



UWA's Geotechnical Testing Laboratory

CENTRE FOR OFFSHORE FOUNDATION SYSTEMS



The Geotechnical Testing Laboratory at UWA was originally established in the 1950s with support from the State government. In 1997, a grant from the Department of Commerce and Trade was awarded to the recently established Centre for Offshore Foundation Systems to upgrade laboratory facilities. In 2012, the latest round of equipment upgrades was initiated focusing on the development and commissioning of state-of-the-art geotechnical testing equipment for both academic and industry research projects. The laboratory is led by Antonio Carraro (Academic Supervisor) and Yaurel Guadalupe Torres (Laboratory Manager) and houses advanced testing equipment including a hollow cylinder apparatus, a resonant column device, a dynamic triaxial apparatus and various cyclic simple shear devices, among other equipment. The lab is committed to geotechnical education and provision of high-level testing services to both academics and industry clients.

How it works:

The Geotechnical Testing Laboratory at UWA has facilities that are used to quantify physical, physical-chemical, thermal and other mechanical properties of geomaterials. Examples of such quantities include (but are not limited to) the density, mineralogy, thermal conductivity, stiffness and strength of the geomaterials being tested.

The majority of samples tested in our lab come from offshore and onshore soil deposits, or represent man-made materials such as tailings, mining wastes and other solid waste materials.

Representative samples (ranging from a few grams to several kilograms) are tested following a variety of standard testing protocols (Figure 1) to evaluate soil properties and characteristics that are critical for engineering analyses and design of infrastructure.

By focusing on the careful selection or control of density, fabric and stress state of the samples being tested, test results obtained are most representative of the actual engineering behavior of the soil being analysed in the engineering application of interest.

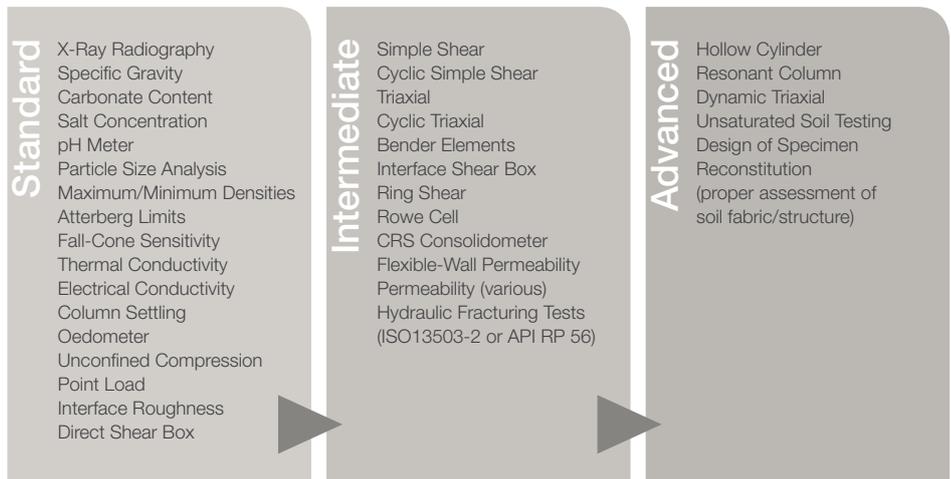
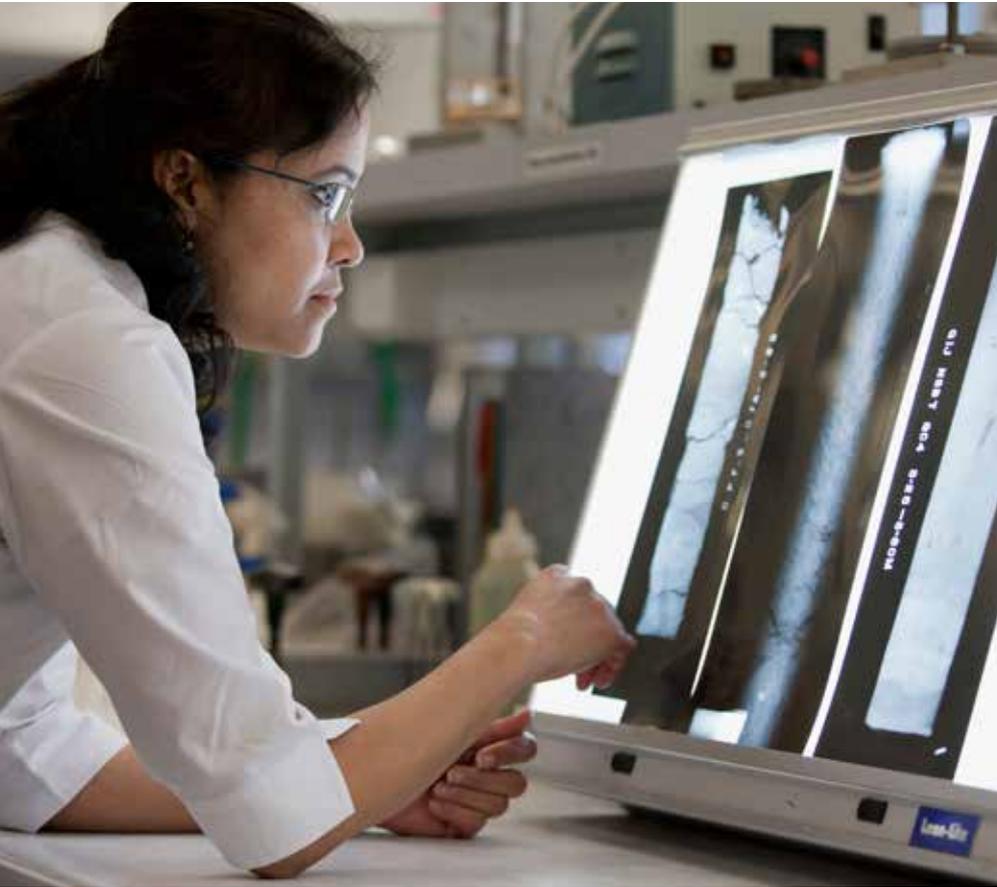


FIGURE 1 – EXAMPLES OF TESTING PROTOCOLS AVAILABLE



Clients:

Tests in the Geotechnical Testing Laboratory have been conducted for leaders in the offshore and onshore geotechnical and mining industries including ARUP, BHP Billiton, BP, Chevron, Coffey, Fortescue Metals Group, Fugro, GHD, Rio Tinto, Woodside and WorleyParsons.

Geotechnical Testing Laboratory by the numbers:

- ✦ Academic researchers using the lab: >70/year*
- ✦ Continents where test samples come from: all (except for Antarctica)
- ✦ Industry research projects undertaken: >30/year*
- ✦ Major Australian offshore infrastructure recently designed with lab results: Browse, Cimatti, Equus, Gorgon, Greater Western Flank, Ichthys, Julimar, Numisia, Prelude, Scarborough, Wheatstone, among others
- ✦ Technicians supporting the lab facilities: 5
- ✦ Undergraduate students enrolled in lab units: >400/year*

*average for 2012-2014

Find out more at: cofs.uwa.edu.au

