

Methods for Testing Hong Kong Soils Soil Testing Standard (Phase 1 Tests)

This Practice Note announces the adoption of a revised soil testing standard based on amendments of British Standard BS 1377:1990 "Methods of Test for Soils for Civil Engineering Purposes" to suit Hong Kong conditions. The new standard, covering the soil classification and compaction tests listed in Appendix A (Phase 1 Tests), is promulgated in Geotechnical Engineering Office (GEO) Report No. 36 "Methods of Test for Soils in Hong Kong for Civil Engineering Purposes (Phase 1 Tests), GEO (1994)". It describes appropriate modifications to adapt BS 1377:1990 to suit local soil conditions. Copies of the report may be obtained from the Chief Geotechnical Engineer/Special Projects of the GEO.

2. It is recommended that this standard, where appropriate, should be adopted by authorized persons (AP), registered structural engineers (RSE) and their geotechnical consultants when specifying soil testing for the investigation, design and construction of private building projects. Whenever a test report involving the Phase 1 Tests is submitted in support of a plan for approval or in compliance with a condition of approval/consent under the Buildings Ordinance section 17(1) sub-section 6(b), the Building Authority (BA) may refuse approval of plans or consent for commencement of building works if the soil tests have not been carried out in accordance with the revised standard. The BA may also refuse approval of ground investigation plans in the Scheduled Areas if the proposed soil testing is not specified in accordance with the revised standard. Likewise, if the insitu density tests and laboratory compaction tests have not been carried out in accordance with the revised standard for fill slope construction, the certificate for completion of the filling works may not be accepted.

3. Where the Phase 1 tests are to be carried out, only laboratories accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for the relevant tests may be employed. The BA will accept only results issued on HOKLAS-endorsed test certificates or reports. It is therefore important that the AP/RSE/geotechnical consultant should ensure the laboratory appointed has been accredited by HOKLAS to carry out the Phase 1 Tests ordered and is authorised to issue HOKLAS-endorsed test certificates or reports for these tests. HOKLAS publishes a Directory of Accredited Laboratory (HOKLAS 009) every year listing out all the laboratories accredited under HOKLAS to carry out various tests. Information on the most updated list of laboratories and their accredited tests may be obtained from HOKLAS through the Quality Services Division of the Industry Department at telephone 2829 4840.

4. The BA attaches great importance to the representativeness and accuracy of soil testing data which are used to support the proposed investigation, design or construction for building development projects. In this regard, the BA takes a serious view of the reliability of such data and will give them due consideration in the context of both the disapproval of plans and the administration of sanctions for knowingly misrepresenting material facts in submissions to the BA. To assist APs, RSEs and geotechnical consultants, the following practical guidelines are given :

/- Care

- Care should be taken in preparing the test schedule according to the geology of the site and specifications should be provided for a test, including information on soil type, oven-drying temperature for the determination of moisture content;
- Test samples should be delivered to the laboratory properly;
- Sampling and testing should be properly supervised and test results documented and where appropriate, analysed and vetted; and
- Any test reports endorsed by HOKLAS should not be reproduced except in full and any doubts such reports should be clarified with HOKLAS for submission to the BA.



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Index under : Soil Testing

Soil Testing Standard for Phase 1 Tests

Test Description	Test Method
Determination of moisture content by oven-drying at $105^{\circ}\text{C} \pm 5^{\circ}\text{C}$	GEO Report No. 36 Test 2.3.2A
Determination of moisture content by oven-drying at $45^{\circ}\text{C} \pm 5^{\circ}\text{C}$	GEO Report No. 36 Test 2.3.2B
Comparative test for the determination of moisture content by oven-drying	GEO Report No. 36 Test 2.3.2C
Determination of liquid limit by the cone penetrometer method	GEO Report No. 36 Test 2.4.3
Determination of plastic limit, plasticity index and liquidity index	GEO Report No. 36 Test 2.5.3
Determination of particle size distribution by wet sieving (with dispersant)	GEO Report No. 36 Test 2.9.2A
Determination of particle size distribution by wet sieving (without dispersant)	GEO Report No. 36 Test 2.9.2B
Determination of particle size distribution by the pipette method (with dispersant)	GEO Report No. 36 Test 2.9.4A
Determination of particle size distribution by the pipette method (without dispersant)	GEO Report No. 36 Test 2.9.4B
Determination of particle size distribution by the hydrometer method (with dispersant)	GEO Report No. 36 Test 2.9.5A
Determination of particle size distribution by the hydrometer method (without dispersant)	GEO Report No. 36 Test 2.9.5B
Construction of a continuous particle size distribution curve from the results of wet sieving and sedimentation tests	GEO Report No. 36 Test 2.9.6
Determination of the dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (with 1000cc mould and 2.5kg rammer)	GEO Report No. 36 Test 4.3.3A
Determination of the dry density/moisture content relationship of soils containing particles which are susceptible to crushing (with 1000cc mould and 2.5kg rammer)	GEO Report No. 36 Test 4.3.3B
Determination of the dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (with CBR mould and 2.5kg rammer)	GEO Report No. 36 Test 4.3.4A
Determination of the dry density/moisture content relationship of soils containing particles which are susceptible to crushing (with CBR mould and 2.5kg rammer)	GEO Report No. 36 Test 4.3.4B

Test Description	Test Method
Determination of the insitu bulk density and insitu dry density of soil by the sand replacement method suitable for fine- and medium-grained soils (with small pouring cylinder)	GEO Report No. 36 Test 9.2.1
Determination of the insitu bulk density and insitu dry density of soil by the sand replacement method suitable for fine-, medium- and coarse-grained soils (with large pouring cylinder)	GEO Report No. 36 Test 9.2.2

- Notes : (1) The Guidelines for Laboratory General Requirements and Sample Preparation given in Appendix A of GEO Report No. 36 shall be adopted.
- (2) Information on soil type and oven-drying temperature shall be provided to the laboratory for all tests that involve the determination of moisture content.