

SECTOR CASE STUDY

*One, Oval –
Subiaco East, WA, Australia.*

Residential

OPPORTUNITIES
THROUGH
EXCELLENCE

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BG
&E

Bayz101

STRUCTURAL ENGINEERING

DUBAI, UAE

CLIENT: DANUBE PROPERTIES

In the Business Bay area of Dubai, Bayz101 is a landmark residential tower development by Danube Properties standing 363 metres tall from ground level and 388 metres from its lowest basement, making it one of the tallest buildings on Dubai's skyline.

BG&E's role included:

- Full structural concept and schematic design and documentation.
- Structural oversight and review for the detailed design.
- Support through the authority approval process.

The structure comprises:

- Six levels of underground basement parking and sixteen levels of above-ground podium parking.
- Seventy-five additional storeys of luxury residential apartments in the tower above.
- Premium amenities include retail outlets, swimming pools, a gym, basketball and tennis courts, a business centre, a library, and a sky garden on level ninety-one, offering panoramic views of the Dubai skyline.

The building is supported at its foundation on a reinforced concrete raft slab, up to 6.5 metres thick, that in turn is supported by concrete piles of 1.5 metres to 1.8 metres in diameter.



Tower columns make use of composite action – using high-strength concrete with embedded structural steel sections to deal with the enormous vertical building loads.

Typical above-ground podium and tower floors are designed as post-tensioned concrete flat plates to simplify the concrete profile and decrease floor-to-floor construction cycle times for the builder, ensuring an efficient construction programme is achieved. Post-tensioned slabs allow the thickness of the floors to be minimised, reducing overall building weight and the sizes of supporting structural elements such as walls, columns, raft slabs, and piles.

Lateral loads are resisted by the central reinforced concrete core walls in combination with concrete outrigger walls and belt walls at mechanical floors. These occur at five separate locations throughout the tower height and ensure sufficient stiffness to resist lateral wind and seismic loads and to ensure building movement remains within acceptable levels.

The top of the tower incorporates an indoor and outdoor sky garden and an open 15 metre high internal atrium space that allows a panoramic view of Dubai's skyline. Structural steel framing is provided to minimise structural size and maximise the architectural impact of this incredible building feature.

*Bayz101 –
Dubai, UAE.*





Sky Tower

CONSTRUCTION ENGINEERING | STRUCTURAL ENGINEERING

LIMASSOL, CYPRUS

CLIENT: PRIME PROPERTY GROUP

BG&E provided structural and construction engineering services for Sky Tower, a striking 25 storey residential development with one basement level, located in the north east of Limassol's prime tourist area in Cyprus.

Commissioned by Prime Property Group and realised through the vision of UHA Architects, BG&E's London team delivered full structural design - from core and superstructure to post-tensioned slabs and high-ceiling floor plates - while overseeing engineering through construction.

Today, Sky Tower stands as a benchmark of engineering elegance in Limassol's skyline - delivering grand residential spaces, elevated infrastructure, and streamlined construction methods through BG&E's comprehensive structural leadership.

Key achievements included:

- Designing a slender concrete core and superstructure to support one to four bedroom apartments, luxurious sky-houses and rooftop pools, while maintaining architectural openness and hiding structural demands within the building form.
- Implementing 200 millimetre thick post-tensioned floor slabs, cutting structural depth and material use - enabling generous 3.15 metre ceiling heights throughout.
- Coordinating closely with other disciplines (acoustics, MEP and landscape consultants) to integrate BG&E's optimised structural solutions across disciplines and ensure efficient on-site delivery in compliance with Eurocodes.



Westminster Tower

FAÇADE ENGINEERING | MATERIALS & DURABILITY |
STRUCTURAL ENGINEERING

LONDON, UK

CLIENT: LONDON SQUARE

The historic 1980s Royal Doulton manufacturing site will be taking its next form as the new Westminster Tower - a premium mixed-use building that boasts a health and wellness facility, private offices, three new storeys and luxury apartments with floor-to-ceiling, double-height glass windows with views of the iconic London skyline.

