

Deicorp Projects Showground Pty
Ltd

**Doran Drive Precinct (The
Showground)**

**Development Application -
Environmental Performance and
ESD Report**

Final Issue | 1 June 2021

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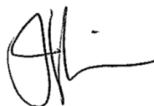
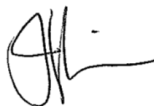


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Executive Summary

This *Development Application – Environmental Performance and Ecologically Sustainable Development (ESD) Report* details the current sustainability actions that have been achieved and/or embedded within the design, construction, and operation of the Doran Drive Precinct Showground development. These actions have been undertaken as a commitment to the future environmental and social value realised within the Hills Showground Station Precinct, as well as directly responding to Ecologically Sustainable Development Report (October 2019) and subsequent memo and ESD requirement schedule (19th May 2020) prepared by WSP and outlined in the concept approval. In addition, sustainability initiatives for the development have been driven by the requirements described in a variety of planning and policy documents applicable to the development including:

- Planning Secretary’s Environmental Assessment Requirements (SEARs)
- State Environmental Planning Policies (SEPPs)
- Regional policies; the Greater Sydney Commission
- Local planning controls

The development has adopted a sustainability framework (Green Star Design and As-Built v1.3) as well as supplementary environmental performance and ESD initiatives detailed in the Schedule 7 requirements. These frameworks drive building performance, energy efficiency, water sensitive urban design, waste management, innovation, and a variety of other positive social, environmental, and economic outcomes.

1 Introduction

The Doran Drive Precinct Showground (the Development) forms part of the Hills Showground Station Precinct located in the Central City District of Metropolitan Sydney in the Metro North West Line corridor (Figure 1). The Showground Station Planned Precinct is forecast to deliver approximately 5,000 new homes and 2,300 jobs over the next 20 years, transforming the area around Hills Showground Station and contributing to Castle Hill as a strategic centre.

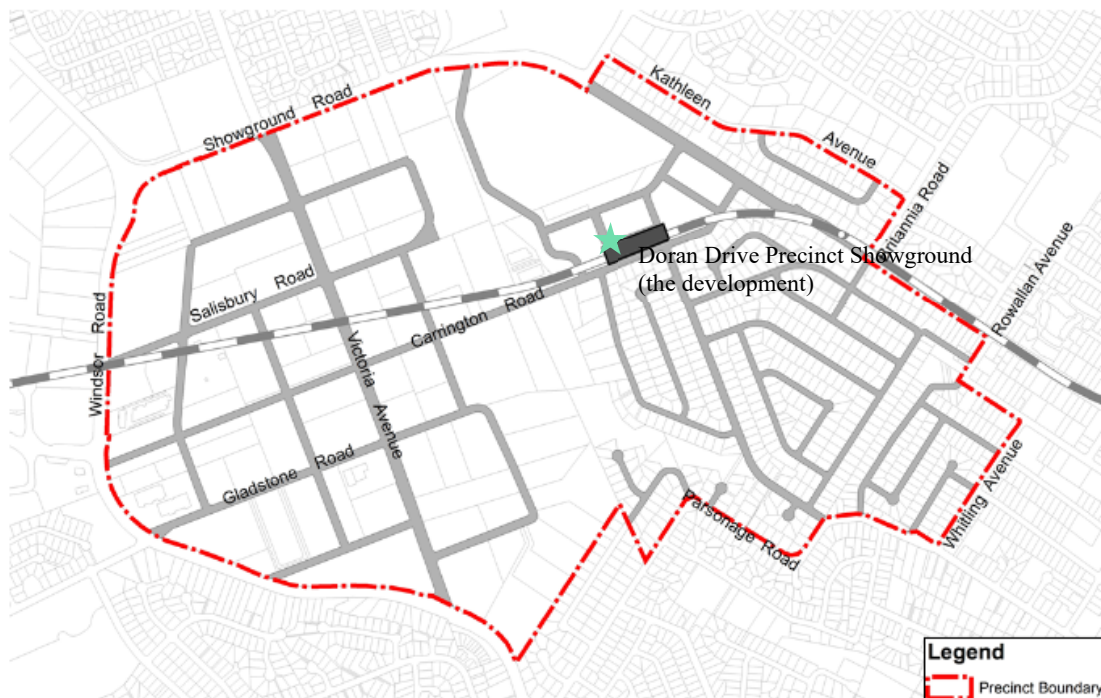


Figure 1 - Showground Station Precinct¹

The development is a staged construction of a mixed-use development comprising 431 residential apartments, retail/commercial uses, public domain works, and landscaping including a publicly accessible park, and stratum subdivision.

The development has set out to integrate a variety of sustainability initiatives outlined in regional policies, local planning policies, SEARs, and sustainability commitments between Landcom and Deicorp Projects Showground Pty Ltd (the Developer). Currently, several sustainable initiatives have been achieved and/or integrated into the design, construction, and operation of the development to advance the social, environmental, and economic performance of the precinct. These actions are described and illustrated in depth in this report, responding directly to the concept approval, SEARs requirements, and the vision set by Landcom and WSP in the following documents:

¹ The Hills Development Control Plan (DCP) 2012 – Part D Section 19 Showground Station Precinct

- Landcom and WSP Ecologically Sustainable Development Report (dated October 2019)
- Landcom and WSP Hills Showground Station Precinct – ESD Requirements Schedule (Appendix K Cover letter and ESD requirements tool) (dated 19 May 2020)

1.1 Approvals pathway

Under Development Consent SSD 9653, the Minister for Planning identifies that development that has a capital investment value over a specific amount is declared to be State Significant Development (SSD) for the purposes of the EP&A Act. The proposed stages of development exceed this amount and are therefore SSD.

1.2 Secretary's Environmental Assessment Requirements (SEARs)

The approval for the project is being evaluated by the NSW State Government Department of Planning and Environment (DPIE) and is required to demonstrate alignment with the Secretary's Environmental Assessment Requirements (SEAR's). The SEARs requirements represent the highest level of policy to be addressed by the development. The requirements outlined in the SEARs that relate to sustainability and that will be responded to in this report are outlined in Table 1 below.

14. Ecological Sustainable Development

- The EIS shall identify how ESD principles (as defined in clause 7(4) Schedule 2 of the EP&A Regulation 2000) will be incorporated in the design, construction, and operation of the development, including commitments to relevant industry benchmarks and best practice in waste and water management strategy.

6. Built Form, Urban Design and Public Domain

- The EIS shall include design quality guidelines for the future stage(s) of development and built forms with specific guidance on;
 - o ecologically sustainable design, including opportunities for water reuse and renewable energy features
 - o environmental considerations, such as contamination and climate change
 - o microclimate conditions

Table 1 - SEARs Sustainability Requirements

The development's response to these requirements are detailed in Section 3 and Section 4.

2 Policy Context

This section provides an outline of additional relevant project policy and planning requirements for consideration within the context of sustainability for the development. This includes:

- State Environmental Planning Policies: BASIX
- Regional Policies: Greater Sydney Region Plan, A Metropolis of Three Cities – Central City District Plan
- Local Planning Controls: The Hills Environment Strategy 2019 and The Hills Development Control Plans
- Concept approval requirements

2.1 State Environmental Planning Policies (SEPPs)

The State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 aims to establish and encourage sustainable residential development that uses less potable water and produce fewer greenhouse gas emissions.

The mandatory target that applies to the development and set by the SEPP is a BASIX energy rating of 25 for high-rise buildings (6 storeys or higher), and the minimum BASIX Water rating prescribed by the SEPP is 40 for all new residential developments.

2.2 Regional Policies

The strategic policy context for the development includes the Greater Sydney Commission 'Our Greater Sydney 2056, Central City District Plan'. The Greater Sydney Commission (GCC) has developed several sustainability objectives for the Central City District in which development resides. The priorities and objectives specifically relating to sustainability are outlined in Table 2 below.

