S/N: 0948

STANDARDS MALAYSIA

Certificate of Accreditation

No: SAMM 728

Accredited since: 3 August 2015

This is to certify that

SOILPRO TECHNICAL SERVICES SDN. BHD.
BATU CAVES, SELANGOR
MALAYSIA

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for the current scope of accreditation

has been granted accreditation in respect of the scope of accreditation described in the schedule, subject to the terms and conditions governing the *Skim Akreditasi Makmal Malaysia* (SAMM), the Laboratory Accreditation Scheme of Malaysia.

Laboratories accredited under SAMM meet the requirements of MS ISO/IEC 17025. This Malaysian Standard is identical with ISO/IEC 17025 published by the International Organization for Standardization (ISO).

(DATUK FADILAH BAHARIN)
Director General
Department of Standards Malaysia

Date of issue: 15 August 2018

Issuance of this Certificate is governed by Section 16 Subsections (2) and (3) of Standards of Malaysia Act, 1996 (Act 549)

Issue date: 30 June 2023
Valid until: 3 August 2024

NO: SAMM 728
(Issue 2, 30 June 2023 replacement
of SAMM 728 dated 26 July 2021)

LABORATORY LOCATION:
(PERMANENT LABORATORY)

SOILPRO TECHNICAL SERVICES SDN. BHD.
NO. 16, JALAN TIB 1/17
TAMAN INDUSTRI BOLTON
68100 BATU CAVES, SELANGOR
MALAYSIA

FIELD OF TESTING: **MECHANICAL**

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils	Determination of moisture content	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 3 MS 1056:2013, Part 2, Clause 4 BS EN ISO 17892-1:2014 ASTM D2216-19 Equipment: drying oven
	Determination of density	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 7.2 MS 1056:2013, Part 2, Clause 8.2 BS EN ISO 17892-2:2014, Clause 5.1 ASTM D7263-21 Equipment: mould, trimming and measurement tools
	Determination of particle density	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 8.3 MS 1056:2013, Part 2, Clause 9.3 BS EN ISO 17892-3:2015, Clause 5.1 ASTM D854-14 Equipment: density bottle

SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of dry density/ moisture content relationship	BS 1377:2016, Part 1 BS 1377:1990, Part 4, Clause 3 MS 1056:2013, Part 4, Clause 4 BS 1377:2022, Part 2, Clause 11 ASTM D698-12(21) ASTM D1557-12(21) Equipment: 2.5 kg and 4.5 kg rammer
	Determination of shear strength by direct shear	BS 1377:2016, Part 1 BS 1377:1990, Part 7, Clause 4 MS 1056:2013, Part 7, Clause 5 BS EN ISO 17892-10:2018 ASTM D3080/ D3080M-11 Equipment: small shear box apparatus
	Consolidated- undrained triaxial compression test (or with multistage loading) and with measurement of pore pressure	BS 1377:2016, Part 1 BS 1377:1990, Part 8, Clause 1-7 MS 1056:2013, Part 8, Clause 1-9 BS EN ISO 17892-9:2018, Clause 6.7.2 (CIU) ASTM D4767-11 (20) KH Head Vol. 3, Section 18 and 19.2 ~~Equipment: triaxial cells system~~
	Consolidated- drained triaxial compression test (or with multistage loading) and with measurement of volume change	BS 1377:2016, Part 1 BS 1377:1990, Part 8, Clause 1-6, 8 MS 1056:2013, Part 8, Clause 1-8, 10 BS EN ISO 17892-9:2018, Clause 6.7.3 (CID) ASTM D7181-20 KH Head Vol. 3, Section 18 and 19.2 ~~Equipment: triaxial cells system~~
	Determination of the undrained shear strength in triaxial compression (or with multistage loading) and without measurement of pore pressure	BS 1377:2016, Part 1 BS 1377:1990, Part 7, Clause 8 & 9 MS 1056:2013, Part 7, Clause 9 & 10 BS EN ISO 17892-8:2018 ASTM D2850-15 ~~Equipment: triaxial cells system~~

SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of permeability in triaxial cell	BS 1377:2016, Part 1 BS 1377:1990, Part 6, Clause 6 MS 1056:2013, Part 6, Clause 7 BS EN ISO 17892-11:2019, Clause 6.2.3 ASTM D5084-16a ~~Equipment: triaxial cells system~~
	Determination of the unconfined compressive strength	BS 1377:2016, Part 1 BS 1377:1990, Part 7, Clause 7.2 MS 1056:2013, Part 7, Clause 8.2 BS EN ISO 17892-7:2018 ASTM D2166/ D2166M-16 Equipment: load frame apparatus
	Determination of the one-dimensional consolidation properties	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 3 MS 1056:2013, Part 5, Clause 4 BS EN ISO 17892-5:2017 ASTM D2435/ 2435M-11 (20) Equipment: consolidation apparatus
	Determination of swelling and collapse characteristics	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 4 MS 1056:2013, Part 5, Clause 5 BS 1377:2022, Part 2, Clause 17 ASTM D4546-21 Equipment: consolidation apparatus
	Determination of the California Bearing Ratio (CBR)	BS 1377:2016, Part 1 BS 1377:1990, Part 4, Clause 7 MS 1056:2013, Part 4, Clause 8 BS 1377:2022, Part 2, Clause 15 Equipment: 2.5 kg and 4.5 kg rammer with load frame apparatus
	Determination of liquid limit	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 4 MS 1056:2013, Part 2, Clause 5 BS EN ISO 17892-12:2018 ASTM D4318-17 Equipment: cone penetrometer and liquid limit apparatus

SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of plastic limit and plasticity index	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 5 MS 1056:2013, Part 2, Clause 6 BS EN ISO 17892-12:2018 ASTM D4318-17 Equipment: mould and roll by fingers
	Linear shrinkage	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 6.5 MS 1056:2013, Part 2, Clause 7.5 BS 1377:2022, Part 2, Clause 7 Equipment: shrinkage mould
	Determination of particle size distribution: wet sieving, dry sieving and sedimentation by hydrometer method	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 9.2, 9.3, 9.5 MS 1056:2013, Part 2, Clause 10.2, 10.3, 10.5 BS EN ISO 17892-4:2016, Clause 5.2, 5.3 ASTM D6913/ D6913M-17 ASTM D7928-21 ~~ASTM D422-63 (2007)~~ ~~Equipment: sieve set and hydrometer~~
	Determination of particle density-gas jar method	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 8.2 MS 1056:2013, Part 2, Clause 9.2 BS 1377:2022, Part 2, Clause 9.2 Equipment: gas jar
	Determination of permeability by the constant-head method	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 5 MS 1056:2013, Part 5, Clause 6 BS EN ISO 17892-11:2019, Clause 6.2.2 ASTM D2434-22 Equipment: permeameter cell apparatus

SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of dispersibility-pinhole method	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 6.2 MS 1056:2013, Part 5, Clause 7.2 BS 1377:2022, Part 2, Clause 18.1 Equipment: pinhole apparatus
	Determination of dispersibility-crumb method	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 6.3 MS 1056:2013, Part 5, Clause 7.3 BS 1377:2022, Part 2, Clause 18.2 Equipment: 100 mL glass beaker and reagent
	Determination of dispersibility-dispersion method (hydrometer)	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 6.4 MS 1056:2013, Part 5, Clause 7.4 BS 1377:2022, Part 2, Clause 18.3 Equipment: sieve set and hydrometer
	Measurement of resistivity: Wenner probe method	ASTM G57-20 Equipment: Wenner 4-electrode apparatus
	Determination of Emerson class number of a soil	AS 1289.3.8.1, 2017 Equipment: glass beaker, test tube and reagents

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SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Rocks	Unconfined compressive strength of intact rock core specimens	ASTM D7012-14, Method C Equipment: load frame apparatus
	Elastic moduli of intact rock core specimens in uniaxial compression	ASTM D7012-14, Method D Equipment: strain gages, load cell and load frame apparatus
	Determination of the point load strength index of rock	AS 4133.4.1-2007 ASTM D5731-16 Equipment: point load apparatus
Aggregates	Determination of particle size distribution: sieving method	BS EN 933-1:2012 BS 812-103.1:1985 Equipment: sieve set

Signatories:

1. **Dr. Wong Kim Yuen**
2. **Dr. Wong Soon Yee**