USACE-Certified Laboratory Certification

Afghanite Geo & Mining Engineering Services Company

Lab ID: LCP-015

Issue date: April 1st, 2021
Expiry date: March 31st, 2022

This letter confirms the completion of inspection and certification for the Afghanite Lab, which is located opposite of the Shane Islam Mosque, behind Ariana Wedding Hall, Khushal Khan Mina, District 5, Kabul, Afghanistan. This laboratory should now be considered as **USACE-Certified for a period of 12-months** from the date of this letter. 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 below individual while without his oversight, the laboratory will require recertification:
    a. Mr. Mohammad Mirzaee the laboratory manager;
B. If the calibration certificates of equipment expire or become invalid as per the relevant 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/lcp_directory.php. The inspection and certification process for 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 certifications include: 12 years of laboratory experience, 12 years of teaching classes on construction materials, and six years of teaching university-level construction classes.

Certified to perform 121 tests, as shown on attached sheets and summarized as:
Table 1: 38
Table 2: 16
Table 3: 16
Table 4: 21
Table 5: 17
Table 6: 13

Regards,

Ferdaws Khaliqi, PMP
ABA-Laboratory Certification Program Manager
(ABA-LCP)

Afghanite Certified Laboratory Tests

Table 1. List of Certified Soil Tests

No	Test Method	Test Procedure Title
1	AASHTO T224	Standard Method of Test for Correction for Coarse Particles in the Soil Compaction Test
2	ASTM D421	Standard Practice for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
3	ASTM D422	Standard Test Methods for Particle Size Analysis of Soils
4	ASTM D427	Standard Test Methods for Shrinkage Factors of Soils by the Mercury Method
5	ASTM D558	Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures
6	ASTM D559	Standard Test Methods for Wetting and Drying Compacted Soil-Cement Mixtures
7	ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
8	ASTM D854	Standard Test Methods for Specific Gravity of Soil Solids by Water Pycnometer
9	ASTM D1140	Standard Test Methods for Amount of Material in Soil Finer than No. 200 (75-µm) Sieve
10	ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
11	ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
12	ASTM D1586	Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils
13	ASTM D1587	Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes
14	ASTM D1883	Standard Test Method for CBR (California Bearing Ratio) of Laboratory-Compacted Soils
15	ASTM D2113	Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigation
16	ASTM D2166	Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
17	ASTM D2216	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
18	ASTM D2217	Standard Practice for Wet Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
19	ASTM D5856	Standard Test Method for Measurement of Hydraulic Conductivity of Porous Material Using a Rigid-Wall, Compaction-Mold Permeameter
20	ASTM D2435	Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading
21	ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

No	Test Method	Test Procedure Title
22	ASTM D2488	Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)
23	ASTM D3080	Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions
24	ASTM D4220	Standard Practices for Preserving and Transporting Soil Samples
25	ASTM D4253	Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
26	ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
27	ASTM D4546	Standard Test Methods for One-Dimensional Swell or Collapse of Soils
28	ASTM D1195	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
29	ASTM D1196	Standard Test Method for Non-Repetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements
30	ASTM D3282	Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
31	ASMT D4718	Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
32	ASTM D4972	Standard Test Method for pH of Soils
33	ASTM D5333	Standard Test Method for Measurement of Collapse Potential of Soils
34	ASTM D 7181	Standard Test Method for Consolidated drained triaxle compression test For Soils
35	ASTM D2850	Standard test Method for Unconsolidated-Undrained Triaxle Compression Test on Cohesive Soils
36	ASTM D4767	Standard Test method for Consolidated Undrained Triaxle Compression Test for Cohesive Soils
37	ASTM D6951	Standard Test Method For Use of the Dynamic cone penetrometer in shallow pavement Applications
38	ASTM D2974	Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

Table 2. List of Certified Aggregate (Fine and Coarse) Tests

No	Test Method	Test Procedure Title
1	ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
2	ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
3	ASTM C128	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
4	ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
5	ASTM C29	Standard Test Method for Unit Weight and Voids in Aggregate
6	ASTM C70	Standard Test Method for Surface Moisture in Fine Aggregate

No	Test Method	Test Procedure Title
7	ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
8	ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
9	ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
10	ASTM C535	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
11	ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
12	ASTM C702	Standard Practice for Reducing Samples of Aggregate to Testing Size
13	ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method
14	ASTM D75	Standard Practice for Sampling Aggregates
15	ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
16	ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate

Table 3. List of Certified Concrete Tests

No	Test Method	Test Procedure Title
1	ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
2	ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
3	ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
4	ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
5	ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
6	ASTM C1064	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
7	ASTM C42	Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
8	ASTM C78	Standard Test Method for Flexural Strength of Concrete by Third Point Loading
9	ASTM C192	Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
10	ASTM C293	Standard Test Method for Flexural Strength of Concrete using Center Point Loading
11	ASTM C469	Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression

