14th Australia and New Zealand Conference on Geomechanics
Sunday 2 - Wednesday 5 July 2023
Cairns Convention Centre

SUNDAY 2 JULY 2023			
12:00	**Workshop Registrations Open** *Ground Floor, Cairns Convention Centre*		
	Pre-Conference Workshops		
	Meeting Room 2, Mezzanine Floor	*Meeting Room 3, Mezzanine Floor*	*Meeting Room 4, Mezzanine Floor*
13:00	Designing Mechanically Stabilised Earth (MSE) Walls **Prof Richard J. Bathurst, Royal Military College of Canada**	Workshop and Discussion – Review of Australian Landslide Risk Management Guidelines **Darren Paul, WSP** **Tony Miner, A.S. Miner Geotechnical**	Earthworks: Theory to Practice – Design and Construction **Burt Look, FSG Geotechnics and Foundations Specialists**
14:30	**Afternoon Tea** *Foyer Area, Mezzanine Level*		
	Pre-Conference Workshops (Continued)		
	Meeting Room 2, Mezzanine Floor	*Meeting Room 3, Mezzanine Floor*	*Meeting Room 4, Mezzanine Floor*
15:00	Designing Mechanically Stabilised Earth (MSE) Walls **Prof Richard J. Bathurst, Royal Military College of Canada**	Workshop and Discussion – Review of Australian Landslide Risk Management Guidelines **Darren Paul, WSP** **Tony Miner, A.S. Miner Geotechnical**	Earthworks: Theory to Practice – Design and Construction **Burt Look, FSG Geotechnics and Foundations Specialists**
17:30	**Welcome Reception** *City Terrace, Ground Floor* ***Proudly sponsored by Wagstaff Piling***		
19:30	**End of Day 1**		

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MONDAY 3 JULY 2023					
07:30	**Registrations Open** *Ground Floor, Cairns Convention Centre*				
	Opening Ceremony and Keynote Presentation *Chairpersons: David Lacey and Richard Kelly* *Auditorium C, Ground Floor*				
08:15	**Opening Ceremony** Dr Richard Kelly, Conference Chair Dr Marc Ballouz, ISSMGE President				
09:30	**Learning from earthquakes and other natural hazards: Past, present, and future** Dr Ellen Rathje, University of Texas				
10:30	**Morning Tea and Exhibition** *Auditorium A & D, Ground Floor*				
	Keynote Presentations *Chairpersons: Darren Paul and Nina Levy* *Auditorium C, Ground Floor*				
11:00	**The use of the IAEG EGM Guidelines to anticipate engineering geological conditions for projects in Australia** Dr Fred Baynes, Baynes Geological Pty Ltd				
12:00	**Plate anchors for offshore floating renewable energy devices** Dr Shiaohuey Chow, University of Melbourne				
13:00	**Lunch and Exhibition** *Auditorium A & D, Ground Floor*				
	Slopes & Landslides	**Soft Soils**	**Numerical Solutions & Rail SSI**	**Expansive Soils SI Data, Exotic Sites**	**Monopiles, Piles on Rock, Piling Platforms**
	Chairperson: Eleni Gkeli	*Chairperson: Richard Kelly*	*Chairperson: Roland Orense*	*Chairperson: Stephen Fityus*	*Chairperson: David Lacey*
	Auditorium C, Ground Floor	*Meeting Room 1, Mezzanine Floor*	*Meeting Room 2, Mezzanine Floor*	*Meeting Room 3, Mezzanine Floor*	*Meeting Room 4 & 5, Mezzanine Floor*
14:00	96: Landslide risk assessment in Australia: Background, current practice and future developments **Mr Darren Paul (WSP)**	167: Material properties of the soft marine sediments of the Wellington Harbour **Mr Ioannis Antonopoulos (Stantec)**	231: The digital future of slope risk assessments **Mr Ian Thompson (Civil Geotechnical Consultants)**	126: Engineering correlations for the characterisation of expansive soil behaviour **Mr Peter Reynolds (Department of Transport and Main Roads)**	79: Large diameter monopile construction in varying ground conditions – A case study **Dr Shaohan Zhao (Keller Pty Ltd)**
14:15	299: Reliability analysis of steep slopes by the random finite element method **Prof D. V. Griffiths (Colorado School of Mines)**	345: Geotechnical design and monitoring of FPE seawall upgrade (second top-up), Port of Brisbane **Mr Jarreau Alinur (WSP)**	314: Automatic computation for design of excavation and lateral support system **Mr Andrew Koay (SMEC Australia Pty Ltd)**	5: Shrink swell index correlation - Does it matter which one you use? **Mr Alex Petty (Cardno, now Stantec)**	44: Laterally loaded rock socket design – a review of the p-y curve design approach **Mr Sarath Soamsundaram (AECOM)**
14:30	134: Kurloo: The GNSS-IoT solutions for continuous monitoring of slope stability applied to Froggy Beach "Gold Coast, Queensland" **Mr Lee Hellen (Monitum Pty Ltd)**	100: Geotechnical assessment of on-going embankment settlements at David Low Way Interchange, Sunshine Motorway **Mr Kam Chew (Department of Transport and Main Roads, Queensland)**	206: 2D and 3D finite element analysis for cast in-situ Concrete Injected Columns (CIC) **Mr Eric Lo (Mott MacDonald)**	355: Engineering geological characterisation of black soils **Mr Andy Doe (ARTC Inland Rail)**	104: The role of the down-hole camera for cast in-situ pile design and construction **Mr Stephen Tully (WSP)**

