Dr. Jim Slatter

BEng PhD FIEAust NPER CPEng RPEQ

+61 423 000 138
+61 7 3831 4600
jslatter@fsg-geotechnics.com.au
Level 2, 74 Astor Tce, Spring Hill QLD 4000
PO Box 1241, Spring Hill QLD 4004

Areas of Expertise

Deep foundation engineering, geotechnical engineering, foundation construction, concept design, early tender involvement, risk management, constructability, program, cost planning, pile design, deep excavations, basements, retaining walls, bridge foundations, bored piles, drilled shafts, hard rock drilling, driven piles, CFA piles, rigid inclusions, secant pile walls, sheet piling, piled retaining walls, diaphragm walls, soil mixing, drilling fluids, bentonite slurry, polymer slurry, static load testing, dynamic pile testing.

Qualifications

- Bachelor of Civil Engineering (Hons), 1995, Monash University, Melbourne, Australia
- Doctor of Philosophy in Geomechanics, 2001, Monash University, Melbourne, Australia
  Thesis: The Fundamental Behaviour of Displacement Piling Augers.

Professional Memberships and Affiliations

- Registered Professional Engineer of Queensland (RPEQ) (Registration # 13421)
- Fellow of Engineers Australia (FIEAust Membership # 1060224)
- Chartered Professional Engineer (CPEng - Civil)

Career Overview

Jim is a Principal Geotechnical Engineer with over 20 years' experience in deep foundations spanning geotechnical consulting, academic research and contracting. As Managing Director of two of Australia's largest piling contractors (Vibropile and Piling Contractors), he has been involved in the design and construction of some of Australia's largest and most challenging foundation engineering projects. Jim's extensive experience in design and construction of a broad range of piling systems provides essential practical and technical experience to what is often a high-risk component of the design and construction process.

Jim was also a founding member, and later Chairman, of the Keller Global Piling Committee (GPC), a committee tasked with driving innovation and sharing best practice in construction, risk management and design across the Keller Group's global piling businesses, with an annual turnover in excess of $2.5B AUD. He is well informed on the latest construction techniques and technical innovations in the piling sector as well as risk management processes during construction.

Jim has been involved in a wide variety of foundation engineering projects nationally and has a detailed understanding of pile design, construction, testing and verification. Jim is regularly invited to speak at technical seminars on pile design, construction techniques, testing and verification

Key Skills and Expertise

Jim has wide ranging and proven expertise in the following:

- Concept and detailed design of piled foundation and retention systems;
- Geotechnical design and certification of foundation and retention schemes for major building, infrastructure and resource projects;
- Specification, testing, verification and sign off of piled foundation and retention systems;
- Construction of major foundation and earth retention projects in commercial construction, infrastructure and resource sectors;
- Site investigation and characterisation;
- Risk management and cost planning of foundation and retention piling projects;
- Constructability, program and risk assessment of piled foundation and retention systems.

Employment History

2012–current

Director and Principal Geotechnical Engineer, , FSG Geotechnics & Foundations (formerly Foundations Specialist Group)

Consulting in all aspects of foundation engineering projects throughout Australia and internationally. Specialising in early tender involvement, concept design, design management, risk and opportunity, constructability, program and cost.

2010-2012

Managing Director, Piling Contractors Pty Ltd

Overall accountability for safety, quality, financial performance and strategic direction of Australia's largest piling contractor. Provide direction and leadership to Senior Management Team, set company strategy, review major bid submissions for technical merit, risk, cost and program, contract negotiation and dispute resolution.

2000-2010

Vibropile Pty Ltd: Managing Director (2006 – 2010), General Manager (2005-2006), Victorian Manager (2003-2005), Contracts Manager (2002-2003), Design Engineer (2000-2002).

As Managing Director had overall accountability for safety, quality, financial performance and strategic direction of the company. Provided direction and leadership to Senior Management Team, set company strategy, review major bid submissions for technical merit, risk, cost and program, contract negotiation and dispute resolution.

1995-1996

Geotechnical Engineer, Douglas Partners Pty Ltd

Planning, execution and reporting of geotechnical site investigation works and geo-environmental site assessments, including site operations, geotechnical logging, sampling, testing, modelling, and formulation of technical recommendations. Supervision and certification of pile foundation and pad footings during construction.