BG&E provided materials, structural, civil and façade engineering services to the adaptive reuse project - ensuring structural safety and performance enhancements while preserving 90% of the original building, resulting in a significantly reduced carbon footprint, compared to new build construction.

Different options for the new façade design have been studied based on the client's requirements, strict load allowances and cost. Great focus has been given to constructability with the proposed cladding solution articulated to suit the existing structure as well as achieving stringent environmental and sustainability envelope performance.

Due to limited information on the existing building, a key challenge of the project was understanding the structure's present behaviour and performance, in relation to the proposed design.

To combat this, BG&E's Materials team combined destructive and non-destructive materials tests to ensure a comprehensive dataset for structural analysis. Using this data, our Buildings team developed a Finite Element (FE) model that accurately replicated the behaviour of the existing building.

Kula Belgrade

STRUCTURAL ENGINEERING

BELGRADE, SERBIA

CLIENT: ROBERTS PIZZAROTTI JV

BG&E's London Structural Engineering team played a pivotal role in the transformation of Kula Belgrade, an iconic 168 metre, 43 storey skyscraper along the Sava waterfront, part of the 1.8 million square metre Belgrade Waterfront development.

While the initial foundation design was handled by SOM and AECOM in accordance with the International Building Code, local firm DNEC ensured Eurocode compliance. BG&E joined during the construction phase to execute crucial structural value engineering.

Thanks to BG&E's interventions, Kula Belgrade achieved a simplified, more efficient structural design that supported accelerated construction while maintaining integrity under dynamic loading conditions.

BG&E's responsibilities included:

- Re-engineering the transition zone, replacing composite steel-and-concrete transfer beams and embedded steel plates with optimised reinforced and post-tensioned concrete solutions.
- Mitigating differential settlements caused by the tower's dramatic 90° twist between its lower and upper sections - an extremely rare structural configuration - through redesigned beam layouts and adjusted cross-sections.
- Collaborating closely with the local engineer and local authorities to ensure value engineering changes met Eurocode standards without disrupting the original design.

One Pearl Sky Bridge

CONSTRUCTION ENGINEERING

SINGAPORE, SEA

CLIENT: TIONG SENG CONTRACTORS

One Pearl Bank is set to be the tallest residential development in the Outram-Chinatown district in Central Singapore. Sitting atop Pearl's Hill, the iconic development comprises two gently curving 39 storey towers linked at the roof by dramatic sky bridges and features panoramic views extending from the CBD to Sentosa.

Working alongside a team of professionals from Tiong Seng, MegaRig and Boon Chang, BG&E designed the sky bridge hoisting process and mechanisms, including the necessary lifting and spreader beams.

The primary bridge structures, each weighing 300 tonnes, were first assembled at ground level, and lifted using synchronised hydraulic jacks as a single element to a height of 150 metres above the ground. Despite the extreme space constraint on site at the hoisting level, the elegant sky bridges were successfully lifted into place in March 2024.

This feat of technical excellence was the result of meticulous planning and the adoption of an innovative structural engineering solution that considered the bridges' arc-shaped geometry, long span of 45 metres and eccentric centre of gravity.





Albert Square Apartments

STRUCTURAL ENGINEERING

AUCKLAND, NEW ZEALAND
CLIENT: PORTUS

BG&E led structural engineering services for the 847 New North Road development for Portus. The development site is approximately 17,000 square metres, upon which a five and six storey building will be connected through a common ground floor and a podium structure at level one. Both buildings will contain a combination of one, two, and three bedroom units, while the common podium at level one provides an outdoor space for residents.

The common ground floor will consist of street facing retail space beneath the southern building with the remaining extent utilised as parking, plant and storage areas.

The longevity and ability of the new development to support Mount Albert's current and future community is underpinned by structural innovations, including:

- An insitu concrete column, shear walls and cores used to support the post tensioned suspended slabs.
- A post tensioned podium transfer slab, located under the south building to enable an efficient carpark structure below, while the north building structure extends into the carpark structure below.
- Soil anchors to prevent uplift, since the buildings sit on shallow foundations.