C13: Protecting and improving the health and enjoyment of the Districts Waterways

C14: Creating a Parkland City urban structure and identity, with South Creek as a defining spatial element

C15: Protecting and enhancing bushland, biodiversity, and scenic and cultural landscapes

Objectives

- Biodiversity is protected, urban bushland and remnant vegetation is enhanced
- Scenic and cultural landscapes and protected

C16: Increasing urban tree canopy cover and delivering Green Grid connections

Objectives

- Urban tree canopy cover is increased

- The Green Grid links parks, open spaces, bushland, and walking and cycling paths

C17: Delivering high quality open space

Objectives

- Public open space is accessible, protected and enhanced

C18: Better managing rural areas

C19: Reducing carbon emissions and managing energy, water, and waste effectively

Objectives

- A low-carbon city contributes to net-zero emissions by 2050 and mitigates climate change
- Energy and water flows are captured, used, and re-used
- More waste is re-used and recycled to support the development of a circular economy

C20: Adapting to the impacts of urban and natural hazards and climate change

Objectives

- People and places adapt to climate change and future shocks and stresses
- Exposure to natural and urban hazards is reduced
- Heatwaves and extreme heat are managed

Table 2 – Greater Sydney Commission Central City District Plan Sustainability Planning Priority

2.3 Local Planning Controls

2.3.1 The Hills Environment Strategy 2019

The development has considered the planning priorities of the Local Strategic Planning Statement *Hills Future 2036* and is reflected in the documentation developed specifically for the development. Priorities for the region include:

- **protecting areas of high environmental value and significance** through the land use planning system, continued use of rural cluster subdivisions, and community involvement
- **increasing urban tree canopy** cover to improve the character of local places while addressing urban heat island effect, through master planning and urban design
- **managing natural resources and waste responsibly** through mechanisms that protect the Shire's waterways and wetlands, reduce water and energy use and waste generation, and move towards innovative approaches

- **preparing residents for environmental and urban risks** by improving the planning framework to address bushfire and flooding risks, urban heat island and extreme weather, and pollution

2.3.2 The Hills Development Control Plan 2012

To fulfil the Council's statutory responsibilities as required by Schedule 2 of the EP&A Regulation; the Local Government Act 1993, development is required to meet Council's ESD objectives. When planning and developing land in the region, careful consideration must be given to the Council's ESD objectives. These objectives are outlined below in Table 3.

- *ESD 1:* To apply the precautionary principle where development is likely to cause short or long-term irreversible or serious threats to the environment
- *ESD 2:* To allow for broad community involvement in respect to issues of concern throughout the development process.
- *ESD 3:* To ensure during the design, construction, and operation of the development, that water is utilised efficiently and that water leaving the site is of a quality and quantity comparable to that which is received.
- *ESD 4:* To ensure that biodiversity and the integrity of ecological processes are not compromised by the development.
- *ESD 5:* To promote the following during the design, construction, and operation of development:
 - o the use of energy efficient materials and designs
 - o utilisation of renewable energy & materials; and
 - o energy efficient technology.
- *ESD 6:* To follow the principles of the 'Waste Hierarchy' (reduce, reuse, recycle) in the use of materials and the design of waste recovery and disposal systems throughout the development process
- *ESD 7:* To protect neighbourhood amenity and safety in the design and construction and operation of the development.
- *ESD 8:* To encourage the long-term economic viability and health of the community in the development process.
- *ESD 9:* To encourage the use of public transport, bicycles and pedestrian trips in the development and design process

Table 3 - The Hills DCP 2012 ESD Objectives

2.3.3 Showground Station Precinct

Site specific controls for the Showground Station Precinct are also detailed by The Hills Shire Council. A summary of ESD actions outlined in the DCP Part D Section 19 Showground Station Precinct are presented below in Table 4.

Objectives

- a. To ensure building design is innovative and sustainable to reduce the reliance on, and consumption of, fossil fuels and potable water supplies.
- b. Development adapts to climate change.
- c. Development contributes to improved quality of life, health, and well-being of the community.
- d. The design, construction and operation of development minimises adverse impacts on the natural environment.
- e. Use landscape treatments to improve amenity for people using open space.

Controls

1. Residential flat buildings, townhouses and terraces built as a development lot should achieve a minimum 5-star NatHERS energy rating for each dwelling unit.
2. Development other than residential should achieve a minimum 5-star Green Star Design and as Built rating, respectively.
3. Building operation should achieve a minimum 4.5-star base building and tenancy NABERS Energy rating, where applicable.
4. The incorporation of green walls and roofs into the design of commercial and residential buildings is encouraged. Where suitable, building facades should incorporate vertical landscaping features to soften the visual bulk of buildings and to improve streetscape appeal.
5. Canopy trees are to be planted within street verges and medians to provide shade and reduce pavement surface temperatures. Understorey planting and permeable surfaces should also be provided where possible to reduce the extent of paved areas and to enhance the amenity of the streetscape environment.
6. Buildings are encouraged to incorporate a tri-generation facility that provides energy-efficient power, heating, and air conditioning for use on site.
7. Building designs are to:
 - Maximise the use of natural light and cross ventilation.
 - Reduce the reliance on mechanical heating and cooling through the use of eaves, awnings, good insulation, and landscaping.
 - Include energy efficient light fittings and water fittings; and
 - Allow for separate metering of water and energy usage for commercial and multi-unit tenancies

Table 4 - Showground Station Precinct ESD Objectives

2.4 Concept Approval

The concept approval requires that the development address two conditions that specifically relate to environmental performance/ESD and drive sustainability in the precinct; *Condition 10* (C10) and *Condition 11* (C11).

C10. Future detailed development applications must demonstrate how the principles of ecologically sustainable development (ESD) have been incorporated into the design, construction, and ongoing operation of the proposal.

C11. The ESD credentials of future detailed development application shall be in accordance with, or improve upon, the targets established within the Ecologically Sustainable Development Report, Dated October 2019 and prepared by WSP and subsequent memo dated 19 May 2020.

In relation to C11, the Ecologically Sustainable Development Report (October 2019) and subsequent memo (19th May 2020) prepared by WSP and outlined in the concept approval, was prepared for Landcom on behalf of Sydney Metro to support the State Significant Development Application (SSDA) under Section 4.22 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The information synthesises the requirements defined in the relevant planning and policy documents, as well as Landcom's mandated sustainability objectives. This sets out a Schedule of 'mandatory' and 'stretch' ESD targets for the development, as well as a timeline of when measures should be addressed.

Responses to both C10 and C11 are linked in their sustainability actions and outcomes. The developments alignment with both conditions are detailed in Section 4, responding directly to the 'Mandatory' and 'Stretch' goals (C11), as well as supplementary ESD initiatives incorporated into the design, construction, and ongoing operation of the development (C10).

3 Sustainability Response

3.1 SEARs Response

The SEARs requires the EIS to identify how *ESD principles (as defined in clause 7(4) Schedule 2 of the EP&A Regulation 2000)* will be incorporated in the design, construction, and operation of the development, including commitments to relevant industry benchmarks and best practice in waste and water management strategy. The development aligns with these principles, as well as the sustainability initiatives described further in Section 4 as detailed below. All definitions provided are those detailed in *Clause 7(4) Schedule 2 of the EP&A Regulation 2000*.

1. The precautionary principle

Definition

The precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- a) careful evaluation to avoid, wherever practicable, serious, or irreversible damage to the environment, and
- b) an assessment of the risk-weighted consequences of various options

Through the environmental impact statement and the sustainability strategy, the development has sought to understand the environmental impacts of the development and assess the positive effect the development can have to the environment. Measures outlined below (Section 4) detail the actions and commitments being made to minimise the environmental impact of the development, predominantly during the construction and operational phase of the project. This includes efficient resource use, responsibly sourced materials, minimising potable water use, water sensitive urban design strategies, landscaping that improves the health of the local flora and fauna, and maximising energy efficiencies. As a result, the development proposal is consistent with the EP&A Regulations objectives to avoid serious or irreversible damage to the environment.

2. Inter-generational equity

Definition

Inter-generational equity, namely, that the present generation should ensure that the health, diversity, and productivity of the environment are maintained or enhanced for the benefit of future generations

The sustainability response in the design has drawn consideration of future environmental and social need and has responded to intergenerational equity. The development will minimise resource consumption in the construction, fit out and operation of the development, as well as reducing operational waste production. Embedding actions identified in the climate adaptation and resilience assessment will also help safeguard future generations from the impacts of a changing climate and natural disasters. The productivity of the environment is also enhanced for the benefit of future generations through a variety of strategies that aim to reduce the urban heat island effect (e.g. green infrastructure, material and colours, shading). A number of community spaces and amenities will be provided as well as different transport options and the promotion of health and wellbeing through the use of landscape design and active transport facilities. These initiatives aim to ensure the health, diversity, and productivity of the environment and enhanced for future generations.

