ARUP

Cleanaway Operations Pty Ltd

Bromelton Energy and Resource Centre

Sustainability Management Plan

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Abbreviations and glossary

Abbreviations	Definition
ACPr	Air Pollution Control residue
BCA	Building Code of Australia
BERC	Bromelton Energy and Resource Centre
C&I	Commercial and Industrial
CWMP	Construction Waste Management Plan
DA	Daylight Autonomy
EA	Environmental Authority
EfW	Energy from Waste
IBA	Incinerator Bottom Ash
IED	Industrial Emissions Directive
LRV	Light Reflectance Value
MEPS	Minimum Energy Performance Standards
MSW	Municipal Solid Waste
MW	Megawatts
NCC	National Construction Code
OCG	Office of the Coordinator-General
OWMP	Operational Waste Management Plan
SDA	State Development Area
SHGC	Solar Heat Gain Coefficient
SMP	Sustainability Management Plan
TEEP	Technically, environmentally and economically practical
VLT	Visible Light Transmission
WWR	Window-to-Wall Ratio
WSUD	Water-sensitive urban design

Acknowledgement of Country

Arup acknowledges the Traditional Owners across all lands, waters and skies our firm may reach; we acknowledge their wisdom, resilience, and rich cultural heritage. We pay our respects to the Elders, past and present, and to all Aboriginal and Torres Strait Islander peoples.
‘Continuing to Shift to shape an even better world’ original artwork by Tarni O’Shea of Gilimbaa and updated by David Williams of Gilimbaa.

Executive Summary

The Bromelton Energy and Resource Centre (BERC) involves the construction and operation of an Energy from Waste (EfW) facility which will divert residual Municipal Solid Waste (MSW), and residual Commercial and Industrial (C&I) waste from landfill to recover energy. The Project involves the building of all on-site infrastructure required to support the EfW facility, including site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. An Administration Building and Visitor Centre (attached to the main processing building) and Gate House is also included in the design proposal.

This report presents an overview of the Sustainability Management Plan (SMP) for the BERC Project, aiming to demonstrate compliance with various sustainability requirements, including the Bromelton State Development Area (SDA) Development Scheme, State Development Assessment Provisions, Environmental Protection Regulation, and the National Construction Code (NCC) 2022.

The primary focus of this SMP is on the occupied areas of the development including the Administration Building and Visitor Centre and Gate House. A preliminary review of the Incinerator Bottom Ash (IBA) Administration Building has been undertaken; however, a quantified assessment has not been carried out at this stage, as layout plans are yet to be developed. However, the design of this building will be aligned with the requirements outlined in this report. It is also worth noting that this is expected to be a relatively small building in comparison to the main administration building and therefore will have a limited impact.

Furthermore, it is worth highlighting that certain detailed design strategies such as rainwater harvesting, lighting and mechanical systems are still to be further developed in later stages, but the current design has been coordinated and reviewed to meet these targets. Further design update will be reviewed at detailed design stage to ensure that they are compliant with the relevant policies as mentioned above.

Table 1: Summary of Policies Compliance

Items	Planning Scheme Requirements	Compliance Review Outcome
Energy	**Bromelton State Development Area Development Scheme** Section 2.5.9(1) Where practical, building, site design and layout maximises energy efficiency, having regard to: (a) Building orientation and passive solar design (b) Natural lighting opportunities (c) Maximising cross ventilation (d) Provision of sun shading devices at north, west and east facing windows and doors (e) Landscaping treatments to the western side of the building.	✓ Preliminary assessment has been undertaken to demonstrate that the building's envelope thermal performance exceeds the minimum requirements in National Construction Code (NCC) Section J by at least 10%. The assessment considers the building orientation, provision of shading devices, windows and doors as per current design. Refer to Appendix A.1 for more details. ✓ Daylight Autonomy calculation has shown that approximately 40% (min. 40% as specified in the Green Star Buildings Submission Guidelines) of the occupied floor area of the Administration Building and Visitor Centre can achieve high levels of daylight. Refer to Appendix A.2 for more details. ✓ The BERC Architecture & Landscape Design Strategy Report (BERC-ARU-BNE-ARBU-RPT-000001) demonstrates the integration of the built form and landscape character including landscaping treatments.
Water	**Bromelton State Development Area Development Scheme** Section 2.5.9(2) The use of reticulated water supply is minimised through the use of alternative water supply sources, including: (a) Rainwater harvesting (b) Recycled water sources	✓ Green Star potable water calculator was used to demonstrate the assessed building has 15% reduction in potable water usage when compared to a reference building. The current result is based on assumptions and design initiatives as listed in Section 3.2. Refer to Appendix A.3 for more details.

Items	Planning Scheme Requirements	Compliance Review Outcome
Waste	**Environmental Protection Regulation 2019 – Schedule 8 – Part 3 Environmental Objections and Performance Outcomes** Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values: (a) Waste generated, transported or received is managed in accordance with the waste and resource management hierarchy under the *Waste Reduction and Recycling Act 2011* (b) If waste is disposed of, it is disposed of in a way that prevents or minimises adverse effects on environmental values.	✓ A Waste Management Technical Report (BERC-ARU-BNE-WEWM-RPT-0001) has been provided including the information on waste classification, potential impact, management pathways and key opportunities. An Operational Waste Management Plan (OWMP) will be provided as part of next phase of the Project to further demonstrate that the waste is managed according to relevant standards and best practice.

In conclusion, this Sustainability Management Plan has demonstrated compliance with various sustainability requirements from the Bromelton SDA Scheme and good industry practice in terms of energy, water and waste. Other requirements that could indirectly impact sustainability such as emissions, contaminated land, water quality and climate change have been acknowledged and will be supported by the studies and reports from the relevant disciplines such as environmental, landscape and civil as the project progresses. As the Project progresses, detailed design strategies will be developed to further enhance sustainability and compliance with relevant standards and guidelines.

1. Introduction

1.1 Purpose of Assessment

This report provides an overview of the Sustainability Management Plan (SMP) for BERC. The purpose of this Sustainability Management Plan is to demonstrate compliance with the following sustainability requirements:

- Bromelton State Development Area Development Scheme (Dec 2017)
- State Development Assessment Provisions Version 3.3 (18 Jul 2025)
- Environmental Protection Regulation 2019 – Schedule 8 Environmental objective assessment
- National Construction Code (NCC) 2022.

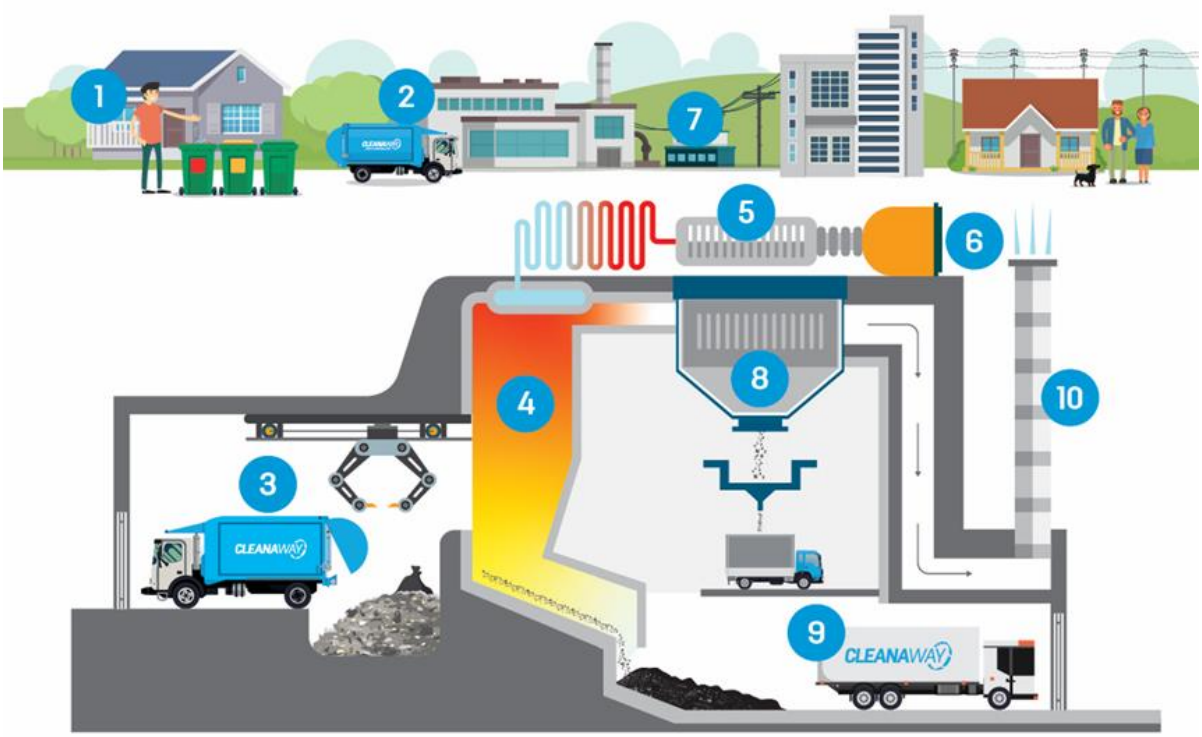
Within the context of the Sustainability Management Plan, the primary focus is on the occupied areas of the development including the Administration Building and Visitor Centre and Gate House. The concept design documentation was referred to when assessed against the above standards and policy documents. It should be noted that the assessment undertaken was guided by the current design coordination and direction, and has applied a conservative approach to reflect the early stage of design. The Project team has committed to achieving the targeted performance for the Project and will provide more design details as design develops.

1.2 Project Description

1.2.1 Project Overview

Cleanaway Operations Pty Ltd (Cleanaway) is developing an Energy from Waste (EfW) facility in Queensland known as the Bromelton Energy and Resource Centre (BERC / the Project). The Project will be located within the Special Industry Precinct of the Bromelton State Development Area (SDA), west of Beaudesert within the Scenic Rim Regional Council local government area.

The Project has been designed to thermally treat approximately 760,000 tonnes per annum (tpa) of waste feedstock, consisting of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste. Residual waste is waste that is not technically, environmentally and economically practical (TEEP) to reuse or recycle, which would otherwise be sent to landfill for disposal. The facility's actual annual throughput will vary depending on the calorific value of the feedstock and plant availability. To account for variability in feedstock energy content, the facility will be designed for a maximum processing capacity of up to 10% above the nominal figure (836,000 tpa). The EfW process is summarised in Figure 1.



1. At home and work, we sort our waste into recyclable and non-recyclable items.
2. Before arrival at the energy from waste facility, residual waste that has been sorted at home and work is delivered to the facility.
3. In the bunker, waste is mixed, ensuring consistency, by large crane claws before placement into the combustion chamber.
4. Waste is combusted as it moves along a moving grate. The temperature in the combustion chamber reaches more than 850°C to ensure that waste combusts completely while also destroying organic pollutants and odour.
5. Water is heated during combustion creating steam which turns a turbine.
6. Baseload electricity is generated.
7. Electricity is put back into the grid and used to power homes and businesses.
8. Gases created during combustion pass through a multi-step flue gas treatment system, removing pollutants from the gases. Residues from the flue gas treatment are collected in a sealed system for treatment before disposal.
9. Bottom ash from the combustion process is collected and stored. Metals are recovered for recycling. It is intended that the remaining bottom ash is sent for reuse in construction.
10. Cleaned gases and steam are dispersed high into the atmosphere, mixing well to ensure negligible impact on the surrounding air quality.

Figure 1: Energy from Waste Process

1.2.2 Proponent

Cleanaway, an Australian owned company, has operated for more than 50 years, supporting industry, government, communities and households across Australia. Its mission is to make a sustainable future possible, achieved through action across all levels of the waste hierarchy. Waste generation is minimised through extensive education programs, with Cleanaway's 50 education officers reaching over 120 businesses, 30 councils, and almost 33,000 school participants in the last financial year.

Cleanaway invests heavily in recycling, operating several Material Recovery Facilities nationwide and has partnered with Pact Group, Asahi Beverages and Coca-Cola to deliver two large-scale PET (polyethylene terephthalate) recycling facilities and a HDPE (high density polyethylene) recycling facility with Pact Group. In addition, in collaboration with Viva Energy, Cleanaway is developing a soft plastics recycling plant. EfW is recognised by Cleanaway as an important part of the future waste management framework, enabling recovery of energy and other resources from residual waste that cannot otherwise be recycled.

1.2.3 Policy Alignment

The BERC aligns with the Queensland EfW Policy and the Queensland EfW Guideline (2021) by diverting residual waste from landfill and delivering economic and social benefits through employment and local business opportunities in South East Queensland.

In accordance with Policy outcome 7 of the Queensland EfW Policy, the BERC will be designed to meet the best practice emission standards and requirements of the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration (2019), which sets the European Union environmental standards for waste incineration.

The Project also supports the Queensland Waste Strategy contributing to its 2050 targets to reduce household waste by 25%, recycle 75% of all waste, and divert 90% from landfill. In doing so, the BERC will play a key role in advancing Queensland's transition to a circular economy and reducing long-term reliance on landfill.

1.2.4 Key Components

The key components of the Project are summarised in Table 1.

Table 1: Key Project Components

Project Component	Detail
Address	Lot 1 Beaudesert Boonah Road, Bromelton, Queensland, 4285 (Lot 1 on RP45234). Refer Figure 2.
Site Area	63 hectares
Summary of proposed works	The Project includes the construction of a main EfW facility for waste processing, incinerator bottom ash (IBA) maturation and processing facility and an air pollution control residue (APCr) facility. It also includes all onsite infrastructure needed for the EfW facility, such as site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. The Project will include a visitor centre to help educate and inform the community on circular economy principles, the waste hierarchy, including waste avoidance, recycling, resource recovery, the benefits of landfill diversion and the EfW process. The intent behind this education is to drive a shift in community awareness and attitudes toward waste management and resource recovery.
Technology Used	The proposed technology is moving grate combustion technology. This has been used globally for over 100 years and is common in many of the 500 similar operational examples across Europe.
Facility Outputs	Approximately 73.2 MW (577,600 MWh/year, corrected for ambient temperature) exported to the grid as baseload electricity. Potential to supply energy in the form of heat and/or process steam to local industrial users. Residual materials include IBA and APCr. It is intended that the IBA will be mechanically processed on site to create incinerator bottom ash aggregate (IBAA). During this process, both ferrous and non-ferrous metals are recovered for recycling and sale. It is intended that the remaining material is repurposed for use as an aggregate in construction. The Project includes a facility to stabilise APCr before removal and disposal at a licensed landfill.
Key infrastructure	EfW facility including administration and visitor's centre IBA maturation and processing facility (2 x pads and 2 x sheds) APCr facility (1 x pad, 1 x shed) Transformer yard and switchyard De-coupling area for trucks Weighbridges

Project Component	Detail
	Internal road network and carparking 2 x combined storm water treatment and detention basin 1 x lined retention basin Access from Beaudesert Boonah Road via a signalised intersection with Recycling Street
Hours of Operation	24 hours per day, seven days per week (365 days per year)
Operational Staff	Approximately 60 staff

Figure 2: Site Location

1.3 Cleanaway's Sustainability Initiatives

Cleanaway's dedication to sustainability is central to its mission, driving the pursuit of inventive, highly circular, and environmentally friendly solutions for the benefit of customers, communities, and the planet. The company's sustainability policy is underpinned by three core pillars: People, Planet, and Prosperity, with the Planet pillar being the most relevant to this SMP. The following initiatives, drawn from the Cleanaway's FY24 Sustainability Report[1], closely align with the contents in this SMP.

1.3.1 Greenhouse Gas Emissions Reduction

Cleanaway capture methane gas produced at its landfills derived from the biogenic waste streams. This gas is converted into electricity using gas engines and generator. Therefore, Cleanaway's Scope 1 and Scope 2 emissions are comprised of both methane and carbon dioxide.

Cleanaway's resource recovery activities reduce greenhouse gas emissions; both Cleanaway's direct emissions and emissions that would otherwise have occurred through these operations. In FY24, Cleanaway improved the efficiency of landfill gas capture by 12.5% across its landfill portfolio, with gas either flared, converted to electricity, or used by third parties as renewable energy. This captured gas generated around 225 GWh of energy, enough to power more than 37,000 homes.

