
7	ASTM D 422-63	Standard Test Method for Particle Size Analysis of Soils
8	ASTM D 0653-11	Terminology Relating to Soil, Rock, and Contained Fluids
9	ASTM D 0698-12	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
10	ASTM D 0854-14	Standard Test Methods for Specific Gravity of Soil Solids by Water Pycnometer
11	ASTM D 1140-00	Standard Test Methods for Amount of Material in Soil Finer than No. 200 (75- $\mu$ m) Sieve
12	ASTM D 1556-07	Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
13	ASTM D 1557-12	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
14	ASTM D 1883-07e2	Standard Test Method for CBR (California Bearing Ratio) of Laboratory-Compacted Soils
15	ASTM D 2166-13	Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
16	ASTM D 2216-10	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
17	ASTM D 2487-11	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
18	ASTM D 2488-09a	Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)
19	ASTM D 3740-12a	Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
20	ASTM D 4253-00	Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
21	ASTM D 4718-87	Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles

No	Test Method	Test Procedure Title
22	ASTM D 4959-07	Standard Test Method for Determination of Water (Moisture) Content of Soil by Direct Heating
23	ASTM D 6026-13	Practice for Using Significant Digits in Geotechnical Data
24	ASTM D 6913-04	Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
25	BS 1377-2	Methods of test for Soils for civil engineering purposes — Part 2: Classification tests
26	CRD-C 654	Standard Test Method for Determining the California Bearing Ratio of Soils

**Table 2. List of Certified Advance Soil Tests for Afghanite**

No	Test Method	Test Procedure Title
1	ASTM D 1195-09	Standard Test Method for Repetitive Static Plate Load Tests of Soils and Flexible Pavement Components for Use in Evaluation and Design of Airport and Highway Pavements (No Calibration)
2	ASTM D 1196-12	Standard Test Method for Nonrepetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements
3	ASTM D 1586-11	Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils
4	ASTM D 1587-08	Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes
5	ASTM D 2113-08	Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigation
6	ASTM D 2434-68	Standard Test Method for Permeability of Granular Soils (Constant Head)
7	ASTM D 2435-11	Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading
8	ASTM D 3080-11	Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions (No Calibration Certificate)
9	ASTM D 3550-01	Standard Practice for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils
10	ASTM D 4221-11	Standard Test Method for Dispersive Characteristics of Clay Soil by Double Hydrometer
11	ASTM D 5434-12	Standard Guide for Field Logging of Subsurface Explorations of Soil and Rock
12	ASTM D 6032-08	Standard Test Method for Determining Rock Quality Designation (RQD) of Rock Core
13	ASTM D 6429-99	Standard Guide for Selecting Surface Geophysical Methods
14	CRD-C 655	Standard Test Method for Determining the Modulus of Soil Reaction

**Table 3. List of Certified Aggregate (Fine and Coarse) Tests for Afghanite**

No	Test Method	Test Procedure Title
1	ASTM C 29-09	Standard Test Method for Unit Weight and Voids in Aggregate
2	ASTM C 70-13	Standard Test Method for Surface Moisture in Fine Aggregate
3	ASTM C 0088-13	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
4	ASTM C 0117-13	Standard Test Method for Materials Finer than 75- $\mu\text{m}$ (No. 200) Sieve in Mineral Aggregates by Washing
5	ASTM C 0125-13	Standard Terminology Relating to Concrete and Concrete Aggregates
6	ASTM C 0127-12	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
7	ASTM C 0128-12	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
8	ASTM C 0131-06	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
9	ASTM C 0136-06	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
10	ASTM C 0142-10	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
11	ASTM C 0144-11	Standard Specification for Aggregate for Masonry Mortar
12	ASTM C 0289-07	Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
13	ASTM C 0295-12	Standard Guide for Petrographic Examination of Aggregates for Concrete
14	ASTM C 0404-11	Standard Specification for Aggregates for Masonry Grout
15	ASTM C 0535-12	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
16	ASTM C 0566-12	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
17	ASTM C 0702-11	Standard Practice for Reducing Samples of Aggregate to Testing Size
18	ASTM C 0897-05	Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters
19	ASTM C 1260-07	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
20	ASTM D 0075-09	Standard Practice for Sampling Aggregates
21	ASTM D 1241-07	Standard Specification for Materials for Soil-Aggregate Subbase, Base, and Surface Courses
22	ASTM D 2419-09	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate

No	Test Method	Test Procedure Title
23	ASTM D 4791-10	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
24	ASTM D 4944-11	Standard Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Gas Pressure Tester
25	ASTM D 5079-08	Standard Practices for Preserving and Transporting Rock Core Samples
26	ASTM D 5821-13	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
27	BS 812 Section 105.1	Testing aggregates — Part 105: Methods for determination of particle shape Section 105.1 Flakiness index
28	CRD-C 171-94	Standard Test Method for Determining Percentage of Crushed Particles in Aggregate