3. Conservation of biological diversity and ecological integrity

Definition

Conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration

The development is located on previously cleared land (approximately in 2013). Overall, the land was categorised as having limited biological diversity and ecological integrity. The ecological assessment of the site determined that the development aligns with this principle as there is no adverse environmental impacts on the site, with no threatened species, critically endangered, endangered, or vulnerable ecological communities or species, and the fauna habitat in poor condition. Furthermore, biodiversity enhancement will be achieved post development following the planting and regeneration of native vegetation that will attract the native fauna. Ecological integrity is also maintained through integrated

water cycle management practices, mainly that stormwater peak discharge does not exceed pre-development levels, and a combination of vegetated swales, rainwater re-use and engineering structures (including cartridge filters) will be used to meet pollution reduction targets.

4. Improved valuation, pricing, and incentive mechanisms

Definition

Improved valuation, pricing, and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:

- i. polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance, or abatement,
- ii. the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,
- iii. environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Deicorp has a long-term interest in the development as it maintains partial ownership of the residential, retail, commercial and public domain. As a result, a long-term view on the project has been taken. The proposal has considered a whole of life approach in design, construction, and operation, maximising value within the development as well as utilising innovative approaches to the quality of the public domain, the inclusion of sustainable technologies, and the use of renewable energy sources.

Improved valuation, pricing, and incentive mechanisms, including pollution and waste generation control, have been addressed through Environmental Management Plan (EMP) and Environmental Management System. The EMP stipulates controls for construction and the management system formalises the approach to planning, implementing, and auditing during construction to ensure compliance with the EMP. In addition, construction waste diversion targets, operational waste diversion targets, and the use of responsible building materials that ensure building materials are responsibly sourced and/or have a sustainable supply chain have also been stipulated. Furthermore, strategies have been implemented to ensure the project accounts for any modern slavery practices that may be present in the supply chain, improving the valuation, pricing and incentive for supply chains that partake in responsible and sustainable practices.

Pollutant discharge from the development is governed by strict pricing mechanisms as well as environmental regulations. Water source pollution has been minimised through integrated water cycle management practices including vegetated swales and rainwater re-use.

Environmental goals have also been established, such as achieving a 5-star NABERS energy and water rating for non-residential developments, and a 5-star Green Star Design and As-Built rating for residential and non-residential development, establishing a means by which an ongoing sustainability target can

be achieved and potentially improved. The requirement for separate metering and monitoring also enables solutions to be developed to minimise the use of these resources.

Built Form, Urban Design and Public Domain

The SEARs also require the EIS to include design quality guidelines for the future stage(s) of development and built forms with specific guidance on;

- ecologically sustainable design, including opportunities for water reuse and renewable energy features
- environmental considerations, such as contamination and climate change
- microclimate conditions

The developments response to these requirements are outlined in detail in Section 4 below.

4 Sustainability Framework

A variety of ESD principles and broader sustainability initiatives have been incorporated into the design, construction, and operation of the development. These actions will address the underlying regional and local sustainability policies for the precinct and will enable the desired sustainability outcomes to be achieved. This will be accomplished using two sustainability drivers:

- The vision set by Landcom to deliver a variety of exemplar sustainability outcomes for the development to deliver long term environmental and social outcomes (**‘Mandatory ESD Controls’ and ‘ESD Stretch Goals’**)
- The application of the Green Star Design and As-Built (v1.3) framework for residential and non-residential development as a means of achieving sustainable social, environmental, and economic outcomes. The development is targeting and currently registered for a 5-Star rating. These credit initiatives are not detailed below

Table 5 outlines in detail some of the sustainability initiatives that have been achieved and/or embedded into the development to ensure that the design, construction, and operation of the development reflects positive social, environmental, and economic outcomes.

Refer to Appendix A7 for the full details of all the ESD requirements and responses including pending requirements, justification for certain stretch targets that were not pursued, and construction and occupancy certificate timeline requirements and approval mechanisms.

4.1 ESD Requirements and Response

This section details the development’s response to a number of requirements set out in the following documents:

- Landcom and WSP Ecologically Sustainable Development Report
- Landcom and WSP Hills Showground Station Precinct – ESD Requirements Schedule (Cover letter and ESD requirements tool)

Table 5 – ESD requirements and response

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
Governance - Overarching rating tools requirements to benchmark and drive ESD initiatives over project lifecycle				
5-Star Green Star Design and As Built		✓	Development is registered with the GBCA to achieve a 5-star Design and As-Built rating (Appendix A1) for both residential and non-residential developments.	Refer to Appendix A1 for the GBCA registration document.
Management - Integrate sustainability initiatives and considerations through best practice management processes				
ESD Framework established for the precinct development		✓	The ESD framework for the development has been developed and is details in <i>Development Application - Environmental Performance and ESD Report</i> . It is based primarily on; the SEARs, local and regional policy, Schedule 7 requirements, and Green Star 5-Star Design and As-Built rating.	
Full Green Star points for the 'Adaptation and Resilience' credit		✓	Full points are targeted and will be achieved. <i>Landcom - Climate and Community Resilience - Hills Showground Precinct, Castle Hill</i> - report by AECOM set the foundation for this precinct. This was later updated and refined by SLR consulting with a list of recommended actions and considerations. This is detailed in the <i>Hills Showground - Doran Drive Precinct - Climate Change Adaptation & Resilience</i> report and was provided to all consultants to address these actions.	
Ensure the project does not engage in modern slavery practices		✓	Deicorp is a Gold member of the Supply Chain School (Appendix A2) - an organisation recognised in delivering training on sustainability including modern slavery practise for staff and contractors. A number of staff have completed training with the Supply Chain School, and this training and engagement will continue. Deicorp will utilise the resources suggested by the Supply Chain Sustainability School, as well as the organisations listed below, to assist in selecting appropriate supply chains and materials that do not engage in modern slavery. These include Globalgreentag.com, Geca.eco, Antislavery.org.au, Businesshumanrights.org, homeaffairs.gov.au.	Refer to Appendix A2 for Deicorp's Gold Membership shown on the Supply Chain School's website.

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
	Achieve full points in Green Star credit, 'Responsible Construction Practices'	✓	Full points will be achieved. The minimum requirement is to implement a best practice EMP. Deicorp will have a formalised systematic and methodical approach to planning, implementing an auditing during construction to ensure compliance with the EMP. High quality staff support will also be in place to promote positive mental and physical health outcomes and enhance site workers knowledge on sustainable practices through on-site, off-site and/or online education programs. Deicorp will also ensure that responsible contract practices are achieved onsite.	
Energy and Emissions - Reduce energy consumption and procurement of low emission generating energy sources				
Minimum BASIX rating of: 25 for 6 storeys or higher; 35 for 4-5 storeys; 45 for 3 storey units.		✓	Minimum BASIX energy compliance targets will be met, with considerations made for high levels of daylight, appropriate lighting and lighting controls, and efficient mechanical and hot water systems.	
4.5 Star NABERS Energy (non-residential)		✓	A 5-Star NABERS energy rating will be achieved (above the specified 4.5-star requirement).	
Allow for separate energy metering for commercial and multi-unit tenancies		✓	Full points in <i>Credit 6 - Metering and Monitoring</i> will be achieved by metering distinct uses and floors.	
	Achieve 3 points in Green Star credit, 'Greenhouse Gas Emissions' with use of BASIX rating tool	✓	A minimum of 3 points will be achieved in <i>Credit 15 - Greenhouse Gas Emissions Credit</i> .	
	On-site energy generation for at least 5% of total predicted energy demand in operation	✓	The development has committed to producing 5% of the project's energy demand (upon completion) for onsite renewable energy sources. Currently this is planned to be met by fixed solar photovoltaics (PV) and through Power Purchasing Agreements (PPAs). The total energy consumption for the development has been calculated by JHA and includes the sum of the residential, retail, supermarket, and common areas, and is equal to 7,403,355 kWh/year. Meeting the 5% target equates to 370,167 kWh/year, which will be met	Refer to Appendix A3 for plan showing potential area for solar panels and energy calculations