As a result, Cleanaway's combined gross Scope 1 and 2 greenhouse gas emissions reduced from 1,187 kt CO_2-e in FY23 to 1,122 kt CO_2-e in FY24, a 5.4% reduction year-on-year. Methane emissions, which account for ~72% of total operational emissions, fell by 7.6%. These results keep Cleanaway on track to meet its 2030 reduction targets of a 43% cut in carbon dioxide and 34% cut in methane emissions relative to its FY22 baseline. The following extract from the Cleanaway Sustainability Report (Figure 3) provides an overview of the reduction achieved for Scope 1 and Scope 2 Greenhouse Gas Emissions.

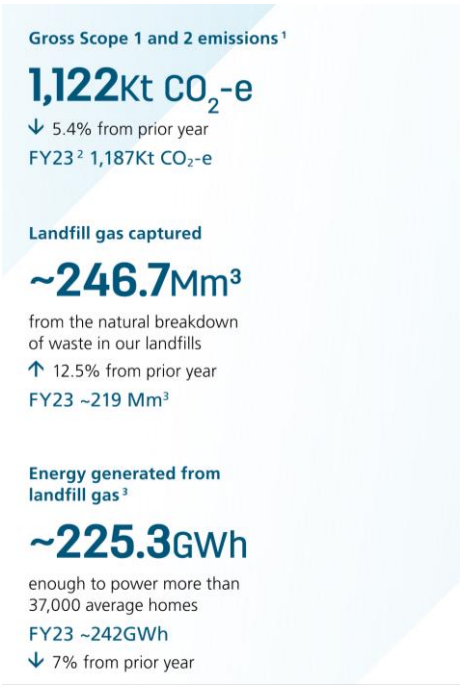


Figure 3: Cleanaway Sustainability Report 2024 – emission reduction summary

1.3.2 Circular Economy

To support a sustainable future, Cleanaway has accelerated the transition towards a circular economy, focusing on reusing reclaimed resources in manufacturing to reduce landfill waste. This involves integrating

[1] https://cleanaway2stor.blob.core.windows.net/cleanaway2-blob-container/2024/09/9762_Cleanaway_SR24_interactive_PDF_v5_SPREADS.pdf

materials like glass fines or plastic into construction materials, redirecting them from landfills for repeated use.

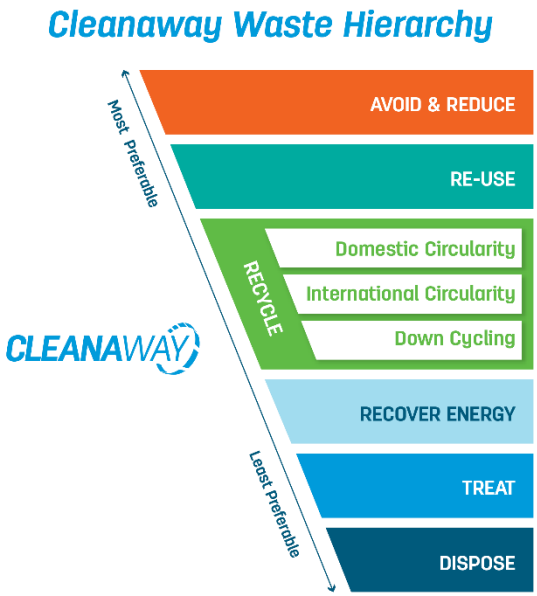


Figure 4: Cleanaway Circularity Hierarchy

The Cleanaway Circularity Hierarchy (Figure 4) acknowledges that various recycling approaches yield distinct levels of environmental advantages. Significantly, it places a higher emphasis on endorsing domestic circularity first, followed by international circularity, rather than resorting to downcycling.

Key FY24 initiatives included:

- Container recovery – TOMRA Cleanaway began operating CDS Vic (West Zone), covering one-third of the State and supporting local fundraising.
- Soft plastics – Pre-feasibility study with Viva Energy for a Victorian facility to recycle soft plastics into food-grade resins, targeting 2028.
- Circular Plastics Australia – New Altona North PET plant doubled PET recycling to 56,000 tpa; new Laverton North facility added 20,000 tpa HDPE/PP capacity.
- Organics processing – Eastern Creek facility transitioning to FOGO (+35% capacity by FY25); new de-packaging unit at Kemp's Creek underway.
- Resource Recovery Innovation Alliance – In Brisbane, 5.8m+ customers served, 2.5m t waste transported, 500,000+ t diverted from landfill since 2018.

2. Regulatory context

In 2008, the Coordinator-General of Queensland declared the Bromelton SDA in accordance with the State Development and Public Works Organisation Act 1971 (SDPWO Act). The Bromelton SDA comprises an area of approximately 15,610 ha of land located in the Scenic Rim Regional Council local government area, approximately 6 km west of the town of Beaudesert.

The purpose of the SDA is to promote and facilitate economic development in Queensland, and more specifically to support the growing demand for medium to large scale industries and difficult to locate industries. The Bromelton SDA Development Scheme ('Development Scheme') was prepared, outlining a development assessment framework and processes for making, assessing and deciding SDA applications. SDA applications are made to, assessed and determined by the Coordinator-General, with input from relevant referral agencies.

The relevant sections from the following three policy documents including Bromelton SDA Development Scheme have been reviewed to identify the criteria and requirements that are relevant to the Sustainability Management Plan. The remaining requirements that could indirectly impact sustainability such as emissions, contaminated land, water quality and climate change have been acknowledged and will be supported by the studies and reports from the relevant disciplines such as environmental and civil disciplines as the project advances through subsequent stages. Refer to Table 2.

Table 2: Regulatory documents reviewed for BERC

Scheme/Code/Policy reviewed	Relevant Sections Reviewed	Sections Applicable to this SMP
Bromelton State Development Area Development Scheme – Dec 2017	2.5.4 Emissions 2.5.7 Contaminated land 2.5.8 Water quality 2.5.9 Energy and water efficiency 2.5.10 Climate change 2.5.11 Environment, cultural heritage and community	2.5.9 Energy and water efficiency
State Development Assessment Provisions Version 3.3 - 18 Jul 2025	Stormwater and overland flow Flooding Landscaping	Landscaping
Environmental Protection Regulation 2019 – Schedule 8 Environmental objective assessment	Air Water Waste Groundwater Noise Land	Waste

The identified requirements deemed relevant to the Sustainability Management Plan, including energy, water, and waste, have been compiled in the Table 3 with reference to the National Construction Code (NCC) 2022 and best practice requirements for sustainability such as Green Star Buildings version 1. It should be noted that this project is not targeting a formal Green Star Rating and the Green Star Buildings Submission Guidelines were only referenced against a range criteria. The design strategy will be included in Section 3 of this report.

Table 3: Compliance Requirements

Items	Scheme/Code/Policy requirement	Proposed Relevant Standards and Good Practice	Proposed Sustainability Strategy
Energy	**Bromelton State Development Area Development Scheme** Where practical, building, site design and layout maximises energy efficiency, having regard to items (a) to (e) below:		
	(a) Building orientation and passive solar design	**NCC 2022 Volume One - J4D6 Walls and glazing:** *Maximum wall-glazing construction solar admittance = 0.13 for all aspects* **Applicability:** J4D6 from Part J4 Building fabric of NCC 2022 set specific targets for solar admittance for wall-glazing construction, which aligns with the good design practice to achieve good passive solar design.	To demonstrate a minimum 10% improvement in required performance from NCC 2022.
	(b) Natural lighting opportunities	**Green Star Buildings Submission Guidelines – Healthy category – Light Quality** *For non-residential buildings, at least 40% of the regularly occupied areas across the building must receive high levels of daylight with no less than 20% on any floor or tenancy (whichever is smaller). Daylight must be calculated using Daylight Autonomy.* **Applicability:** The Light Quality criteria under Healthy category of Green Star Buildings Submission Guidelines set specific targets for daylight levels of occupied areas in non-residential buildings, which aligns with the best practices to achieve natural lighting opportunities.	For occupied area, daylight is calculated using Daylight Autonomy (DA) to demonstrate compliance with the requirements from Green Star Buildings Submission Guidelines – Healthy category – Light Quality.
	(c) Maximising cross ventilation	**NCC 2022 Volume One - F6D6 Ventilation of rooms** *A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have -* *(b) a mechanical ventilation or air-conditioning system complying with AS 1668.2 and AS/NZS 3666.1.* **Applicability:** F6D6 from Part F6 Light and ventilation of NCC 2022 set specific target for ventilation of rooms and also referenced to AS 1668.2 Mechancial Ventilation in Buildings. This aligns with good design practice to maximise cross ventilation.	To demonstrate 50% increase in outside air rate as per AS1668.2.

Items	Scheme/Code/Policy requirement	Proposed Relevant Standards and Good Practice	Proposed Sustainability Strategy
	(d) Provision of sun shading devices at north, west and east facing windows and doors and	**NCC 2022 Volume One - J4D6 Walls and glazing** *Maximum wall-glazing construction solar admittance = 0.13 for all aspects* **Applicability:** J4D6 from Part J4 Building fabric of NCC 2022 set specific target for solar admittance. The benefits of shading devices are accounted for in the calculation of solar admittance to align with good design practice.	To demonstrate a minimum 10% improvement in required performance from NCC 2022.
	(e) Landscaping treatments to the western side of the building.	This is coordinated with the relevant discipline to ensure good industry practice.	Refer to Architecture & Landscape Design Strategy Report (*BERC-ARU-BNE-ARBU-RPT-000001*) for detailed information.
Energy	NCC 2022 Volume One	**Building Fabric** **NCC 2022 Volume One - J4D6 Walls and glazing** *The maximum total system U-value of wall-glazing construction is U2.0.* *Total R-value of wall components:* *R1.0 (where wall is less than 80% of the area of the wall-glazing construction).* *R1.4 (where wall is 80% or more of the area of the wall-glazing construction).* **NCC 2022 Volume One - J4D4 Roof and ceiling construction** *A roof or ceiling must achieve a minimum Total R-value R3.7 for a downward direction of heat floor* *The solar absorptance of the upper surface of a roof must be not more than 0.45* **NCC 2022 Volume One – J4D5 Roof lights** *Roof lights must have—* *(a) a total area of not more than 5% of the floor area of the room or space served; and* *(b) transparent and translucent elements, including any imperforate ceiling diffuser, with a combined performance of—* *(i) for Total system SHGC, in accordance with Table J4D5; and* *(ii) for Total system U-Value, not more than U3.9.* **Applicability:** J4D4, J4D5, J4D6 from Part J4 Building fabric of NCC 2022 set specific target for thermal performance of roof and ceiling construction, roof lights, walls and glazing including U-value and R-value. This aligns with good design practice to achieve optimal thermal performance.	To demonstrate a minimum 10% improvement in required performance from NCC 2022.
	NCC 2022 Volume One	**Mechanical Systems** **NCC 2022 J6D11 Refrigerant chillers** *An air-conditioning system refrigerant chiller must comply with MEPS and the full load operation energy efficiency ratio and integrated part load energy efficiency ratio in Table J6D11a or Table J6D11b when determined in accordance with AHRI 551/591.*	To demonstrate a minimum 10% improvement in required performance from NCC 2022. The mechanical design is

Items	Scheme/Code/Policy requirement	Proposed Relevant Standards and Good Practice	Proposed Sustainability Strategy
		Applicability: J6D11 from Part J6 Air-conditioning and ventilation of NCC 2022 set specific target for air-conditioning system refrigerant chiller, which aligns with good design practice to achieve optimal efficiency and control of air-conditioning.	to be further developed by the mechanical engineers as the design progresses.
	NCC 2022 Volume One	**Lighting** **NCC 2022 J7 Artificial lighting and power** *Table J7D3a Maximum illumination power density* **Applicability:** J7D3 from Part J7 Artificial lighting and power of NCC 2022 set specific target for artificial lighting, which aligns with good design practice to achieve optimal lighting strategy.	To demonstrate at least 90% of the relevant building classes meets the requirements of Table J7D3a of the NCC 2022 Section J. The lighting strategy is to be developed by the electrical engineers as the design progresses.
Water	**Bromelton State Development Area Development Scheme** The use of reticulated water supply is minimised through the use of alternative water supply sources, including items (a) and (b) below:		
	(a) Rainwater harvesting	Use Green Star potable water calculator to check if the building has at least 15% reduction in potable water usage when compared to a reference building. **Applicability:** The Green Star potable water calculator considers the usage of reclaimed water, if any, and the usage of potable water in sanitation, whitegoods, heat rejection, washdown, landscape irrigation, fire protection systems and process cooling. This aligns with good design practice to minimise the use of reticulated water supply as specified in Bromelton SDA.	To demonstrate at least 15% reduction in potable water usage when compared to a reference building. The current calculation for potable water reduction does not include rainwater collection, representing a conservative estimation. Recycled water strategy to be further developed by the civil/hydraulic

Items	Scheme/Code/Policy requirement	Proposed Relevant Standards and Good Practice	Proposed Sustainability Strategy
			engineer as design progresses.
	(b) Recycled water sources	Water efficient landscaping - using recycled wastewater generated by the facility for irrigation	The current calculation for potable water reduction does not include greywater/blackwater collection, representing a conservative estimation. Recycled water strategy to be further developed by the civil/hydraulic engineer as design progresses.
Waste	**Environmental Protection Regulation 2019 – Schedule 8 Environmental objective assessment** Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values. Both of items (a) and (b) below apply:		

Items	Scheme/Code/Policy requirement	Proposed Relevant Standards and Good Practice	Proposed Sustainability Strategy
	(a) Waste generated, transported or received is managed in accordance with the waste and resource management hierarchy under the *Waste Reduction and Recycling Act 2011*	Operational Waste Management Plan (project specific)	Refer to Resource and Waste Management Technical Report (*BERC-ARU-BNE-WEWM-RPT-0001*) for more information. An Operational Waste Management Plan will be provided as part of next phase of the project to further demonstrate that the waste is managed according to relevant standards and best practice.
	(b) If waste is disposed of, it is disposed of in a way that prevents or minimises adverse effects on environmental values.		

3. Design Strategy

3.1 Energy – Occupied Spaces

According to NCC 2022, Section J Energy Efficiency of Volume One is applicable to spaces with air-conditioning. Air-conditioning means a service that actively cools or heats the air within a space but does not include a service that directly maintains specialised conditions for equipment or processes. Therefore, the main waste treatment plants are exempt from the requirements applicable to typical air-conditioning services of Building Code of Australia (BCA) regarding energy efficiency. The focus of this energy assessment is for occupied spaces including the Administration Building and Visitor Centre and Gate House. The following features are proposed in accordance with Bromelton SDA Development Scheme and best practice requirements as shown in Table 3 to maximise energy efficiency and will be included as part of the development.

- **Passive Solar Design**: The building orientation and provision of sun shading devices have been taken into consideration as shown in the solar admittance assessment in Appendix A.1. The result shows that the current design of the assessed buildings (Administration Building and Visitor Centre and Gate House) can achieve a minimum 10% improvement in required performance from NCC 2022.
- **Natural Lighting:** Daylight levels has been calculated using Daylight Autonomy (DA) as shown in Appendix A.2. For the Administration Building and Visitor Centre, 40% of the overall occupied floor area receives high levels of daylight. The building complies with relevant requirements in the Green Star Building Submission Guidelines, which requires that a minimum of 40% of regularly occupied areas within the building must receive ample daylight, with at least 20% on any floor or tenancy, whichever is smaller.
- **Ventilation**: The occupied spaces of the Administration Building and Visitor Centre will be air-conditioned. The Project is committed to increasing outdoor air rates (L/s) by 50% compared to the minimums required by AS1668:2012 in the occupied spaces.
- **Landscape Treatment**: Incorporates sustainability measures such as endemic planting, tree canopy cover for heat mitigation, vegetated swales and stormwater basins, and use of recycled water. Design responses include retention of mature trees, biodiversity enhancement, water-sensitive urban design (WSUD) integration, screening vegetation, micro-climate mitigation, and educational spaces. Refer to Architecture & Landscape Design Strategy Report (*BERC-ARU-BNE-ARBU-RPT-000001*) for detailed information.
- **Building Fabric**: A preliminary assessment has been undertaken using the NCC Façade Calculator and the Deemed to Satisfy pathway under NCC2022 Section J. This assessment outlines the required glazing and wall performance based on the glazing extents proposed. Refer to Appendix A for an overview of the study undertaken. Due to the early stages of the Project, the roof and ceiling construction build-up is still to be developed, but the Project is committed to meet the requirements stipulated in NCC 2022 as per in Table 3.
- **Mechanical Systems**: The Project is committed to a minimum 10% improvement in required performance from NCC 2022, which is that the air-conditioning system must comply with Minimum Energy Performance Standards (MEPS) and the full load operational energy efficiency ratio and integrated part load energy efficiency ratio in Table J6D11a or Table J6D11b of NCC 2022 when determined in accordance with AHRI 551/591. The above two tables are used to determine minimum energy efficiency ratio for different refrigerant chillers. The mechanical design will be further developed by the mechanical engineers as the design progresses.
- **Lighting**: The Project is committed to demonstrating at least 90% of the relevant building classes meet the requirements of maximum illumination power density from Table J7D3a of the NCC 2022 Section J, which is used to set the maximum illumination power density for space with different functions. The lighting strategy to be developed by the electrical engineers as the design progresses.

