

# Schedule

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|                                                                                   |                                                                                                                                     |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>LABORATORY LOCATION/<br/>CENTRAL OFFICE:</b>                                   | JKR Sarawak Central Material Laboratory, Kuching<br>Jalan Canna, Tabuan Jaya 93350 Kuching, Sarawak , 93350,<br>SARAWAK<br>MALAYSIA |
|  |                                                                                                                                     |
| <b>ACCREDITED SINCE :</b>                                                         | 06 APRIL 2025                                                                                                                       |
| <b>FIELD(S) OF TESTING:</b>                                                       | 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).

|                              |                                                                                                                         |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>CENTRAL LOCATION:</b>     | JKR Sarawak Central Material Laboratory, Kuching<br>Jalan Canna, Tabuan Jaya 93350 Kuching, Sarawak , 93350,<br>Sarawak |
| <b>FIELD(S) OF TESTING :</b> | MECHANICAL,                                                                                                             |

## SCOPE OF TESTING : MECHANICAL

| Material / Product Tested | Type Of Test / Properties Measured / Range Of Measurement         | Standard Test Methods / Equipment / Techniques |
|---------------------------|-------------------------------------------------------------------|------------------------------------------------|
| Aggregate                 | Determination of Particle Size                                    | In-House Method CML-SOPT-02                    |
|                           | Determination the Resistance to                                   | AASHTO T96-02(2019) and ASTM                   |
|                           | Determination of Water -                                          | Clause 7                                       |
|                           | Sieve Test                                                        | BS 812-103.1: 1985                             |
|                           | Determination of water soluble chloride salts                     | BS 812 : Part 117 :1988                        |
|                           | Determination of sulphate content                                 | BS 812 : Part 118 :1988 (Gravimetric)          |
|                           | a) Determination of Particle Size Distribution of Fine and Coarse | MS 30: Part 4 : 1995 MS EN 933-1 : 2011        |
|                           | Determination of Aggregate                                        | BS 812: Part 110: 1990                         |
|                           | Determination of the aggregate                                    | BS 812: Part 110: 1990                         |
|                           | Determination of the aggregate                                    | BS 812: Part 110:1990                          |

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| Material / Product Tested | Type Of Test / Properties Measured / Range Of Measurement                           | Standard Test Methods / Equipment / Techniques                                                     |
|---------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|                           | *-Determination of Loose Bulk<br>BS EN 1097-3:1998<br>*-Determination of Loose Bulk | *-Determination of Loose Bulk                                                                      |
| Concrete Cube             | Compression Strength of Concrete Cube in the Force Range 200 KN to 1800 KN          | MS 26: Part 2 : 1991 Section 3 MS EN 12390-3 : 2012 (E)                                            |
|                           | Compressive Strength Test                                                           | BS EN 12390-3:2019                                                                                 |
|                           | Depth of Water Penetration                                                          | Hardened Concrete BS EN 12390                                                                      |
|                           | Compressive Strength of                                                             | MS EN 12390-3:2012                                                                                 |
| Soil                      | Determination of Particle Size                                                      | Part 2: MS 1056 2013 Section 10.2                                                                  |
|                           | Mechanical Analysis (Clay, Silt, Fine & Coarse Sand)                                | In-house Method, Ref. No. S1, Based on The Bouyoucos Hydrometer Method for Particle Size Analysis, |
|                           | Arsenic (As)                                                                        | None                                                                                               |
|                           | Determination of Electrical Conductivity in Soil Sample                             | In-House Method P702-07 base on MS 2458:2012                                                       |
|                           | Moisture Content Test - Oven Drying Method                                          | MS 1056: Part 2: 2005                                                                              |
|                           | Liquid Limit Test - Casagrande Method                                               | MS 1056: Part 2: 2005                                                                              |
|                           | Liquid Limit Test - Cone Penetrometer Method                                        | MS 1056: Part 2: 2005                                                                              |
|                           | Plastic Limit Test                                                                  | MS 1056: Part 2: 2005                                                                              |
|                           | Plasticity Index                                                                    | MS 1056: Part 2: 2005                                                                              |
|                           | Linear Shrinkage                                                                    | MS 1056: Part 2: 2005                                                                              |
|                           | Specific Gravity- Small Pyknometer Method                                           | MS 1056: Part 2: 2005                                                                              |
|                           | Particle Size Distribution -" Wet Sieving Method                                    | MS 1056: Part 2: 2005                                                                              |
|                           | Sedimentation -" Hydrometer Method                                                  | MS 1056: Part 2: 2005                                                                              |
|                           | Compaction Test                                                                     | MS 1056: Part 4: 2005 (Clause 4.2, 4.5, 4.6)                                                       |
|                           | Determination of pH value                                                           | BS 1377 : Part 3: 1990, Clause 9                                                                   |
|                           | Determination of chloride content                                                   | BS 1377 : Part 3: 1990, Clause 7                                                                   |
|                           | Determination of sulphate content                                                   | BS 1377 : Part 3: 1990, Clause 5 (Gravimetric)                                                     |
|                           | Determination of organic matter content                                             | BS 1377 : Part 3: 1990, Clause 3                                                                   |
|                           | Determination of moisture content                                                   | BS 1377 : Part 2: 1990, Clause 3.2                                                                 |
|                           | Determination of particle size distribution                                         | BS 1377 : Part 2: 1990, Clause 9.3                                                                 |
|                           | Determination of In-situ Density and Moisture Content                               | Soils for Civil Engineering Purposes, BS 1377:1990, Part 9: Clause 2.1-Sand Replacement            |