**Table 4. List of Certified Cement, Grout, Mortar, & Concrete Tests for Afghanite**

No	Test Method	Test Procedure Title
1	ASTM C 0031-12	Standard Practice for Making and Curing Concrete Test Specimens in the Field
2	ASTM C 0039-12A	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
3	ASTM C 0042-13	Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
4	ASTM C 0094-13a	Standard Specification for Ready-Mixed Concrete (Required for Batch Plants)
5	ASTM C 0109-12	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
6	ASTM C 0143-12	Standard Test Method for Slump of Hydraulic-Cement Concrete
7	ASTM C 0150-12	Specification for Portland Cement
8	ASTM C 0172-10	Standard Practice for Sampling Freshly Mixed Concrete
9	ASTM C 0174-13	Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
10	ASTM C 0185-08	Standard Test Method for Air Content of Hydraulic Cement Mortar
11	ASTM C 0188-09	Standard Test Method for Density of Hydraulic Cement
12	ASTM C 0191-08	Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle
13	ASTM C 0192-13	Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory

No	Test Method	Test Procedure Title
14	ASTM C 0204-11	Standard Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus
15	ASTM C 0231-10	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
16	ASTM C 0270-12a	Standard Specification for Mortar for Unit Masonry
17	ASTM C 0470-09	Standard Specification for Molds for Forming Concrete Test Cylinders Vertically
18	ASTM C 0476-10	Standard Specification for Grout for Masonry
19	ASTM C 0511-09	Standard Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
20	ASTM C 0617-12	Standard Practice for Capping Cylindrical Concrete Specimens
21	ASTM C 0642-13	Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
22	ASTM C 0778-13	Standard Specification for Standard Sand
23	ASTM C 0805-13	Standard Test Method for Rebound Number of Hardened Concrete
24	ASTM C 0823-12	Standard Practice for Examination and Sampling of Hardened Concrete in Constructions
25	ASTM C 0856-11	Standard Practice for Petrographic Examination of Hardened Concrete
26	ASTM C 0926-12a	Standard Specification for Application of Portland Cement-Based Plaster
27	ASTM C 1019-13	Standard Test Method for Sampling and Testing Grout
28	ASTM C 1064-12	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
29	ASTM C 1077-13b	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
30	ASTM C 1180-10	Standard Terminology of Mortar and Grout for Unit Masonry
31	ASTM C 1314-12	Test Method for Compressive Strength of Masonry Prisms

**Table 5. List of Certified Asphalt Cement and Asphalt Concrete Tests for Afghanite**

No	Test Method	Test Procedure Title
1	AASHTO T 079	Standard Method of Test for Flash Point with Tag Open-Cup Apparatus for Use with Material Having a Flash Point Less Than 93°C (200°F)
2	AASHTO T 182	Standard Method of Test for Coating and Stripping of Bitumen-Aggregate Mixtures
3	AASHTO T 230	Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures
4	AASHTO T 283	Standard Method of Test for Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage
5	ASTM D 0005-13	Standard Test Method for Penetration of Bituminous Materials
6	ASTM D 0036-12	Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
7	ASTM D 0088-07	Standard Test Method for Saybolt Viscosity
8	ASTM D 0092-12b	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
9	ASTM D 0113-07	Standard Test Method for Ductility of Bituminous Materials
10	ASTM D 0140-09	Standard Practice for Sampling Bituminous Materials
11	ASTM D 0242-09	Standard Specification for Mineral Filler For Bituminous Paving Mixtures
12	ASTM D 0546-10	Standard Test Method for Sieve Analysis of Mineral Filler for Bituminous Paving Mixtures
13	ASTM D 0979-12	Standard Practice for Sampling Bituminous Paving Mixtures
14	ASTM D 1074-09	Standard Test Method for Compressive Strength of Bituminous Mixtures
15	ASTM D 2041-11	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
16	ASTM D 2172-11	Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
17	ASTM D 2726-13	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
18	ASTM D 3203-11	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
19	ASTM D 3549-11	Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens
20	ASTM D 3665-12	Standard Practice for Random Sampling of Construction Materials
21	ASTM D 3666-13	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
22	ASTM D 5361-11	Standard Practice for Sampling Compacted Bituminous Mixtures for Laboratory Testing
23	ASTM D 5444-08	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
24	ASTM D 6926-10	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus

No	Test Method	Test Procedure Title
25	ASTM D 6927-06	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
26	CRD-C 649	Standard Test Method for Unit Weight, Marshall Stability, and Flow of Bituminous Mixtures
27	CRD-C 650	Standard Method for Density and Percent Voids of Compacted Bituminous Paving Mixtures
28	CRD-C 652	Standard Test Method for Measurement of Reduction in Marshall Stability of Bituminous Mixtures Caused by Immersion in Water

**Table 6. List of Certified Bricks & Masonry Units Tests for Afghanite**

No	Test Method	Test Procedure Title
1	ASTM C 0062-13	Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale)
2	ASTM C 0067 - 13	Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
3	ASTM C 0090-13	Standard Specification for Loadbearing Concrete Masonry Units
4	ASTM C 0097-09	Standard Test Methods for Absorption and Bulk Specific Gravity of Dimensional Masonry Units
5	ASTM C 0140-13a	Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
6	ASTM C 0170-09	Standard Test Method for Compressive Strength of Dimensional Masonry Units
7	ASTM C 1232-12	Terminology of Masonry
8	ASTM C 1532-12	Practice for Selection, Removal, and Shipment of Manufactured Masonry Units and Masonry Specimens from Existing Construction
9	ASTM C 1552-12	Standard Practice for Capping Concrete Masonry Units, Related Units and Masonry Prisms for Compression Testing
10	ASTM C 1587-09	Practice for Preparation of Field Removed Manufactured Masonry Units and Masonry Specimens for Testing