Advanced Laboratory Testing

Common Sense Solutions

Large Direct Shear Apparatus

BGC

Available tests include:

Triaxial [Cell pressure up to 3 MPa]

Test	Code	Standard
Consolidated isotropic undrained triaxial compression	(CIU)	[ASTM D4767]
Consolidated isotropic undrained triaxial extension	(CIUE)	
Consolidated isotropic drained triaxial compression	(CID)	[ASTM D7181]
Consolidated anisotropic drained triaxial compression	(CAD)	
Consolidated anisotropic undrained triaxial compression	(CAU)	
Ko consolidated undrained triaxial compression	(CKoU)	
Unconsolidated undrained triaxial compression	(UU)	[ASTM D2850]
Unconsolidated undrained triaxial extension	(UUE)	
Unconfined compressive strength	(UC)	[ASTM D2166]

High Pressure Triaxial [Cell pressure up to 7 MPa]

Test	Code	Standard
Consolidated isotropic undrained triaxial compression	(HCIU)	
Consolidated isotropic drained triaxial compression	(HCD)	

Static Simple Shear [Up to 2 MPa vertical stress]

Test	Code	Standard
Consolidated constant volume direct simple shear	(CCVDSS)	[ASTM D6528]
Consolidated constant stress direct simple shear	(CCSDSS)	

Direct Shear

Test	Code	Standard
Direct shear	(DS)	[ASTM D3080]
Direct residual shear	(DRS)	
Large scale direct shear [σ_V = 5.5 MPa max, 40cm x 40cm sample size]	(LDS)	

Permeability

Test	Standard
Flexible wall permeability	[ASTM 5084]
High pressure flexible wall permeability [up to 7 MPa cell pressure]	
Constant head permeability of granular soils	[ASTM 2434]

Consolidation

Test	Standard
1 Dimensional consolidation	[ASTM D2435]
1 Dimensional collapse potential of soil	[ASTM D5333]

Rock Testing

Test	Code	Standard
Unconfined compressive strength of intact rock core specimens	(UCS)	[ASTM D7012/D2664]
Point load index test		[ASTM D5731]
Splitting (Brazilian) tensile strength of intact rock core specimens		[ASTM D3967]
Leeb Hardness		[ASTM D3967]

Index/aggregate Testing

Test	Code	Standard
Petrographic analysis for fine and coarse fractions		[ASTM C295]
Grain size analysis		[ASTM D422]
Atterberg Limits		[ASTM D4318]
Specific gravity		[ASTM D854]
Aggregate soundness		[ASTM C88]
Standard Proctor		[ASTM D698]
Modified Proctor		[ASTM D1557]
California Bearing Ratio	(CBR)	[ASTM D1883]
Moisture content		[ASTM D2216]
Organic content		[ASTM D2974]

Advanced Laboratory Testing Services

BGC's state-of-the-art soil and rock testing laboratory provides a broad range of advanced testing services. In addition to standard geotechnical index testing, we specialize in triaxial, direct shear, and direct simple shear strength tests, one dimensional consolidation testing, and flexible wall permeability tests. These advanced tests are particularly beneficial to our clients in the industrial, commercial, mining, and oil and gas sectors.

Committed to Quality

BGC's laboratory services are well suited to testing for challenging applications where reliable test results are paramount to the success of the project. We have developed innovative sample preparation equipment and procedures for the handling of soft, sensitive soil and have designed and fabricated specialized apparati to suit project specific requirements. Our philosophy is that laboratory testing should be carried out by qualified engineers with strong backgrounds in soil and rock mechanics under the close supervision of senior staff. We understand that the quality of laboratory testing data can be difficult to assess after a test has been completed, so it is critical that all testing be performed by educated, experienced professionals using the latest equipment and following industry standards for technical competence.

Focused on our Clients

BGC's geotechnical laboratory is a valuable complement to our geotechnical and water resources engineering consulting services. The facility supports our broader project work and also operates as a resource for other geotechnical consultants. BGC's advanced lab testing services, combined with our specialized appreciation for the impacts of geology on engineering projects, provides our clients with comprehensive, common sense solutions to their project needs.

BGC