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14:45	357: A shared landslide database for New Zealand **Mr Ross Roberts (Auckland Council)**	193: Woolgoolga to Ballina Pacific Highway upgrade – Soft soil treatment design for Yamba Interchange **Mrs Kimberley Base (WSP)**	56: Collision loading analysis and soil-structure interaction **Mrs Elisabeth Simbolon (AECOM), Mr Ryan Davis (Jacobs)**	143: Accessibility and use of digital information in geotechnical desk studies, 'pros' and possible pitfalls **Mr Kenneth Read (Beca Limited)**	147: Behaviour of rock-socketed large diameter concrete piles up to geotechnical and structural failure under lateral loads **Dr Ruoshi Xu (BG&E)**
15:00		94: Soft clay characteristics after 40 years of ground treatment using preloading with wick drains and considerations for future design **Dr Wei He (Department of Transport and Main Roads)**	97: Surface settlement resulting from mine workings collapse: Finite element analysis of soil profile **Mr Jared Schweitzer (Douglas Partners)**	154: Leveraging geotechnical databases and 3D modelling to improve outcomes for land development projects **Mr Michael Webster (WSP)**	389: A comparison of theoretical and dynamic load testing results for driven steel pipe piles in weak rock **Mr Jason Fong (BGE-Resources Pty Ltd (formerly Aurecon Australasia Pty Ltd))**
15:15	161: Performance of cut and fill slopes in the 2016 Kaikōura earthquake **Mr Doug Mason (WSP)**	101: Geotechnical properties of amorphous peat in undisturbed state and in consolidated state **Mr Shan Tom Wong (WSP)**	66: Displacement of weak rock joints under railway loading using numerical modelling **Dr Rakesh Sai Malisetty (Transport Research Centre, University of Technology Sydney)**	33: Cyclic behaviour of an offshore carbonate silty sand **Dr Shambhu Sharma (NGI Perth)**	218: Designing a safe temporary working platform for the biggest crawler crane in the country **Mr Peter Chan (Douglas Partners)**
15:30	329: Assessing and managing slope risk in the Tairāwhiti East Coast Region, New Zealand **Ms Frances Neeson (Land Development and Engineering)**	53: New approach to predict rate of consolidation using stress history dependent coefficient of consolidation – A case study **Dr Bosco Poon (GHD Pty Ltd)**	181: Dynamic stress and displacement response of ballasted railway track capturing the effect of moving load using FE analysis **Mr Ameyu Temesgen Tucho (University of Technology Sydney)**	277: Soil properties of the East Australian Continental Margin **Prof David Airey (University of Sydney)**	68: The bearing capacity of a mechanically stabilised granular layer on weaker subgrade for working platforms **Dr Andrew Lees (Tensar International)**
15:45	127: A semi-analytical approach to Assessment of historical landslide from the existing landform **Dr Qijing Yang (Arcadis Australia Pacific Lty Ltd)**	78: Cause-and-effect of subsoil fluidization and preventive measures by geosynthetic drainage **Mr Joseph Arivalagan (University of Technology Sydney)**	366: A geotechnical numerical approach to assess transient vertical rail deflection **Mr Vincent Blanchet (WSP)**	239: Geotechnical investigation and characterisation of the Ridge site, Vestfold Hills East Antarctica **Mr Chris Coulson (AECOM), Mr Ian Ullah (AECOM)**	386: A Kinematic Element Method (KEM) and hybrid model for designing geogrid-reinforced working platforms and calculating settlements for tracked plants over cohesive subgrades **Mr Jorg Klompmaker (NAUE GmbH & Co. KG), Mr Amir Shahkolahi (Global Synthetics Pty Ltd)**
16:00	**Afternoon Tea and Exhibition** *Auditorium A & D, Ground Floor*				

