
SECTOR BROCHURE

Sports & Entertainment Stadia

Optus Stadium — Perth, WA, Australia.



**BG
&E**
Part of SYSTRA

BG&E is an international civil and structural engineering consultancy recognised for delivering **innovative, award-winning designs** that prioritise practicality and constructability.

With a team of more than 800 people across 16 offices — spanning Australia, New Zealand, South East Asia, the United Kingdom, and the Middle East — we deliver the highest standard of service across our disciplines.

Clients consistently return to us for our responsiveness and proven ability to provide tailored solutions on complex and challenging projects. This is reflected through industry recognition, client commendations, and numerous awards.

In 2025, BG&E joined forces with SYSTRA, a global leader in public transport and mobility engineering. This partnership expands our technical capability, strengthens our international networks, and support long-term growth across major infrastructure markets and the complex buildings sector.

*State Football Centre —
Queens Park, WA, Australia.*





Sydney Football Stadium —
Sydney, NSW, Australia.

Venues & Stadia

In recent decades, public expectations for sporting venues and stadia have increased dramatically, with design considerations now emphasising heightened levels of comfort, amenities, facilities, and accessibility to meet evolving demands.

In addition, owners of sporting and entertainment venues are seeking to develop iconic facilities that are memorable, functional, and value for money. An integral aspect of major stadia is the need for efficient and seamlessly integrated transport to and from the venue.

BG&E brings a local and global skill set, a passion for unique and innovative structures, and decades of experience to every project. We work with architects, clients, councils, and developers to create iconic and affordable structures that prioritise building performance.

All venues, from Olympic stadiums to local playing fields, have the potential to enhance the lives of the community — cultivating a collective sense of identity and pride, boosting the health and vitality of neighbourhoods, and fostering human connection.

Venues and stadia go beyond positive social impact — they are city-shaping infrastructure with the power to light up a skyline, put a region on the map, and drive economic growth through job creation, tourism, and investment.

BRIDGES

BG&E is a leader in complex bridge design and works closely with our clients and stakeholders to create often award-winning solutions. Our expertise covers planning, feasibility studies, conceptual, schematic and detailed design, construction documentation, and on-site support. We offer a range of sophisticated solutions, from balanced cantilever, segmental, incrementally launched and cable-stayed designs to shared path bridges and precast modular components, in-situ, and prefabricated options — all with a strong focus on constructability and durability.

CIVIL ENGINEERING

BG&E has over half a century of experience delivering civil engineering projects of varying scale — from highways and rail lines and local roads to urban civil and public domain. Our expertise combines technical know-how and efficient resource utilisation to deliver sustainable, optimal outcomes.

CONSTRUCTION ENGINEERING (TEMPORARY WORKS)

Our team keep pace with industry standards and safety regulations, as projects increase in complexity and scale. We deliver temporary and permanent works, construction methodology development, façade restraint, load rating and capacity assessments, construction support, heavy lifting of oversized precast structures, temporary works associated with jacking building transfer decks, and strengthening existing structures for construction loadings.

FAÇADES

Globally recognised for our innovative façade solutions, our consultants provide pioneering façade design, architectural detailing and engineering, thermal performance, materials science, remediation, and recladding solutions. Our structural engineers, building physicists and designers collaborate to realise the architect's vision with optimal outcomes for owners, constructors, occupants, visitors, and tenants alike.



*McDonald Jones Stadium —
Newcastle, NSW, Australia.*



*Moore Park Stadium —
Sydney, NSW, Australia.*



DIGITAL ENGINEERING

BG&E is a leader in digital engineering in the construction industry, and we have consistently advanced our systems and workflows, earning a reputation for excellence. In 2021, BG&E attained ISO19650 certification, a recognition that underscores our adherence to the highest standards in information management for built assets.

Our approach to digital engineering is three-fold:

- Linking the design, analysis and documentation to streamline the workflow to increase the accuracy of the outputs and enable parametric design and real-time optimisation of the structure.
- Maximise use of off-site fabrication of structural elements to reduce time on site and increase quality of construction.
- Virtual construction, whether this is modelling the overall construction sequence or sequencing of complex connection details, our team will develop visualisations accessible through QR codes embedded within the drawings.



FLOODING & HYDROLOGY

Our team of water engineers deliver a range of services that meet clients needs, working across surface water and hydrological investigations, flood modelling and floodplain risk management, integrated water management and waterway structure and design.



