



CURRICULUM VITAE

DAVID WILLOWS CPEng (Civil), BE (Hons), MIEAust, NER, M.CIRCEA

David Willows is a forensic consulting engineer, qualified in civil engineering, with a background in damaged structure assessment, remedial works and geotechnical investigations. David has a good appreciation for engineering geology and the performance of soil and rock units in the Sydney Basin.

David provides geotechnical assessment for landslide risk management, construction monitoring and peer review. David acts as an expert witness for legal proceedings and is experienced in preparing expert reports, attending expert conclaves and giving evidence in court.

David uses a systematic approach to collaborate with other engineers and professionals in complex forensic and remedial engineering matters. David has a reputation for his attention to detail and ability to communicate with clients from technical and non-technical backgrounds.

QUALIFICATIONS & AFFILIATIONS

BE (Hons.) - Bachelor of Engineering (Civil), University of Newcastle, 2002

CPEng (Civil) - Chartered Professional Engineer, MIEAust, NER, EA No. 2417109

Engineers Australia Civil & Structural Panel (Sydney Division), Member 2012 to present, Chair 2015

CIRCEA (College of Investigative Remedial Consulting Engineers of Australia), Board Member 2016

AGS (Australian Geomechanics Society) - Corporate Membership

RMS (Roads and Maritime Services) - Guide to Slope Risk Analysis V4 (RMS 2018, RTA 2004)

University of NSW - Expert Witness Training Course 2019 (Hugh Selby, Unisearch)

The Hills Shire Council (NSW) - Independent Expert Geotechnical Review Panel (AGS 2007c)

CONSULTING EXPERIENCE

June 2020 to present

Willows Engineering Consultants Pty Ltd
Director and Principal Consultant

Forensic engineering, expert witness, peer review,
geotechnical risk management and remedial advice

August 2015 to June 2020

Alliance Geotechnical Pty Ltd
Principal Geotechnical Engineer

Geotechnical investigations, landslide risk assessment,
peer review, remedial, forensic and expert witness

March 2002 to July 2015

Shirley Consulting Engineers Pty Ltd
Senior Associate

Forensic ground investigations, coastline recession,
landslide risk assessment and construction review

FORENSIC ENGINEERING & EXPERT WITNESS SERVICES

David has undertaken forensic engineering investigations and prepared reports in accordance with the Expert Witness Code of Conduct (Uniform Civil Procedure Rules). David is conversant with lawyers, insurance loss adjusters and professionals to consult on damaged and failed structures.

Some key forensic engineering and expert witness projects that David has undertaken include:

Kingsford - Expert witness report, joint conclave and giving evidence under cross-examination in the NSW District Court regarding a damaged structure claim. Inspection, assessment of crack patterns, review of documents, chronology, historical records and technical publications to formulate opinion.

Rosebery - Expert witness reports and sketches to illustrate interpreted mechanism of damage to adjacent buildings based on the construction sequence and review of documents, interaction with solicitors and counsel, attendance at expert conclave and preparation of joint report.

North Bondi - Expert witness reports, document review, assessment and geotechnical investigation of a damaged residence adjacent to an unsupported excavation. Interpretation of the subsurface conditions and advise on risks for the engineering design and construction of remedial works.

Daleys Point – Expert witness report and geotechnical investigation of a concrete block wall failure. Subsequently meet and interact with owners, solicitors and other experts on remedial works access, engineering design and construction to assist in settlement negotiations.

Darlinghurst – Consultation with property owner and structural engineer to assess a damaged townhouse adjacent to a partially demolished building development. Provide a preliminary geotechnical opinion on the cause of damage and risk of further damage, based on a site inspection.

Mascot – Geotechnical investigation of a damaged unit building, with installation of piezometers in a network of boreholes for remote groundwater monitoring system, as well as soil sampling and laboratory testing for use by other expert witness engineers in legal proceedings.

North Bondi – Geotechnical investigation of a damaged unit building on sloping land, with soil sampling and laboratory testing for use by other expert witness engineers in legal proceedings. Test pit investigation of permeation grouting and on-site foundation testing for remedial works design.

Winston Hills – Geotechnical assessment of as-built wall and review of design guidelines in relation to a claim in the NSW Civil and Administrative Tribunal, alleging inadequate construction work and breach of contract by the builder. Subsequently attend NCAT hearing with the owner and solicitor.

Cammeray – Geotechnical assessment of a rotated boundary retaining wall and provide sketch section of inferred conditions by visual inspection with structural engineer in legal proceedings. Recommend investigation by boreholes drilled from above, with test pits by hand held equipment.

Lugarno – Geotechnical inspections, review of documents, client consultation and assistance to other expert witness engineer for preparation of evidence for an alleged accidental damage claim, following cracking and settlement of a dwelling and pool, during construction on the adjacent land.

REMEDIAL ENGINEERING & DAMAGED STRUCTURE ASSESSMENTS

David has experience in the geotechnical assessment of damaged structures, to identify the causes of movement and interpret the subsurface geological and groundwater conditions. David consults with owners, engineers, builders and Councils to provide recommendations for remedial works.