Selected Projects

FSG Geotechnics + Foundations (2012-current)

Rockhampton Ring Road ($900M) – Preliminary Engineering (PE) and Business Case (BC) of proposed ring road including over 20 bridge structures.
Client: AECOM – end client Queensland Department of Transport and Main Roads
Contract Value: $200,000

Scope of works comprises development of a range of possible foundation designs for 23 bridge structures, constructability & driveability analysis, piling program assessment, risk and opportunity analysis, specification of site investigation and development of interpretive ground models. Jim's role on this project is Foundation Design Lead.

Smithfield Bypass ($150M) – Detailed design of piled foundations, retaining structures, soft soil treatments, geotechnical site investigation and interpretive report.
Client: Queensland Department of Transport and Main Roads
Contract Value: $500,000

Scope of works comprises foundation design for 3 bridge structures, site investigation, geotechnical interpretive report, soft soil treatments of embankments and transition zones. Jim's role on this project is Pile Design Lead.

Ipswich Motorway Upgrade, Rocklea to Darra Stage 1 and Boundary Road Extension ($500M) – Detailed design of piled foundations, retaining structures, soft soil treatments, geotechnical site investigation and interpretive report.
Client: Queensland Department of Transport and Main Roads
Contract Value: $900,000

Scope of works comprises foundation design for 8 bridges, RSW global stability, site investigation, geotechnical interpretive report, soft soil treatments of embankments and transition zones (combination of preload, surcharging and CMC's). Jim's role on this project is Pile Design Lead.

Mudgeeraba to Varsity Lakes (M2VL) – Geotechnical Assessor & Temporary Works Designer
Client: Seymour Whyte Constructions
Contract Value: $250,000

Geotechnical inspection and certification of bored foundation and retention piles. Design, inspection and certification of temporary access platforms, driveability analysis and technical support. Jim's role on this project is Project Geotechnical Assessor.

Woolgoolga to Ballina (W2B) ($4B) – Independent Geotechnical Assessor/Verifier of piling works
Client: AFS Bachy Soletanche
Contract Value: $1,500,000

With up to 4 geotechnical engineers on site full time, FSG are the independent geotechnical assessor/verifier for the ~ $100M piling package for the W2B project. Scope of works comprises inspection and certification of all bored piles, dynamic pile testing (PDA) and pile driving monitor (PDM of all driven piles. Design, inspection and certification of temporary access platforms, driveability analysis and technical support. Jim's role on this project is Project Geotechnical Assessor.

Boyne River Bridge Replacement – Detailed design of piled foundations.
Client: Queensland Department of Transport and Main Roads
Contract Value: $40,000

FSG were engaged by TMR to undertake a constructability review, optioneering of alternative foundation solutions and detailed design at the Boyne River Bridge site. Ground conditions at the proposed bridge location were particularly challenging with a dyke passing through the site resulting in steeply sloping rock, strength and weathering inversions. This combined with relatively deep scour made foundation design particularly challenging.

Mackay Ring Road Project ($400M) – Detailed design of piled foundations
Client: AECOM / Queensland Department of Transport and Main Roads
Contract Value: $230,000

Detailed design of driven and bored piled foundations for 13 # bridge structures for the project including main bridge over the Pioneer river. Input into geotechnical site investigation scope (SI performed by TMR), responsibility for interpretative design reports pertaining to bridge structures. Foundation types include prestressed, driven piles and bored piles. Ground conditions on site were particularly challenging for piled foundations with dykes and igneous intrusions encountered across the site. Jim's role on this project was Pile Design Lead.

Gateway Upgrade North (GUN) Bridge 11 – Detailed design of substructure
Client: BG&E
Contract Value: $110,000

The 25% design for this structure had previously been completed by SMEC/Jacobs design JV. Due to time project constraints, BG&E and FSG were engaged to complete the detailed design of the structure and substructure. FSG performed the detailed design of bored, cast-in-place and driven prestressed foundations with design elements including geotechnical interpretation and interpretive reporting, axial and lateral capacity of bored and driven piles, assessment of embankment settlements and effect of lateral soil movements on the piles. Jim's role on this project was Geotechnical Design Lead.