GEOTECHNICAL

We hold various accreditations for geotechnical design and adhere to ISO9001 quality assurance standards. Our geotechnical services include desk studies, investigation scoping, site formation, slope and foundation design and deep excavation. Highly skilled in soil-structure interactions, utility impact assessment and government liaison, our work is verified through regular external audits. Key capabilities related to stadium design include design, interpretation, modelling, and specification.



MATERIALS & DURABILITY

BG&E is at the forefront of concrete advancements. With links to University academia, our materials team provides materials selection, specification and optimisation, durability design, design and specification conformance, constructability staging, asset inspection and remaining life assessments. We also offer defect and dilapidation remediation strategies, non-destructive and destructive materials testing, conflict resolution and support related to construction law.



RAIL

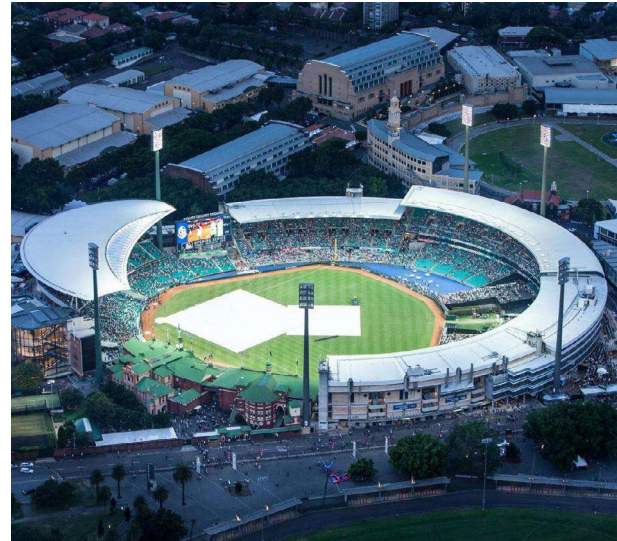
Our Rail team is a leading provider of comprehensive rail and rail infrastructure design services, tailored to meet the unique requirements of different sectors and geographies. Our reputation for delivering efficient, cost-effective solutions is a testament to the strength of our team — comprised of individuals selected for their ability to develop fit-for-purpose solutions and their solid commitment to client satisfaction, our people and company culture is the driving force behind our engineering excellence.



STRUCTURAL ENGINEERING

BG&E is one of Australia's leading structural engineers and has delivered iconic, award-winning projects across the globe — particularly in Australia and the Middle East. We are one of the few structural engineering consultancies that operate across all market sectors.

Drawing upon our extensive expertise, BG&E deliver our clients' visions for a project by working collaboratively with architects and stakeholders. We have a focus on providing constructable structures — which we achieve by simplifying designs and embracing innovative approaches.



Sydney Cricket Ground —
Sydney, NSW, Australia.



*Al Bayt Stadium —
Al Khor City, Qatar.*



*Al Rayyan Sports Club Stadium —
Doha, Qatar.*

SUSTAINABILITY

The biggest contributor to a sustainable project is good design. BG&E's Sustainability team supports our clients in achieving project sustainability objectives by adopting a holistic approach with a pre-determined strategy — usually whole of life or circular economy. We believe a structure or project should be considered, rather than a material or an element of the project.

TIMBER

In partnership with Timber Design Studio, BG&E provides sustainable timber design solutions. The partnership leverages BG&E's established presence and reputation for engineering excellence with Timber Design Studios long history in mass timber construction and design of innovative structural solutions and materials science expertise that is not found outside Europe.

TRAFFIC ENGINEERING & TRANSPORT PLANNING

We provide advisory, planning, design, and engineering services to the public and private sectors. Traffic issues and transport planning are fundamental to the efficient access to and from major sporting venues.

Harnessing our experience, mobility data, and modelling platforms — we provide a comprehensive range of services to achieve the best outcome for our client and the community with user experience and sustainability our key considerations.

WATER INFRASTRUCTURE

BG&E has recently contributed to some of Australia's largest water infrastructure projects. Through our involvement, we have further developed efficient and effective design practices that reduce Capital Expenditures (CapEX) spend and ensure timely delivery.

Our experience extends from planning to commissioning across a spectrum of projects — including designing new facilities, modernising, and rehabilitating existing structures, or extending networks.

The SYSTRA Group — a global engineering and consultancy leader with 11,000 people worldwide — is now strengthened by BG&E’s international buildings capability, complementing SYSTRA’s long-established expertise in transport and mobility infrastructure.

Building on BG&E’s reputation as a leading structural engineering practice delivering iconic, award-winning projects, the Group provides building solutions across complex and commercial developments, healthcare, education, data centres, adaptive reuse, and transport-related facilities worldwide.