3.2 Water

Water conservation is a critical element for sustainable buildings. It minimises the development's effects on droughts and water shortages and helps preserve the environment and protects against rising water costs. Water conservation is reflected to some degree in all standards and is compatible with many rating tools. For this project, Green Star potable water calculator was used to demonstrate the assessed building has at least 15% reduction in potable water usage when compared to a reference building as shown in Figure 5. A reference building is a hypothetical building of the same configuration and with the same facilities as the proposed project but whose water supply services characteristics are based on a standard practice water usage. For a more in-depth analysis and calculations, refer to Appendix A.3.

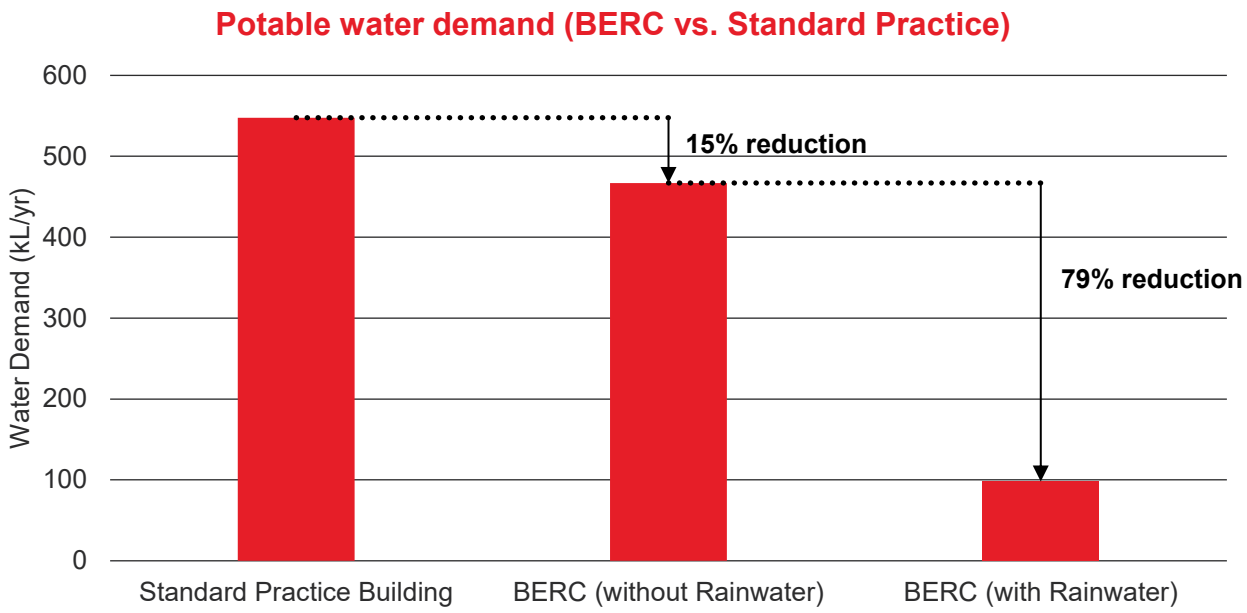


Figure 5: Green Star potable water calculator results

The above result shows a minimum reduction of 15% without accounting for the contribution from rainwater collection and reuse. When incorporating the proposed rainwater tanks, as documented in the latest Civil Drawings (BERC-ARU-BNE-CICW-DRG-1001 to 1801), the potable water reduction could reach a further 79% (as shown by the grey bar in Figure 5).With the current design assumptions for the rainwater catchment and storage system, a much higher potable water reduction could be achieved. The performance will be reviewed at detailed design stage to ensure the reduction target can be achieved. The minimum 15% reduction in potable water compared to a standard building can be achieved through the implementation of the following proposed design features:

- **Efficient fixtures and fittings** – The Water Efficiency Labelling and Standards (WELS) for water fixtures and fittings is Australia's water saving scheme aimed at reducing demand for high quality drinkable water. The Project is targeting the WELS ratings for the following fittings:
  - Toilets: 5 Star WELS
  - Urinals: 6 Star WELS
  - Indoor Taps: 6 Star WELS
  - Showerhead: 3 Star WELS
  - Dishwashers: 5 Star WELS

  As the design progresses the WELS ratings will be reviewed against the overall reduction targets to ensure the overall target of >15% reduction in potable water is achieved.
- **Rainwater harvesting**: The preliminary stormwater design proposes rainwater harvesting systems from the EfW, IBA and IBA Maturing Building. The following assumptions have been considered to estimate the potential reduction in potable water demand:

- Collection area of 26,590 m^2 of roof space
  - 12,600 m^2 from EfW Building
  - 3,990 m^2 from IBA Building
  - 10,000 m^2 from IBA Maturing Building
- ~74% harvesting efficiency
- 4 x 100kL rainwater tank
  - 2 from EfW Building
  - 1 from IBA Building
  - 1 from IBA Maturing Building

- **Water efficient landscaping**: The Project will prioritise endemic/native plant species to enhance biodiversity and reduce reliance on irrigation. The current design does not include exotic species, consistent with Scenic Rim Regional Council's preferred landscape palette. Where irrigation is required, the Project will explore the use of recycled wastewater or harvested rainwater as part of WSUD. No permanent irrigation system is proposed at this stage; however, efficient drip-type irrigation may be adopted in targeted areas such as visitor and amenity spaces during establishment. Planting will also consider bushfire resilience, favouring lower fuel load species. For more information, refer to Architecture & Landscape Design Strategy Report (*BERC-ARU-BNE-ARBU-RPT-000001*).

The Green Star potable water calculator relies on certain assumptions, which will be subject to review and potential updates as the Project advances through the detailed design stages. These assumptions include:

- **Recycled water sources:** The greywater and blackwater collection is currently excluded from the calculator to be conservative. A separate preliminary assessment indicated that onsite treatment of greywater is likely to be viable, subject to further review. The use of rainwater will be prioritised due to the large catchment area.
- **Mechanical system:** The current result assumes that there is no water-based process cooling, such as a cooling tower or water-based heat rejection system, for the Administration Building and Visitor Centre. The assumption will need to be further reviewed as design progresses and incorporated into the Green Star potable water calculator for future updates.
- **Washdown areas:** All other washdown areas are connected to the internal process wastewater drainage system, which feeds into one or two internal process wastewater pits. The process wastewater collected in these pits is reused on-site, primarily for quenching hot IBA within the IBA extractors/dischargers.

3.3 Waste

Up to 40% of the waste going to Australia's landfills is related to the construction and demolition of buildings. Simple design decisions can influence the amount of construction waste being produced and operational waste streams being separated. More waste is produced during the occupancy phase of buildings than during construction and demolition. Poor waste practices and treatment of the environment in the past have not only led to a degradation of our water, air and land resources but also represent a financial burden to current and future generations.

The Project will generate waste from construction, commissioning and operational activities which will need to be managed to avoid environmental and human health impacts in accordance with relevant legislation, policies and guidelines including the *Environmental Protection (EP) Act 1994* and *Environmental Protection (EP) Regulations 2019*. This Sustainability Management Plan focuses on the waste generated on-site from the occupied spaces (e.g. the Administration Building and Visitor Centre), and not the waste by-product produced from the EfW process. Construction and demolition phase waste is excluded from this SMP, as it will be managed separately as per Resource and Waste Management Technical Report (*BERC-ARU-BNE-WEWM-RPT-0001*).

The following measures are proposed and included as part of the development:

- **Operational Waste Management Plan (OWMP) –** The site will generate small amounts of operational waste from the Administration Building and Visitor Centre, delivery of consumables and maintenance works. This includes paper and cardboard, comingled recyclables, organic waste and e-waste. Refer to the Resource and Waste Management Technical Report (*BERC-ARU-BNE-WEWM-RPT-0001*) for more information. An Operational Waste Management Plan should be prepared as part of next phase of the Project to further demonstrate that the waste is managed properly according to relevant standards and best practice. A construction waste generation and management will also be documented in a Construction Waste Management Plan (CWMP) before starting on-stie works.
- **Recycling –** As shown on the floor plans, the waste management areas are in Administration Building and Visitor Centre. The Project is committed to demonstrate that recycling facilities are conveniently located across the development, to allow for ease of use. The waste generated by operators of the facility will be source-separated for recycling, where practicable, and collected regularly by waste collection contractors or Council as required.

4. Summary

This Sustainability Management Plan has demonstrated compliance in accordance with Bromelton State Development Area Development Scheme in terms of energy, water and waste. Other requirements that could indirectly impact sustainability such as emissions, contaminated land, water quality and climate change have been acknowledged and will be supported by the studies and reports from the relevant disciplines such as environmental and civil as the project progresses.

Table 4: Summary of Policies Compliance

Items	Planning Scheme Requirements	Compliance Review Outcome
Energy	**Bromelton State Development Area Development Scheme** Where practical, building, site design and layout maximises energy efficiency, having regard to: (a) Building orientation and passive solar design (b) Natural lighting opportunities (c) Maximising cross ventilation (d) Provision of sun shading devices at north, west and east facing windows and doors (e) Landscaping treatments to the western side of the building.	✓ Preliminary assessment has been undertaken to demonstrate that the building's envelope thermal performance exceeds the minimum requirements in National Construction Code (NCC) Section J by at least 10%. The assessment considers the building orientation, provision of shading devices, windows and doors as per current design. Refer to Appendix A.1 for more details. ✓ Daylight Autonomy calculation have shown that approximately 40% (min. 40% as specified in Green Star Buildings Submission Guidelines) of the occupied floor area of Admin Building & Visitor Centre can achieve high levels of daylight. Refer to Appendix A.2 for more details ✓ An Architecture & Landscape Design Strategy Report (BERC-ARU-BNE-ARBU-RPT-000001) has been prepared to demonstrate the integration of the built form and landscape character including landscaping treatments.
Water	**Bromelton State Development Area Development Scheme** The use of reticulated water supply is minimised through the use of alternative water supply sources, including: (a) Rainwater harvesting (b) Recycled water sources	✓ Green Star potable water calculator was used to demonstrate the assessed building has 15% reduction in potable water usage when compared to a reference building. The current result is based on assumptions and design initiatives as listed in Section 3.2. Refer to Appendix A.3 for a more in-depth analysis and calculations.
Waste	**Environmental Protection Regulation 2019 – Schedule 8 – Part 3 Environmental Objections and Performance Outcomes** Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values. (a) waste generated, transported or received is managed in accordance with the waste and resource management hierarchy under the Waste Reduction and Recycling Act 2011; (b) if waste is disposed of, it is disposed of in a way that prevents or minimises adverse effects on environmental values.	✓ A Resource and Waste Management Technical Report (BERC-ARU-BNE-WEWM-RPT-0001) has been provided including the information on waste classification, potential impact, management pathways and key opportunities. An Operational Waste Management Plan (OWMP) will be provided as part of next phase of the project to further demonstrate that the waste is managed properly according to relevant standards and best practice. ✓ A construction waste generation and management will also be documented in a Construction Waste Management Plan (CWMP) before starting on-stie works.

5. References

To complete the analysis and reporting, a series of standards and documents were reviewed and considered as part of the process.

The following standards were used as references:

- National Construction Code (NCC) Volume One 2022
- Bromelton State Development Area Development Scheme – Dec 2017
- State Development Assessment Provisions Version 3.3 - 18 Jul 2025
- Environmental Protection Regulation 2019 – Schedule 8 Environmental objective assessment
- Green Star Buildings Submission Guidelines

The following documents support the targets outlined within this Sustainability Management Plan and should be referred to for more details:

- Architectural Drawings by Arup 19 December 2025
- Architecture & Landscape Design Strategy Report (*BERC-ARU-BNE-ARBU-RPT-000001*) 19 December 2025
- Civil Drawings by Arup (*BERC-ARU-BNE-CICW-DRG-1001 to 1802*) 16 January 2026
- Waste Management Technical Report (*BERC-ARU-BNE-WEWM-RPT-0001*) 19 December 2025.
- Cleanaway Sustainability Report 2024

Appendix A

A.1 Building Fabric - NCC 2022 Section J

This section outlines the preliminary thermal performance assessment methodology and results to meet the requirements of the NCC 2022 Section J4. The assessment was undertaken to determine thermal performance of the façade to satisfy the energy efficiency provisions of Section J4 Building Fabric.

It is worth noting that the extent of glazing and solid wall elements of the buildings, as considered for compliance with Section J and daylight assessments, is based on the concept stage architectural drawings available at the time of writing this report. Given the early stage of the Project, these preliminary findings can serve as a foundational reference point for further design iterations and refinements.

In addition to meeting the requirements under the NCC Section J, the Project is committed to exceed the minimum NCC requirements by 10%.

A.1.1 Thermal Envelope (U-value)

The overall thermal performance of a building is dictated by the construction of its walls and windows. U-value is the thermal transmittance of the composite element allowing for the effect of any airspaces, thermal bridging and associated surface resistances. An overall maximum U-value of 2.0 $W/m^2.K$ is defined by the NCC for the wall-glazing construction. The performance of the glass and walls must be considered together. The current design of the Administration Building and Visitor Centre and Gate House is able to achieve the 10% improvement target as outlined in Table 5 and Table 6.

A.1.2 Solar Admittance

Solar admittance is the fraction of incident irradiance on a wall-glazing construction that adds heat to a building's space. The solar admittance must comply with the NCC requirements. For BERC, only the occupied areas form part of the envelope as shown in Appendix A.1.5. Therefore, it is best to consider these areas in isolation rather than as an overall building average. For glazing, the solar heat gain coefficient (SHGC) represents the solar admittance unless shaded where correction factors can be applied. The current design of the Administration Building and Visitor Centre and Gate House is able to achieve the 10% improvement target as outlined in Table 5 and Table 6.

A.1.3 Methodology

The NCC 2022 Volume One Façade Calculator was used to evaluate thermal performance. The tool requires inputs including glazing and wall system properties, shading elements (e.g. vertical shadings, roof overhangs), and the area of each façade type. It then generates a compliance summary aligned with NCC 2022 Section J4D6.

A.1.4 Building Definitions

The Administration Building and Visitor Centre and Gate House have been assessed independently for NCC Section J compliance. This will allow these buildings to comply on their own merits, rather than relying on "trading off" one façade for the other, should such things be necessary. The layout plans of the IBA Admin Building are not available at the current stage of design. Therefore, it is excluded from this assessment.