NC12 Apartments

CONSTRUCTION ENGINEERING | STRUCTURAL ENGINEERING

AUCKLAND, NEW ZEALAND
CLIENT: FLETCHER LIVING



NC12 is a residential apartment building located in Northcote, Auckland. The development consists of an eight storey building - a semi-basement and seven stories above - on a rectangular site of approximately 3400 square metres.

The building contains 90 total apartments intended for a combination of social housing (Kiwibuild) and private sale. The semi-basement contains 21 covered carparks with a further 40 carparks located externally.

BG&E was responsible for providing both structural engineering and construction monitoring services.

The construction of the building consists of a lightweight steel frame roof, precast (unispan) floors with in-situ concrete topping, structural steel frame and in-situ concrete walls founded on a bored pile foundation system.

Throughout the design phases, BG&E worked closely with the design team to value engineer an economical and constructible structural system to meet the needs of the client.

The Hill – Belvedere Apartments

STRUCTURAL ENGINEERING

AUCKLAND, NEW ZEALAND
CLIENT: FLETCHER LIVING



BG&E was engaged for the structural design of the suspended post-tensioned slabs for the Belvedere Apartment building, part of the wider 'The Hill' development by Fletcher Living, overlooking the Ellerslie Racecourse in Auckland.

The development comprises six levels of apartments above two levels of car parking. Due to the site's moderate slope, the car parking levels are partially embedded, with retaining walls on three sides.

BG&E added value through our experience designing post-tensioned slabs across New Zealand. Lessons from prior projects informed checking column positions and penetrations to help mitigate punching shear issues with architectural and MEP consultants to minimise construction-phase issues.

The typical roof slabs consist of 220 millimetre thick flat soffit post-tensioned concrete, with seismic control joints near the core to localise damage during ULS events. Ground floor and basement slabs include pour strips to allow differential movement between zones during construction. Lightweight façades are post-fixed to slab edges.

To address high punching shear demands, puddle pours with 65MPa concrete were specified at critical column locations where column positions were fixed early in the design by architect and main structural engineer. Wall ends were also treated as columns in punching checks and detailed with appropriate reinforcement.

Nominal reinforcement was added at wall ends to prevent excess yielding of slab reinforcement under frame actions, with additional top and bottom bars provided to enhance flexural capacity and lateral load performance.

*The Hill - Belvedere Apartments –
Auckland, New Zealand.*



Edition Apartments

PEER REVIEW

AUCKLAND, NEW ZEALAND
CLIENT: LEP CONSTRUCTION

BG&E provided a peer review of the post-tensioned (PT) transfer slab on level four of Edition Apartments - a new eight storey residential development on a sloping site in Parnell, Auckland.

Designed by SRG Global and BBR Contech, the general form of the building is steel beams and columns with concrete shear walls for lateral stability. The 600 millimetre PT transfer slab is supported on steel columns cantilevered to form the soffit for apartments below level four.

BG&E was engaged late in the project, once site works had begun. As a result, we worked closely with the contractor and PT designer during their review process to resolve issues on-site related to integrity reinforcing and punching shear, while coordinating with services around columns.

We also worked closely with the principal engineer and PT designer to ensure alignment between their designs, addressing initial coordination gaps that were previously overlooked.

12-16 Lonsdale Street

CONSTRUCTION ENGINEERING | STRUCTURAL ENGINEERING

CHRISTCHURCH, NEW ZEALAND
CLIENT: VVV GROUP

BG&E provided structural design and construction monitoring for a 12 unit, two storey and three storey townhouse development.