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	ISSMGE HTC Education	Rock, Tailings, Laboratory Tests	Retaining Structures	Liquefaction, In Situ Testing	Piling Case Histories
		Chairperson: Stephen Tully	*Chairperson: Andrew Lochaden*	*Chairperson: Joanna Lea Petheram*	*Chairperson: Mark Jaksa*
	Auditorium C, Ground Floor	*Meeting Room 1, Mezzanine Floor*	*Meeting Room 2, Mezzanine Floor*	*Meeting Room 3, Mezzanine Floor*	*Meeting Room 4 & 5, Mezzanine Floor*
16:30	Opening Remarks **Mr Graham Scholey (WSP, VP ISSMGE Australasia)** Panel Members **Dr Negin Yousefpour (The University of Melbourne), Dr Jason Surjadinata (John Holland), Ms Xue Le (KELLER), Prof Liam Wotherspoon (The University of Auckland), Ms Eleni Gkeli (Stantec, NZGS Chair), Mr Christoph Kraus (Beca)** Session Advisors **Prof Rolando Orense (The University of Auckland), Mr Sukumar Pathmanandavel (Heritage Time Capsule Project Lead), Dr Hugo E Acosta-Martinez (BG&E Resources)** Closing Remarks **Prof David Airey (The University of Sydney)**	226: Characterisation of shear strength parameters of a heavily over-consolidated claystone **Mr Vasantha Wijeyakulasuriya (Tonkin+Taylor)**	325: METRONET Morley-Ellenbrook line dive structures design and construction **Ms Sarah Paull (WSP)**	186: Investigating microstructure, a soil characteristic that increases resistance against liquefaction **Mr Konstantinos Lontzetidis (CMW Geosciences)**	9: Design and construction of heavily loaded bored piles in pumiceous sands **Mr Philip Robins (Beca)**
16:45		244: The fundamentals of stress measurement in rock **Mr Ian Gray (Sigra Pty Ltd)**	171: Mechanically stabilised earthfill retaining wall design to provide the vertical expansion of a landfill **Mr Tristan Mcwilliam (WSP), Mr Loges Paramaguru (WSP)**	30: Anomalies in Field Vane Shear testing data **Dr Stephen Buttling (National Geotechnical Consultants)**	
17:00		321: On the analysis of triaxial test results: is the current practice correct? **A/Prof Giang Nguyen (University of Adelaide)**	50: A simple and effective way for embedment design of free cantilever walls **Dr Chi-Kuen Stanley Yuen (Transport for New South Wales)**	112: Dynamic Probing (DPSH) in site investigation: First principles to field applications **Dr John Smith (CMW Geosciences, RMIT University)**	163: Geotechnical response to unforeseen ground conditions for the Tōtara Haumaru Project, New Zealand **Ms Jennifer Lo (Aurecon)**
17:15		308: Comparison of results from 300 mm direct shear testing, with and without cap rotation **Dr Stephen Fityus**	128: Design considerations and 3D finite element modelling aspects for a deep circular shaft retention system **Mr Simon Pointon (SMEC Australia)**	35: CPT-based evaluation of relative density for reclaimed gravel-sand-silt mixtures **Dr Riwaj Dhakal (University of Canterbury)**	169: Geotechnical challenges of a deep excavation in a congested urban area: A case study from 8 Phillip Street, Paramatta, New South Wales **Mr Michael Egan (JK Geotechnics)**
17:30		122: CPT-based settlement predictions for coal tailings deposits **Dr Kai Koosmen (Pells Sullivan Meynink)**	13: Enhancement of a seawall to allow the use of an 850t capacity marine straddle lift **Mr Nick Wharmby (March Construction)**	367: Atypical observations of pore pressure dissipation tests using silicone oil **Mrs Jo-Anne Perrett (EDG)**	315: Pile foundation design in Northland Allochthon **Mr Kori Lentfer (CMW Geosciences)**
17:45		296: Influence of shear band on dry sand strength in ring shear test **Mr Congyang Yu (The University of Western Australia)**	86: Design and construction of contiguous pile wall at an existing soil nail wall slope founded on soils susceptible to liquefaction **Mr Raathiv Shanmuganathan (Tetra Tech Coffey Services NZ Ltd)**	234: Medusa DMT for automated dilatometer testing **Mr Allan McConnell (IGS)**	373: Underpinning of the inner Northern Busway - A case study **Mr David Cunliffe (EDG Consulting Pty Ltd)**
18:00	**Women in ANZ Geomechanics Sundowner** *City Terrace, Ground Floor*				
19:30	**End of Day 2**				

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TUESDAY 4 JULY 2023					
08:00	**Registrations Open** *Ground Floor, Cairns Convention Centre*				
	John Jaeger and NZGS Honour Lecture *Chairpersons: David Lacey and Eleni Gkeli* *Auditorium C, Ground Floor*				
08:30	**Geotechnical variability: In the ground and throughout a career** Prof Mark Jaksa, University of Adelaide				
09:30	**The question of risk** Ann Williams, Beca Ltd				
10:30	**Morning Tea and Exhibition** *Auditorium A & D, Ground Floor*				
	Keynote Presentation *Chairperson: Ann Williams* *Auditorium C, Ground Floor*				
11:00	**Implementing Performance Based Design to achieve seismic engineering solutions for foundations in sandy soils** Dr Merrick Taylor, Beca Ltd				
	Rockslopes, Landslides	**Seismic Highlights**	**Analytical Highlights**	**Rock Characterisation & SI**	**Piled Foundations**
	Chairperson: Darren Paul	*Chairperson: Ellen Rathje*	*Chairperson: Vincent Blanchet*	*Chairperson: Paul Hewitt*	*Chairperson: Daniel King*
	Auditorium C, Ground Floor	*Meeting Room 1, Mezzanine Floor*	*Meeting Room 2, Mezzanine Floor*	*Meeting Room 3, Mezzanine Floor*	*Meeting Room 4 & 5, Mezzanine Floor*
12:00	87: Managing slope instability risk in Blue Mountains National Park **Mr Zack Tuckey (MIEAust CPEng)**	57: Site-specific probabilistic seismic hazard analysis on Snowy 2.0 Pumped-Hydro Storage Project **Dr Ching Dai (Tetra Tech Coffey)**	390: Soil-structure interaction analysis during thrust fault rupture propagation using the Particle-Element coupled Method **Dr Takatoshi Kiriyama (Shimizu Corporation)**	26: Adjusted GSI for directional Hoek-Brown strength of jointed rock mass **Dr Norbert Baczynski (Prime Geotechnics Pty Ltd Brisbane Australia)**	240: Load capacity of Continuous Flight Auger piles in Quaternary age alluvium **Dr Andrew Lochaden (WSP)**
12:15	55: Good practice guidance - Rock scaling management **Mr Leon Gerrard (Heads Up Access Ltd)**	20: An alternative to the simple but expensive status quo – An overview of the benefits to adopting a performance-based design approach **Mr James Robinson (Tonkin & Taylor Ltd)**	249: Seismic performance assessment of rock-socketed pile foundation for network arch bridge **Mr Alex Park (Stantec)**	209: Application of Full-waveform Sonic (FWS) logging in geotechnical boreholes **Mr Gareth Hay (WSP)**	111: Resistance factor updated by static and dynamic load tests **Mr Yuting Zhang (The University of Newcastle)**
12:30	90: Challenges with ground anchor construction **Mr Greg Hackney (EDG Consulting Pty Ltd)**	362: Refining the seismic hazard risk: Sensitivity check of ground motion parameters for liquefaction assessment for large scale land development in Hamilton, New Zealand **Mr David Macpherson (CMW Geosciences)**	92: Ground characterisation, design and performance of pipe jacking in weathered basalt and adjacent to masonry building **Mr Bing Lee (WSP)**	252: The effect of geometric settings of multichannel analysis of surface waves (MASW) on the soil stratification results **Mr Jianlin Lu (University of Newcastle)**	106: Finite element modelling to predict the settlement of pile groups founded above compressible layers **Dr Richard Merifield (Douglas Partners Pty Ltd)**