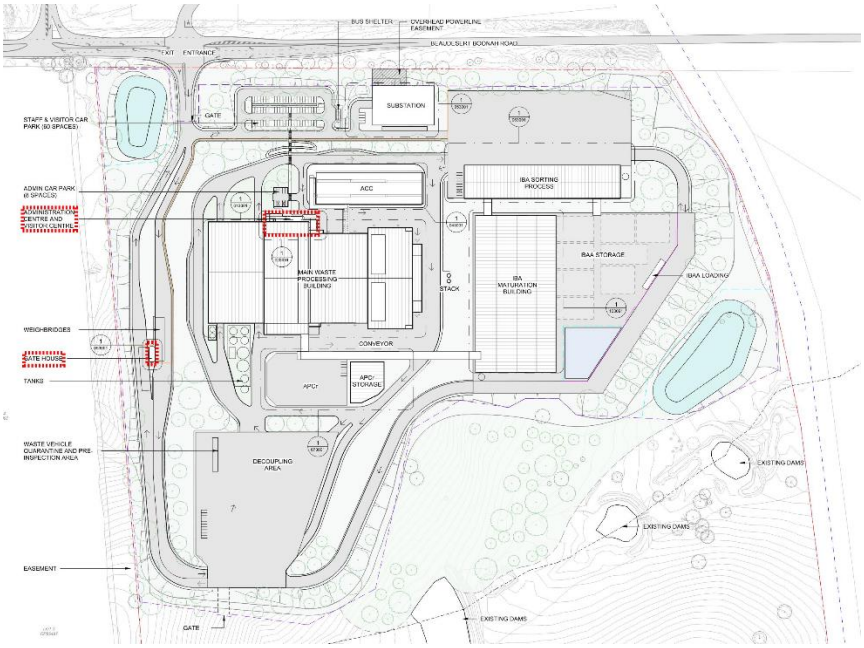
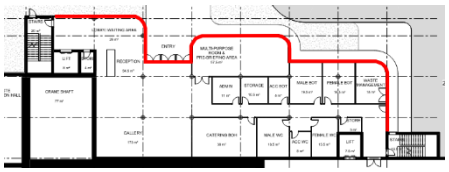


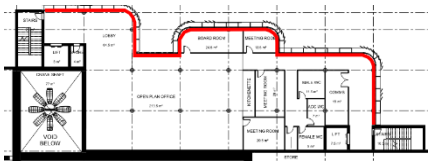
Figure 6: Location of the assessed buildings

A.1.5 Areas Tested

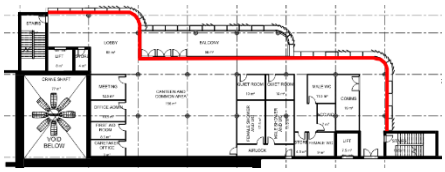
According to NCC 2022, Section J of Volume One is applicable to conditioned spaces or habitable rooms. Therefore, the model is for occupied spaces as outlined in red in Figure 7. Stairwells are therefore excluded from the assessment.



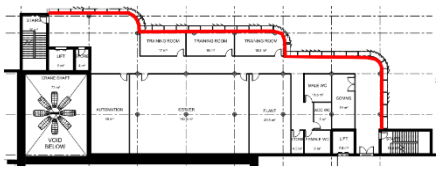
Admin Building & Visitor Centre – Ground



Admin Building & Visitor Centre - Level 1



Admin Building & Visitor Centre - Level 2



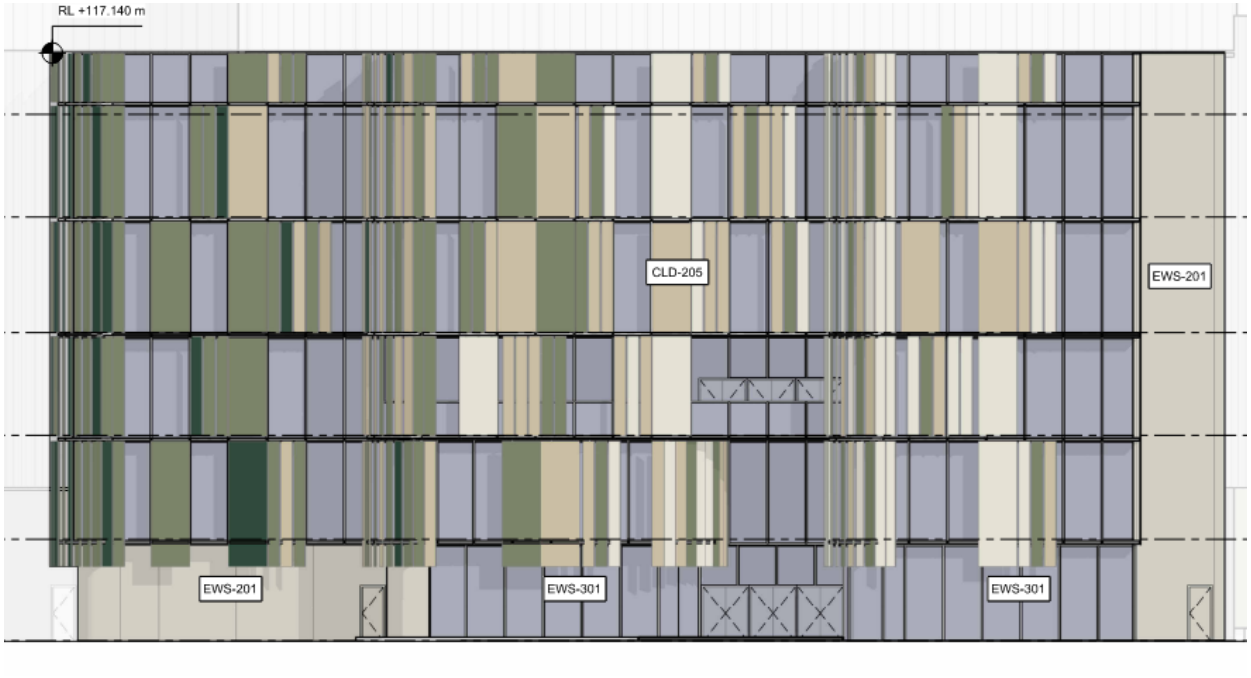
Admin Building & Visitor Centre – Level 3

Admin Building & Visitor Centre - Level 4

Figure 7: Assessed Walls for the Admin Building & Visitor Centre

A.1.6 Shading Extent

The Administration Building and Visitor Centre has several different shading solutions in differing sections as shown in Figure 8. These shading elements influence both the NCC Section J compliance calculations and daylight modelling outcomes. Based on the current architectural material schedule, vertical shading consists of aluminium perforated panels (CLD-205) with 40% openness, while horizontal shading is provided by 600 mm overhangs on the Administration Building and Visitor Centre. The shading elements are modelled as per the current architectural drawings.



Angled and flat vertical shades at full height on Admin Building & Visitor Centre (40% opening)

Figure 8: Shading Extent for Administration Building and Visitor Centre

A.1.7 Administration Building and Visitor Centre - Results

The Administration Building and Visitor Centre's thermal envelope exceeds the minimum NCC 2022 requirements by approximately 18% in terms of U-value performance. This is primarily attributed to the low window-to-wall ratio (WWR) on the South and West façade. Similarly, the solar performance exceeds NCC minimum requirements by 24%.

Table 5: Admin Building & Visitor Centre – NCC Section J Results

Compliance Items		NCC2022 Section J4 Minimum Compliance
Window Wall Construction	Window to wall ratio (WWR%)	North: 56% East: 47% South: 0% West: 7% **Overall: 50%** Note: A spandrel panel height of 1000mm is assumed.
	Wall	Solid Wall: Total System R ≥ 2.0 m^2K/W Spandrel: Total System R ≥ 1.05 m^2K/W
	Glazing	Total System U-value ≤ 2.5 $W/m^2.K$ Total System Solar Heat Gain Coefficient (SHGC) ≤ 0.25
	Thermal Performance wall-glazing U-Value ($W/m^2.K$)	1.65
	Solar Performance (AC Energy Value)	220
Improvement on NCC - Thermal Performance (U-Value) Minimum Requirements 2.0 $W/m^2.K$ (Refer to NCC Façade Calculator Report in Appendix A.1.8)		**18%**
Solar Performance (Improvement on NCC) Minimum Requirements: AC Energy Value 288 (Refer to NCC Façade Calculator Report in Appendix A.1.8)		**24%**

A.1.8 Admin Building & Visitor Centre - NCC 2022 Façade Calculator

ABCB

Façade

Report

National Construction Code Calculator

Project Summary

Date
21/08/2025

Name
AQ

Company
ARUP

Position
0

Building Name / Address
Bromelton Energy and Resource Centre Admin Building

Building State
QLD

Climate Zone
Climate Zone 2 - Warm humid summer, mild winter

Building Classification
Class 5 - office building

Storeys Above Ground
4

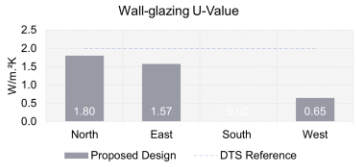
Tool Version
1.5 (May 2024)

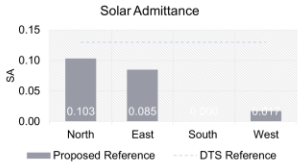
The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

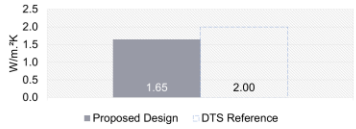
	Method 1 North	Method 1 East	Method 1 South	Method 1 West	Method 2 All
Wall-glazing U-Value (W/m².K)	1.80	1.57		0.65	1.65
Solar Admittance	0.10	0.08		0.02	
AC Energy Value					220

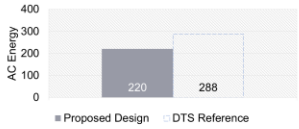
Method 1





Method 2





Project Details

	North	East	South	West
Glazing Area (m²)	556	140		8
Glazing to Façade Ratio	61%	50%		7%
Glazing References	EWS-301	EWS-301		EWS-301
Glazing System Types	Fixed	Fixed		Fixed
Glass Types	DGU - double low-E coating	DGU - double low-E coating		DGU - double low-E coating
Frame Types	Aluminium thermally broken	Aluminium thermally broken		
Average Glazing U-Value (W/m².K)	2.50	2.50		2.50
Average Glazing SHGC	0.25	0.25	0.00	0.25
Shading Systems	Device	Device	Device	Device
Wall Area (m²)	353	138		110
Wall Types	Wall Spandrel	Wall Spandrel		Wall Spandrel
Methodology	Wall			
Wall Construction	R2.0 Spandrel Config 4 - R1.0	R2.0 Spandrel Config 4 - R1.0		
Wall Thickness	160 0	160 0		160
Average Wall R-value (m².K/W)	1.44	1.58		1.95
Solar Absorptance				

A.1.9 Gate House – Results

The Gate House's thermal envelope exceeds the minimum NCC 2022 requirements by approximately 11% in terms of U-value performance. The solar performance exceeds NCC minimum requirements by 11%.

Due to the higher window-to-wall ratio (WWR) of 70% for the Gate House, compared to 50% for the Administration Building and Visitor Centre, glazing with improved thermal performance is required. Accordingly, the Gate House is designed with a total system U-value of ≤ 2.3 W/m²·K, whereas the Administration Building achieves compliance with glazing of ≤ 2.5 W/m²·K. This reflects the greater glazing intensity of the Gate House façade and the need for higher-performing glass to satisfy NCC Section J requirements.

Table 6:Gate House – NCC Section J Results

Compliance Items		NCC2022 Section J4 Minimum Compliance
Window Wall Construction	Window to wall ratio (WWR%)	North: 70% East: 72% South: 70% West: 70% **Overall: 70%**
	Wall	Total System R ≥ 2.0 m^2K/W
	Glazing	Total System U-value ≤ 2.3 $W/m^2.K$ Total System Solar Heat Gain Coefficient (SHGC) ≤ 0.20
	Thermal Performance wall-glazing U-Value ($W/m^2.K$)	1.77
	Solar Performance (AC Energy Value)	25
Improvement on NCC - Thermal Performance (U-Value) Minimum Requirements 2.0 $W/m^2.K$ (Refer to NCC Façade Calculator Report in Appendix A.1.10)		**11%**
Solar Performance (Improvement on NCC) Minimum Requirements: AC Energy Value 28 (Refer to NCC Façade Calculator Report in Appendix A.1.10)		**11%**

A.1.10 Gate House - NCC 2022 Façade Calculator

Façade

Report

Calculator

Project Summary

Date
21/08/2025

Name
AQ

Company
ARUP

Position
0

Building Name / Address
Bromelton Energy and Resource Centre
Gate House

Building State
QLD

Climate Zone
Climate Zone 2 - Warm humid summer, mild winter

Building Classification
Class 5 - office building

Storeys Above Ground
1

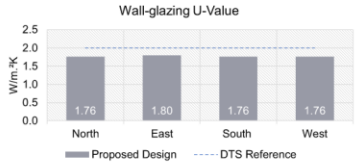
Tool Version
1.5 (May 2024)

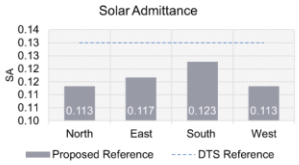
The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

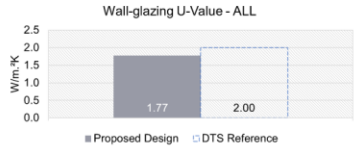
	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value (W/m².K)	1.76	1.80	1.76	1.76	1.77
Solar Admittance	0.11	0.12	0.12	0.11	
AC Energy Value					25

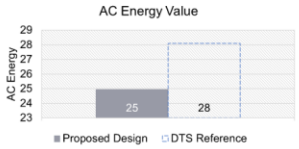
Method 1





Method 2





Project Details

	North	East	South	West
Glazing Area (m²)	11.21	38.75	11.21	35
Glazing to Façade Ratio	70%	72%	70%	70%
Glazing References	EWS-301	EWS-301	EWS-301	EWS-301
Glazing System Types	Fixed	Fixed	Fixed	Fixed
Glass Types	DGU - double low-E coating	DGU - double low-E coating	DGU - double low-E coating	DGU - double low-E coating
Frame Types	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken
Average Glazing U-Value (W/m².K)	2.30	2.30	2.30	2.30
Average Glazing SHGC	0.20	0.20	0.20	0.20
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	4.8	15	4.8	15
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	R2.0	R2.0	R2.0	R2.0
Wall Thickness	160	160	160	160
Average Wall R-value (m².K/W)	2.00	2.00	2.00	2.00
Solar Absorptance				

A.2 Preliminary Daylight Studies

The following pages outline the methodology and results for the Project as they pertain to the quality of daylight in the primary spaces identified. Only the primary spaces (i.e., spaces that are likely to be occupied for >2 hours) were assessed in this process. Daylight Autonomy (DA) is used to calculate daylights for the Administration Building and Visitor Centre. According to Green Star Building Submission Guidelines, at least 40% of the regularly occupied areas across the building must receive high levels of daylight with no less than 20% on any floor or tenancy (whichever is smaller).

A.2.1 Variables

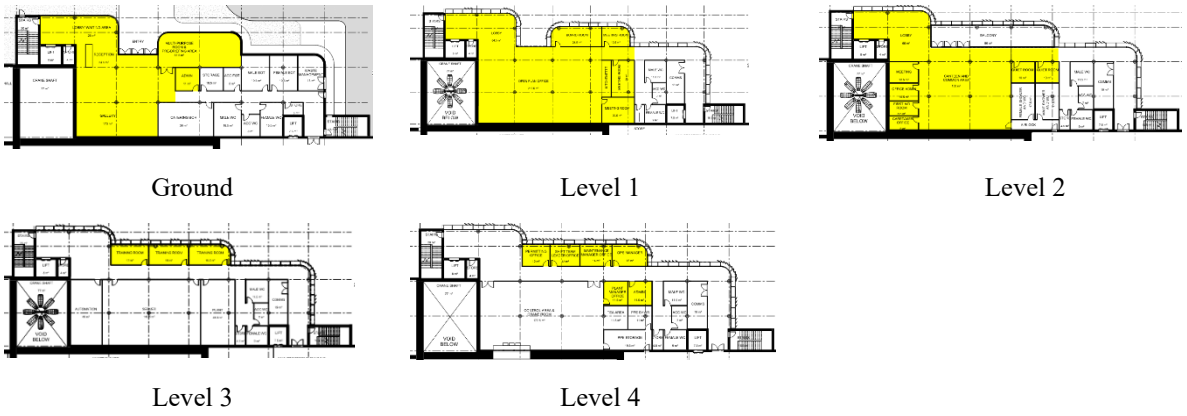
The model developed for completing the Section J assessment is the same model that was used to complete the daylight assessment. The assessment has been undertaken assuming a uniform design sky of 10,000 lux. Other variables were required to assess the DA of the model. These are shown in Table 7.