Some key damaged structure and remedial works projects that David has undertaken include:

Ku-ring-gai – Geotechnical assessment and landslide mapping for a collapsed fire trail excavation, interpretation of the subsurface conditions, engineering calculations, design report for a sandstone block retaining wall and inspections during the stabilisation works construction.

Wyongah – Geotechnical assessment of a failed gabion retaining wall and loss of support to a sewer pipeline, caused by a landslide in the creek embankment. Remedial works advice to Council for the design of a replacement gabion wall, with integrated subsoil drainage to manage the risk of flooding.

Pemulwuy – Geotechnical investigation of a damaged residence on sloping land, relating to an insurance claim, including consultation with an experienced remedial structural engineer to interact on damage assessment report and recommendations for remedial works.

Speers Point – Geotechnical assessment relating to an insurance claim and Council order to demolish a rotated boundary wall. Recommendations were provided for the planning of earthworks, or other risk management options due to a board sewer pit and pipes identified in the wall backfill.

Castle Hill – Geotechnical investigation and interpreted subsurface model to assess the causes of damage to a residential house. Recommendations to monitor damage and variations in foundation moisture, with comments on possible underpinning works and construction risk management.

David has undertaken damaged structure assessments at various other sites, including at Kirribilli, Wolli Creek, Glebe, Cammeray, Randwick, Mona Vale, Mosman, Redfern, Bondi, St Ives, Mona Vale, Dawes Point, Middle Cove, Darling Point, Wollstonecraft, Collaroy, Manly, Fairlight, Cromer, Warriewood, Wahroonga, Lindfield, Roseville, Chatswood, Moorebank, Ashfield, Epping, Lilyfield, Hornsby, Stanmore, Blacktown, Bass Hill, Fairfield, Villawood, Mittagong, Lugarno, Gregory Hills, Ermington, Condell Park, Beecroft, Rouse Hill, Ambarvale, Millthorpe, Austral, Dangar Island, Gosford, Pearl Beach, Niagara Park, Wyoming, Terrigal, Ourimbah, Toowoong Bay and Morisset.

GEOTECHNICAL ENGINEERING & LANDSLIDE RISK MANAGEMENT

David applies the *Practice Note Guidelines for Landslide Risk Management* published by the Australian Geomechanics Society (AGS 2007) and undertakes peer review of geotechnical reports relating to proposed developments, excavations and fill on sloping land, or close to structures.

David advises on construction management to achieve 'low risk' using geotechnical inspection hold points, temporary drainage and earthworks, or groundwater, vibration and slope stability monitoring.

David has prepared risk assessments for developments at Annangrove, Austral, Bayview, Narrabeen, Denistone, Elanora Heights, Mona Vale, Cremorne, Illawong, Belrose, Mosman, Collaroy, Palm Beach, Avoca Beach, Rose Bay, Kyle Bay, Ryde, Blaxland, Bellevue Hill, Mittagong and Waitara.

Some key geotechnical investigation projects that David has undertaken, include:

Warriewood – Geotechnical investigation, including test pits, boreholes, groundwater monitoring, and laboratory testing, with risk assessment and recommendations for a proposed 20-lot residential subdivision and unit building excavation in sloping land.

Castle Hill – Geotechnical investigation, historical review of regional geology and borehole data, landslide risk assessment and report for a 5-lot residential subdivision, ongoing interaction with the Hills Council Review Panel and recommendations for the residential development.

Newport – Geotechnical investigation and landslide risk assessment for excavations and house on sloping land, with construction inspections and forms as required by Northern Beaches Council to review and manage the excavation conditions, temporary drainage and footings.

Terrigal – Geotechnical investigation and risk assessment for a proposed residential development based on interpreted subsurface profile, including recommendations for management of basement excavation in bedrock and within sloping land close to sewer infrastructure.

PEER REVIEW & CONSULTATIONS

David has undertaken peer review of geotechnical reports, engineering drawings and documents on behalf of Councils, private owners and strata managers, to advise on geotechnical issues and risks relating to development applications and nearby construction.

David has undertaken peer review relating to risk management of adjacent development, for private owners on sites located at Cronulla, Blakehurst, Bayview, Drummoyne and Gladesville.

In addition, David has advised clients on Council orders, Land & Environment Court objections, boundary disputes and managing risk of nearby development excavations and construction.

David communicates with regulators such as Roads and Maritime Services (RMS), Sydney Water and local Councils, and consults with clients regarding the development risk management requirements.

Some key peer review engagements that David has undertaken, include:

The Hills Shire Council - Engaged on the Independent Geotechnical Review Panel to peer review geotechnical reports and drawings submitted with development applications to Council. David has undertaken peer review on sites located in Dural, Castle Hill, Sackville North and West Pennant Hills.

West Tamar Council (Tasmania) – Engaged to undertake desktop peer review of geotechnical reports and compliance with AGS 2007 for development applications submitted to Council. David has undertaken peer review on two sites located in Riverside.

City of Sydney Council – Engaged to undertake peer review of geotechnical investigations, reports, drawings and construction access constraints and to provide recommendations on the preferred remedial works for a heritage-listed warehouse building located in Ultimo.