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12:45	152: Collating southeast Australia's slope-failure casualties **Dr Nicholas Roberts (Mineral Resources Tasmania)**	269: Shear pile seismic load mobilisation rate due to liquefaction induced lateral spread **Dr Manuel Joao Niza Das Neves (WSP)**	89: A hydro-mechanical constitutive model for expansive soil considering wetting/drying cycles **Mr Miao Yu (Queensland University of Technology)**	162: Application of non-intrusive geophysical techniques in assessing a buried landfill cell **Mr Harrison Jones (WSP)**	214: Geotechnical challenges in the impact assessment of temporary works to bridge piles: A case study from Pacific Highway Upgrade (Lisarow) **Mr Firman Siahaan (GHD Pty Ltd)**
13:00	**Lunch and Exhibition** *Auditorium A & D, Ground Floor*				
	Ground Improvement Highlights / Poster Highlights	**Settlement, Expansive Soil, Novel Solutions**	**Subgrades, Pavements, Testing & Design**	**Climate Change - New Solutions**	**Dams, Slope Stabilisation**
	Chairperson: Amir Shahkolahi	*Chairperson: Stephen Buttling*	*Chairperson: Richard Merifield*	*Chairperson: Jon Gibbs*	*Chairperson: Michael Webster*
	Auditorium C, Ground Floor	*Meeting Room 1, Mezzanine Floor*	*Meeting Room 2, Mezzanine Floor*	*Meeting Room 3, Mezzanine Floor*	*Meeting Room 4 & 5, Mezzanine Floor*
14:00	170: Lattice cell cutter soil mixing - Testing advances for seismic applications in NZ **Mr Russell Denny (Wagstaff Piling), Mrs Nicola Ridgley (Beca NZ)**	289: Consolidation settlement of embankments over soft clay deposits due to cyclic loading **Mr Shashika Atapattu (University of Technology Sydney)**	129: Inland Rail, Parkes to Narromine, high speed heavy rail formation design **Mr Tony Gourlay (Jacobs)**	61: Using Sentinel-1 InSAR to monitor infrastructure-damaging urban landslides: Case study from Gisborne, New Zealand **A/Prof Martin Brook (University of Auckland)**	65: Design and construction of foundation strengthening works for Kununurra Diversion Dam, Western Australia **Mr Mark Orr (Advisian)**
14:15	236: Design and construction of Rammed Aggregate Piers for Te Kaha - Canterbury's new multi-use arena **Mr Hayden Bowen (Tonkin + Taylor)**	268: Comparison between coupled and uncoupled consolidation analyses in Bayesian back analysis of soft soil settlement **Miss Shan Huang (The University of Newcastle)**	47: Cairns, Smithfield Bypass Project: Site testing for alternative quality testing equipment **Dr Burt Look (FSG - Geotechnics and Foundations)**	291: Rockfall instability analysis of coastal cliffs: A case study along Susan Gilmore Beach (Newcastle, NSW) **Miss Abigail Watman (University of Newcastle NSW), Prof Anna Giacomini (University of Newcastle NSW)**	258: Large scale physical modelling of internal erosion in embankment dams **Miss Elizabeth Pumpa (The University of Queensland)**
14:30	278: Consolidation using vertical drains under surcharge and vacuum preloading – A case study from Ballina **Dr Pankaj Baral (WSP)**	275: Validating consolidation of Soft Soils using Acoustic S-wave analysis **Mr James O'Grady (Mainmark)**	176: Field performance of two unbound granular pavements treated in-situ with hydrophobic polymer **Mr Cameron Hopkins (University of South Australia)**	205: Geophysics methods for assessing coastal rock wall conditions and temporal changes associated with coastal erosion **Mr Romney Rayner (WSP)**	189: Assessing the internal instability susceptibility of soils by identifying soil microstructure **Ms Katharine Vincent (University of Auckland)**
14:45	326: Long term performance of installed wick drains at Port of Brisbane **Mrs Prisantha Dissanayake (SMEC Australia Pty Ltd)**	11: Modelling desiccation shrinkage and cracking of expansive soil using XFEM **Ms Grace Stapley (Queensland University of Technology)**	224: Performance assessment of recycled crushed glass/recycled crushed concrete blends as an unbound pavement material **Dr James Grenfell (Australian Road Research Board), Dr Javad Yaghoubi (Australian Road Research Board), Dr Behnam Ghorbani (Australian Road Research Board)**	320: Application of InSAR and big data analytics to assess potential impact of climate change on buildings and infrastructures over Auckland area **Mr Eric Audige (SIXENSE)**	136: Design of temporary retention system to facilitate widening works associated with M4 Smart Motorway **Dr Theva Muttuvel (SMEC Australia Pty Ltd)**