Yeppen Floodplain Upgrade Project ($250M) – Pile testing, engineering supervision and sign off and acceptance of piles.
Client: John Holland
Contract Value: $480,000

Project comprised ~ 1000 prestressed octagonal piles and 70 bored retention piles. FSG provided full time engineering supervision and support of piling works. Scope included driveability analysis for hammer selection and assessment of driving stresses, assessment of prebore lengths and freestanding of piles, PDA testing of 12.5% of piles and PDM testing of 100% of piles. FSG's Pile Manager database was also utilised on the project to track piling progress and QA/QC. Jim's role on this project was Project Manager and Principal Geotechnical Engineer.

Pacific Hwy Exit 54 – Coomera Interchange
Client: Seymour Whyte
Contract Value: $65,000

Site investigation for foundation piles and retaining walls. Construction supervision and RPEQ sign off of bored foundation and retention piles. Plate load tests and certification and sign off of bearing capacity for pad footings. Design of construction platforms including slope stability of embankments and design of sheet pile retention structures. Alternative design of soil nail walls. Jim's role on this project was Project Manager and Principal Geotechnical Engineer.

Kingsford Smith Drive Upgrade ($650M) – Tender Design
Client: BMD Leighton Joint Venture
Contract Value: $110,000

Tender design of piled foundations for ~ 1.1km bridge structure in Brisbane River. Tender design of ~ 1.3km of marine retention structures in the Brisbane river including slope stability assessment and scour protection works. Tender design of ground improvement works associated with marine retention structures. Jim's role on this project was Pile Design Lead.

Piling Contractors Pty Ltd (2010-2012)

APLNG Downstream Processing plant Structures (2012)
Main Contractor: Bechtel Pty Ltd
Contract Value: $16M

Project comprised the supply, installation and testing of approximately 1,600 coated, driven steel piles on Curtis Island, Queensland. The project was particularly challenging from a logistics standpoint with all plant, personnel and materials being ferried to the Island from Gladstone Port. Piles were driven to a depth of approximately 18m through engineered fill and alluvial soils and were founded in the underlying weathered rock. The project also comprised three static load tests (compression, tension and lateral) and approximately 70 dynamic load tests.

QCLNG Upstream Gasfield Infrastructure (2012)
Main Contractor: Thiess Contractors Pty Ltd
Contract Value: $12M

The project comprised the installation of approximately 3,000 bored piles for compressor stations and associated infrastructure. All piles were sleeved in order to cater for reactive soils (shrink/swell). Particular challenges for this series of projects included extremely variable ground conditions across the difference gas fields requiring a wide range of drilling techniques ranging from truck mounted rigs for soils and weak rocks through to heavy duty crawler mounted rigs required to drill high strength rock. A rapidly evolving design brief and stringent site operational constraints across a number of different concurrently operating sites also posed challenges for the project team.

Hunter Expressway Alliance – Minefilling (2011- 2012)
Main Contractor: HEA (Thiess, PB, Hyder)
Contract Value: Approx. $48M

This $48M sub-alliance involved the targeted drilling filling of 100-year-old decommissioned coal mines to depths of up to 120m to facilitate the construction of the Hunter Expressway viaduct structures and sensitive at grade structures. Drilling and filling works comprised approximately 145 km of directional drilling across some 1,500 holes and the injection of 200,000m3 of grout paste into the mine workings. The mine fill project at the Hunter Expressway represented one of the largest and most challenging mine filling projects ever carried out in Australia. Stringent environmental and indigenous heritage restrictions combined with dense bush land and extremely hilly terrain provided further challenges and required extremely accurate directional drilling and grouting patterns.

Publications

Slatter, Seidel, Kingwell (2000). A Proposed Model for Soil/Auger Interaction during Installation of Screw Piling Augers. Deep Foundations Institute.

Slatter (2000). The Fundamental Behaviour of Displacement Screw Piling Augers. Monash University, PhD Thesis.

Slatter (2006). Recent Developments in Continuous Flight Auger (CFA) and Cast-in-Situ Displacement Screw Piling in Melbourne. Australian Geomechanics Journal, Vol. 41, September 06.

Slatter, Tchepak (2008). Design and Construction Aspects of Piled Foundations for Eureka Tower Project, Bored and Augered Piles Conference V (BAPV).

Collingwood and Slatter (2017) Construction Methods and Quality Outcomes for Bored Cast-in-Place Piles, A review of Current Practice (paper and presentation). Deep Foundations Institute Conference, Melbourne, 2017.