

Geotechnical Laboratory

GEOTECHNICAL LABORATORY

We offer our clients efficient, detailed, and confidential industry-specific testing through our NATA-accredited geotechnical laboratory.

Our skilled team has over 40 years of combined experience in laboratory services, and our facility has modern instrumentation and a temperature-controlled environment, supporting aggregate, soil, and dimensional stone testing.

Our scope of work includes a range of testing and sampling to AS, QTMR, ASTM, AS/NZS, EN and in-house methods.

AGGREGATE TESTS SERVICES:

- Degree of precoat
- Organic impurities other than sugar
- Weak particles (including clay lumps, soft and friable particles) in coarse aggregates
- Clay and fine silt
- Wet/dry strength variation
- ACV
- Particle shape by proportional calliper
- Average least dimension
- Materials finer than 75 microns in aggregates (by washing)
- Flakiness index
- Bulk density of aggregate (unit mass)
- Particle size distribution
- Particle density and water absorption – fine/coarse aggregates
- Aggregate soundness – evaluation by exposure to sodium sulphate solution
- Crushed particles in coarse aggregate derived from gravel
- Degradation factor – source rock and coarse aggregate
- PAFV Polished aggregate friction value – vertical wheel
- Point Load
- Coarse Aggregate Quality by Visual Assessment
- Acid Solubility
- Caking
- Foreign Materials

SOIL TESTS SERVICES:

- California bearing ratio (CBR)
- Maximum density ratio compactions (MDR)
- Particle size distribution
- Fines Ratio
- Atterberg limits
- Moisture content
- Emerson Class

DIMENSIONAL STONE SERVICES:

- Water Absorption and Bulk Specific Gravity
- Modules of Rupture Compressive Strength
- Flexural Strength of Dimensional Stone
- Abrasion Resistance
- Strength of Individual Stone Anchorages in Dimensional Stone
- Potential to Effloresce / Rust from Free Iron
- Resistance to Salt Attack
- Impact Resistance / Rupture Energy
- Stain Resistance
- Change of Gloss
- Thermal Expansion
- Slip Resistance

Call us to discuss your testing needs today.

Dave Gregson

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SCOPE OF TESTS

ISO 17025 (2017) Infrastructure and Asset Integrity				
Service	Product	Determination	Technique	Procedure
Evaluation of geotechnical and civil construction material - Aggregate binder adhesion	Aggregates	Degree of precoating	Not applicable	MR (Qld) Method Q216
Evaluation of geotechnical and civil construction material - Aggregate contaminants	Aggregates	Organic impurities	Colour test	AS 1141.34
		Weak particles contaminants	Sieve analysis	AS 1141.32
		Clay and fine silt	Settling	AS 1141.33
		Foreign material in recycled aggregate	Manual classification	MR (Qld) Method Q477
Evaluation of geotechnical and civil construction material - Aggregate polishing	Aggregates	Polished aggregate friction value	Pendulum friction test; Vertical wheel	AS 1141.40, AS 1141.42, MR (Qld) Method Q203
Evaluation of geotechnical and civil construction material - Aggregate properties	Aggregates	Shape	Average least dimension; Crushed faces; Flakiness; Proportional calliper	AS 1141.14; AS 1141.15; AS 1141.18; AS 1141.20.3; MR (Qld) Method Q201
		Particle density of coarse aggregate	Weighing-in-water	AS 1141.6.1
		Particle density of fine aggregate	Weighing-in-water	AS 1141.5
		Particle size distribution	Sieve analysis; Sieve analysis of material finer than 75 µm	AS 1141.11.1; AS 1141.12
		Bulk density	Compacted; Uncompacted	AS 1141.4
Evaluation of geotechnical and civil construction material - Aggregate soundness	Aggregates	Soundness	Degradation factor on coarse aggregate; Degradation factor on fine aggregate; Exposure to sodium sulfate solution	AS 1141.24, AS 1141.25.1, AS 1141.25.2, MR (Qld) Method Q208B
Evaluation of geotechnical and civil construction material - Aggregate strength	Aggregates	Aggregate crushing value	Not applicable	AS 1141.21
		Wet/dry strength variation	Not applicable	AS 1141.22
Evaluation of geotechnical and civil construction material - Masonry, concrete and clay unit properties	Masonry, concrete and clay units	Resistance to salt attack	Not applicable	AS/NZS 4456.10
Evaluation of geotechnical and civil construction material - Rock Hardness	Rocks	Abrasion resistance	Abrasion resistance of dimension stone subjected to foot traffic	ASTM C1353
Evaluation of geotechnical and civil construction material - Rock properties	Rocks	Point load strength index	Laboratory measurement	AS 4133.4.1
		Absorption	Saturation	ASTM C97
Evaluation of geotechnical and civil construction material - Rock strength and deformation	Rocks	Flexural strength of dimension stone	Not applicable	ASTM C880
		Modulus of rupture for dimension stone	Not applicable	ASTM C99
		Compressive strength	Uniaxial load rate controlled	ASTM C170



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ISO 17025 (2017) Infrastructure and Asset Integrity				
Service	Product	Determination	Technique	Procedure
Evaluation of geotechnical and civil construction material - Soil classification	Soils	Linear shrinkage	Not applicable	AS 1289.3.4.1; MR (Qld) Method Q106
		Plastic limit	Not applicable	AS 1289.3.2.1; MR (Qld) Method Q105
		Weighted plasticity index	Not applicable	MR (Qld) Method Q252
		Liquid limit	Casagrande four point; Casagrande one point; Cone four point; Cone one point	AS 1289.3.1.1; AS 1289.3.1.2; AS 1289.3.9.1; AS 1289.3.9.2; MR (Qld) Method Q104A; MR (Qld) Method Q104D
		Cone plasticity index	Not applicable	AS 1289.3.3.2
		Sieve analysis	Fines ratio	MR (Qld) Method Q253
		Sieve analysis	Not applicable	AS 1289.3.6.1; MR (Qld) Method Q103A
		Plasticity index	Casagrande	AS 1289.3.3.1
		Moisture content	Drying oven	AS 1289.2.1.1
Evaluation of geotechnical and civil construction material - Soil compaction characteristics	Soils	Dry density/moisture content relationship	Standard compactive effort	AS 1289.5.1.1; MR (Qld) Method Q142A
		Dry density/moisture content relationship	Modified compactive effort	AS 1289.5.2.1; MR (Qld) Method Q142B
Evaluation of geotechnical and civil construction material - Soil dispersion	Soils	Dispersion	Emerson class	AS 1289.3.8.1
Evaluation of geotechnical and civil construction material - Soil laboratory bearing properties	Soils	Bearing ratio	Remoulded specimens	AS 1289.6.1.1, MR (Qld) Method Q113A, MR (Qld) Method Q113B, MR (Qld) Method Q113C
Evaluation of geotechnical and civil construction material - Soil pre-treatment	Soils	Soil pretreatment	Not applicable	AS 1289.1.1; MR (Qld) Method Q101; MR (Qld) Method Q101A; MR (Qld) Method Q101B; MR (Qld) Method Q101D; MR (Qld) Method Q101F
Sample collection	Aggregates	Not applicable	Aggregate from a pavement; Aggregate from a stockpile; Aggregate from a truck	AS 1141.3.1; MR (Qld) Method Q060
	Soils	Not applicable	Disturbed sampling from earthwork	AS 1289.1.2.1; MR (Qld) Method Q060
		Not applicable	Site selection - Random stratified sampling	AS 1289.1.4.2; MR (Qld) Method Q050
		Not applicable	Site selection - Random sampling	AS 1289.1.4.1; MR (Qld) Method Q050

