Geotechnical Consulting Group

# Dr Michael Wan

*BEng MSc PhD DIC CEng MHKIE FICE*

**Senior Partner**

**Proven experts in a geotechnical world**

## Professional summary

Dr Michael Wan qualified as a chartered engineer in 2007 and has worked in the civil and geotechnical engineering industry in the United Kingdom and Hong Kong for over 25 years, with extensive design and construction experience of infrastructure and building projects involving some of the most challenging ground conditions and project contractual environments. His areas of expertise include geotechnical instrumentation & monitoring, earthworks, ground investigation, ground heave & subsidence, ground movement assessments, building damage & utilities impact assessments, and foundations & deep excavations. Michael has worked as a geotechnical expert witness for dispute cases in the UK and overseas.

## Education and Career

Since 2015: GCG, London

2014: PhD, Imperial College London

2009-15: Crossrail, London

2006-09: Ove Arup and Partners, Hong Kong

2006: MSc, Imperial College London

2003-05: Hyundai Engineering & Construction, Hong Kong

1999: BEng, The University of Hong Kong

## Memberships and Professional qualifications

Since 2022: Fellow of the Institution of Civil Engineers, FICE (Member 2007-2022)

Since 2020: Registered Ground Engineering (RoGEP) Specialist

Since 2013: Member of the British Geotechnical Association

Since 2008: Member of the Hong Kong Institution of Engineers (MHKIE)

## Experience with GCG

Michael is a chartered engineer in the UK and Hong Kong who joined the Geotechnical Consulting Group in 2015. Since Joining GCG, he has provided geotechnical specialist services, ranging from pre-planning advice to full engineering design, as well as independent checking, for public and private clients for building, foundation and deep excavation projects. He was engaged as a named expert in forensic investigation and expert witness work for claims, disputes and arbitration cases in the UK and overseas, on engineering matters ranging from excessive ground movements, building damage, embankment instability and unforeseeable ground conditions for excavation, foundation and tunnelling works. While at GCG, Michael has written award-winning technical papers related to his research work with Imperial College and Crossrail concerning the effects of tunnel construction on adjacent ground and existing infrastructure.

Apart from the experience of working with common types of soils and rocks in Europe and East Asia, Michael has also worked in projects involving desert soils in the Middle East such as sabkha terrain and sand dunes. He led a geotechnical and geological study in Jebel Ali, Dubai supporting a dispute case relating to a gas pipeline project commissioned by Dubai Supply Authority.

Since 2018, Michael has been managing a team of geotechnical engineers providing peer review services for a logistics park client who is developing dozens of large-scale sites (usually tens of hectares) for warehouses and data centres across continental Europe. The GCG team provide critical review of the works performed by local consultants and contractors. Michael helped the client and local project teams identify and manage geotechnical and geo-environmental risks from the site acquisition and ground investigation stages through to detailed design, construction, and commissioning. During the detailed design and construction stage, the team's particular focus is to assess the contractors' design and construction documentations on foundation, ground improvement and earthwork to ensure the stringent floor slab and foundation settlement and deformation requirements are met throughout the project design life.

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## Scholarships / Awards

2020: Telford Gold Medal for the best paper published in all ICE journals of the year.

2019: British Geotechnical Association Medal.

2018: Telford Gold Medal for the best paper published in all ICE journals of the year.

2005: British Chevening Scholarship.

## Service on technical / professional bodies

Since 2020: Reviewer for ICE Chartered Professional Review

2022-24: Chair of UK Chapter of Hong Kong Institution of Engineers (Deputy Chair 2020-22)

2022: Organising committee of ISSMGE TC220 International Symposium on Field Monitoring and Geomechanics

2019: Editorial panel for Geotechnique Symposium-in-Print

## Countries worked

UK, Germany, Netherlands, Spain, Italy, Ukraine, Croatia, Serbia, Montenegro, UAE, India, Hong Kong, Singapore, Malaysia, Macao, China.

## Languages (Other than English)

Cantonese and Mandarin

Since early 2021, Michael was seconded to the designer organisation of the High Speed Two's Main Works Contractor, Skanska Costain Strabag JV, for Lot S1 and Lot S2 (the southern section from Euston to West Ruislip), taking the role of Instrumentation and Monitoring Team Lead. He directed specialist technical advice related to I&M to all HS2 asset design teams, ground movement assessment teams and site support teams across the designer organisation. Michael led the production of over 30 Designer's Monitoring Plans specifying the I&M requirements for the works, which enable effective measures for design verification, construction control and asset protection.

Having worked with structural engineering consultants, Michael is experienced in helping structural engineers develop conceptual and detailed basement and foundation schemes amid restrictions posed by ground conditions and underground obstructions. His work has involved assisting clients to satisfy 3rd party asset protection requirements via ground movement analyses, building & utilities damage assessments, and instrumentation & monitoring design, often focussing on potential impacts on existing cast iron and masonry lined tunnels and sewers. The major asset owners concerned include Thames Water, London Underground, Crossrail, London Overground, Network Rail and Royal Mail Group.

## Previous experience

Prior to joining GCG, Michael worked in the Department of Geotechnics in Crossrail (UK) where he provided geotechnical support to contract delivery teams at different Crossrail sites for bored tunnels and stations. He was also seconded to the bored tunnel Framework Design Consultant team (Arup Atkins JV) where he carried out the assessment of ground settlement induced by tunnel construction and box/shaft excavation in central London.

From 2009 to 2014, Michael undertook his PhD research at Imperial College London funded by Crossrail, investigating the ground response to tunnel construction in London Clay by earth pressure balance tunnel boring machines (EPBMs). After performing the planning, design and supervision of the ground investigation and the state-of-the-art instrumentation works in Hyde Park, Michael collected and interpreted research-quality field monitoring data of ground displacements and stress changes in response to EPBM tunnelling works. As part of the overall monitoring scheme, he also planned and organised the instrumentation and monitoring of the London Underground Central Line running tunnels near Lancaster Gate station. He published the research results in form of a number of peer-reviewed journal papers which won two ICE Telford Gold Medals and one BGA Medal and continue to attract significant industry interests.

Before moving to the UK in 2009, Michael worked in Hong Kong with Arup Geotechnics and Hyundai Engineering & Construction, where he gained significant experience in consultant and contractor engineering practice in Asia including Hong Kong, Macao, Mainland China and Singapore. Notable infrastructure and building developments involved include Hong Kong 1Container Terminal port No. 9, Shanghai Disneyland, Hong Kong-Zhuhai-Macao Bridge, The Venetian Macao, Singapore Marina Bay Sands.