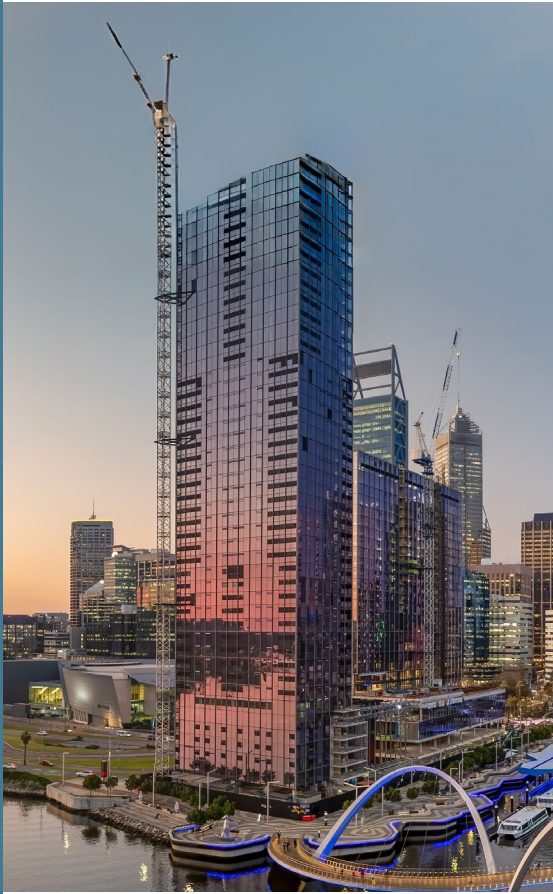


The development featured conventional timber framed construction, with two storey portal frames incorporated into the lateral load-resisting system for the three storey units.

BG&E coordinated the design of the prefabricated midfloor cassettes, minimising on-site material storage while allowing working room for all sub-trades.

Inter-tenancy firewalls were designed with a roof popup structure to ensure post-fire stability. The foundations consisted of a waffle slab with integrated retaining walls, supported by shallow ground improvement across the building footprint.

For the three storey units, the TC2 foundations were designed using industry-standard techniques to maximise construction efficiency. Conventional bracing elements were also specifically engineered for use within the three storey structure.



Lots 2 & 3, Elizabeth Quay

**CIVIL ENGINEERING |
STRUCTURAL ENGINEERING**

PERTH, WA, AUSTRALIA
CLIENT: CA CORPORATION

The \$300 million development of Lots 2 and 3 Elizabeth Quay (EQ West), represents a key component in realising the vision for one of Perth's premier inner-city precincts.

BG&E provided the structural and civil engineering services for the design savvy, integrated mixed-use development.

EQ West includes:

- 180 metre, 52 storey tower.
- 100 metre, 25 storey tower.
- Four basement levels.

Together, they comprise 493 residential apartments, a 190 room hotel, contemporary commercial space, end of trip facilities, an art gallery and viewing deck, back of house facilities and car parking.

The tower floors have been designed with post-tensioned concrete slabs and the buildings' lateral stability is provided by the lift and stairwell cores, plus the supplementary shear walls. Wind studies were undertaken by specialist wind consultants to optimise wind loading on the residential tower, as well as to assess the lateral drifts and horizontal accelerations under service winds.



Lots 9 & 10, Elizabeth Quay, Ritz-Carlton Hotel

FAÇADE ENGINEERING

PERTH, WA, AUSTRALIA

CLIENT: FAR EAST CONSORTIUM

Elizabeth Quay's waterfront precinct has seen the transformation of Lots 9 and 10 into two striking towers, housing the prestigious 6-star Ritz-Carlton Hotel and luxury residential apartments and their accompanying amenities.

The façade for the towers is a high-performing unitised curtain wall system with highperformance glass and an integrated operable window system connected to the build monitoring system. These Lift Tilt Operable Windows (LTOWs) are the largest of their type in the world.

BG&E Façade Consultants provided services during the construction stage to assist the owner, Far East Consortium. We were initially engaged during schematic design, and during the design development phase for the LTOWs, following which we provided extensive services during the construction phase to completion.

The development was completed and handed over in 2021.

Queens Riverside Apartments

CIVIL ENGINEERING | FLOODING & HYDROLOGY |
STRUCTURAL ENGINEERING

PERTH, WA, AUSTRALIA
CLIENT: FRASERS PROPERTY

The Queens Riverside Apartments in East Perth are a key component of the Riverside East Perth urban redevelopment precinct, developed by Frasers Property Australia. BG&E provided structural and civil engineering services for the combined two level basement, structural engineering for one of the three residential towers, and stormwater diversion design.

This mixed-use development includes:

- Three 23 storey residential towers - QI, QII and QIII.
- The luxury Fraser Suites Perth Hotel.
- A two level basement structure.
- Resort-style amenities, including a 25 metre swimming pool, gym and landscaped open spaces.

