



- 15 years' experience
- MEng Civil Engineering (1st) Imperial College, London
- ACGI Associate of the City and Guilds Institute, London
- MICE Member of the Institution of Civil Engineers
- CEng Chartered Engineer

## Synopsis

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Mark is an engineer responsible for the geotechnical design and independent checking of temporary and permanent works including deep excavations and foundations for buildings, bridges and large civil engineering structures for the construction industry.

He is used to working alongside contractors and in a multidisciplinary environment, interfacing with other professionals in a flexible and responsive manner to ensure the development of safe, cost effective and fully coordinated designs.

Mark has particular experience in the design of spread and piled foundations for bridges, viaducts and buildings; the design of embedded retaining walls to form deep excavations and cut and cover tunnels with propped and anchored support; and the design of slopes and embankments incorporating soil nailing / reinforcement solutions.

He is a pragmatic engineer with a sound knowledge of the relevant design codes who always seeks to identify practical solutions to engineering problems. Mark is highly skilled in the use of numerical analyses to model soil-structure interaction using a variety of software tools and has been responsible for leading and training others in their use.

## Career History

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**2014-Present • Grant & Brown**  
Director | Geotechnical Engineer

**2013-2014 • URS (UK) [now Aecom]**  
Associate (Geotechnics)

**2011-2013 • URS (Australia) [now Aecom]**  
Associate (Geotechnics)

**2008-2011 • Scott Wilson | Benaim then URS**  
Principal Engineer (Geotechnics)

**2005-2008 • Benaim**  
Geotechnical Engineering

**2002-2005 • Black & Veatch**  
Water Engineering

**1998-2002 • Imperial College, London**  
Civil Engineering degree

## Key Skills

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- Piled and spread foundations subject to complex loading conditions
- Mixed temporary and permanent works design
- Embedded retaining walls
- Deep excavations & underground construction
- Soil-structure interaction and numerical modelling
- Settlement and ground movement assessments
- Design of slopes & embankments
- Design and Construct experience
- Reinforced earth / soil nailing
- Investigation of construction failures / problems

## Selected Professional History

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**2017 • Thames Tideway | Kirtling Street Jetty, London - Temporary Works**

Lead Geotechnical Engineer for independent check of jetty and ancillary structures associated with the Thames Tideway Tunnel project.

**2015-Present • Major Basement, Belfast - D & C**

Geotechnical consultant for main contractor on a large, 8m deep urban basement, including secant pile basement walls, temporary works and bearing piles. Expert Opinion reporting for dispute resolution.

**2015-2016 • Battersea Power Station Dev., London**

Geotechnical design of piled foundations and basement structures.

**2014-Present • Brent Cross Redevelopment, London - Detailed Design**

Geotechnical design of over 1000m of piled retaining wall for realignment of River Brent.

**2014-Present • Embedded retaining wall and bearing pile design, Various**

Numerous tender and detailed designs for contractors for D&C schemes for buildings, bridges and underground structures.

**2014-Present • Hinkley Point C, Enabling Works - D & C**

Geotechnical aspects associated with the design of large, deep excavations (up to 35m deep cuts) supported by ground nails for new nuclear power station.

## Selected Professional History

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**2013-2014 • Bank Station Capacity Upgrade, London - D & C**

Geotechnical lead for concept design of the new ticket hall, which is to comprise an excavation over 30m deep between contiguous bored pile walls and using a combination of top down and bottom up techniques.

**2012-2013 • Blackwater Railway Duplications, Australia - Design**

Lead Geotechnical Engineer for design of approx. 40km of rail duplication works, including six rail bridges up to 135m long. Works involved ground treatment, earthworks design for cut / fill balance, and bridge foundation design.

**2012-2013 • Grosvenor Mine Project, Australia - D & C / Temporary Works**

Lead Geotechnical Engineer for design of assembly areas and thrust pits for launch of tunnel boring machines associated with the construction of access tunnels at mine site.

**2012-2013 • Rail Bridges (various), Australia - Temporary Works**

Lead Geotechnical Engineer responsible for temporary works design and pile certification associated with the construction of various rail bridges in Queensland.

**2012-2013 • Sydney North West Rail Link, Australia - D & C**

Geotechnical Engineer for tender design of seven major excavations up to 25m deep in the heart of Sydney. Combinations of cantilever and embedded retaining walls, and soil nailing and rock bolting techniques.

**2011-2012 • Gateway Upgrade South Bus Underpass, Australia - Tender**

Lead Geotechnical Engineer for the detailed tender design of a 50m long combined road / rail underpass beneath the Gateway Motorway in Brisbane. Underpass installation using box jacking / shield tunnelling techniques.

**2011-2012 • Confidential Rail Project, Australia - Design**

Lead Geotechnical Engineer responsible for the preliminary geotechnical design of earthworks and foundations for a number of large rail facilities in Queensland.

**2011-2012 • Surat Basin Rail Bridges, Australia - D & C (dECI Phase)**

Geotechnical Engineer responsible for the design and optioneering of spread and piled foundations for numerous rail bridges for a new railway through the Surat Basin in Queensland, including a 400m long 50m high river crossing.

**2010-2011 • 3rd Bosphorus Suspension Bridge, Istanbul, Turkey - D & C**

Lead Geotechnical Engineer for the preliminary foundation design of 1200m span combined road and rail suspension bridge across the Bosphorus in Turkey. Site survey at tower / anchorage locations and determination of foundation form and size.