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
			through a combination of solar PV and PPA agreements in which Deicorp will enter into via the embedded network supplier. The total available roof space can house 180kW of solar PV based on 1,400m ² of active area (advised by Deicorp). This on-site solar PV system can produce up to 220,005 kWh/year, leaving an additional 150,162kWh/year to be sourced from PPAs.	
Transport - Reduce dependability on private vehicle use by access to public transport, amenities, and facilities to encourage alternative means of transport				
Include at least 10% of total parking spaces to have Electric Vehicle charging stations		✓	The develop will include electric vehicle charging points, with the number of spaces being approximately 10% of the total number of residential parking spaces provided in the project. This is to be detailed further in the CC documentation. This will encourage the uptake and use of EV cars and raise awareness to the community about the benefits of using a potentially renewable energy source over fossil fuels.	
	Achieve 5 points in Green Star credit, 'Sustainable Transport'	✓	5 points in the Green Star As Built 'Sustainable Transport' credit will be achieved.	
Water - Reduce consumption of potable water consumption				
BASIX Water rating of 40		✓	Minimum BASIX water targets will be met, with considerations made for significant improvement above this target including efficient fixtures and fitting, rainwater harvesting and reuse, no potable water being used for irrigation or using a drip system with moisture sensor override.	
Separate metering of water across commercial and multi-unit tenancies		✓	Full points in <i>Credit 6 - Metering and Monitoring</i> will be achieved by metering distinct uses and floors, and smart metering systems will be used to present and report daily usage data.	
Implement the Integrated Water Cycle Management (IWCM) Strategy		✓	Water Sensitive Urban Design (WSUD) strategy will be provided prior to DA. Hydraulics allowed for calculations of roof drainage (concrete roof) 100-year event and for Podium drainage level 20-year ARI Event.	Refer to Appendix A4 for the development's WSUD strategies.

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
			Hydraulics allowed for part of the non-trafficable roof areas to discharge to rainwater tank and to reuse system. The Podium will be served by 300mm outlet drains to EnviroPods before draining to the stormwater system or Onsite Stormwater Detention (OSD). WSUD Strategy will be specified in Civil Design Report through use of cartridge filters. Stormwater discharge is managed through regional OSD infrastructure. AECOM will demonstrate site discharge meets public stormwater capacity (without OSD if possible). Stormwater Peak Discharge: Stormwater is being designed to ensure that pre-development peak discharge is not exceeded through the use of on-site detention. Currently a combination of vegetated swales, rainwater re-use and engineering structures will be used to meet pollution reduction targets. Climate Change Adaptation Plan (CCAP) and resilience: DRAINS modelling used to explore a range of increased rainfall intensity and coordination with alternative supply (e.g. onsite generation and water storage). DRAINS will review impact of increased rainfall intensity. Potable water reduction with the use of rainwater tanks to offset irrigation demand.	
	5-star NABERS Water (Office/commercial, hotel or retail)	✓	A 5-Star NABERS water rating will be achieved.	
Materials and Waste - Assess and reduce footprint of major construction materials AND Minimise and/or increase re-use of waste material				
	Achieve 1 point in 'Responsible Building Materials' credit (Green Star) for timber	✓	1 point will be achieved in the 'Responsible Building Materials' credit (Green Star) for timber.	
	95% of construction waste diverted from landfill (excluding contaminated materials)	✓	The project has committed to diverting ≥95% of construction waste from landfill and maximise the reuse and recycling of materials on-site where considered appropriate. In order to achieve the target of 95%, a detailed construction and demolition waste diversion plan has been prepared in the waste and resource recovery report which is completed by the waste consultant.	

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
	Consider how the proposal can minimise organic waste and reduce all waste as far as possible towards zero waste in operation (i.e. zero waste to landfill)	✓	A 70% operational waste diversion target has been set for the project. This includes landfill diversion targets, full segregation, organics, residential and commercial waste streams. This strategy is incorporated into the Operational Waste Management Plan, which addresses waste diversion estimates including segregation of recyclables and food waste.	
	Undertake a Life Cycle Assessment to advance business approach to sustainable materials, and to inform an approach to zero carbon in embodied energy of projects	✓	A Life Cycle Assessment is planned for the development using the 'Life Cycle Impacts' credit in Green Star.	
	100% timber sourced for construction (by cost weight) is Forest Stewardship Council Certified or agreed equivalent (i.e. Australian Forestry Standards)	Partially met	100% was deemed not to be logistically feasible. Instead, a 95% target that aligns with Green Star will be achieved.	
Land Use and Ecology - Minimise projects footprint on local land and ecology				
75% of the development plan area to be covered with green canopy, vegetation or landscaping/building elements that reduce the impact of heat island effect		✓	Site area: 7,969m ² Combination of UHI mitigation strategies achieved: 6,482 m ² Therefore, an area of approximately of 81% is covered by elements that reduce the UHI effect.	Refer to Appendix A5 for heat island effect mitigation strategy calculations.

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
As a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of GFA, whichever is larger. Vertical or horizontal landscapes are acceptable. Indigenous species are to be used, this should be local / endemic indigenous species.		✓	Ground Floor - 40% of plaza to receive extensive tree canopy to mitigate heat island effect - 40% of plaza to have vegetated & permeable surfacing under storey ground covers - to mitigate heat island effect and WSUD - Paving materials proposed to be stone in buff and light variants to avoid heat absorption - Proposed building awning and shade devices to mitigate heat island effect - WSUD and other green space increased in the design of the public open space to minimise impacts of flooding - Use low risk bushfire vegetation on planned greenspace - Cycle and walking paths and cycle infrastructure in the design - Appropriate native plant species to mitigate water usage - OSD tank used for irrigation Communal Open spaces - 45% of communal open spaces to receive extensive tree canopy to mitigate heat island effect - 78% of podium to have vegetated & permeable surfacing - Increase in permeable areas - lawn expansion to avoid excessive paved handstand areas - Under storey ground covers - to mitigate heat island effect and WSUD - Paving materials proposed to be stone in buff and light variants to avoid heat absorption - BBQ shade devices to mitigate heat island effect - WSUD and other green space increased in the design of the public open space to minimise impacts of flooding - Appropriate native plant species to mitigate water usage - OSD tank used for irrigation - Community gardens provided with water tanks to encourage urban agriculture and increase the developments sustainability and resilience measures - Active play areas proposed to encourage active and fitness opportunities	Refer to Appendix A6 for landscaping drawings.

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
Full points for the 'Heat Island Effect' credit		✓	Full points will be achieved in the 'Heat Island Effect'. Refer to Appendix A5 for Heat Island Effect Area Calculations. An area of approximately of 81% is covered by elements that reduce the UHI effect. To reduce the urban heat island effect, actions on site currently include: Ground Floor - 40% of plaza to receive extensive tree canopy to mitigate heat island effect - 40% of plaza to have vegetated & permeable surfacing under storey ground covers - to mitigate heat island effect and WSUD - Paving materials proposed to be stone in buff and light variants to avoid heat absorption - Proposed building awning and shade devices to mitigate heat island effect - WSUD and other green space increased in the design of the public open space to minimise impacts of flooding - Use low risk bushfire vegetation on planned greenspace - Appropriate native plant species to mitigate water usage - OSD tank used for irrigation Communal Open spaces - 45% of communal open spaces to receive extensive tree canopy to mitigate heat island effect - 78% of podium to have vegetated & permeable surfacing - Paving materials proposed to be stone in buff and light variants to avoid heat absorption	Refer to Appendix A5 for heat island effect mitigation strategy calculations

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	STATUS	RESPONSE	CURRENT EVIDENCE
	Achieve 1 point in Green Star credit, 'Ecological Value'	✓	The report by Ecological Australia (dated 03/11/20) on the Doran Drive Precinct development summarised the existing and proposed biodiversity values and concludes that the Project will achieve 2 points within the Ecological Value Calculator. Notable points include: - At the time of purchase (Deicorp intends to acquire the land that is currently owned by Landcom in 2021), there are no critically endangered, endangered, or vulnerable ecological communities or species present on the site - No threatened species have been previously recorded within the Project site - The fauna habitat is in poor condition due to the site being within an urban area and already subject to clearing from previous construction - Biodiversity enhancements post development include planted native vegetation (groundcover, mid-storey, and canopy), and exotic vegetation as lawn areas - Revegetation of native vegetation within the site, conforming to the naturally occurring vegetation of the subregion, with the less active open area spaces providing a more complete vegetation structure and increasing the likelihood of attracting native fauna - Species will include those found with the vegetation communities Sydney Sandstone Gully Forest and River-flat Eucalypt Forest, which is present within the riparian corridor of Cattai Creek west of the project site	
Innovation				
	Affordable housing component to be included as part of the residential development	✓	Deicorp have engaged Bridge Housing as their Community Housing Provider for a period of ≥10 years. This will be a minimum of 5% affordable housing of the final number of dwellings throughout the development.	
	20% Silver performance level Liveable Housing	✓	Deicorp will develop LHA units that will meet the 20% requirement.	