The basement was constructed with a secant piled wall, perimeter drainage and a tanked hydrostatic slab to manage groundwater pressures. The superstructure incorporated various structural formats, including precast and in-situ columns and walls, complemented by a proprietary Bubbledeck floor system to enhance structural efficiency.

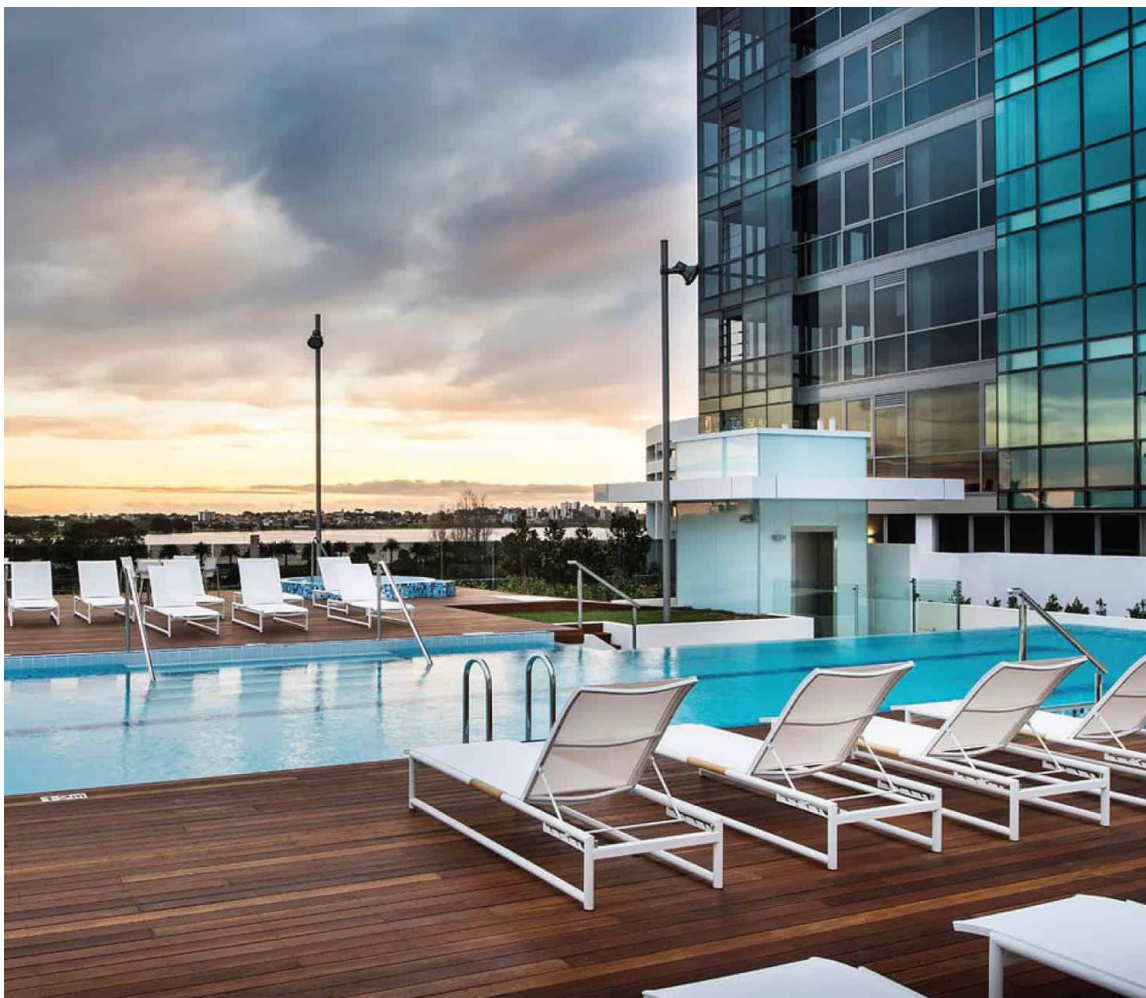


BG&E's role included the design of stormwater diversion for a City of Perth stormwater line traversing the site, along with the design of stormwater detention tanks and outlets to meet compliance requirements. The Civil Engineering team collaborated closely with architects to develop site access and set downs within the project boundaries, ensuring the design was seamlessly integrated with the urban environment.