**2011-2012 • Woolwich Underground Station, Crossrail, London – Independent Check**

Lead Geotechnical Engineer for the independent check of new underground station. The station is formed 'bottom-up' in a 20m deep excavation between diaphragm walls and comprises part of the basement of a substantial over site development.

**2010-2013 • Europe - High Court (England & Wales) Hearing**

Technical support to Expert Witness regarding the design and construction of embedded retaining walls for a major new underground construction project.

**2010-2011 • London Cable Car, London - D & C**

Lead Geotechnical Engineer for the design of the stations and compression towers of this award winning iconic structure in central London. The design includes piled foundations in close proximity to substantial tunnelling works, formed over water and subject to complex loading conditions from the cable car system.

**2010-2011 • Tottenham Court Road & Bond St. Underground Stations, Crossrail**

Lead Geotechnical Engineer for the independent check of these new underground station structures in the heart of central London. 25-30m deep boxes, formed within a mix of secant, contiguous and diaphragm walls, and constructed using a variety of top down and bottom up techniques.

**2009-2010 • Paddington Station, Crossrail, London - Design Review**

Responsible for reviewing the soil structure interaction analysis undertaken for design of this multi propped 25m deep diaphragm walled flagship box structure to be excavated around two pre-bored tunnels

**2009-2010 • Royal Oak Tunnel Portal, Crossrail, London - Independent Check**

Lead Geotechnical Engineer for the independent check of this 200m long propped diaphragm wall structure that will form a launch pit for tunnel boring machines and the transition from the over ground to the underground section of Crossrail in west London.

## Selected Professional History

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**2008-2009 • Water Treatment Works, Abu Dhabi, UAE - D & C**

Lead Geotechnical Engineer for the design of two 200,000m<sup>2</sup> waste water treatment plants in desert conditions. A key element of the role was the design of earthworks including compaction trials and on-site assessment to justify the re-use of site won material as fill in load bearing applications.

**2008-2009 • Module Bridge, Sellafield - D & C**

Lead Geotechnical Engineer for the design of the approach embankments and foundations for this 30m span temporary bridge, designed to carry 800t module units across the River Ehen adjacent to the Sellafield Nuclear Power Plant.

**2007-2008 • Railway improvement works, Milton Keynes - Design**

Lead Geotechnical Engineer for design of 600m of anchored sheet piled retaining walls to facilitate widening of the railway corridor at Bletchley, Milton Keynes.

**2007-2008 • Tunnel Collapse Mediation, Gerrards Cross - Mediation**

Technical support to Expert Witness during mediation following the collapse of a partially complete buried 3-pin arch tunnel onto a live railway line at Gerrards Cross. Responsible for extensive soil-structure interaction analysis to assess factors relevant to the collapse and the adequacy of the original design.

**2007-2008 • Grange Rail Bridge, Dublin, Ireland - D & C**

Lead Geotechnical Engineer for design of a three span, 40m long, road bridge over the Dublin to Belfast main railway line. Role included specification and interpretation of site investigation works; design of the foundation elements; ground movement assessment.

**2006-2008 • Dubai Metro Bridges, UAE - D & C**

Geotechnical Engineer responsible for the design of piled foundations for numerous stations and viaducts for two new metro lines in Dubai. The role included an independent check of a deep excavation for construction of an underground station.

**2005-2008 • Belfast Sewer Tunnel Project, Belfast - D & C**

Geotechnical Engineer responsible for the provision of a Geotechnical Baseline Report for approximately 9km of tunnels and associated shafts. The role included regular attendance at site to provide advice/support to our contractor client during construction.

**2006-2007 • Ashford Road Bridge, Kent - D & C**

Geotechnical Engineer responsible for the design of the bridge foundations and 200m approaches in reinforced earth with anchored sheet piled walls. Temporary works designs for crane and piling platforms.

**2005-2007 • Clackmannanshire Bridge, Firth of Forth - D & C**

Geotechnical Engineer responsible for the foundation design for this 1.2km incrementally launched bridge over the River Forth. Piers supported on single 3m diameter piles. Designer's Site Representative role.

**2005-2007 • Broadway Underpass, M1/Westlink, Belfast - D & C**

Engineer responsible for the geotechnical design of this 400m long DBFO motorway cut and cover tunnel and propped approach retaining walls. Curved, asymmetric structure in difficult ground conditions in a heavily congested urban area.

**Selected Other Projects Include:**

- Izmit Bay Suspension Bridge, Turkey - Client's Engineer
- A406 Bridge Replacements, London - Independent Check
- 3rd Karnaphuli Bridge, Bangladesh - Independent Check

## Presentations & Awards

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Key technical challenges faced in design of the underground stations for Crossrail; *Transport Infrastructure and Engineering Conference, Brisbane, October 2012*

Paddington & Farringdon Crossrail Underground Stations - A Comparative Study; *CORE 2012 Conference on Railway Engineering, Brisbane, September 2012*

Young Geotechnical Engineer - Highly Commended; *Ground Engineering, 2008*

A876 Upper Forth Crossing (Kincardine Bridge) Foundation Overview; *Construction Processes in Geotechnical Engineering, London, April 2007*

Sir Bruce White Prize - Winner; *Imperial College, 2002*