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| Material / Product Tested | Type Of Test / Properties Measured / Range Of Measurement          | Standard Test Methods / Equipment / Techniques                       |
|---------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------|
|                           | Determination of In-situ Density and Moisture Content              | Soils for Civil Engineering Purposes, BS 1377:1990,                  |
|                           | Moisture Content                                                   | BS 1377: Part 2: 1990, Clause 3.2.4                                  |
|                           | Moisture Content                                                   | BS 1377: Part 2: 1990, Clause 3.2                                    |
|                           | Particle Size Distribution                                         | BS 1377: Part 4: 1990, Clause 9.5                                    |
|                           | Field Density Test: Core Cutter                                    | BS 1377: Part 9: 1990, Clause 2.4                                    |
|                           | Determination of Moisture                                          | BS 1377:Part 2:1990 Clause 3.2                                       |
|                           | Particle Size Distribution                                         | BS 1377: Part 2: 1990, Clause 9.2 & 9.3                              |
|                           | Moisture Content                                                   | BS 1377: Part 2: 1990, Clause 3.2                                    |
|                           | California Bearing Ratio (Soaked)                                  | BS 1377: Part 4: 1990, Clause 7                                      |
|                           | Dry Density / Moisture Content Relationship (4.5 kg Rammer Method) | BS 1377: Part 4: 1990, Clause 3.6                                    |
|                           | Liquid Limit (Casagrande Apparatus Method)                         | BS 1377: Part 2: 1990, Clause 4.5                                    |
|                           | None                                                               | Part 2: BS 1377 1990, Clause 5.3 & 5.4                               |
|                           | Dry Density / Moisture Content                                     | Part 4: MS 1056 2005, Clause 4.5 & 4.6                               |
|                           | Dry Sieving Method                                                 | MS 1056 Part 2 : 2005, Clause 10.3 Part 2 : 1990, Clause 9.3 BS 1377 |
|                           | Determination of Moisture Content                                  | BS 1377: Part 2: 1990 Clause 3.2                                     |
|                           | Moisture Content                                                   | BS 1377 Part 2: 1990 : Clause 3.2                                    |
|                           | Liquid Limit (Cone Penetrometer Method)                            | BS 1377 Part 2: 1990 : Clause 4.3                                    |
|                           | In-situ Density Test by Sand                                       | None                                                                 |
|                           | pH                                                                 | MS 2457: 2012                                                        |
|                           | Electrical Conductivity                                            | MS 2458: 2012                                                        |
|                           | Available Phosphorus                                               | In-house method S07 based on Bray & Kurtz, 1945 & ICP-OES            |
|                           | Total Nitrogen                                                     | MS ISO 13878: 2014                                                   |
|                           | Total Phosphorus                                                   | In-house method S13 based on EPA Method 3050B & ICP-OES              |
|                           | Determination of Particle Density (Small Pyknometer Method)        | BS 1377:1990 Part 2, Clause 8.3                                      |
|                           | Determination of Particle Size Distribution (Dry Sieving Method)   | BS 1377:1990 Part 2, Clause 9.3                                      |
|                           | Determination of Particle Size Distribution (Wet Sieving Method)   | BS 1377:1990 Part 2, Clause 9.2                                      |
|                           | Determination of Particle Size                                     | None                                                                 |
|                           | Determination of Water Content                                     | BS 1377: Part 2                                                      |
|                           | Determination of pH value of fine                                  | BS 1377-3: 2018                                                      |
|                           | Determination of Soil pH                                           | MS 678: Part - V: Part I, Soil pH:                                   |
|                           | None                                                               | None                                                                 |
|                           | Total Recoverable Elements                                         | USEPA 200.2 Rev. 2 : 8 EMMC                                          |