5 Conclusion

A wide-ranging list of sustainability initiatives have been achieved and/or embedded within the design, construction, and operation of the development. These initiatives respond to a variety of sustainability requirements outlined in the SEARs, regional and local planning controls, and joint commitments between Landcom and Deicorp.

The adoption of a sustainability framework to drive best-practice sustainability outcome illustrates a commitment to achieving ecologically sustainable development and realising the social and environmental value of the development. These achievements include (but not limited to):

- A robust site planning, layout, and urban design strategy
- Responsible construction practices including EMP, EMS and supporting and educating staff
- High performance buildings including the ability to meter and monitor data
- Integrating on-site renewable energy generation
- Reducing greenhouse gas emissions
- Reducing potable water usage
- Embedding climate adaptation and resilience into design
- Biodiversity enhancement through landscaping and species selection
- Mitigate urban heat island effects using a combination of strategies
- Integrating water sensitive urban design
- Implementing an integrated water cycle management strategy
- NABERS 5-Star Energy and Water for non-residential dwellings
- Encouraging recreation and active lifestyles
- Community development initiatives
- Residential affordability and social housing
- Minimising operational, construction and demolition waste
- Supporting sustainable transport including providing electric vehicle charging infrastructure
- Selecting building materials that are responsibly sourced or have a sustainable supply chain
- Sustainable supply chain practices including not engaging in modern slavery practices

A1 GBCA registration document



Building a
sustainable
future

Aug 14, 2020

Poonam Chauhan
Deicorp
level 4
161 Redfern St
REDFERN NSW 2016

TAX INVOICE #GS-5674DA-A-39365

PAID ON 03/09/2020

Doran Drive, Castle Hill
Green Star - Design & As Built v1.3

Description	Fee
Green Star Certification Fee for Doran Drive, Castle Hill - \$200,000,000	\$43,400.00
GST	\$4,340.00
TOTAL	\$47,740.00

Payment Methods

EFT

National Australia Bank
Acc name: Green Building Council of Australia
BSB: 082 062
Acc No: 85 406 2627
Reference: GS-5674DA-A-39365

Please quote the invoice number as your reference and fax your remittance advice to (02) 8239 6200 or email to accounts@gbca.org.au.

Cheque

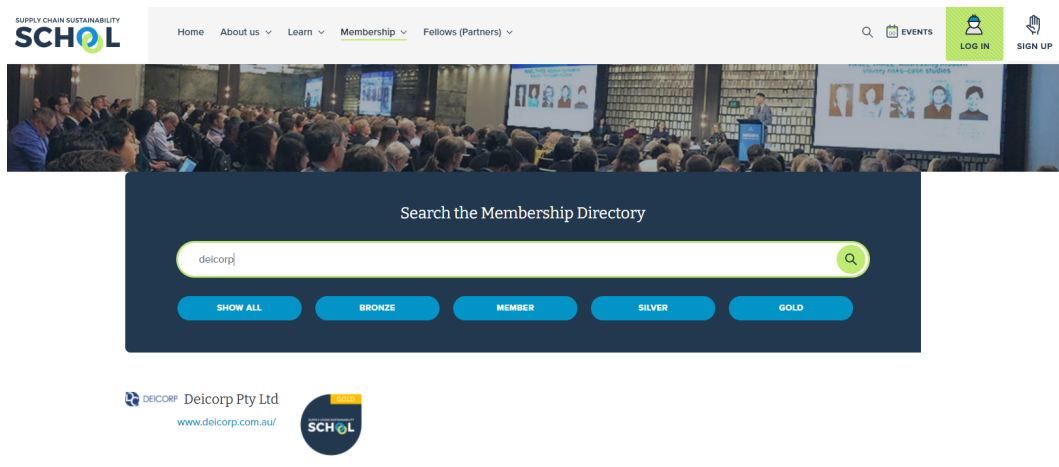
Please make cheque payable to the "Green Building Council of Australia" and return it with a copy of this invoice to the address above: Attention Accounts Receivable.

Payment due within 28 days unless prior arrangements have been made with the GBCA.

With thanks.

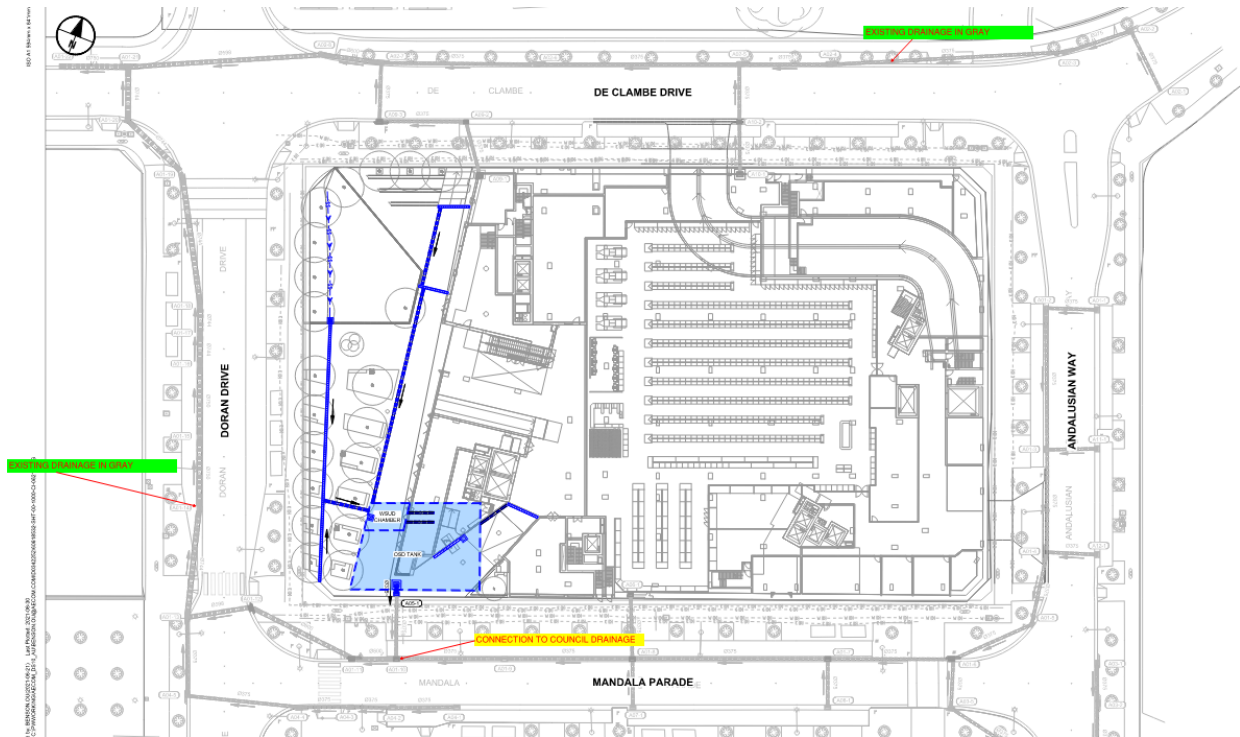
ABN 43 100 789 937 / Phone +61 2 8239 6200 / Email info@gbca.org.au / Address Level 31, Tower Two / International Towers
Sydney / 200 Barangaroo Avenue / Barangaroo NSW 2000 / Website www.gbca.org.au

A2 Supply Chain School



A3 Potential area for solar panels and area calculation

Stormwater drainage plan:



Sediment Fence:

- SECTION DETAIL:** Shows a cross-section of the fence. It consists of a self-supporting geotextile fabric supported by 1.5 m star pickets at max. 2.5 m centres. The fabric is installed over a 150 mm x 100 mm trench with compacted backfill and on rock, set into surface concrete. A disturbed area is shown above the fence, and an undisturbed area below.
- PLAN:** Shows a top-down view of the fence layout. It indicates a flow direction, a 20 m maximum width, and star pickets at a minimum 1.5 m spacing. Star pickets are placed at a maximum 2.5 m spacing.