Table 7: Variables to Assess Daylight

Element	Value
Weather file	AUS_QLD_Beaudesert.Drumley.St.955750_TMYx.epw
Daylight Calculation Methodology	Daylight Autonomy
Areas Tested	Regular use areas – Any room or internal space of a non-residential building other than a bathroom, laundry, toilet, cupboard, corridor, stair, lobby, copying room, photographic darkroom, clothes drying room and other space of the specialised nature occupied neither frequently nor for extended periods. Refer to Appendix A.1.5 and A.2.2.
Surrounding Trees/Buildings	As per architectural drawings
Glazing Visible Light Transmission (VLT) %	45% (typically achievable with SHGC of 0.3)
Wall Light Reflectance Value (LRV)	50%
Floor Light Reflectance Value (LRV)	10%
Ceiling Light Reflectance Value (LRV)	70%
Context/Other LRV	30%

A.2.2 Area Tested - Admin Building & Visitor Centre

The regular use areas in the Admin Building & Visitor Centre occur on Ground to Level 4. These areas are highly glazed with shading. It is expected that they will have good access to daylight.



Ground | Level 1 | Level 2

Level 3 | Level 4

Figure 9: Admin Building & Visitor Centre – Area Tested for Daylight Studies (highlighted in yellow)

A.2.3 Results - Admin Building & Visitor Centre

Due to the narrow depth and extent of glazing on the Administration Building and Visitor Centre, most of the areas are well daylit. Refer to Figure 10 for detailed results for each floor.

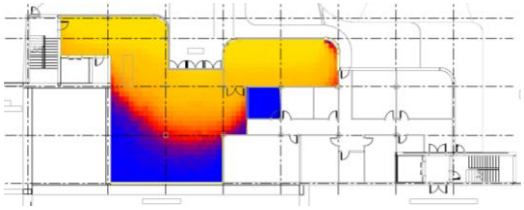
Overall, 40% of the regularly occupied areas receive high levels of daylight, meeting the minimum requirement set by the Light Quality credit in the Green Star Buildings Submission Guidelines. It is noted that Level 1 records the lowest daylight performance at 26%, primarily because two meeting rooms are located centrally within the floorplate and are fully enclosed by internal walls without openings. Additionally, part of the open plan office is positioned away from glazed façades, further limiting daylight access.

Daylight performance can be further improved through the following measures:

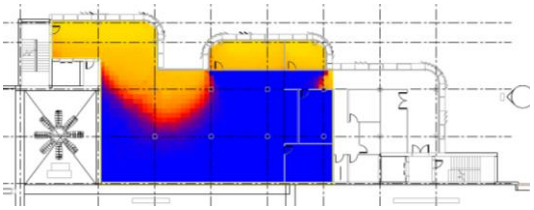
- Introducing glazed internal partitions to enclosed rooms currently bounded by solid walls without openings.
- Specify light-coloured wall and ceiling finishes with high Light Reflectance Values (LRV) to increase surface reflectance, beyond the current assumptions of 50% for walls and 70% for ceilings.

Table 8: Daylight Autonomy Results for the Admin Building & Visitor Centre

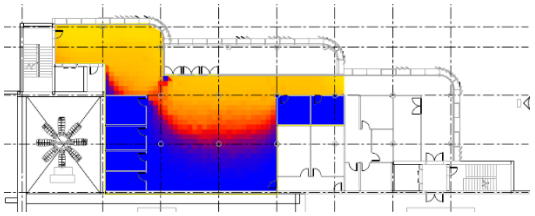
Level	Primary Space Floor Area (m^2)	Area receives high levels of daylight (m^2)	% Floor Area with high levels of daylight
Ground	272	145	53%
Level 1	384	104	27%
Level 2	300	95	32%
Level 3	54	51	93%
Level 4	80	45	55%
Overall	**1091**	**440**	**40%**



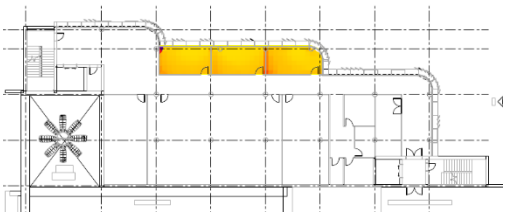
Admin Building & Visitor Centre – Ground (53%)



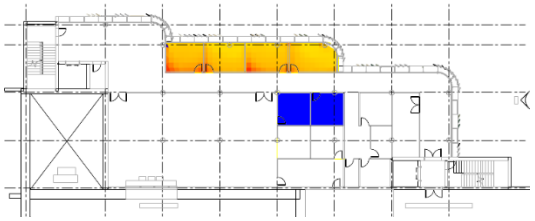
Admin Building & Visitor Centre – Level 1 (27%)



Admin Building & Visitor Centre – Level 2 (32%)



Admin Building & Visitor Centre – Level 3 (93%)



Admin Building & Visitor Centre – Level 4 (55%)

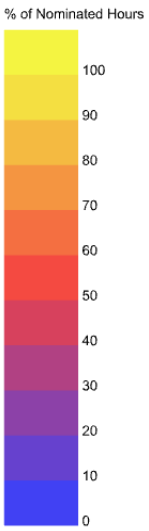


Figure 10: Daylight Autonomy Results from the Admin Building & Visitor Centre

A.3 Green Star Potable Water Calculator

Potable Water, Performance Pathway (18A) - All projects, except Hotels & Residentials

Links to - Project information:	Building occupancy, areas and operation	Water systems checklist	Rainfall data		
Links to - Water systems:	1. Sanitation	2. Whitegoods	3. Heat rejection	4. Washdown	5. Landscape irrigation
	6. Swimming pools	7. Fire protection systems	8. Process cooling		
Links to - Reclaimed water sources:	Reclaimed water sources	Rainwater collection	Greywater collection	Blackwater collection	Stormwater and off-site reclaimed water supply
Links to - Results:	Total water demand for each system	Total water demand per month	Potable water results	Domestic hot water	Discharge to sewer

Weighted Points Achieved	9.6

Instructions: Enter information into light blue cells

For details on what information is required and how this information is used to calculate the reduction in potable water consumption against the Standard Practice Benchmark, please refer to the Green Star - Potable Water Calculator Guide, available from the GBCA website.

GENERAL

Building occupancy, areas and operation

Space type description	Area (m²)	Peak days of operation (remaining days assumed off-peak)	Occupancy profile	Maximum design occupancy used in water use calculations (m²/person) (Enter manually OR use default): Proposed Building design occupancy (m2/person)	Default design occupancy (Not applicable for residential areas)	Percentage of building users who occupy the space continually for periods greater than one hour.
Office	1,141	5 days a week	Class 5, Class 7 Class 8 or Class 9a		Office (10m2/person)	90%
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
Non occupied areas		n/a	n/a			
TOTAL AREA	1,141					

STANDARD OCCUPANCY PROFILES BASED ON PROFILES GIVEN IN SPECIFICATION J of THE NCC 2019

Profile name	Class 5, Class 7 Class 8 or Class 9a		Class 6 shop or shopping centre		Class 6 restaurant or cafe		Class 9b theatre or cinema	
Description	NCC Table 2c & 2d		NCC Table 2e		NCC Table 2f		NCC Table 2h	
Time period (local standard time)	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak
12:00am to 1:00am	0%	0%	0%	0%	0%	0%	0%	0%
1:00am to 2:00am	0%	0%	0%	0%	0%	0%	0%	0%
2:00am to 3:00am	0%	0%	0%	0%	0%	0%	0%	0%
3:00am to 4:00am	0%	0%	0%	0%	0%	0%	0%	0%
4:00am to 5:00am	0%	0%	0%	0%	0%	0%	0%	0%
5:00am to 6:00am	0%	0%	0%	0%	0%	0%	0%	0%
6:00am to 7:00am	0%	0%	0%	0%	5%	0%	0%	0%
7:00am to 8:00am	10%	0%	10%	0%	5%	0%	0%	0%
8:00am to 9:00am	20%	5%	20%	0%	5%	0%	0%	20%
9:00am to 10:00am	70%	5%	20%	0%	5%	0%	0%	70%
10:00am to 11:00am	70%	5%	15%	0%	20%	0%	0%	70%
11:00am to 12:00pm	70%	5%	25%	0%	50%	0%	0%	70%
12:00pm to 1:00pm	70%	5%	25%	0%	80%	0%	20%	20%
1:00pm to 2:00pm	70%	5%	15%	0%	70%	0%	70%	70%
2:00pm to 3:00pm	70%	5%	15%	0%	40%	0%	70%	70%
3:00pm to 4:00pm	70%	5%	15%	0%	20%	0%	70%	70%
4:00pm to 5:00pm	70%	5%	15%	0%	25%	0%	70%	70%
5:00pm to 6:00pm	35%	0%	5%	0%	50%	0%	20%	20%
6:00pm to 7:00pm	10%	0%	5%	0%	80%	0%	20%	20%
7:00pm to 8:00pm	5%	0%	0%	0%	80%	0%	70%	70%
8:00pm to 9:00pm	5%	0%	0%	0%	80%	0%	70%	70%
9:00pm to 10:00pm	0%	0%	0%	0%	50%	0%	70%	70%
10:00pm to 11:00pm	0%	0%	0%	0%	35%	0%	70%	70%
11:00pm to 12:00am	0%	0%	0%	0%	20%	0%	10%	10%
Hours per day at peak occupancy	**6.45**	**0.45**	**1.85**	**0**	**7.2**	**0**	**6.3**	**8.6**
Maximum occupancy during the day	70%	5%	25%	0%	80%	0%	70%	70%

Water systems checklist

Please provide responses to the following questions. Detailed inputs will be requested further on in the calculator.

WATER USES - ALL QUESTIONS MUST BE ANSWERED

1. Sanitation

Are fixtures and fittings provided for building occupant sanitation?	Yes
Does the project provide for sports activities?	No
Have showers been installed for post/pre activity use?	No

2. Whitegoods

Does the project include any dishwashers or washing machines?	Yes

3. Heat rejection

Does the project utilise water based heat rejection (building cooling)?	No
Does the project have cooling towers?	No
Does the project contain any other water cooled systems that are not conventional cooling	No

4. Washdown

Does the project include washdown areas?	Yes

5. Landscape irrigation

Are there any landscaped areas within the project?	Yes
Are any irrigation systems included in the project?	No

6. Swimming pools

Are there any swimming pools within the project?	No

7. Fire protection systems

Does the project include a fire protection system?	Yes

8. Process cooling

Does the project include any water based process cooling?	No

WATER REUSE - ALL QUESTIONS MUST BE ANSWERED

9. Reclaimed water

Does any water collection, reclamation and/or reuse occur on the project site?	Yes
Does the project include rainwater capture and reuse systems?	Yes
Does the project include greywater capture, treatment and reuse systems?	No
Does the project include blackwater capture, treatment and reuse systems?	No
Does the project include other stormwater reuse or an off-site supply of non-potable water?	No

Rainfall data

Select the average rainfall data location for the project	Brisbane (1997 - 2006) (mm)

1. SANITATION

Water demand from sanitation fixtures and fittings

(Annual water demand from fixtures and fittings is calculated using assumed usage rates based on the space types and occupancies entered above. See pages 10-13 of the Green Star - Potable Water Calculator Guide for further details.)

TOILETS

Description	Water efficiency (Enter manually OR nominate WELS Star Rating): Manufacturer's data (L/flush)	WELS Star Rating selection	Water efficiency used in calculations (L/flush)	Percentage of each type	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
Toilets		5 Star	3.0	100%		
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
			Total	100%	81	108

(The Standard Practice Benchmark is based on 3 StarWELS rated toilets)

URINALS

Are urinals installed?	Yes
Would urinals normally be installed in the building type?	Yes

(Note: if "No" is selected, the project team should provide justification within the short report as to why the standard practice building does not have urinals.)

Urinals on auto timer

Enter average L/flush	1.0
Enter number of urinals on autotimer	10
Percentage of total number of Urinals	100%

Description	Water efficiency (Enter manually OR nominate WELS Star Rating): Manufacturer's data (L/min)	WELS Star Rating selection	Water efficiency used in calculations (L/min)	Percentage of each type	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
Urinals		6 Star	1.0	100%		
<enter description here>		Select star rating				
<enter description here>		Select star rating				
<enter description here>		Select star rating				
<enter description here>		Select star rating				
<enter description here>		Select star rating				
<enter description here>		Select star rating				
<enter description here>		Select star rating				
<enter description here>		Select star rating				
<enter description here>		Select star rating				
			Total	100%	24	42

(The Standard Practice Benchmark is based on 3 Star WELS rated urinals)

INDOOR TAPS

Description	Water efficiency (Enter manually OR nominate WELS Star Rating): Manufacturer's data (L/min)	WELS Star Rating selection	Water efficiency used in calculations (L/min)	Percentage of each type	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
Taps		6 Star	4.5	100%		
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
			Total	100%	35	58

(The Standard Practice Benchmark is based on 4 Star WELS rated taps)

SHOWERS - OCCUPANTS

Shower demand by occupants (reference)	8%
Shower demand by occupants (current)	8%

For residential buildings: Enter 100% for both "reference" and "current" shower demand
For other building Types: Use the reference and proposed building bicycle accommodation percentage from the Sustainable Transport Calculator, or percentages determined under 17.B.4 'Active Transport Facilities' criterion to determine the number of building occupants that are likely to shower each day.

Description	Water efficiency (Enter manually OR nominate WELS Star Rating): Manufacturer's data (L/min)	WELS Star Rating selection	Water efficiency used in calculations (L/min)	Percentage of each type	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
SHOWERS	7.5	3 Star	7.5	100%		
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
<enter description>		Select star rating				
			Total	100%	54	65

(The Standard Practice Benchmark is based on 3 Star WELS rated showers)

SHOWERS - SPORTS FACILITIES

Indicate the number of people expected to participate in sporting activities each day. (Use an average based on weekly figures if required)	
Indicate the number of days/year that the sports facilities are in use	

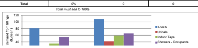
Description	Water efficiency (Enter manually OR nominate WELS Star Rating): Manufacturer's data (L/min)	WELS Star Rating selection	Water efficiency used in calculations (L/min)	Percentage of each type	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
			Total	0%	0	0

(The Standard Practice Benchmark is based on 3 Star WELS rated showers)

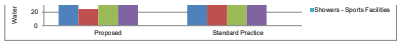
Total must add to 100%

RESULTS: WATER DEMAND FROM FITTINGS

	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
Toilets	81	108
Urinals	24	42
Indoor Taps	35	58



Showers - Occupants	54	65
Showers - Sports Facilities	0	0
TOTAL	194	273



2. WHITE GOODS

Water demand from washing machines

The project team is to provide documentary evidence in accordance with the water calculator guide and technical manual to substantiate the number of cycles per year. Otherwise, leave blank and a default value will be applied.

WASHING MACHINES

Description	Water efficiency (Enter manually OR nominate WELS Star Rating)		Machine capacity (kg)	Water efficiency used in calculations (L/kg)	Number of each type	Number of cycles per year (leave blank if unknown)	Proportion of water per cycle that is sourced from DHW (%)	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
	Manufacturer's data (L/kg)	WELS Star Rating selection							
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
				Total	0			0	0

Water demand from dishwashers

DISHWASHERS

Description	Water efficiency (Enter manually OR nominate WELS Star Rating)		Machine capacity (number of place settings)	Water efficiency used in calculations (L/cycle)	Number of each type	Number of cycles per year (leave blank if unknown)	Proportion of water per cycle that is sourced from DHW (%)	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
	Manufacturer's data (L/cycle)	WELS Star Rating selection							
Dishwashers		5 Star	15	12.3	2		90%	9	12
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
<enter description>		Select star rating						0	0
				Total	2			9	12

3. HEAT REJECTION

This section requires outputs from the energy simulation undertaken for Conditional Requirement and Greenhouse Gas Emissions (Credit 15).

GENERAL INFORMATION

Proposed Building

Site elevation (m above sea level)	
Maximum combined cooling tower air flow (L/s)	
Peak building cooling load (kW)	

Standard Practice Building

Select one of the following building types:	
Standard Practice HVAC system type assumed for Energy and Water Category	
Maximum combined cooling tower air flow (L/s)	
Peak building cooling load (kW)	

Water demand from cooling towers

The project team has indicated that there are no water based heat rejection systems included in the project. Please complete the Standard Practice cooling load.