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15:00	**Poster Presentations Overview and Highlights** *Chairperson: Robert May*	85: The effect of lime on the behaviour of expansive soils from the Auckland region **Dr Kim De Graaf (University of Waikato)**	396: Utilization of secondary hydration of recycled aggregates in construction activities **Mr Alireza Mohammadinia (WSP US Inc.)**	213: Extreme weather changes and design implications to landslide remediation of roads **Dr Dominic Trani (AGS | SLR Consulting Pty Ltd)**	38: Remediation design for an unstable cut batter section of a major highway in NSW **Dr Sudar Aryal (Mott MacDonald)**
15:15			387: Full-scale field study on performance of geogrid reinforced/stabilised pavement on soft and expansive subgrade **Mr Amir Shahkolahi (Global Synthetics Pty Ltd)**	180: Seasonal Rainfall Factor (SRF) – An approach to predicting changes in rockfall frequency in response to short-term and long-term rainfall levels **Mr Nathan Steggles (WSP)**	319: Serviceability limit state design of gabion walls and the Gabion Serviceability Coefficient (GSC) concept **Mr Matteo Lelli (Maccaferri Malaysia), Mr Dale Chaychuk (Geofabrics Australasia Pty Ltd), Mr Gary Matthews (Geofabrics)**
15:30		19: Examining cyclic instability triggering mechanism of coal ash **Dr Baki Abdul (SMEC, CPEng, RPEQ)**	298: Risk, resilience and sustainability in earthworks design for transportation projects **Dr Bindumadhava Aery (Aurecon)**	7: Long-term geotechnical impacts of climate change on projects **Dr Chris Bridges (Aurecon Australasia Pty Ltd)**	91: A Review of ground anchor testing **Ms Stephanie Neller (EDG Consulting Pty Ltd)**
15:45		138: Design and construction of containment system for mercury contaminated site **Dr Saman Zargarbashi (WSP)**	372: Durability performance of waste to energy plant fly ash (WTEFA) stabilised expansive clay subgrades **Mr Abdul Zimar (RMIT University)**	302: The viability of a pumped hydro scheme utilising abandoned longwall mines **Dr Ross Seedsman (Byrnes Geotechnical Pty Ltd)**	
16:00	**Afternoon Tea and Exhibition** *Auditorium A & D, Ground Floor*				
	Ground Improvement Cases & Methods *Chairperson: Merrick Taylor* *Auditorium C, Ground Floor*	**Digital Applications & Numerical Solutions** *Chairperson: Manuel Neves* *Meeting Room 1, Mezzanine Floor*	**Mining Geotechnics** *Chairperson: Sarah Paull* *Meeting Room 2, Mezzanine Floor*	**Site Characterisation & Exotic Applications** *Chairperson: Tariq Rahiman* *Meeting Room 3, Mezzanine Floor*	**Piled Foundations** *Chairperson: Philip Robins* *Meeting Room 4 & 5, Mezzanine Floor*
16:30	281: Performance of Tonkin Gap Swan River approach embankment widening during and post construction **Mr Matthieu Tri Duong (WSP)**	222: Time effects on the capacity of driven tubular steel piles for the duplication of the Joy Baluch AM Bridge **Dr Minh-Ha Pham (Aurecon, AGS), Dr Hugo Acosta Martinez (BG&E Resources)**	323: Geotechnical data management for large scale projects and digital data governance **Mr Mathew Sams (ARTC - Inland Rail)**	270: Ground characterisation for Sydney's Western Harbour Tunnel and Beaches Link **Mr Paul Hewitt (WSP)**	36: Construction difficulties and mitigation strategies for a levee on a mine site in Central Queensland **Dr Pramod Thakur (Construction Sciences), Dr Mohammad Shahriar (Construction Sciences), Mr Jonathon Chappell (Construction Sciences)**
16:45	327: The performance of ground improvement works due to short wick drains at Port of Brisbane **Ms Tiasha De Silva (SMEC Australia Pty Ltd)**	233: Potential factors causing the movement of a newly constructed bridge **Mr Kim Chan (GHD Pty Ltd)**	370: Development of AGS 4.1 AU Format for ground data transfer in Australia **Mr Philip Wade (Datgel)**	293: Geotechnical investigations for Ministry of Educations sites: The advantages of undertaking site wide investigations at the Master Planning Stage **Mrs Joanna Lea Petheram (Beca Ltd)**	23: Characterisation of mine tailings from an Australian mine for potential hydraulic backfilling of underground mine stopes **Mr Prabhath Thanayamwatte (James Cook University), Mr Seneth Jayakodi (James Cook University)**

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17:00	99: Rigid inclusion installation effects and its control measures **Mr Andi Lesmana (WSP), Mrs Melisa Brown (WSP)**	285: Modelling as built bored pile performance based on construction methodology **Mr Chris Hewitt (Brian Perry Civil)**	120: Catalysts and inhibitors of digital opportunity in the Australian geotechnical industry **Mr Tim Swavley (Macquarie Geotechnical)**	256: Developing richer [interpretive] engineering geological models through a data centric approach to site investigation **Mr Ian Shipway (EDG Consulting)**	190: Characterisation of silty tailings using reconstituted samples in a critical state soil mechanics framework **Mrs Nishadi Nayanthara Pahalage (Queensland University of Technology)**
17:15	108: Optimised ground treatment of waste fill for road embankments **Dr Ardie Purwodihardjo (WSP), Mrs Melisa Brown (WSP)**	80: Geotechnical design of solar farm pile foundations **Mr Joseph Mccormick (Jacobs, ICE)**	82: Accuracy of porosity calculation algorithms and the influence on CFD-DEM simulation results **Ms Yingyi Zhang (The University of Queensland)**	133: Density, strength and compressibility characteristics of lunar regolith simulant **Mr Akshay Agarwal (The University of Adelaide)**	230: Field measured water balance data from an instrumented unsaturated monolithic cover **Mr Ahmet Aksoy (Monash University)**
17:30	72: Subgrade soil fluidisation: Causes of internal instability and preventive measures **Prof Buddhima Indraratna (University of Technology Sydney)**	220: Field tests on laterally loaded Starfin Screw piles in sand **Dr Hongyu Qin (Flinders University)**	248: Semi-analytical models to compute local permeability using spatial TDR **Mr V. S. Ramakrishna Annapareddy (The University of Queensland)**		121: Prediction of blast induced air-overpressure using a hybrid ANN-RF-SVM model **Mr Ruixuan Zhang (Queensland University of Technology)**
17:45	332: Soft soil consolidation and shear strength development from a slurry to a soil state **Mrs Katayoon Tehrani (ATC Williams)**	335: Waiāri Water Supply Project – Design and construction challenges **Mr Harry Wahab (Beca Ltd)**	109: Physical scaling in heat and mass transfer problems **Dr Asal Bidarmaghz (UNSW)**	284: Ground vibrations caused by demolition felling of heavy structures **Mr Su Tan (WSP)**	334: The first establishment of advanced geomechanics study contract in Pertamina **Mr Anas Hanafiah (PT. Pertamina EP)**
19:00	**Conference Dinner** *Pullman Cairns International - 17 Abbott Street, Cairns City QLD 4870*				
23:00	**End of Day 3**				