MESH AND GRAVEL INLET FILTER:

- SECTION DETAIL:** Shows a cross-section of the filter. It features a gravel-filled wire mesh or geotextile 'sausage' supported by timber spacers to the soil. Runoff water with sediment enters from the left, passes through the filter, and exits as filtered water on the right. An overflow channel is also shown.

STABILISED SITE ACCESS:

- SECTION DETAIL:** Shows a cross-section of a stabilized site access. It includes a construction site, an existing roadway, and a gravelled wheel track. The track has a minimum length of 15 metres and a minimum width of 3 metres. It is constructed with 300 mm road base or 30 mm aggregate. Runoff is directed to a sediment trapline. The geotextile fabric is designed to prevent intermixing of subgrade and base materials and to maintain good properties of the sub-base layers.

Construction Notes

- Construct sediment fence as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
- Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be embedded.
- Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
- Tie self-supporting geotextiles to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of waste cloth for this purpose is not satisfactory.
- Join sections of fabric at a support post with a 150-mm overlap.
- Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

Construction Notes

- Install filters to kerb inlets only at sag points.
- Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
- Form an elliptical cross-section about 150 mm high x 400 mm wide.
- Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Mortar the opening with weather blocks.
- Form a seal with the kerb to prevent sediment bypassing the filter.
- Save bags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

Construction Notes

- Strip the topsoil, level the site and compact the subgrade.
- Cover the area with needle-punctured geotextile.
- Construct a 200 mm thick pad over the geotextile using road base or 30 mm aggregate.
- Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
- Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence.

