

SECTOR BROCHURE

Minerals & Resources

OPPORTUNITIES
THROUGH
EXCELLENCE

bgeeng.com

BG
&E

Introduction

BG&E is an internationally renowned civil and structural engineering consultancy celebrated for its innovative, cost-effective, and fit-for-purpose designs.

With a dynamic team of over 700 people spanning 15 offices worldwide - including Australia, New Zealand, South East Asia, the United Kingdom and Middle East - we unite local and international professionals to deliver practical solutions with a strong focus on constructability.

Our clients consistently return to us, attesting to our exceptional service, responsiveness, and track record for delivering tailored solutions for technically challenging projects. The quantity and scope of engineering awards we've received acknowledge our diverse industry contributions and the exceptional quality of the services we deliver across a host of regions, disciplines, and sectors.



Resources

BG&E is a leading engineering consultancy with over 50 years of experience providing services to the resources sector. Operating nationally with offices across both the east and west coasts of Australia, we have a strong presence in the Pilbara and northwest WA, as well as in QLD, NSW, VIC, and SA.

Our specialist services include planning and designing transport infrastructure supporting mine-to-port transportation and site facilities, including mine access roads, haul roads, camps and accommodation, and industrial buildings. We focus on constructability, compliance with safety and regulatory standards, and ensuring optimal operational performance.

We have a deep understanding of key drivers that ensure project success and support ongoing operations with minimal impacts. We guide our clients through every stage of the project lifecycle, from exploration and conceptual design to feasibility studies, detailed design, approvals, construction support, operations, and finally, rehabilitation and closure.

*White Quartz Road –
Pilbara, WA, Australia.*



Australia's resources, industry and energy market continue to drive infrastructure demand - balancing steady growth with evolving regulatory requirements and shifting market needs.

As the demand for energy rises, the sector must not only maintain a secure and reliable power supply - but also deliver new and expanded facilities, transport networks, and supporting infrastructure.

This transition must be achieved within the framework of decarbonisation, ESG commitments, and greenhouse gas emission reduction targets - environmental factors that are reshaping project pipelines and delivery methodologies.

*Extreme Heavy Vehicle Movements -
Burrup Region, WA, Australia.*



Multi-Disciplinary Expertise



Bridge



Civil Engineering



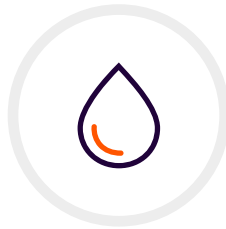
Rail



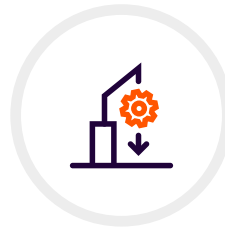
Structural
Engineering



Flooding &
Hydrology



Water
Infrastructure



Construction
Engineering



Digital Engineering
(inc. BIM & GIS)



Geotechnical



Materials &
Durability



Sustainability



*Abrolhos Overpass -
Pilbara, WA, Australia.*



BRIDGE

For over five decades, BG&E has been a leader in bridge design, introducing the incremental launched bridge methodology to Australia and continuing to lead in the design of both simple and complex bridges.

We have extensive experience with heavy haul rail bridges - covering inspection, maintenance, repair, and retrofitting. Our expertise also spans steel, concrete, and composite bridges. We've designed arch structures for haul roads, road bridges over railways and haul roads, and specialise in designing large culverts, including steel plate segmental culverts.



CIVIL ENGINEERING

Our civil engineering expertise includes the design of both sealed and unsealed regional roads, access tracks, and haul roads, as well as large-scale earthworks for ROM and other pads. We have experience in land development to support the development of large industrial buildings, airfields, and mine camp facilities.

We have a strong track record in value engineering to deliver fit-for-purpose designs that meet flooding serviceability requirements and ensure safe, operational road environments.



RAIL

Our rail team delivers design services for heavy haul, freight, passenger, and mining rail systems, as well as rail infrastructure, including maintenance facilities, intermodal terminals, and yards. We have extensive experience in increasing capacity through duplication, passing loops, and grade separation.

