

Laboratory Certification For

Titan Geotech & Construction Material Testing Laboratory

Lab ID: LCP-023

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Expiry date: May 21, 2017

This Extension letter confirms the completion of inspection and certification for Titan Geotech & CMT Laboratory, which is located at House # 2, Street # 1, In front of Habibiya High School, Kart-e- 3, 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 5, 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. Eng. Sami Burhan 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.html>. The inspection and certification process for the Titan Lab 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.

Regards,

Naeem Yassin

President of Afghanistan Builders Association
(ABA)



Titan Geotech Certified Laboratory Tests

Table 1. List of Certified Soil Tests for Titan Geotech

No	Test Method	Test Procedure Title
1	ASTM D 421	Standard Practice for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
2	ASTM D 422	Standard Test Method for Particle Size Analysis of Soils
3	ASTM D 698	Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ (2,700 KN-m/m ³))
4	ASTM D 2166	Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
5	ASTM D 0854	Standard Test Methods for Specific Gravity of Soil Solids by Water Pycnometer
6	ASTM D 1140	Standard Test Methods for Amount of Material in Soils Finer than No. 200 (75 μm) Sieve
7	ASTM D 1556	Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
8	ASTM D 1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
9	ASTM D 1883	Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils
10	ASTM D 2216	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
11	ASTM D 2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
12	ASTM D 4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
13	ASTM D 4718	Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
14	ASTM D 6913	Test Methods for Particle Size Distribution (Gradation) of Soils Using Sieve Analysis
15	ASTM D 6938	Standard Test Method for In Place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth) (Use instead of ASTM D 2922)

Table 2. List of Certified Advance Soil Tests for Titan Geotech

No	Test Method	Test Procedure Title
1	ASTM D 1586	Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils
2	ASTM D 3080	Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions (No Calibration Certificate)
3	ASTM D 2435	Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading
4	ASTM D 1196	Nonrepetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavement

Table 3. List of Certified Aggregate (Fine and Coarse) Tests for Titan Geotech

No	Test Method	Test Procedure Title
1	ASTM C 29	Standard Test Method for Unit Weight and Voids in Aggregate
2	ASTM C 88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
3	ASTM C 117	Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
4	ASTM C 127	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
5	ASTM C 128	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
6	ASTM C 131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
7	ASTM C 136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
8	ASTM C 142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
9	ASTM C 702	Standard Practice for Reducing Samples of Aggregate to Testing Size
10	ASTM C 75	Standard Practice for Sampling of Aggregates
11	ASTM D 2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
12	ASTM D 4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
13	ASTM D 5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate

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

No	Test Method	Test Procedure Title
1	ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
2	ASTM C 39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
3	ASTM C 109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
4	ASTM C 143	Standard Test Method for Slump of Hydraulic-Cement Concrete
5	ASTM C 172	Standard Practice for Sampling Freshly Mixed Concrete
6	ASTM C 174	Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
7	ASTM C 187	Normal Consistency of Hydraulic Cement
8	ASTM C 191	Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle
9	ASTM C 192	Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
10	ASTM C 231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
11	ASTM C 270	Standard Specification for Mortar for Unit Masonry
12	ASTM C 617	Standard Practice for Capping Cylindrical Concrete Specimens
13	ASTM C 805	Standard Test Method for Rebound Number of Hardened Concrete
14	ASTM C 926	Standard Specification for Application of Portland Cement Based Plaster
15	ASTM C 1019	Standard Test Method for Sampling and Testing Grout
16	ASTM C 1084	Standard Test Method for Portland Cement Content of Hardened Hydraulic Cement Concrete
17	ASTM C 1437	Standard Test Method for Flow of Hydraulic Cement Mortar
18	ACI 211/308/318	Concrete Mix Design as per ACI 211/308/318 including quality tests for cement and aggregate

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

No	Test Method	Test Procedure Title
1	AASHTO 182	Standard Test Method for coating and Stripping of Bituminous Aggregate Mixtures
1	AASHTO 230	Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures
2	ASTM D 5	Standard Test Method for Penetration of Bituminous Materials
3	ASTM D 36	Standard Test Method for Softening Point
4	ASTM D 92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
5	ASTM D 113	Standard Test Method for Ductility of Bituminous Materials
6	ASTM D 979	Standard Practice for Sampling Bituminous Paving Mixtures
7	ASTM D 2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
8	ASTM D 2172	Standard Test Methods for Quantitative Extraction
9	ASTM D 2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
10	ASTM D 3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
11	ASTM D 3549	Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixtures Specimens
12	ASTM D 3665	Standard Practice for Random Sampling of Construction Materials
13	ASTM D 5361	Standard Practice for Sampling compacted Bituminous Mixtures for Laboratory Testing
14	ASTM D 5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
15	ASTM D 6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
16	ASTM D 6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
17	CRD C 649	Standard Test Method for Unit Weight, Marshall Stability, and Flow of Bituminous Mixtures
18	CRD C 650	Standard Method for Density and Percent Voids of Compacted Bituminous Paving Mixtures