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WEDNESDAY 5 JULY 2023					
08:00	**Registrations Open** *Ground Floor, Cairns Convention Centre*				
	Keynote Presentations *Chairpersons: Britta Bienen and Robert May* *Auditorium C, Ground Floor*				
08:30	**Rockfall monitoring and mitigation measures design for the civil and resource sectors** Prof Anna Giacomini, University of Newcastle				
09:30	**Risk assessment of ground movement rebound effects associated with Hazelwood mine closure and mine pit flooding** Dr Daniel King, WSP				
10:30	**Morning Tea and Exhibition** *Auditorium A & D, Ground Floor*				
	Ground Improvement, Case Histories & Methods	**Energy Geotechnics - Offshore & Onshore**	**Sustainable Solutions in Ground Engineering**	**Tunnels & Underground Structures**	**Stockpiles, Dumps & Walls**
	Chairperson: Burt Look	*Chairperson: Shiaohuey Chow*	*Chairperson: Alireza Mohammadinia*	*Chairperson: Ardi Purwodihardjo*	*Chairperson: Chris Haberfield*
	Auditorium C, Ground Floor	*Meeting Room 1, Mezzanine Floor*	*Meeting Room 2, Mezzanine Floor*	*Meeting Room 3, Mezzanine Floor*	*Meeting Room 4 & 5, Mezzanine Floor*
11:00	22: Ground improvement for large diameter bitumen tank on soft clay deposits using rigid inclusions – Design approach, finite element modelling and impact on adjacent structures **Dr Ravi Salimath (Aurecon)**	123: Alternatives to impact-driven monopiles **Prof Britta Bienen (University of Western Australia)**	340: Sustainable re-use of conventionally unsuitable material in the construction of Moorebank Intermodal Precinct **Mr Ken Chen (WSP)**	346: Observation-informed machine learning models for real-time building, utilities, and rail damage assessments during Earth Pressure Balance (epb) shield TBM tunnelling **Dr Hao Shen (Tetra Tech Coffey)**	64: Stability and the associated risks of the non-geo material dumps and stockpiles **Dr Arshdeep Kaur (Aurecon)**
11:15	117: Innovative resin injection ground improvement to build up resilience of existing water treatment plant **Dr Alexei Murashev (WSP - New Zealand)**	287: Response of pile and strength degradation of weakly cemented soils under cyclic loading **Mr Bhavikh Riyat (WSP)**	305: New considerations in geogrid designs **Dr Ellen Rathje (University of Texas)**	12: Sydney Metro Martin Place Station South Shaft: Back-analysis case study of ground displacements adjacent to existing railway tunnels **Mr Ke He (PSM)**	76: Geotechnical evaluation of leach pad design for Aktogay Copper Mine, Kazakhstan **Dr Alison McQuillan (Rocscience Australia)**
11:30	255: Ground improvement of soft clays using mass soil mixing for retaining wall construction **Mr Yousef Ansari (WSP)**	229: Geotechnical design and construction of Turitea Wind Farm **Mr Prasad Rayudu (WSP - New Zealand)**	49: Assessment of initial compaction characteristics of Rubber Intermixed Ballast and their influence **Ms Chathuri M.k. Arachchige (University of Technology Sydney)**	45: The design and construction of two micro-tunnels under a state highway: A case study from the Northern Interceptor and North Harbour 2 Watermain projects **Mr Christoph Kraus (Beca Ltd)**	102: Geotechnical safety in industrial waste dumps and stockpiles **Mr Eugene Lim (Aurecon Australasia Pty Ltd, Engineers Australia, Institution of Civil Engineers), Mr Sanket Patel (Worley)**
11:45	199: The 4-sided impact roller – guidance for practitioners **Dr Brendan Scott (The University of Adelaide)**	237: Wind turbine tower resonance control with a consideration of dynamic behaviour of footing – A numerical approach **Dr Rui Zhong (WSP)**	313: Cyclic loading response of granular waste materials mixed with recycled rubber crumbs as an alternative construction fill for rail substructure **Dr Yujie Qi (University of Technology Sydney)**	51: Forrestfield Airport Link - Reinstatement of damaged section of tunnel at cross-passage 12 **Mr Andrew Campbell (Mott MacDonald)**	385: Surficial slope stability and erosion control with Anchor Reinforced Vegetation System (ARVS) **Mr Drew Drew Loizeaux (Propex/Solmax United States), Mr Amir Shahkolahi (Global Synthetics Australia)**