Please enter the average air temperature, relative humidity and heat rejection load for the standard practice building.

EVAPORATION

Month	Proposed Building monthly cooling load (kWh/month)	Average dry bulb temperature (°C)	Average relative humidity (%)	Standard Practice Building monthly cooling load (kWh/month)
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

Visit the Bureau of Meteorology's website to obtain average dry bulb and relative humidity data relevant to your site:
http://www.bom.gov.au/climate/data/index.shtml?bookmark=200

DRIFT

	Proposed Building	Standard Practice Building	
Condenser Water Δt (°C)			(as per the requirements of the Greenhouse Gas Emissions Calculator Guide)
Drift coefficient (%)			(as required in AS3666.1 clause 4.4)

BLEED

	Proposed building	Standard Practice Building	
Cycles of concentration			Standard practice cycles of concentration

	Proposed Building				Standard Practice Building			
Month	Evaporation (kL)	Drift (kL)	Bleed (kL)	TOTAL kL/month	Evaporation (kL)	Drift (kL)	Bleed (kL)	TOTAL kL/month
January				0	0	0	0	0
February				0	0	0	0	0
March				0	0	0	0	0
April				0	0	0	0	0
May				0	0	0	0	0
June				0	0	0	0	0
July				0	0	0	0	0
August				0	0	0	0	0
September				0	0	0	0	0
October				0	0	0	0	0
November				0	0	0	0	0
December				0	0	0	0	0
Total (kL/year)	0	0	0	0	0	0	0	0

Water demand from heat rejection systems that are not conventional cooling towers

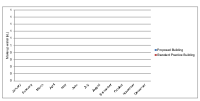
THE PROJECT TEAM HA! INDICATED THAT THER

Please proceed to following section.

Month	Water demand per month (kL/month)
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	
Total make up water (kL/year)	0

RESULTS: WATER DEMAND FROM HEAT REJECTION

Month	Proposed Building (kL)	Standard Practice Building (kL)
January	0	0
February	0	0
March	0	0
April	0	0
May	0	0
June	0	0
July	0	0
August	0	0
September	0	0
October	0	0
November	0	0
December	0	0
Total make up water (kL/year)	0	0



4. WASHDOWN

Washdown hoses

Description	Hose Flowrate (L/min)	Number of Hoses	Average daily use (minutes)	Proposed consumption (kL/day)	Standard Practice consumption (kL/day)
Washdown hoses	12.0	2	30	1	1
<enter description>				0	0
<enter description>				0	0
<enter description>				0	0
<enter description>				0	0
<enter description>				0	0
<enter description>				0	0
<enter description>				0	0
<enter description>				0	0
<enter description>				0	0
			Total	1	1

5. LANDSCAPE IRRIGATION

(The irrigation requirement for the site is calculated for each month of the year, for each landscaped 'zone' in the site (a zone being a landscaped area that has the same soil type, irrigation system and as far as possible, types of plants). Please see pages 17-22 of the Green Star- Calculator Guide for further details.)

Climate data

Month	Rainfall (mm)	Evapotranspiration (point potential) (mm)

Landscape zones

Name and description	Area of zone (m^2)	Percentage of zone undercover (%)	Weighted average crop coefficient in zone	Common irrigation systems water application efficiency	User determined application efficiency

RESULTS: WATER DEMAND FROM IRRIGATION

Landscape irrigation requirements per zone

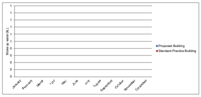
Note: The irrigation requirement for a particular zone will only be computed once every field related to that zone has been completed in the table above.

Zone name and description	Proposed Building (kL)	Standard Practice Building (kL)
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

0	0	0
0	0	0
0	0	0
0	0	0
Total	0	0

Landscape irrigation requirements per month

Month	Proposed Building (kL)	Standard Practice Building (kL)
January	0	0
February	0	0
March	0	0
April	0	0
May	0	0
June	0	0
July	0	0
August	0	0
September	0	0
October	0	0
November	0	0
December	0	0
Total	0	0



6. SWIMMING POOLS

GENERAL INFORMATION

Is the swimming pool outdoor or indoor	
Enter the project height above sea level (m)	
Is a pool cover provided	
Enter the volume of the swimming pool (m^3)	
Enter the surface area of the swimming pool (m^2)	
Enter the annual **minimum** pool hall exhaust air volume based on the requirements of AS1668.2 (m^3)	
Enter the annual proposed design pool hall exhaust air volume (m^3)	
Enter the average pool hall temperature while pool exhaust is operating	
Enter the water consumption for filter cleaning (backwash) (L)	
Enter the number of times/year that filter cleaning will take place	

Reference swimming pool water consumption (L/day)	0
Proposed swimming pool water consumption (L/day)	0

CLIMATE DATA

Enter climate data relevant to the project location

Month	Rainfall (mm)	Evapotranspiration (point potential) (mm)

Visit the Bureau of Meteorology's website to obtain rainfall and evapotranspiration data relevant to your site:
http://www.bom.gov.au/climate/data/index.shtml

7. FIRE PROTECTION SYSTEMS

Is the building required under part E of the National Construction Code (formerly the Building Code of Australia) to have sprinklers installed as part of its fire protection system?	Yes
Does the building's sprinkler system discharge water during testing?	Yes
Is greater than 80% of discharged water captured for reuse?	N/A
Testing frequency (enter number of tests per year)	
Volume discharged per test (L)	
Proportion of water captured per test (%)	
Requirements met	No

8. PROCESS COOLING

Is all water based process cooling provided by closed loop systems?	

The following information is only required for open loop process cooling systems

Evaporation losses (L/day)	
Water discharged to sewer (L/day)	
Percentage of open loop process cooling water demand sourced from non-potable (reclaimed) water	

RECLAIMED WATER

Reclaimed water sources

Note: All systems entered into this calculator must comply with local EPA requirements.

DISTRIBUTION OF WATER SOURCES

Water fittings / systems	Percentage of fittings/systems connected to the following water sources				
	Rainwater	Greywater	Blackwater	Stormwater recycling or other off-site reclaimed water	Mains water only (this column must be completed - enter a figure between 0% and 100% for each water system)
Toilets	100%				0%
Urinals	100%				0%
Indoor taps					
Showers - occupants	0%				100%
Showers - sports	0%				100%
Laundries					
Dishwashers	0%				100%
Heat rejection					
Washdown	100%				0%
Landscape irrigation					100%
Fire protection systems					100%
Swimming pools					
Process cooling					

Note:

- Where fittings or systems are supplied with water from more than one source, it is assumed that the they are first supplied with water from any greywater and blackwater systems, followed by rainwater, stormwater and off-site reclaimed water systems.

- If there is insufficient rain/grey/black water to service the indicated percentage of each water use, mains water will applied by the calculator to make up the difference.

WATER DEMAND FROM OTHER WATER SYSTEMS (NOT INCLUDED IN THE CALCULATOR) WHICH ARE COMPLETELY OR PARTIALLY SOURCED BY RECLAIMED WATER

Note: The demand for reclaimed water from water uses assessed under other credits will be met before any water uses assessed under the Potable Water Credit.

Month	Water demand (kL)		
	<Enter description of any other uses of rainwater or re-used water>	<Enter description of any other uses of rainwater or re-used water>	<Enter description of any other uses of rainwater or re-used water>
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			

Note: This table only needs to be filled in if reclaimed water is used to meet the demand of these end uses.

If reclaimed water is not used for these end uses, leave these cells blank.

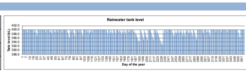
When reclaimed water is used, enter the total demand for each month regardless of whether it is fully or partially met by the reclaimed water supply. In the table below, the percentage of the demand met by reclaimed water/connected to the reclaimed water supply is entered.

DISTRIBUTION OF WATER SOURCES FOR OTHER WATER SYSTEMS

Water system	Rainwater	Greywater	Blackwater	Stormwater recycling or other off-site reclaimed water	Mains water only (this column must be completed - enter a figure between 0% and 100% for each water use)
<Enter description of any other uses of rainwater or re-used water>					
<Enter description of any other uses of rainwater or re-used water>					
<Enter description of any other uses of rainwater or re-used water>					

Rainwater collection

Rainfall collection area (m2)		26,590
Run-off co-efficient	Flat roof without gravel	0.8
Storage capacity (kL)		400
Rainwater tank reliability %		100%



Greywater collection

Water system	% discharge water collected for re-use
Toilets	
Urinals	
Indoor taps	
Showers - occupants	
Showers - sport	
Washing machines	
Dishwashers	
Cooling tower bleed +other heat rejection	
Washdown	
Fire protection systems	
Swimming pools	
Process cooling	

OTHER WATER SOURCES e.g. Chiller condensate, cooling tower washdown or sewer mining etc...

Month				Total collected (kL)

Blackwater collection

Water system	% discharge water collected for re-use

Toilets	
Urinals	
Indoor taps	
Showers - occupants	
Showers - sport	
Washing machines	
Dishwashers	
Cooling tower bleed +other heat rejection	
Washdown	
Fire protection systems	
Swimming pools	
Process cooling	

Other sources e.g. Chiller condensate, cooling tower washdown or sewer mining etc.

Month				Total collected (kL)

Stormwater and off-site reclaimed water supply

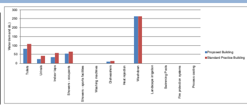
Month	Stormwater collected for re-use (kL)	Off-site reclaimed water supplied to site (kL)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

WATER DEMAND SUMMARY

Total water demand summary for each system and per month

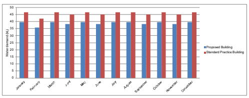
TOTAL WATER DEMAND FOR EACH SYSTEM

Water system	Proposed Building (kL)	Standard Practice Building (kL)
Toilets	81	108
Urinals	24	42
Indoor taps	35	58
Showers - occupants	54	65
Showers - sports facilities	0	0
Washing machines	0	0
Dishwashers	9	12
Heat rejection	0	0
Washdown	263	263
Landscape irrigation	0	0
Swimming Pools	0	0
Fire protection systems	0	0
Process cooling	0	0
Total	466	548



TOTAL WATER DEMAND PER MONTH

Month	Proposed Building (kL)	Standard Practice Building (kL)
January	40	47
February	36	42
March	40	47
April	38	45
May	40	47
June	38	45
July	40	47
August	40	47
September	38	45
October	40	47
November	38	45
December	40	47
Total	466	548



POTABLE WATER RESULTS

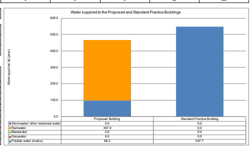
	Proposed Building						Standard Practice Building
Month	Total water demand	Rainwater used to meet demand	Greywater used to meet demand	Blackwater used to meet demand	Stormwater and off-site reclaimed water used	Potable water demand	Potable water demand
January	40	31	0	0	0	8	47
February	36	28	0	0	0	8	42
March	40	31	0	0	0	8	47
April	38	30	0	0	0	8	45
May	40	31	0	0	0	8	47
June	38	30	0	0	0	8	45
July	40	31	0	0	0	8	47
August	40	31	0	0	0	8	47
September	38	30	0	0	0	8	45
October	40	31	0	0	0	8	47
November	38	30	0	0	0	8	45
December	40	31	0	0	0	8	47
Total	466	368	0	0	0	98	548

Percentage reduction in Potable Water Consumption compared to the Standard Practice Building	**82%**

Points Achieved - General	**9.6**
Points Achieved - Fire protection systems	**0**
Points Achieved - Process cooling	**N/A**

POINTS ALLOCATION

Percentage reduction compared to Standard Practice building	kL/year	Points awarded
0%	548	0.0
5%	520	1.1
15%	466	2.2
25%	411	3.3
35%	356	4.4
45%	301	5.5
55%	246	6.6
65%	192	7.7
75%	137	8.8
85%	82	9.9
95%	27	11.0



Outputs from this calculator required for Ene-Conditional Requirement and Credit 15: Greenhouse Gas Emissions.

The annual domestic hot water usage figures determined in this calculator must be used in the energy modelling required for Ene-Conditional Requirement and Credit 15: Greenhouse Gas Emissions to estimate the domestic hot water energy requirement of the Proposed and Standard Practice Buildings. For more details see the Green Star - Greenhouse Gas Emissions Calculator Guide, available www.gbca.org.au.

The estimates of annual hot water consumption usage of the Proposed Building are based on the water efficiency of the fittings entered into this calculator. The estimates for the Standard Practice Building are based on the Standard Practice Building's fittings - for further details see the Green Star - Potable Water Calculator Guide, available www.gbca.org.au.

NOTE: THESE FIGURES CAN ONLY BE USED IF the 'Building input, areas and operation' and 'Water consumption due to fittings' sections of THIS CALCULATOR are COMPLETED.

	Proposed Building	Standard Practice Building
Annual Domestic Hot Water Usage (kL/year)	53	72

DISCHARGE TO SEWER

SEWERAGE REDUCTION DUE TO WATER RECYCLING

Percentage reduction in discharge to sewer compared to Standard Practice Building	**15%**

An innovation point may be claimed for a 90% of greater reduction in flow to sewer

Innovation Point Achieved	**0**

RAINFALL DATA

The average rainfall data for the location selected in the General section is shown below (white shaded cells). The project team may supply their own data (see Potable Water calculator guide) by selecting 'User defined' as the location and entering the data in the blue column of the table.