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|---------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                           | Chloride                                                                                  | MS 678: Part VI to                                           |
|                           | In-situ Density Test                                                                      | BS 1377: Part 9:1990 Clause 2.1                              |
|                           | Moisture Content                                                                          | BS EN ISO 17892-1:2014                                       |
|                           | Particle Size Distribution -" Wet                                                         | BS EN ISO 17892-4:2016                                       |
|                           | Arsenic, Mercury, Cadmium,                                                                | EPA 3050 B                                                   |
|                           | Loss on Ignition                                                                          | BS 1377 part 3: 1990 (Clause 4)                              |
|                           | Carbonate                                                                                 | BS 1377 Part 3: 1990 (Clause 6.3)                            |
|                           | Moisture Content                                                                          | BS 1377-1: 2016                                              |
|                           | In-situ California Bearing Ratio (CBR)                                                    | BS 1377 : Part 9 : 1990 Clause 4.3                           |
|                           | Moisture Content                                                                          | BS 1377-1: 2016                                              |
|                           | In-situ California Bearing Ratio (CBR)                                                    | BS 1377 : Part 9 : 1990 Clause 4.3                           |
|                           | pH Value                                                                                  | BS 1377-3:1990:9.5                                           |
|                           | None                                                                                      | None                                                         |
|                           | Aluminum (Al)                                                                             | USEPA 200.2, Revision 2.8, 1994                              |
|                           | Particle Size Distribution (gravel, Determination of Particle Size Distribution for Soils | In House Method 0588 based on BS 1377: Part 2: 1990 Clause 9 |
|                           | Determination of Moisture Content                                                         | BS 1377: Part 2: 1990 Clause 3.2                             |
|                           | Determination of the Liquid Limit (Casagrande apparatus method)                           | BS 1377: Part 2: 1990 Clause 4.5                             |
|                           | Determination of the Plastic Limit and Plasticity Index                                   | BS 1377: Part 2: 1990 Clause 5                               |
|                           | Determination of dry density/moisture content relationship (Rammer Method)                | BS 1377: Part 4: 1990 Clause 3.3, 3.4, 3.5 & 3.6             |
|                           | Determination of dry density/moisture content relationship (Vibrating Hammer Method)      | BS 1377: Part 4: 1990 Clause 3.7                             |
|                           | Determination of soil density test                                                        | BS 1377: Part 2: 1990 Clause 7                               |
|                           | Determination of The Moisture                                                             | BS 1377: Part 2:1990: Method 3.2                             |
|                           | Determination of In-Situ Density                                                          | BS 1377: Part 9: 1990                                        |
|                           | Determination of The Moisture                                                             | BS 1377: Part 2:1990: Method 3.2                             |
|                           | Toxicity characteristic leaching                                                          | USEPA 1311: 1992                                             |
|                           | Phosphorus, P Sulphur, S                                                                  | None                                                         |
|                           | SVOCs (Refer to Appendix 2 and 3 for                                                      | EPA Method 3510C: 1996                                       |
|                           | Determination of Moisture Content                                                         | BS 1377:2:1990, Clause 3.2 MS 1056:2:2005, Clause 4.2        |
|                           | Determination of Density                                                                  | BS 1377:2:1990, Clause 7.2 MS 1056:2:2005, Clause 8.2        |
|                           | Linear Shrinkage                                                                          | BS 1377:2:1990, Clause 6.5 MS 1056:2:2005, Clause 7.5        |
|                           | Determination of Particle Density                                                         | BS 1377:2:1990, Clause 8.3 MS 1056:2:2005, Clause 9.3        |

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|                           | Determination of Liquid Limit Using Casagrande Method        | BS 1377:2:1990, Clause 4.5 & 4.6<br>MS 1056:2:2005, Clause 5.5 & 5.6 |
|                           | Determination of Liquid Limit Using Cone Penetrometer Method | BS 1377:2:1990, Clause 4.3 & 4.4<br>MS 1056:2:2005, Clause 5.3 & 5.4 |
|                           | Determination of the Plastic Limit                           | BS 1377:2:1990, Clause 5                                             |
|                           | Maximum dry density / Moisture content relationship          | BS 1377: Part 4: 1990                                                |
|                           | Shear Strength Test without                                  | None                                                                 |
|                           | The laboratory Vane e                                        | BS 1377: Part 7: 1990: Clause 3                                      |
|                           | Field Density Test (Sand Replacement Method)                 | BS 1377: Part 9:1990 Clause 2.1                                      |
|                           | Plastic limit test                                           | Test instruction reference to BS                                     |
|                           | Moisture content                                             | BS1377-2, Clause 4.1                                                 |

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