Liquefaction Impacts on Land + Infrastructure

Assessing and mitigating liquefaction which is one of the principle hazards affecting land and infrastructure in Aotearoa New Zealand.

CONE PENETRATION TESTS (CPT)
Cone penetration tests (CPT) are one of the key tools used to test the soil. QuakeCoRE are further developing gel coated field sampling, developed in Japan, specifically for greater accuracy in Aotearoa New Zealand soil types.

LIQUEFACTION ZONING OF CHRISTCHURCH FOR INFRASTRUCTURE DESIGN
This zoning has been used to specify the design requirements for liquefaction-resilient residential foundations and services (with the red area) of approx 7000 houses abandoned for residential housing.

DEEP + RICH COLLABORATIONS
European Consortium of 11 universities focusing on liquefaction issues in the European context following our research lead.

CENTREPORT RECLAMATIONS
1882
1883 – 1901
1904 – 1916
1924 – 1932
1965 – 1976

REAL WORLD LINKS
CentrePort sustained liquefaction damage as a result of the 2016 Kaikoura Earthquake and being built mostly on reclaimed land.
As a key logistical hub and critical lifelines, facility, CentrePort wanted to:
1. Remediate their land &
2. Better manage their assets, to protect their necessary status as a critical lifeline facility in future events.
QuakeCoRE research gave CentrePort a better picture of how the land is structured and therefore how it will behave in future earthquakes.

PARTNERSHIPS
Working with and sharing across industry, central and local government.
People can see the value in sharing their research, the level of everyone's understanding grows.