The Queens Riverside Apartments set high standards for urban design and sustainability, incorporating environmentally focused measures such as low-emission materials and detailed environmental management plans compliant with ISO standards.

The project has significantly contributed to the revitalisation of East Perth, transforming the area into a vibrant residential and commercial community that combines modern architecture with sustainable living solutions.

*Queens Riverside Apartments –
Perth, WA, Australia.*



St Ives Carine Retirement Village

CIVIL ENGINEERING | STRUCTURAL ENGINEERING

PERTH, WA, AUSTRALIA

CLIENT: FRASERS PROPERTY



BG&E provided structural and civil engineering services for Stage 1 of the proposed St Ives Group retirement village at Carine Rise.

The proposed retirement village is on a site of 1.87 hectares and will comprise a mix of two and three bedroom units and other facilities in a mix of three to six storey apartment buildings.

Several structural frame options have been investigated, and a concrete framed structure has been selected with post-tensioned flat slab floor plates. Foundations comprise shallow foundations. On-site stormwater detention will be provided using a combination of swales and underground detention cells.

The Bottleyard Apartments

CIVIL ENGINEERING | STRUCTURAL ENGINEERING

LEEDERVILLE, WA, AUSTRALIA
CLIENT: PSAROS

Located at 75-99 Palmerston Street, The Bottleyard Apartments is constructed on a site rich in history. In the early 1900's the site became Perth's busiest bottle yard. Now, it has given way to an outstandingly designed residential development consisting of 125 apartments.

All units come with a car bay and an attached balcony or private courtyard. Parking is located in a secure underground complex. Inside the development, there is a large communal landscaped open space and a gym.

BG&E was engaged under a design and construct contract to provide structural and civil engineering consulting services for the project.

The structure consists of five storeys of conventionally reinforced two-way flat plate, supported on 140 millimetre thick core-filled and reinforced masonry walls, which in turn transfer out on the ground level slab. The ground level suspended slab was constructed using a mixture of two-way flat plate and conventionally reinforced band beams. The ground level slab is supported on in-situ concrete columns, 190 millimetre core-filled and reinforced masonry walls and a mixture of in situ retaining walls and secant piled walls to the perimeter of the basement.



One, Oval

CIVIL ENGINEERING | STRUCTURAL ENGINEERING

SUBIACO EAST, WA, AUSTRALIA
CLIENT: UEM SUNRISE

BG&E has been appointed as the civil and structural engineering consultant for UEM Sunrise's flagship development within the Subiaco East Redevelopment Area.



Situated adjacent to the iconic Subiaco Oval, the mixed-use project will deliver two residential buildings – a tiered high-rise of up to 36 storeys and an 11-storey mid-rise, comprising approximately 340 dwellings, a mix of apartments, townhouses and essential worker housing. Ground-floor retail spaces and landscaped public areas will further activate the precinct.

The development also includes 672 car bays across multiple basement levels, requiring considered structural and civil integration beneath high-density residential towers.

BG&E's scope includes:

- Structural design of reinforced concrete towers, including core and podium systems to accommodate stepped heights and architectural features.
- Basement and foundation design, tailored to suit site-specific geotechnical conditions and construction constraints within an urban setting.

Civil design of on-site infrastructure, including stormwater management, roads and utility servicing.

Our understanding of local site conditions has informed a drainage strategy that leverages favourable infiltration characteristics and low groundwater levels. However, due to the high hardstand-to-soft landscaping ratio, the development will require below-ground storage tanks to provide stormwater detention and infiltration capacity during major storm events.

BG&E is working closely with the wider design team to support staged delivery, ensure buildability, and provide sustainable, compliant infrastructure solutions that align with the Subiaco East vision for connected, livable and resilient urban communities.