10 YEAR AVERAGE RAINFALL DATA

Day	User defined (mm)	Melbourne (1998 - 2007) (mm)	Sydney (1996 - 2005) (mm)	Brisbane (1997 - 2006) (mm)	Adelaide (1996 - 2005) (mm)	Hobart (1996 - 2005) (mm)	Perth (1997 - 2006) (mm)	Darwin (1996 - 2005) (mm)	Canberra (1997 - 2006) (mm)	Mackay (1991 - 2000) (mm)	Townsville (1994 - 2003) (mm)
1 Jan	1	0.8	0.0	1.0	0.0	1.7	0.0	22.4	0.6	11.3	4.2
2 Jan	1.1	2.2	0.8	1.1	8.7	1.7	0.0	27.9	1.8	10.9	2.0
3 Jan	3.2	0.0	5.5	3.2	0.0	1.0	0.0	34.4	0.0	26.8	4.7
4 Jan	2	1.1	0.9	2.0	0.8	1.0	0.0	20.9	1.4	20.8	1.6
5 Jan	3.7	1.1	1.4	3.7	0.0	4.2	1.2	6.8	2.1	37.4	3.8
6 Jan	1.7	0.0	4.1	1.7	0.0	0.7	0.0	13.1	0.5	6.0	12.0
7 Jan	4.2	0.7	5.2	4.2	0.9	2.0	0.0	4.8	4.4	5.6	11.7
8 Jan	0.6	1.6	2.0	0.6	1.1	3.0	0.0	6.8	1.2	4.6	4.4
9 Jan	1	0.0	1.0	1.0	0.0	0.0	0.0	6.5	1.9	16.4	0.6
10 Jan	7.7	0.0	0.5	7.7	0.0	0.0	0.0	22.6	0.0	4.2	10.3
11 Jan	1.1	1.1	0.0	1.1	0.0	0.0	0.0	11.4	0.0	33.2	56.5
12 Jan	1.4	0.7	1.0	1.4	0.0	1.6	0.5	10.1	0.7	18.4	15.6
13 Jan	1.4	0.0	0.0	1.4	1.2	0.0	1.3	25.4	0.0	7.8	18.5
14 Jan	2.2	0.0	1.0	2.2	2.4	0.0	0.0	6.6	0.0	0.6	7.6
15 Jan	1.4	0.0	0.7	1.4	0.0	0.0	1.6	10.2	0.0	0.6	1.6
16 Jan	11.7	0.0	3.1	11.7	0.0	0.7	0.6	14.1	1.3	6.8	1.9
17 Jan	1.9	0.0	4.7	1.9	0.0	0.0	1.1	12.1	4.1	7.3	2.4
18 Jan	5.7	0.0	1.2	5.7	0.0	0.8	0.0	15.3	2.4	5.4	2.4
19 Jan	0	0.7	4.7	0.0	0.0	0.0	0.0	8.6	0.9	1.3	4.5
20 Jan	1	0.0	2.3	1.0	2.6	0.0	0.0	12.5	0.0	6.6	4.9
21 Jan	3	2.0	4.6	3.0	1.4	1.1	0.0	23.8	3.2	3.5	1.6
22 Jan	0	1.4	9.0	0.0	2.4	6.1	6.1	14.6	1.6	0.0	0.6
23 Jan	0	1.9	4.7	0.0	0.0	2.6	4.7	15.4	1.7	0.0	1.1
24 Jan	0	0.0	4.8	0.0	0.0	0.0	0.0	7.5	2.7	0.0	6.8
25 Jan	7.3	4.6	7.9	7.3	0.8	4.8	0.9	11.7	2.4	0.0	0.9
26 Jan	5.1	1.5	3.1	5.1	0.0	1.0	0.0	14.3	3.5	4.4	6.9
27 Jan	0.7	2.5	2.6	0.7	0.0	0.8	0.0	10.4	4.1	9.2	5.3
28 Jan	9.2	1.0	2.3	9.2	0.0	3.2	0.0	8.3	0.0	7.1	1.9
29 Jan	15.7	2.6	5.5	15.7	0.8	1.7	0.0	12.7	2.3	9.5	0.0
30 Jan	4.1	5.5	9.4	4.1	0.7	5.6	0.0	9.2	0.0	1.1	4.5
31 Jan	3.2	0.7	13.7	3.2	0.0	1.1	0.0	9.4	0.0	3.9	8.9
1 Feb	10.9	0.0	7.5	10.9	0.0	0.7	0.0	7.0	0.0	3.5	9.2
2 Feb	18.7	5.1	7.6	18.7	0.0	1.1	1.7	9.6	0.6	34.5	4.1
3 Feb	12.7	11.5	2.6	12.7	0.0	1.6	0.0	14.7	3.2	11.9	6.9
4 Feb	5.6	0.0	6.5	5.6	0.7	5.4	0.0	5.4	2.4	9.5	11.8
5 Feb	5.1	0.0	13.3	5.1	0.0	1.2	0.0	6.7	13.5	23.3	21.5
6 Feb	1.1	0.0	6.6	1.1	0.0	1.4	0.0	21.3	2.1	6.2	12.0
7 Feb	0.5	1.5	2.1	0.5	4.0	4.4	1.3	15.2	1.6	2.2	4.0
8 Feb	8.4	4.5	1.3	8.4	2.2	5.7	0.0	11.7	4.2	3.4	10.8
9 Feb	14.1	2.0	7.5	14.1	0.7	7.8	0.0	22.7	0.0	18.9	8.1
10 Feb	2.1	2.2	0.9	2.1	0.8	6.0	0.0	17.5	0.0	11.2	13.7
11 Feb	1.4	1.3	3.1	1.4	0.0	0.9	0.0	17.3	0.5	9.7	8.9
12 Feb	1.4	0.8	9.9	1.4	0.0	3.0	0.0	21.8	2.1	18.6	1.6
13 Feb	1.3	2.1	6.3	1.3	0.7	1.5	0.0	22.3	4.1	3.2	3.9

14 Feb	0	0.0	1.5	0.0	0.0	0.0	0.0	24.1	1.2	7.1	22.2
15 Feb	4.7	0.9	0.8	4.7	0.0	1.4	0.0	12.6	0.9	10.8	24.0
16 Feb	0	4.1	1.7	0.0	0.0	2.5	0.0	8.4	3.8	20.5	15.5
17 Feb	0.6	0.7	2.4	0.6	0.5	0.0	0.0	24.7	3.2	6.9	17.1
18 Feb	3.7	0.0	0.7	3.7	0.0	0.0	0.9	21.3	1.8	19.1	21.0
19 Feb	1.1	0.5	0.6	1.1	0.0	0.0	0.0	11.0	0.0	20.9	12.3
20 Feb	1.4	0.0	3.6	1.4	5.1	1.7	0.0	26.5	0.0	2.1	4.2
21 Feb	0	2.0	6.2	0.0	2.2	0.5	0.0	9.0	3.3	6.1	1.8
22 Feb	1.3	1.1	2.4	1.3	1.9	0.0	1.1	14.3	4.4	9.9	2.8
23 Feb	0	0.0	1.5	0.0	0.0	0.0	0.6	17.4	1.3	18.4	4.1
24 Feb	11.4	1.8	0.9	11.4	0.0	1.8	0.0	17.1	0.0	13.1	13.2
25 Feb	3.9	0.0	11.0	3.9	0.0	0.0	0.0	10.2	0.9	22.7	24.7
26 Feb	2.3	7.1	3.6	2.3	0.0	0.7	0.0	21.9	0.0	13.4	13.5
27 Feb	0	1.2	0.5	0.0	0.0	0.0	0.0	9.2	0.0	12.4	15.2
28 Feb	4.1	0.0	1.6	4.1	0.0	0.9	0.0	19.0	1.1	8.5	12.3
1 Mar	3.4	0.0	5.3	3.4	0.0	1.4	0.0	12.2	0.0	17.4	11.4
2 Mar	7.3	0.5	1.9	7.3	0.0	0.8	0.0	43.9	0.7	4.9	8.6
3 Mar	6.5	1.2	1.4	6.5	0.0	1.6	0.0	25.3	2.7	15.0	6.3
4 Mar	4.3	0.0	1.0	4.3	0.0	0.0	0.0	28.1	0.0	10.9	7.7
5 Mar	3	1.1	1.8	3.0	0.9	0.9	0.0	26.0	0.0	15.5	4.4
6 Mar	0	0.0	3.1	0.0	0.0	0.5	0.0	6.9	0.0	11.7	8.0
7 Mar	13.6	0.0	0.9	13.6	1.0	0.0	0.0	7.5	0.0	2.8	0.0
8 Mar	1.7	0.0	7.6	1.7	0.0	3.1	0.5	9.8	0.9	5.4	0.0
9 Mar	1.1	0.0	7.9	1.1	0.0	1.2	0.0	11.7	0.0	16.4	3.7
10 Mar	3.2	0.7	6.7	3.2	0.7	0.6	1.5	7.0	1.0	8.7	0.0
11 Mar	3.1	0.0	8.0	3.1	0.0	0.0	1.5	5.5	1.7	4.3	1.8
12 Mar	1.1	0.0	5.3	1.1	0.0	0.0	0.0	15.2	0.8	4.5	1.9
13 Mar	1.4	1.6	2.2	1.4	0.0	1.2	0.0	6.1	1.6	3.4	4.0
14 Mar	2.4	0.0	0.0	2.4	0.0	0.5	0.0	7.3	0.0	2.1	0.0
15 Mar	0	0.0	1.1	0.0	0.0	0.7	0.0	7.1	4.1	0.7	0.0
16 Mar	0.6	0.6	1.2	0.6	0.0	0.6	0.0	10.5	2.0	0.0	0.0
17 Mar	0	1.3	0.9	0.0	1.6	3.3	0.0	10.0	4.8	0.0	0.0
18 Mar	0	0.0	2.3	0.0	1.4	2.1	0.0	8.4	0.0	0.5	13.7
19 Mar	2.2	0.0	0.0	2.2	2.8	0.8	2.5	13.8	0.0	1.7	2.1
20 Mar	1.1	0.6	0.0	1.1	0.0	2.9	0.0	9.5	0.8	27.0	0.0
21 Mar	0	1.9	0.6	0.0	2.3	7.1	1.1	11.5	3.4	1.9	0.0
22 Mar	2.9	2.4	8.8	2.9	0.6	2.8	0.0	5.3	2.5	3.3	2.6
23 Mar	3.2	4.7	11.0	3.2	0.6	2.0	2.8	10.0	0.9	2.7	0.6
24 Mar	3.1	4.6	8.4	3.1	1.8	0.0	0.0	8.2	0.0	3.4	30.5
25 Mar	0.5	0.5	0.6	0.5	0.7	1.0	0.0	3.5	0.0	4.7	0.7
26 Mar	0	0.0	0.0	0.0	1.0	0.0	0.0	5.1	0.0	0.8	0.0
27 Mar	0.5	0.8	1.2	0.5	0.0	0.0	0.0	10.9	1.0	1.1	0.0
28 Mar	1.1	0.9	0.0	1.1	0.0	3.2	3.4	2.2	1.5	0.8	0.7
29 Mar	2.5	1.2	0.0	2.5	0.8	2.4	0.0	2.5	0.7	0.0	1.0
30 Mar	1.1	1.0	0.9	1.1	1.3	0.0	4.6	3.3	3.3	1.1	0.8
31 Mar	1.7	0.6	2.4	1.7	0.0	0.9	4.0	9.4	1.2	0.9	0.0
1 Apr	2.7	1.3	1.8	2.7	0.0	1.2	2.4	2.2	0.0	3.0	0.6
2 Apr	0	0.0	7.0	0.0	0.0	1.3	0.0	1.3	0.0	9.0	2.5
3 Apr	3.2	0.0	2.7	3.2	0.0	2.2	0.0	9.0	0.0	6.0	4.1
4 Apr	1.1	0.5	2.0	1.1	0.0	1.7	0.0	6.1	0.5	7.0	19.7
5 Apr	1.6	1.7	3.8	1.6	0.0	0.0	0.6	2.4	5.1	6.5	27.3
6 Apr	6.5	3.8	3.3	6.5	0.0	1.9	0.5	3.9	3.4	2.6	0.0
7 Apr	0	0.0	2.2	0.0	0.0	1.1	0.0	2.0	0.0	10.9	3.4
8 Apr	0	0.0	0.5	0.0	3.0	0.0	0.0	8.3	0.0	3.1	1.6
9 Apr	0	0.5	0.0	0.0	0.0	1.9	0.6	1.3	0.0	4.4	0.6
10 Apr	1.6	0.5	15.5	1.6	0.0	0.9	0.6	9.5	1.3	12.2	0.0
11 Apr	1.9	2.1	19.4	1.9	1.3	1.8	1.3	7.0	0.0	7.3	0.0
12 Apr	2.4	2.2	1.0	2.4	2.8	3.1	3.4	15.5	0.0	4.4	0.6
13 Apr	0.7	2.7	1.0	0.7	1.7	3.6	0.5	2.6	0.6	3.1	0.0
14 Apr	1.8	2.7	3.5	1.8	1.3	1.8	0.0	2.3	0.8	5.0	1.3
15 Apr	2	3.2	2.1	2.0	1.4	0.0	0.0	0.6	2.1	3.1	0.0
16 Apr	0.6	1.9	1.2	0.6	0.0	0.0	1.0	0.0	1.4	10.3	0.0
17 Apr	1.8	0.0	1.5	1.8	0.0	0.0	6.3	1.1	0.0	2.5	0.0
18 Apr	0.8	0.0	11.4	0.8	0.0	3.0	1.2	3.3	1.0	4.4	1.3
19 Apr	0	0.0	1.2	0.0	0.0	6.1	0.0	2.8	0.0	4.3	0.0
20 Apr	0	1.7	2.7	0.0	2.5	3.7	0.0	2.1	0.0	4.7	0.0
21 Apr	1.6	1.7	4.7	1.6	0.0	2.3	0.0	0.6	2.0	2.6	1.3
22 Apr	0	4.8	3.9	0.0	0.0	0.8	1.5	0.6	2.1	2.1	0.0
23 Apr	3.7	3.0	7.3	3.7	0.0	0.6	0.6	3.2	0.0	3.1	1.2
24 Apr	2.9	6.2	3.2	2.9	0.7	3.9	0.0	1.1	0.0	4.4	1.5
25 Apr	0	4.2	0.0	0.0	2.1	2.3	0.5	0.0	0.0	8.5	1.0
26 Apr	1.1	1.8	0.0	1.1	0.0	1.3	2.1	4.8	0.0	5.2	1.8
27 Apr	5.6	0.0	1.5	5.6	0.5	0.6	0.8	1.0	0.0	9.8	1.9
28 Apr	6.1	2.4	8.0	6.1	0.0	0.0	0.6	0.0	0.9	5.3	1.7
29 Apr	1.4	0.5	1.0	1.4	0.0	0.5	0.0	0.0	0.0	2.8	0.7
30 Apr	2.3	0.6	3.5	2.3	0.0	0.0	1.2	0.0	0.6	8.9	0.7
1 May	2	2.5	4.4	2.0	2.4	0.9	1.2	1.1	0.0	7.5	1.2
2 May	1.8	1.1	6.1	1.8	0.0	0.0	3.9	0.0	0.0	9.7	0.0
3 May	3.6	1.4	4.5	3.6	1.0	0.8	1.3	0.5	0.0	2.3	0.0
4 May	3.7	0.0	2.5	3.7	1.4	1.3	0.0	0.0	0.0	1.9	0.0
5 May	6.6	1.3	5.9	6.6	0.0	1.0	0.0	2.8	2.5	7.1	6.9
6 May	2.1	1.7	17.9	2.1	0.0	1.1	5.3	0.0	3.7	5.4	0.0
7 May	1.2	1.9	5.1	1.2	0.0	1.9	0.9	1.1	0.0	0.9	1.0
8 May	0.9	0.6	3.7	0.9	0.0	0.0	1.4	0.0	0.7	6.7	1.2
9 May	0.8	0.0	5.9	0.8	1.4	0.0	5.1	0.0	0.0	4.8	0.0
10 May	1.9	1.1	1.9	1.9	0.0	0.9	0.8	0.0	0.0	4.9	0.0
11 May	0.9	0.0	8.6	0.9	0.0	0.0	4.7	0.0	0.0	2.0	0.0
12 May	0.9	0.0	3.6	0.9	2.3	0.0	5.1	0.0	0.0	2.3	0.0
13 May	0.9	0.0	3.9	0.9	1.0	0.0	4.1	0.0	0.0	3.6	0.0
14 May	1.9	0.0	7.2	1.9	0.9	1.0	1.4	0.0	1.2	4.3	0.6
15 May	2.1	1.8	9.0	2.1	0.7	0.0	2.1	1.0	0.8	1.3	5.0
16 May	6.1	1.6	6.8	6.1	1.4	0.8	5.1	0.0	1.3	7.7	4.0
17 May	4.1	0.0	8.7	4.1	1.9	2.6	2.9	2.1	1.2	2.8	0.7
18 May	0.7	1.8	6.2	0.7	4.2	0.8	1.5	0.0	0.7	2.0	0.0
19 May	0	1.0	15.5	0.0	2.2	0.0	8.7	0.0	1.7	5.2	0.0
20 May	0	3.8	4.4	0.0	2.4	0.7	1.0	0.0	0.0	3.1	0.0
21 May	1.7	2.8	1.1	1.7	1.0	3.6	3.4	1.1	0.6	3.3	0.0
22 May	1.2	1.9	0.7	1.2	0.0	4.2	1.9	0.7	0.0	0.0	0.0
23 May	1.3	0.8	0.8	1.3	0.0	1.4	5.0	0.0	0.0	0.0	0.0
24 May	0	0.7	1.6	0.0	4.2	0.0	2.1	1.6	0.0	0.5	0.0
25 May	0	2.4	4.2	0.0	0.9	3.0	0.7	0.0	0.5	0.8	0.0
26 May	0.9	0.0	7.1	0.9	1.7	0.0	3.0	0.0	0.5	0.5	0.0
27 May	0	0.7	1.5	0.0	1.5	1.0	1.9	1.6	0.0	0.0	1.9
28 May	0	1.7	0.0	0.0	1.7	1.1	4.0	0.0	0.0	0.8	0.0
29 May	2.4	1.6	10.4	2.4	1.8	0.0	0.7	0.0	0.0	1.4	0.0
30 May	1.1	2.3	2.1	1.1	0.8	0.8	1.5	0.9	0.0	4.2	0.0
31 May	1.4	2.9	0.0	1.4	0.9	1.9	3.4	0.0	2.1	2.1	0.0
1 Jun	0	3.2	0.6	0.0	0.0	0.0	4.4	0.0	0.0	6.9	0.0
2 Jun	0	0.6	3.1	0.0	0.0	0.6	3.3	0.0	2.9	3.7	0.0
3 Jun	2.8	0.6	4.4	2.8	1.2	0.6	2.9	5.3	1.4	1.9	0.0
4 Jun	5.3	0.0	2.2	5.3	1.0	0.0	7.2	0.0	1.1	5.0	0.0
5 Jun	1.2	0.0	0.9	1.2	2.5	1.5	4.3	0.0	0.0	0.0	0.0
6 Jun	2	1.1	0.0	2.0	5.7	0.7	3.3	0.0	0.6	2.1	0.0
7 Jun	0	3.9	0.0	0.0	3.9	3.0	5.5	0.0	2.3	0.9	0.7
8 Jun	0.7	0.0	0.9	0.7	2.0	1.1	6.8	0.0	6.3	1.2	2.2
9 Jun	1.5	1.8	0.0	1.5	0.0	2.8	5.0	0.0	0.0	0.6	0.0
10 Jun	0.6	0.0	3.3	0.6	2.3	2.7	9.1	0.0	1.6	2.4	1.0
11 Jun	0.6	6.8	1.3	0.6	3.0	1.4	7.3	0.0	3.3	6.5	2.3
12 Jun	2.3	0.5	8.1	2.3	1.4	0.9	4.7	0.0	4.2	2.7	0.0
13 Jun	0	0.8	3.4	0.0	2.3	0.0	3.9	0.0	2.6	0.0	0.0
14 Jun	0	1.5	2.8	0.0	1.6	1.8	2.6	0.0	2.8	0.0	0.0
15 Jun	1.2	1.5	3.6	1.2	4.4	1.0	3.9	0.0	0.6	1.8	1.0
16 Jun	0	2.1	1.3	0.0	1.8	0.6	2.2	0.0	1.3	2.3	0.0
17 Jun	2.3	0.0	0.0	2.3	0.0	1.4	2.0	0.0	0.0	0.0	0.0
18 Jun	0	0.0	4.7	0.0	1.1	0.0	4.1	0.0	0.0	0.0	0.0
19 Jun	0	1.6	2.9	0.0	2.9	0.7	2.6	0.0	0.9	1.0	0.0
20 Jun	1	0.6	0.7	1.0	3.2	0.0	2.0	0.0	0.7	1.0	0.0
21 Jun	1.7	2.8	0.6	1.7	7.0	0.0	0.6	0.0	1.0	0.7	0.0
22 Jun	2	2.5	0.7	2.0	2.8	7.1	1.3	0.0	1.2	1.7	0.0
23 Jun	0	0.7	5.3	0.0	1.4	0.7	6.5	0.0	4.5	0.0	0.0
24 Jun	2.1	0.7	2.1	2.1	1.3	1.9	4.1	0.0	4.9	0.8	0.0
25 Jun	0	0.9	4.4	0.0	1.0	5.7	3.8	0.0	0.0	0.8	0.5
26 Jun	1	0.8	5.9	1.0	0.6	2.4	3.3	0.0	0.0	0.5	0.0
27 Jun	0.9	0.9	5.1	0.9	4.1	0.0	3.3	0.0	2.4	0.0	0.0
28 Jun	2.7	2.3	0.0	2.7	2.3	1.4	3.8	0.0	5.6	0.0	0.0
29 Jun	4.6	1.4	1.9	4.6	2.2	1.8	5.2	0.0	1.7	1.6	0.0
30 Jun	7.8	1.2	3.9	7.8	2.9	4.4	3.3	0.0	1.2	4.0	0.0
1 Jul	0.6	1.2	10.5	0.6	0.0	0.9	2.6	0.0	3.1	0.6	0.0
2 Jul	4.5	1.0	6.6	4.5	1.5	3.6	3.9	0.0	0.0	0.0	0.0
3 Jul	0	1.7	4.3	0.0	1.1	1.4	9.0	0.0	0.0	2.9	0.0
4 Jul	0	0.8	0.0	0.0	0.5	0.0	5.3	0.0	0.0	1.7	0.0
5 Jul	0.7	0.5	3.4	0.7	2.3	0.0	9.6	0.0	0.0	0.0	0.6
6 Jul	0	0.8	4.2	0.0	3.2	2.7	5.5	0.0	3.0	1.0	0.6
7 Jul	0	1.3	1.4	0.0	0.9	1.1	5.3	0.0	0.0	0.0	0.0
8 Jul	0	1.2	0.0	0.0	1.0	0.9	3.0	0.0	2.2	0.0	0.0
9 Jul	0	0.7	0.0	0.0	3.4	2.5	5.3	0.0	5.3	1.2	0.0
10 Jul	0.7	1.5	1.7	0.7	1.0	3.1	3.8	0.0	0.5	2.7	0.0
11 Jul	0	0.9	3.2	0.0	0.0	1.3	2.3	0.0	0.0	1.4	0.0
12 Jul	1	0.7	7.2	1.0	1.8	1.4	5.3	0.0	1.6	2.3	0.7
13 Jul	2	1.3	1.4	2.0	1.4	0.0	3.0	0.0	0.5	0.0	0.0
14 Jul	0	0.9	9.3	0.0	1.8	0.0	7.7	0.0	0.0	0.0	0.0
15 Jul	0	1.0	0.9	0.0	1.1	1.2	2.3	0.0	1.1	0.0	0.0
16 Jul	0	1.9	1.3	0.0	0.8	0.9	2.3	0.0	0.7	0.0	0.0
17 Jul	0	0.0	0.0	0.0	1.2	1.0	1.4	1.9	0.0	0.0	0.0
18 Jul	0	2.2	0.0	0.0	1.0	1.0	3.1	0.7	0.0	0.0	0.0
19 Jul	1.3	0.6	1.9	1.3	2.0	0.0	3.7	0.0	1.5	0.7	0.0
20 Jul	0	1.2	0.0	0.0	2.1	0.0	0.8	0.0	0.0	0.0	0.0
21 Jul	0	0.9	2.4	0.0	2.2	0.0	3.8	0.0	3.4	0.0	0.0
22 Jul	0.6	0.0	0.5	0.6	0.7	1.7	1.8	0.0	1.4	0.0	0.0
23 Jul	0	0.0	1.5	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0
24 Jul	0	3.9	0.9	0.0	1.2	1.7	2.2	0.0	1.9	0.8	0.6
25 Jul	2.8	1.2	3.5	2.8	3.2	2.0	4.4	0.0	0.6	1.6	0.0
26 Jul	0.9	0.9	4.7	0.9	0.0	1.4	6.6	0.0	1.8	0.0	0.8
27 Jul	2.5	1.7	2.9	2.5	2.3	0.8	3.0	0.0	2.1	0.0	0.0
28 Jul	2.2	1.3	1.9	2.2	4.6	2.5	2.9	0.0	1.1	3.3	0.0
29 Jul	3.1	1.7	6.1	3.1	2.1	1.1	0.0	0.0	1.2	0.5	0.0
30 Jul	0	2.0	3.4	0.0	1.9	1.3	12.0	0.0	0.0	0.0	0.0
31 Jul	0	1.3	0.0	0.0	0.0	1.1	3.6	0.0	0.0	0.0	0.0
1 Aug	0	1.8	1.3	0.0	1.0	0.0	2.7	0.0	0.0	0.0	0.0
2 Aug	0	0.6	0.0	0.0	2.4	1.6	2.7	0.0	0.5	0.0	1.0
3 Aug	0	0.7	0.0	0.0	1.9	0.0	4.5	0.0	0.6	2.1	0.0
4 Aug	0.9	2.3	1.7	0.9	2.4	1.5	4.7	0.0	3.6	2.9	0.0
5 Aug	2	1.1	0.5	2.0	2.6	1.5	3.2	0.0	2.3	1.9	0.0
6 Aug	2.5	0.0	6.1	2.5	1.6	0.7	4.6	0.0	1.3	0.6	2.8
7 Aug	0	0.6	13.9	0.0	2.4	3.3	5.5	0.0	2.1	8.6	4.0
8 Aug	0	1.2	13.7	0.0	2.0	1.6	1.7	0.0	0.0	1.6	0.0
9 Aug	2.5	2.1	0.8	2.5	2.4	1.3	5.5	0.0	2.3	0.8	0.0
10 Aug	0	2.4	0.0	0.0	0.7	1.7	2.6	0.0	3.5	0.0	0.0
11 Aug	0	0.8	0.0	0.0	3.8	3.3	8.0	0.0	0.0	0.0	0.0
12 Aug	0	1.6	0.0	0.0	1.3	0.8	1.4	0.0	1.9	0.0	0.0
13 Aug	0	1.8	0.5	0.0	1.3	4.8	4.7	0.0	1.6	0.5	0.0
14 Aug	0	3.8	1.1	0.0	1.2	1.7	3.7	0.0	2.3	0.0	0.0
15 Aug	0	1.5	6.1	0.0	2.5	4.1	8.4	0.0	1.8	0.0	0.0
16 Aug	0	1.6	5.5	0.0	1.5	0.0	2.2	0.0	0.0	3.0	2.4
17 Aug	0.7	1.7	3.5	0.7	0.8	2.4	5.3	0.0	1.3	0.0	0.0
18 Aug	0	1.5	6.6	0.0	0.0	2.8	6.4	0.0	2.1	0.0	0.0
19 Aug	1	0.0	10.7	1.0	1.1	1.4	2.8	0.0	0.9	0.0	0.0
20 Aug	0	1.8	6.6	0.0	1.5	1.5	1.3	0.0	0.0	0.7	0.0
21 Aug	1	0.0	2.5	1.0	3.4	2.0	0.9	0.0	0.7	0.0	0.0
22 Aug	5.6	1.8	0.0	5.6	0.7	2.2	5.7	0.0	3.6	0.0	0.9
23 Aug	0.8	0.6	0.7	0.8	1.4	2.4	0.8	0.0	1.1	0.0	0.0
24 Aug	1.1	3.2	1.5	1.1	3.5	3.0	5.2	0.0	4.1	2.0	0.0
25 Aug	0	1.2	0.0	0.0	1.2	5.6	3.5	0.0	1.3	0.0	0.0
26 Aug	1.7	1.2	1.2	1.7	2.1	1.4	1.7	0.0	1.1	0.0	0.0
27 Aug	3.3	3.7	3.5	3.3	0.9	0.8	4.8	0.0	4.2	0.0	0.0
28 Aug	2.4	1.3	2.7	2.4	2.2	0.0	6.4	0.0	0.8	3.9	0.0
29 Aug	3.9	0.0	1.8	3.9	0.8	0.0	7.0	0.0	1.0	2.7	2.1
30 Aug	0.8	0.5	3.0	0.8	2.5	1.0	5.0	0.0	0.0	13.2	13.6
31 Aug	1.3	2.7	1.7	1.3	1.4	1.5	3.0	0.0	2.5	3.2	12.2
1 Sep	4.5	1.5	13.3	4.5	1.8	0.7	7.5	0.0	3.6	2.7	3.2
2 Sep	1.6	0.0	3.8	1.6	3.8	0.0	5.6	0.0	3.8	0.0	1.0
3 Sep	0.6	0.6	2.5	0.6	2.5	1.9	3.1	0.0	3.6	2.0	0.0
4 Sep	0	2.0	0.0	0.0	2.9	0.9	2.2	0.0	1.2	0.6	0.0
5 Sep	0	2.0	1.8	0.0	0.9	1.9	0.0	0.0	4.3	0.0	0.0
6 Sep	0.7	1.2	1.5	0.7	4.1	0.9	7.3	0.0	0.9	0.0	0.0
7 Sep	0.8	1.0	2.2	0.8	1.7	1.8	4.0	0.0	0.6	0.0	0.0
8 Sep	0.6	0.6	0.0	0.6	6.3	0.8	3.4	0.0	1.4	0.6	0.0