No	Test Method	Test Procedure Title
12	ASTM C490	Standard Practice for Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete , cement paste
13	ASTM C617	Standard Practice for Capping Cylindrical Concrete Specimens
14	ASTM C642	Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
15	ASTM C805	Standard Test Method for Rebound Number of Hardened Concrete
16	ASTM C1231	Standard Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Cylindrical Concrete Specimens

Table 4. List of Certified Asphalt Cement and Asphalt Concrete Tests

No	Test Method	Test Procedure Title
1	ASTM D5	Standard Test Method for Penetration of Bituminous Materials
2	ASTM D36	Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
3	ASTM D70	Standard Test Method for Specific Gravity and Density of Semi-Solid Bituminous Materials
4	ASTM D113	Standard Test Method for Ductility of Bituminous Materials
5	ASTM D140	Standard Practice for Sampling Bituminous Materials
6	ASTM D5581	Standard Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
7	ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
8	ASTM D2172	Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
9	ASTM D2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
10	ASTM D5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
11	ASTM D92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
12	ASTM D546	Standard Test Method for Sieve Analysis of Mineral Filler for Bituminous Paving Mixtures
13	ASTM D979	Standard Practice for Sampling Bituminous Paving Mixtures
14	ASTM D2489	Standard Test Method for Estimating Degree of Particle Coating of Asphalt Mixtures
15	ASTM D3549	Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens
16	ASTM D5361	Standard Practice for Sampling Compacted Bituminous Mixtures for Laboratory Testing
17	ASTM D6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus

No	Test Method	Test Procedure Title
18	ASTM D6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
19	AASHTO T182	Standard Method of Test for Coating and Stripping of Bitumen-Aggregate Mixtures
20	AASHTO T230	Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures
21	ASTM E102	Standard Test Method for Saybolt Furol Viscosity of Bituminous Material at High Temperatures

Table 5. List of Certified Masonry Units and Cement Tests

No	Test Method	Test Procedure Title
1	ASTM C20	Standard Test Methods for Apparent Porosity, Water Absorption, Apparent Specific Gravity, and Bulk Density of Burned Refractory Brick and Shapes by Boiling Water
2	ASTM C109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars using Cube Specimens
3	ASTM C133	Standard Test Methods for Cold Crushing Strength and Modulus of Rupture of Refractories
4	ASTM C140	Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
5	ASTM C187	Standard Test Method for Amount of Water Required for Normal Consistency of Hydraulic Cement Paste
6	ASTM C188	Standard Test Method for Density of Hydraulic Cement
7	ASTM C191	Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle
8	ASTM C204	Standard Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus
9	ASTM C305	Standard Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency
10	ASTM C451	Standard Test Method for Early Stiffening of Hydraulic Cement (Paste Method)
11	ASTM C780	Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
12	ASTM C1019	Standard Test Method for Sampling and Testing Grout
13	ASTM C1437	Standard Test Method for Flow of Hydraulic Cement Mortar
14	ASTM C1552	Standard Practice for Capping Concrete Masonry Units, Related Units and Masonry Prisms for Compression Testing
15	ASTM C97	Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension
16	ASTM C99	Standard Test Method for Modulus of Rupture of Dimension Stone
17	ASTM C170	Standard Test Method for Compressive Strength of Dimension Stone

Table 6. List of Certified Rock Tests

No	Test Method	Test Procedure Title
1	ASTM D7012	Standard Test Method for Unconfined Compressive Strength of Intact Rock Core Specimens (ASTM D7012-Method C)
2	ASTM D3967	Standard Test Method for Splitting Tensile Strength of Intact Rock Core Specimens (Brazilian) Method
3	ASTM D4543	Standard Practices for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerances
4	ASTM D4644	Standard Test Method for Slake Durability of Shales and Other Similar Weak Rocks
5	ASTM D5731	Standard Test Method for Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications
6	ASTM D5873	Standard Test Method for Determination of Rock Hardness by Rebound Hammer Method
7	ASTM D5878	Standard Guides for Using Rock-Mass Classification Systems for Engineerir Purposes
8	ASTM D6032	Standard Test Method for Determining Rock Quality Designation (RQD) of Rock Core
9	ASTM D6473	Standard Test Method for Specific Gravity and Absorption of Rock for Erosion Control
10	ASTM D7012	Standard test method for Triaxial Compressive strength elastic moduli of Intact rock core specimen
11	ASTM D5607	Standard test method for Performing laboratory Direct shear strength test of rock specimen under constant normal force
12	ASTM D2845	Standard test method for Laboratory determination of pulse velocities and ultrasonic Elastic constant of rock
13	ASTM D7012	Standard test method Uniaxial compressive strength test for determination of elastic moduli of intact rock specimen