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WEDNESDAY 5 JULY 2023					
12:00	83: Quantifying the effectiveness of Rolling Dynamic Compaction using FEM-SPH coupling method **Dr Yue Chen (The University of New South Wales)**	95: Pile driving trials for solar farms in Australia **Mr Sean Goodall (Douglas Partners Pty Ltd)**		339: Rock support design of the San Gaban II hydroelectric powerhouse using back analysis of stress state and wedge analysis **Dr Gonzalo Carnero (WSP)**	365: Design of retention system for rail trench between sensitive wetlands and coastline **Dr Suthagaran Visvalingam (WSP)**
12:15	191: Use of geosynthetic to improve the bearing capacity of working platform constructed on soft subgrade **Dr Shiran Jayakody (Queensland University of Technology)**	261: Climate change challenges for the geotechnical design of solar farms **Dr David Zhang (Aurecon)**	165: Blends of recycled aggregates for backfilling excavated pipeline trenches in trafficable areas: An experimental and numerical study **Dr Ehsan Yaghoubi (College of Engineering and Science, Victoria University)**	63: Generalised and automated prediction of pipe damage due to excavation-induced ground movement **Dr Michael Crisp (Mott MacDonald)**	342: Design of reinforced soil retaining walls to AS4678 – 20 years on **Mr John Buckley (Tensar International Limited)**
12:30	40: Microscopic observation of the inter-particle bonding behavior of xanthan gum biopolymer hydrogel-treated granular particles **Ms Sojeong Lee (University of New South Wales, Canberra)**	263: Thermal performance of energy tunnels: The impact of groundwater and tunnel airflow **Mr Xiangdong Dai (The University of Melbourne)**	105: Effect of clogging on the longevity of permeable reactive barriers installed in acid sulfate soils **Dr Subhani Medawela (University of Technology Sydney)**	177: The effect of particle shape on the evolutions of micro-mechanical quantities during tunnelling **Prof Md Mizanur Rahman (University of South Australia), Mr Yang Cao (University of South Australia)**	164: Consideration of compaction pressures for retaining wall design in a New Zealand context **Mr Ryan Reed (NZGS)**
12:45	131: Mechanical properties of bio-stabilised expansive soil by using Australian weed-based enzymes **Mr Man Tran (University of South Australia), Prof Md Mizanur Rahman (University of South Australia)**	172: Analysing the integrity of existing wellbore cement sheath for underground hydrogen storage **Mr Amirthan Thirukumaran (The University of Melbourne, Future Fuels CRC)**	114: Ground Improvement through Dynamic Compaction **Miss Natasha Jokhan (Brian Perry Civil)**	210: Discrepancy between predicted and observed groundwater inflows and associated drawdown as a result of drained tunnel construction **Dr Katarina David (TfNSW)**	107: Hydro static pressure and load factors in retaining wall design - A review of provisions in Australian Standards in comparison with Eurocodes **Dr Sujatha Manoj (Beca)**
13:00	**Lunch and Exhibition** *Auditorium A & D, Ground Floor*				
	Scott Sloan Memorial Session, Part 1 *Chairperson: George Kouretsis* *Auditorium C, Ground Floor*				
14:00	**Centre of Geotechnical Science and Engineering 2019-2023** Prof Anna Giacomini, University of Newcastle **Shear band widths in strain-softening and rate-dependent material** Prof Mark Randolph, The University of Western Australia **Leakage of pipeline joints resulting from ground movements – investigations of demand, resistance, and rehabilitation** Prof Ian Moore, Queen's University, Canada **What is a factor of safety?** Prof Vaughan Griffiths, Colorado School of Mines, USA				
15:30	**Afternoon Tea and Exhibition** *Auditorium A & D, Ground Floor*				

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	WEDNESDAY 5 JULY 2023
	Scott Sloan Memorial Session, Part 2 *Chairperson: George Kouretsis* *Auditorium C, Ground Floor*
16:00	**Reflections on the cavity expansion problem and its geotechnical applications** Prof John Carter, The University of Newcastle **Use of recycled rubber and granular waste for sustainable transport infrastructure** Prof Buddhima Indraratna, University of Technology Sydney **Error measure and automatic step size control – From stress integration and time stepping to unsaturated soils** Prof Daichao Sheng, University of Technology Sydney **Tall building foundations - Design and risk mitigation** Prof Harry Poulos, Tetra Tech Coffey ***Proudly sponsored by Tetra Tech Coffey***
	Closing Ceremony *Auditorium C, Ground Floor*
17:30	**Closing Remarks** Dr Richard Kelly, Conference Chair Ms Eleni Gkeli, NZGS Chair
18:00	**End of Conference**