1 Sep				6.9								
02 Sep				6.5								
03 Sep				6.1								
04 Sep				6.8								
05 Sep				6.6								
06 Sep				6.8								
07 Sep				6.8								
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INSTRUCTIONS ON HOW TO ENTER PROFILES

1) Add a name for the profile (this will appear in the drop down box under 'Occupancy Profiles'

2) Add a description. This is for your own reference but also to help the Assessors keep track of what has been entered and why.

3) Enter the percentage of design occupancy that is typically present on a typical peak and off-peak day.

Class 9c aged care		Class 9a ward area		Class 9b Conference facility		Class 9b School		Class 3 Hotel		Class 1 or 2 Residential	
NCC Table 2k		NCC Table 2g		NCC table 2i		NCC table 2j		NCC table 2b			
Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak
85%	85%	70%	70%	0%	0%	0%	0%	90%	90%	0%	0%
85%	85%	70%	70%	0%	0%	0%	0%	90%	90%	0%	0%
85%	85%	70%	70%	0%	0%	0%	0%	90%	90%	0%	0%
85%	85%	70%	70%	0%	0%	0%	0%	90%	90%	0%	0%
85%	85%	70%	70%	0%	0%	0%	0%	90%	90%	0%	0%
85%	85%	70%	70%	0%	0%	0%	0%	80%	80%	0%	0%
85%	85%	70%	70%	5%	5%	0%	0%	70%	70%	0%	0%
85%	80%	70%	70%	10%	10%	5%	0%	60%	60%	85%	0%
50%	50%	70%	70%	20%	20%	75%	0%	60%	60%	50%	0%
10%	50%	70%	70%	20%	20%	90%	0%	30%	30%	20%	10%
10%	20%	70%	70%	25%	25%	90%	0%	10%	10%	20%	10%
10%	20%	70%	70%	30%	30%	90%	0%	10%	10%	20%	10%
10%	20%	70%	70%	30%	30%	50%	0%	10%	10%	20%	10%
10%	20%	70%	70%	35%	35%	50%	0%	10%	10%	20%	10%
10%	20%	70%	70%	30%	30%	90%	0%	10%	10%	20%	10%
10%	30%	70%	70%	30%	30%	70%	0%	10%	10%	30%	10%
50%	50%	70%	70%	35%	35%	50%	0%	20%	20%	50%	50%
50%	50%	70%	70%	25%	25%	20%	0%	30%	30%	50%	50%
70%	70%	70%	70%	20%	20%	20%	0%	40%	40%	50%	70%
70%	70%	70%	70%	15%	15%	20%	0%	50%	50%	70%	70%
80%	80%	70%	70%	10%	10%	10%	0%	60%	60%	80%	80%
85%	80%	70%	70%	10%	10%	5%	0%	70%	70%	80%	85%
85%	85%	70%	70%	10%	10%	5%	0%	70%	70%	0%	0%
85%	85%	70%	70%	5%	5%	5%	0%	90%	90%	0%	0%
13.75	**14.75**	**16.8**	**16.8**	**3.65**	**3.65**	**7.45**	**0**	**12.4**	**12.4**	**6.7**	**4.8**
85%	85%	70%	70%	35%	35%	90%	0%	90%	90%	85%	85%

USER ENTERED OCCUPANCY PROFILES

Profile name	**<User entered occupancy profile 1>**		**<User entered occupancy profile 2>**		**<User entered occupancy profile 3>**		**<User entered occupancy profile 4>**		**<User entered occupancy profile 5>**		**<User entered occupancy profile 6>**		**<User entered occupancy profile 7>**		**<User entered occupancy profile 8>**	
Description	<Description>		<Description>		<Description>		<Description>		<Description>		<Description>		<Description>		<Description>	
Time period (local standard time)	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak
12:00am to 1:00am																
1:00am to 2:00am																
2:00am to 3:00am																
3:00am to 4:00am																
4:00am to 5:00am																
5:00am to 6:00am																
6:00am to 7:00am																
7:00am to 8:00am																
8:00am to 9:00am																
9:00am to 10:00am																
10:00am to 11:00am																
11:00am to 12:00pm																
12:00pm to 1:00pm																
1:00pm to 2:00pm																
2:00pm to 3:00pm																
3:00pm to 4:00pm																
4:00pm to 5:00pm																
5:00pm to 6:00pm																
6:00pm to 7:00pm																
7:00pm to 8:00pm																
8:00pm to 9:00pm																
9:00pm to 10:00pm																
10:00pm to 11:00pm																
11:00pm to 12:00am																
Hours per day at peak occupancy	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Maximum occupancy during the day	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%