*One, Oval –
Subiaco East, WA, Australia.*





Castle Towers

CIVIL ENGINEERING | CONSTRUCTION ENGINEERING |
FAÇADE ENGINEERING | FLOODING & HYDROLOGY |
MATERIALS & DURABILITY | STRUCTURAL ENGINEERING

SYDNEY, NSW, AUSTRALIA
CLIENT: QIC

BG&E provided structural civil engineering, materials and durability, flooding and hydrology, and construction engineering services for the one billion dollar expansion of the Castle Towers Shopping Centre and surrounding precinct in Sydney.

This project was highly complex, involving both significant technical capability along with an evolving scope of work.

BG&E was engaged in multiple packages of work for the Castle Towers project:

- Castle Towers Site A Redevelopment - ongoing.
- Castle Towers Site B Subdivision - ongoing.
- Castle Towers Zone 3 Redevelopment - ongoing.
- Pennant Street Roadwork Widening - delivered for IFC.
- Woodward Building Development - ongoing.

CASTLE TOWERS SITE B SUBDIVISION

QIC subdivided the old Castle Hill Public School site located opposite the existing Castle Hills Shopping Centre both on Pennant Street. The subdivision has created eight lots, all highdensity mixed-use residential and commercial buildings, plus one park.

A key challenge of the Site B subdivision was the need to modify the original road designs to accommodate the proposed building from the Woodward Building Development that was relocated to within the subdivision site, before the roads in Site B were designed.

CASTLE TOWERS ZONE 3 REDEVELOPMENT

Zone 3 of the Castle Towers Shopping Centre, originally opened in 1979, was redeveloped by QIC. The works involved partial demolition of the existing structure while maintaining other components of the building and ensuring key areas and tenant areas remained operational throughout construction.

All works were situated within the same structure, with the new structures extended above the existing retail sites and car park. The redevelopment involved:

- Upgrading existing retail spaces.
- Constructing a new, mixed-use building for commercial and retail use.
- Constructing a new hotel.

The Civil Engineering team's scope of services included stormwater design, onsite detention, water quality, overland flow, integration with the existing drainage system of the shopping centre, and design of public domain footpaths and driveways.

Significant challenges of the redevelopment included:

- Coordination with three different architects, each responsible for various aspects of the development.
- Management of services and civil items traversing the site, which was still operational and accessible to the public.
- The placement of onsite detention tanks which was complicated by the existing Sydney Metro tunnels beneath the site that limited options for underground installation, requiring placement within the proposed building structure.



Castle Towers –
Sydney, NSW, Australia.

Shell Cove Harbour Hotel

STRUCTURAL ENGINEERING

SHELL HARBOUR, NSW, AUSTRALIA
CLIENT: OSCARS



Located in the heart of Shell Cove's town centre and harbour precinct, the proposed Shell Harbour Cove Hotel is an 11 storey mixed use development comprising a four level basement adjacent to sea level, 191 hotel rooms and residential apartments, a day spa, three pools, bars and dining rooms, and conference and ballroom facilities.

BG&E is providing structural engineering services for development, including the design of the superstructure and four level basement. The structure incorporates hydrostatic slabs and walls, with extensive use of precast load-bearing wall panels to assist constructability.

A key design consideration was the hydrostatic pressure on basement elements, with the building classified as Importance Level 3 due to the inclusion of public assembly spaces such as the ballroom and function rooms.



AURA by Aqualand

**CIVIL ENGINEERING |
STRUCTURAL ENGINEERING**

**NORTH SYDNEY, NSW, AUSTRALIA
CLIENT: AQUALAND**

BG&E provided structural and civil engineering services for AURA by Aqualand – a one billion dollar, premium residential development on the site of the former headquarters of SAP at 168 Walker Street in North Sydney.

BG&E's civil services included civil design, stormwater design, external footpath and driveway design, coordination with the council and the wider project team, and 3D surface modelling.

Structural services included design of a structural system with reinforced concrete core walls, columns, and post-tensioned slabs.

This project involved coordination with awardwinning architects Woods Bagot, Richards Stanisich, and Webber Architects. The development includes:

- Four interconnected towers.
- 386 residential apartments.
- An enormous rooftop terrace.
- A community lounge and media rooms.
- A fitness centre.
- Commercial space.
- Prime retail areas.