DIGITAL POSTERS		
6	**Management of geotechnical teams on large scale infrastructure projects**	Dr Chris Bridges
14	**Numerical Investigation on the Performance of Timber Pole Raft Foundation on Soft Soil**	Prof Rolando Orense, Mr Jack Cuthbert & Mr Ben Telford
15	**Assessment of Slurry Trench Stability**	Mr Thayalan Nall, Dr Theva Muttuvel & Mr William Eom
16	**Rail induced ground vibrations and potential liquefaction of rail embankment foundation**	Mr Thayalan Nall & Prof Harry Poulos
17	**Instrumentation and monitoring as a tool in tunnel and underground design and analysis including excavation sequence planning**	Mr Debasis Barman
29	**Analysis of foundation settlement interaction among multiple high-rise buildings**	Ms Helen Chow & Prof Harry Poulos
32	**Three-dimensional bearing capacity of footings on sand over clay**	Mr Sean Goodall & Dr Richard Merifield
46	**Risks associated with retaining walls on compressible clay**	Dr Burt Look & Mr Roozbeh Mirjalili
48	**Earthworks testing and the density Illusion**	Dr Burt Look
52	**Bespoke Design and Construct of a Reinforced Soil Bridge Abutment Interfacing with Existing Watermain over Soft Soil**	Dr bosco poon, Mr Kim Chan & Mr Firman Siahaan
60	**Different approaches for predicting ground settlements improved by rigid inclusions**	Dr Farbod Yarmohammadi, Mr Kostas Lontzetidis & Mr Ondrej Synac
62	**The effect of gamma irradiation on geotechnical characteristics of an onshore clay**	Dr Vikram Singh & Prof Phillip Watson
67	**Benefit of mechanically stabilised pavements over expansive subgrade**	Dr Abid Ali, Dr Andrew Lees & Mr John Buckley
84	**Ground improvement using mass soil mixing for viaduct subgrade improvement in a rail corridor**	Mr Samuel Wong, Dr Eric Chong & Mr Cliff Taylor
88	**Integrated Discrete Fracture Network Modelling and Discontinuum Stability Analysis for Assessment and Design of Deep Mine Shaft Projects**	Mr Ivan Haryono, Mr Peter Booth & Mrs Kimberley Base
146	**Review of recommendations for pavement construction on expansive soil in Australia**	Prof Md Mizanur Rahman, Mr Sagun Shrestha, Dr Md Rajibul Karim & Dr Khoi Nguyen
148	**Assessment of an Anchored Sheet Pile Wall Collapse**	Mr Kim Chan & Prof Ashok Peiris
158	**Design and Construction of Temporary Deep Excavation Support for a Replacement Sewage Pumping Station at Northmead, NSW**	Dr Vipman Tandjiria & Mr Timothy Steward
179	**Effects of initial moisture content and dry density on shrink-swell reactivity index**	Mr Nicholas Alexander, Dr Tharindu Abeykoon, Mr Adrian Coliier & Dr Richard Kelly
194	**Laboratory study of the effect of synthesised ground water on the strength of brown coal in the Latrobe Valley**	Mr Abolfazl Baghbani, Dr Javad Yaghoubi & Prof Thomas Baumgartl

DIGITAL POSTERS

215	**Marine Geophysical Survey for Optimising a HV Cable Route**	Dr Tariq Rahiman
216	**Simulating the mechanical behaviour of root-reinforced soil during pull-out**	Mr Jiale Zhu & Dr Guien Miao
235	**Determining the Hydraulic Conductivity of Peat Ground for Deformation Analysis**	Dr Hirochika Hayashi
242	**The Fundamentals of Permeability Testing**	Mr Ian Gray
243	**The Fundamentals of Piezometer Installation**	Mr Ian Gray
254	**Prediction of the one-dimensional heave of soil covering a wide range of soil expansivity and initial condition**	Dr Heba Elsaidy & Dr W. M. Yan
257	**Pull-out test of two native Australian species of trees in unsaturated soil**	Mr Jiale Zhu, Prof Abbas El-Zein & Dr Guien Miao
259	**Microscopic understanding of swelling mechanism of cement-stabilized expansive soil with different interlayer cations**	Dr Jiapei Du & A/Prof Annan Zhou
265	**Large Deformation Analysis of Geomechanical Problems Using a Particle Node-based Smoothed Point Interpolation Method**	Dr Arman Khoshghalb & Mr Ashkan Shafee
276	**Improving thermal performance of energy screw piles with phase change materials: Numerical study**	Dr Fei Wenbin, Prof Guillermo Narsilio & Mr Luis Bandeira Neto
279	**An application of a data-driven method for calculating the settlement of embankments on soft soils**	Mr Xiao Wan, A/Prof James Doherty, Mr Klass Siderius & Prof Fraser Bransby
282	**Use of a graphene-coated geotextile for pavement applications**	Mrs Harini Senadheera, Prof Abdelmalek Bouazza & Prof Jayantha Kodikara
286	**Dynamic properties of recycled concrete aggregate modified with recycled glass and crumb rubber**	Dr Mohammad Saberian Boroujeni & Prof Jie Li
304	**Characterisation of longwall mining goaf**	Dr Stephen Fityus & A/Prof Klaus Thoeni
307	**Practical limits on water uptake in coal mine spoil**	Dr Stephen Fityus & Prof John Simmons
309	**The significance of mixing ratio on the behaviour of MPR materials**	Dr Stephen Fityus & Mr Ryan Haywood
316	**A guide to current practice in the Design and Construction of Shotcrete Retaining Walls**	Mr Manjesh Narayana, Mr Robert Kingsland, Mr David Coles & Mr Nirmal Shrestha
317	**Design of flexible rockfall barriers in accordance with UNI 11211-4: 2018**	Mr Matteo Lelli , Mr Dale Chaychuk, Mr Gary Matthews & Mr Luca Gobbin
318	**A design method for soil nailing with a flexible facing**	Mr Matteo Lelli, Mr Dale Chaychuk, Mr Gary Matthews & Mr Luca Gobbin
322	**Benefits of adopting IAEG C25 guidelines to the ongoing maintenance of a digital 3D ground model for a major linear infrastructure project**	Dr Bari Thomas & Ms Adelaide Fielden

DIGITAL POSTERS		
338	**Encountering misunderstandings in the design and construction of earth-retaining structures**	Dr Chris Bridges & Mr Andy Law
343	**Geotechnical Investigation and Analysis of a Coal Ash Repository Site in NSW**	Ms Karen Allan & Mr Renato Tassara
348	**Load-Displacement Prediction of Pre-stressed Ground Anchors: an ICA-MARS Approach**	Dr Hao Shen & Dr William She
361	**Behaviour of a railway embankment and underlying unsaturated expansive clay foundation under repeated wetting-drying cycles**	Ms Ximing Lei & Prof David Williams
379	**Compaction trial on lunar regolith simulant**	Dr Brendan Scott, Dr Yien Lik Kuo & Prof Mark Jaksa
388	**Resilient High Performance Armouring System for Flood Protection Levees**	Mr Amir Shahkolahi & Mr Drew Loizeaux