SEDIMENT FENCE

SD 6-8

MESH AND GRAVEL INLET FILTER

SD 6-11

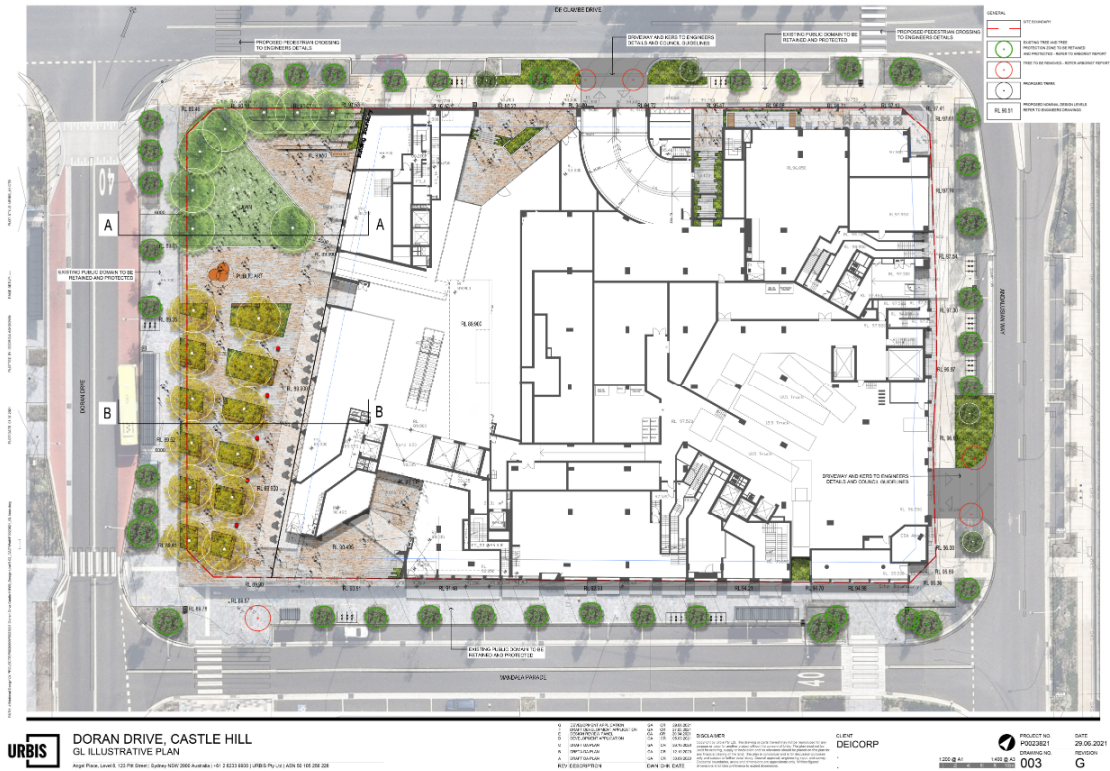
STABILISED SITE ACCESS

SD 6-14

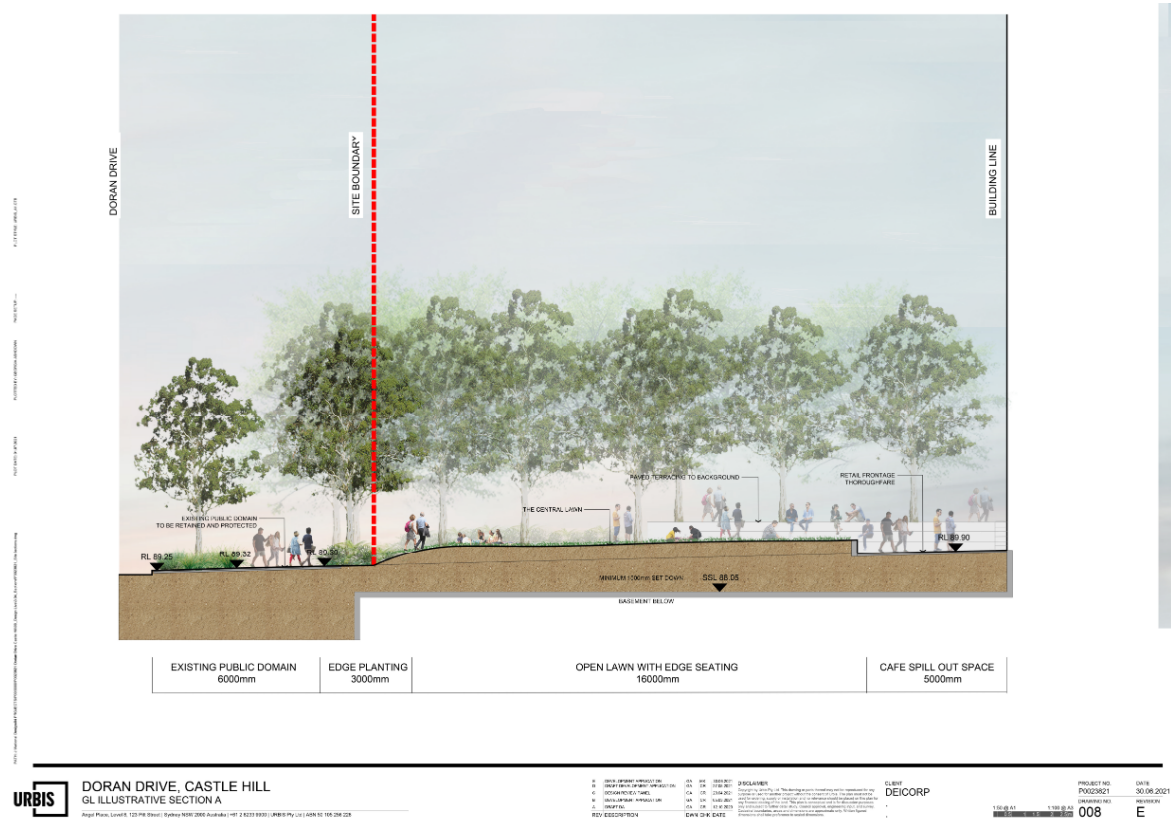
A5 Heat Island Effect Area Calculation

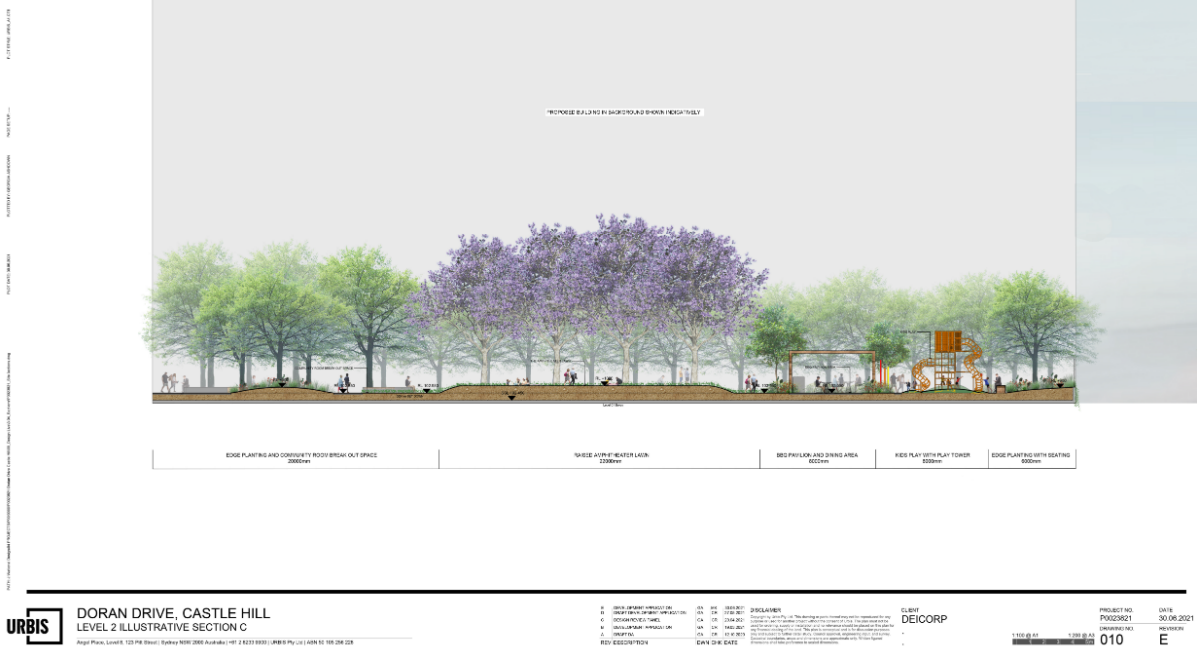


A6 Landscaping









A7 ESD Requirements Schedule – full response

ABBREVIATIONS

SSDA - State Significant Development Application
DCP - Showground Station Precinct (DCP)
SEPP - State Environmental Planning Policies
LSPS - Landcom Sustainable Places Strategy

TR - Tender Requirements
CC - Construction Certificate
OC - Occupancy Certificate
PCA - Principal Certifying Authority

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	TARGET SOURCE	CONTROL STAGE	ASSESSMENT AUTHORITY	TIMELINE / APPROVAL MECHANISM	STATUS	RESPONSE	CURRENT EVIDENCE
Governance - Overarching rating tools requirements to benchmark and drive ESD initiatives over project lifecycle								
5-Star Green Star Design and As Built		TR, DCP	SSDA Detailed Design	DPIE	As part of the SSDA Detailed Design Package, provide an ESD Report including initial Green Star Pathway demonstrating a 5-Star rating can be achieved for residential and non-residential areas, with relevant measures included in the design.	✓	Development is registered with the GBCA to achieve a 5-star Design and As-Built rating (Appendix A1) for both residential and non-residential developments.	GBCA registration document - Appendix A1.
5-Star Green Star Design and As Built		TR, DCP	CC	DPIE/PCA	Prior to CC provide Green Star 5 Star Design Review Rating. Evidence that the two mandatory Green Star credits have been achieved, namely 'Adaptation and Resilience' and 'Urban Heat Island Effect'.	Pending	To be achieved prior to construction certificate - Plan is that in 4 to 6 months we will lodge with GBCA (prior to CC)	
5-Star Green Star Design and As Built		TR, DCP	OC	DPIE/PCA	No more than 6 months from OC provide As Built Green Star 5 Star certificate. Including evidence that the two Mandatory Green Star credits have been achieved, namely 'Adaptation and Resilience' and 'Urban Heat Island Effect'.	Pending	Ensure rating achieved within 6 months of occupancy certificate	
Management - Integrate sustainability initiatives and considerations through best practice management processes								
ESD Framework established for the precinct development		SEARS, LSPS	Concept Stage	DPIE	ESD Concept Report	✓	The ESD framework for the development has been developed and is details in <i>Development Application - Environmental Performance and ESD Report</i> . It is based primarily on: - SEARS - Local and regional policy - Schedule 7 requirements - Green Star 5-Star Design and As-Built rating	
Full Green Star points for the 'Adaptation and Resilience' credit		TR	SSDA Detailed Design	DPIE	As part of the SSDA Detailed Design Package, provide ESD Report and Green Star Pathway demonstrate that the recommendations in the report, <i>Climate and Community Resilience Hills Showground</i> (AECOM Oct 2018) have been included. Note that this report may require updating to ensure compliance with the credit requirements of the 'Adaptation and Resilience' credit.	✓	Full points are targeted and will be achieved <i>Landcom - Climate and Community Resilience - Hills Showground Precinct, Castle Hill</i> - report by AECOM set the foundation for this precinct. This was later updated and refined by SLR consulting with a list of recommended actions and considerations. This is detailed in the <i>Hills Showground - Doran Drive Precinct - Climate Change Adaptation & Resilience</i> report and was provided to all consultants to address these actions.	
Ensure the project does not engage in modern slavery practices		TR	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	Provide proof of membership (fee) with the Supply Chain School engagement, and provide details of planned training and engagement for staff.	✓	Decorp is a Gold member of the Supply Chain School (Appendix A2) - an organisation recognised in delivering training on sustainability including modern slavery practise for staff and contractors. A number of staff have completed training with the Supply Chain School, and this training and engagement will continue. Decorp will utilise the resources suggested by the Supply Chain Sustainability School, as well as the organisations listed below, to assist in selecting appropriate supply chains and materials that do not engage in modern slavery. These include Globalgreentag.com, Geoca.coo, Antislavery.org.au, Businesshumanrights.org, homeaffairs.gov.au	Refer to Appendix A2 for Decorp's Gold Membership shown on the Supply Chain School's website.
	Achieve full points in Green Star credit, 'Responsible Construction Practices'	TR	SSDA Detailed Design	DPIE	As part of the ESD Report and Green Star Pathway demonstrate that full credits in 'Responsible Construction Practices' have been targeted. If this is not achievable, justification should be provided in any case.	✓	Full points will be achieved The minimum requirement is to implement a best practice EMP. Decorp will have a formalised systematic and methodical approach to planning, implementing an auditing during construction to ensure compliance with the EMP. High quality staff support will also be in place to promote positive mental and physical health outcomes and enhance site workers knowledge on sustainable practices through on-site, off-site, or online education programs. Decorp will also ensure that responsible contract practices are achieved onsite.	
Energy and Emissions - Reduce energy consumption and procurement of low emission generating energy sources								
Minimum BASIX rating of: 25 for 6 storeys or higher; 35 for 4-5 storeys; 45 for 3 storey units.		SEPP (BASIX)	SSDA Detailed Design	DPIE	As part of the SSDA Detailed Design Package, provide an ESD Report including detail on how this will be achieved through design and inclusion of initial BASIX certificates	✓	Minimum BASIX energy compliance targets will be met, with considerations made for high levels of daylight, appropriate lighting and lighting controls, and efficient mechanical and hot water systems.	
Minimum BASIX rating of: 25 for 6 storeys or higher; 35 for 4-5 storeys; 45 for 3 storey units.		SEPP (BASIX)	CC	DPIE	Prior to CC provide updated BASIX certificates for the construction design	Pending	Updated BASIX certificates will be provided prior to CC	
Minimum BASIX rating of: 25 for 6 storeys or higher; 35 for 4-5 storeys; 45 for 3 storey units.		SEPP (BASIX)	OC	DPIE	Prior to OC verify BASIX certificates for the as built construction drawings	Pending	Updated BASIX certificates will be provided prior to OC	
5 Star NatHERS energy rating (residential)		DCP	CC	DPIE	Prior to CC provide updated 5 Star NatHERS results along with updated BASIX certificates	Pending	A minimum 5 Star NatHERS rating (average) is being targeted for the development (as a part of Green Star Rating) and evidence will be provided prior to CC	
5 Star NatHERS energy rating (residential)		DCP	OC	DPIE	Prior to OC verify 5 Star NatHERS results along with verified BASIX certificates	Pending	A minimum 5 Star NatHERS rating (average) is being targeted for the development (as a part of Green Star Rating) and evidence will be provided prior to CC	