With a proven track record, we have successfully collaborated with rail operators, transport authorities, infrastructure developers, and engineering, procurement and construction contractors to deliver innovative, cost-effective design solutions that ensure efficient, safe, and sustainable rail networks.



STRUCTURAL ENGINEERING

BG&E is one of Australia's leading structural engineers, with extensive experience in designing large industrial buildings and bespoke structures to support NPI and PI. Our capabilities include the design of large bulk earth retaining structures, walls, and ROM walls, as well as large liquid containment structures such as LNG cryogenic tanks.

We have also undertaken structural design for car dumper facilities and other load-out operations. Additionally, we conduct inspections of existing infrastructure and design improvements, including building tie-downs to meet cyclonic loading requirements.



FLOOD MANAGEMENT & HYDROLOGY

We believe that understanding flood risks is key to delivering positive outcomes. Taking a holistic approach, our team of water engineers, flood modellers and hydrologists ensures the delivery of resilient, effective, and practicable infrastructure design. Our services encompass surface water and hydrologic investigations, flood modelling and floodplain risk management, integrated water management, and waterway structure and design.



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 expenditure 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, and extending networks.

*Marandoo Mine & Hope Downs 4 Iron Ore Mine (Rio Tinto),
Primary Crusher Upgrades - Pilbara, WA, Australia.*





*Boddington Gold Mine, Conveyor Trestle Foundations -
Boddington, WA, Australia.*



CONSTRUCTION ENGINEERING (TEMPORARY WORKS)

Mining and infrastructure projects present unique construction challenges. We have extensive experience handling these complexities, from assessing and supervising extreme heavy movements to executing complex, heavy lifts.

We keep pace with industry standards, safety regulations, and best practice products and methods to ensure our clients deliver their projects on time and within budget. We design structural and civil temporary works solutions and sequencing advice to support our clients' construction methodologies.



DIGITAL ENGINEERING

BG&E, a leader in digital engineering, has earned a reputation for excellence by consistently advancing systems and workflows. Our ISO19650 certification underscores our commitment to the highest standards in information management for built assets. We simplify the complex by streamlining workflows through integrated design, analysis, and documentation, and employ enhanced collaboration through the effective use of GIS, visualisations, and animations.



GEOTECHNICAL

Our team has extensive experience in designing road and airfield pavements, as well as paved hardstands for storage areas and related industrial activities. We work closely with planners, engineers, and scientists from project inception through detailed design and construction. Our services include desk studies, investigation scoping, site formation, slope and foundation design, deep excavation, and numerical assessment.



MATERIALS & DURABILITY

With strong links to academia and long-standing industry partnerships, we provide 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, nondestructive and destructive materials testing, conflict resolution, and support related to construction law.



SUSTAINABILITY

One of the most significant enhancements of sustainability in construction is achieved through good design. This encompasses integrating sustainability goals as a fundamental aspect of the design process from the project's outset, where the greatest impact can be achieved.

Using a systems-based approach, BG&E looks at the wider context for each project and considers the long term. This holistic framework enables informed decision-making on pathways to improve outcomes that are not possible using more traditional approaches.

*Stanley Point 3 Port Expansion -
Port Headland, WA, Australia.*



Project Types



**Asset Management
& Inspection**



**Bridge
Maintenance**



**Bridges
(inc. Regional Bridges)**



**Corrugated
Multi-plate Arches**



**Emergency
Response**



**Haul
Roads**



Hydrological



**Industrial
Structures**



**LNG
Tanks**



**Mine Site Infrastructure
& Process Plants**



**Modular
Construction**



**NPI
Facilities**



**Ports
& Marine**



**Transportable
Construction**



**Rail Systems
(Railway Track & Civil)**



At BG&E, we are united by a common purpose – we believe that truly great engineering takes curiosity, bravery and trust, and is the key to creating extraordinary built environments.

Our team of more than 700 highly skilled people, in offices across Australia, New Zealand, South East Asia, the United Kingdom and Middle East, design and deliver engineering solutions for clients in the Property, Transport, Ports and Marine, Water, Defence, Energy and Resources sectors.

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