AURA's undulating façade, multi-towered design, and distinctive hourglass shape mark it as an iconic addition to Sydney's skyline.

BG&E RESIDENTIAL

*AURA by Aqualand –
North Sydney, NSW, Australia.*



BLUE at Lavender Bay

STRUCTURAL ENGINEERING

SYDNEY, NSW, AUSTRALIA

CLIENT: AQUALAND



BLUE at Lavender Bay is a luxury residential tower at 61 Lavender Street in Milsons Point, just minutes from Sydney's CBD. The development saw the adaptive reuse of the existing commercial building into residential apartments that boast uninterrupted Sydney Harbour and northern skyline views.

BG&E provided Aqualand with structural design and engineering services for the redevelopment of the commercial tower which involved partial demolition, strengthening, and extension of the existing structure.

The existing commercial tower consisted of 17 levels of commercial office above ground level, one ground level, three basement carpark levels, and two levels of plant rooms at the top of the building.

The demolition works involved the demolition of the existing lift and stair walls, internal slab panels on all levels, and the entire slab on levels 18 to 20. The new building works involved the construction of new lift and stair walls, new internal slab panels, new slabs on levels 18 to 21, and composite steel balconies on the north and south building edges.

The new residential tower features 126 open-plan apartments, which include floor-to-ceiling sleek curved winter gardens on the tower's southern side and fitted glass screens on the northern balconies for a sense of immersion with the surrounding nature.

The sought-after BLUE residences will support and shape the growth of Lavender Bay, one of Sydney's 'most liveable' suburbs.

*BLUE at Lavender Bay –
Sydney, NSW, Australia.*





Bernborough Ascot

CIVIL ENGINEERING | STRUCTURAL ENGINEERING

BRISBANE, QLD, AUSTRALIA
CLIENT: ST HILLIERS

BG&E delivered a design for the Bernborough Ascot Retirement Village that seamlessly integrated both the existing and future stages of the project - including the majority of the site infrastructure and landscaping requirements.

Bernborough Ascot is set to be the most sustainable retirement community in Australia, after securing the sector's first 6 Star Green Star Communities rating from the Green Building Council of Australia.

The seven storey tower, known as Poinciana House, will include 53 luxury apartments, and the balance of the amenities consisting of an open space reception area, restaurant, residents' lounge, health and wellness centre (with a pool, yoga space, gymnasium and consulting rooms), a private rooftop terrace, and an outdoor bowling green.

BG&E was engaged to provide full structural and civil engineering for this greenfield site.

The civil components included in this scope are:

- Bulk earthworks, including cut and fill for basement construction.
- On-site drainage, including water quality and quantity mitigation measures.
- Internal stormwater drainage requirements, conveying runoff from the internal downpipe.
- Connections, hardstand surfaces and roadways, in accordance with approved SWMP.
- End-of-line stormwater quality treatment devices (as required).
- Internal site access roads and carparks.
- Site access, vehicle turning check and grading works to facilitate internal vehicle movements and car parking.

Oaks Brisbane Casino Towers Suites

STRUCTURAL ENGINEERING

SOUTH BRISBANE, QLD, AUSTRALIA
CLIENT: MULTIPLEX

BG&E provided structural engineering services for the \$100 million residential tower that includes a two level podium and 378 apartments across twenty seven levels. The development features eight floors of parking across six basement and two podium levels.

Key technical challenges included:

- Construction of a six storey deep basement adjacent to the Brisbane River and surrounding inner-city developments.
- Integration of precast concrete external walls and façade panels.



Odyssey Chevron Island

STRUCTURAL ENGINEERING

GOLD COAST, QLD, AUSTRALIA
CLIENT: ST HILLIERS



BG&E was engaged alongside St Hillier's in an Early Contractor Involvement (ECI) contract to support the development of drawings in line with contractor construction methodologies to facilitate the production of a detailed cost plan for the project.

This allowed St Hillier's and Odyssey to track all cost escalation during the design and add cost controls to ensure the project could be delivered on budget.

Odyssey Chevron Island will offer brand-new luxury apartments in the heart of the Chevron Village.

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 15 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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