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	TARGET SOURCE	CONTROL STAGE	ASSESSMENT AUTHORITY	TIMELINE / APPROVAL MECHANISM	STATUS	RESPONSE	CURRENT EVIDENCE
4.5 Star NABERS Energy (non-residential)		DCP	SSDA Detailed Design	DPIE	As part of the SSDA Detailed Design Package, provide an ESD Report including detail on how this will be achieved through design.	✓	A 5-Star NABERS energy rating will be achieved (above the specified 4.5 star requirement)	
4.5 Star NABERS Energy (non-residential)		DCP	CC	DPIE	Prior to CC provide Predictive Energy modelling report and lodge the NABERS Commitment Agreement	Pending	A 5-Star NABERS rating will be achieved and evidence (modelling report and Commitment Agreement) provided prior to CC	
4.5 Star NABERS Energy (non-residential)		DCP	OC	DPIE	Prior to OC provide independently reviewed Energy Modelling Report by an approved NABERS reviewer	Pending	A 5-Star NABERS rating will be achieved and evidence (modelling report) provided prior to OC	
Allow for separate energy metering for commercial and multi-unit tenancies		DCP	SSDA Detailed Design	DPIE	As part of the SSDA Detailed Design Package, provide an ESD Report including details on energy metering to meet this requirement.	✓	Full points in <i>Credit 6 - Metering and Monitoring</i> will be achieved by metering distinct uses and floors. Smart metering systems will also be used to present and report daily usage data.	
Allow for separate energy metering for commercial and multi-unit tenancies		DCP	CC	DPIE	Prior to CC provide detailed electrical design schematics showing how this criteria will be met.	Pending	Aiming to achieve full points in Credit 6 - Metering and Monitoring. Design schematics will be provided prior to CC.	
Allow for separate energy metering for commercial and multi-unit tenancies		DCP	OC	DPIE	Prior to OC provide final 'As Constructed' electrical design schematics showing this criteria has been achieved.	Pending	Aiming to achieve full points in Credit 6 - Metering and Monitoring. Design schematics will be provided prior to OC	
	Achieve 3 points in Green Star credit, "Greenhouse Gas Emissions" with use of BASIX rating tool	TR	Prior to SSDA Detailed Design Lodgement	DPIE	As part of the ESD Report and Green Star Pathway demonstrate that 3 credits in "Greenhouse Gas Emissions" have been targeted. If this is not achievable, justification should be provided in any case.	✓	A minimum of 3 points will be achieved in <i>Credit 15 - Greenhouse Gas Emissions</i> Credit.	
	5-star NABERS Energy (Office/commercial, hotel or retail)	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	An Energy Statement demonstrating a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Pending	A 5-Star NABERS rating will be achieved and evidence (modelling report, energy statement, and Commitment Agreement) provided prior to CC and OC	
	BASIX Energy rating of 40 (residential)	TR	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	An Energy Statement demonstrating a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Pending	Considering the implementation of a number of energy reduction strategies throughout the development, as well as some of the commitments to achieve Design and As-Built credits, the team believes this will be achieved. Evidence of compliance will be provided at both OC and CC.	
	On-site energy generation for at least 5% of total predicted energy demand in operation	TR	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	An Energy Statement demonstrating a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	✓	The development has committed to producing 5% of the project's energy demand (upon completion) for onsite renewable energy sources. Currently this is planned to be met by fixed solar photovoltaics (PV) and through Power Purchasing Agreements (PPAs). The total energy consumption for the development has been calculated by JHA and includes the sum of the residential, retail, supermarket, and common areas, and is equal to 7,403,355 kWh/year. Meeting the 5% target equates to 370,167 kWh/year, which will be met through a combination of solar PV and PPA agreements in which Decorp will enter into via the embedded network supplier. The total available roof space can house 108kW of solar PV based on 1,400m ² of active area (advised by Decorp). This on-site solar PV system can produce up to 220,005 kWh/year, leaving an additional 150,162 kWh/year to be sourced from PPAs.	Refer to Appendix A3 for plan showing potential area for solar panels and energy calculations.
	Project base buildings to be carbon neutral (net zero) in operations	TR	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	An Energy Statement demonstrating a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Not targeted	Stretch goal not targeted. The requirement of all base building energy (residential, non-residential) to be carbon neutral would require purchasing offsite renewable energy as the size of the development could not accommodate the amount of renewable energy required to meet these base building load requirements. The approach from Decorp was to maximise onsite renewable energy and other energy reduction/ saving initiatives and reducing greenhouse gas emissions with by prioritising these approaches.	
	All new projects modelled to reduce Greenhouse Gas (GHG) emissions at a precinct scale (transport & stationary) by 50% against 2016 reference case (CCAP Precinct modelling)	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	Undertake CCAP Precinct modelling and include results in the Energy Statement demonstrating a technical feasibility assessment has been undertaken to achieve this target. Where cost is identified as a prohibiting achievement of the target details of the viability assessment are to be provided. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Not targeted	Stretch goal not targeted. A number of greenhouse gas mitigation actions are being implemented throughout the development as a result of the Schedule 7 requirement and the Green Star Design and As-built rating. These requirements target transport and stationary emissions, as well as a variety of other emission sources. It was deemed that these actions were achieving very similar outcomes and using another metric to show this (CCAP Precinct modelling) was deemed impractical.	
Transport - Reduce dependency on private vehicle use by access to public transport, amenities and facilities to encourage alternative means of transport								
Include at least 10% of total parking spaces to have Electric Vehicle charging stations		TR	SSDA Detailed Design	DPIE	As part of the SSDA Detailed Design Package, a parking schedule and plans showing the number, location and electrical design, construct and deliver for the electric vehicle charging stations.	✓	The develop will include electric vehicle charging points, with the number of spaces being approximately 10% of the total number of residential parking spaces provided in the project. This is to be detailed further in the CC documentation. This will encourage the uptake and use of EV cars and raise awareness to the community about the benefits of using a potentially renewable energy source over fossil fuels.	
	Achieve 5 points in Green Star credit, "Sustainable Transport"	TR	SSDA Detailed Design	DPIE	As part of the ESD Report and Green Star Pathway demonstrate that 5 points in "Sustainable Transport" have been targeted. If this is not achievable, justification should be provided in any case.	✓	5 points certification in the Green Star As Built "Sustainable Transport" credit will be met.	
Water - Reduce consumption of potable water consumption								
BASIX Water rating of 40		SEPP (BASIX)	SSDA Detailed Design	DPIE	ESD Report including detail on how this will be achieved through design and inclusion of initial BASIX certificates	✓	Minimum BASIX water targets will be met, with considerations made for significant improvement above this target including efficient fixtures and fittings, rainwater harvesting and reuse, no potable water being used for irrigation or using a drip system with moisture sensor override.	
BASIX Water rating of 40		SEPP (BASIX)	CC	DPIE	Prior to CC provide updated BASIX certificates for the construction design	Pending	Updated BASIX certificates will be provided prior to CC	
BASIX Water rating of 40		SEPP (BASIX)	OC	DPIE	Prior to OC verify BASIX certificates for the as built construction drawings	Pending	Updated BASIX certificates will be provided prior to OC	

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	TARGET SOURCE	CONTROL STAGE	ASSESSMENT AUTHORITY	TIMELINE / APPROVAL MECHANISM	STATUS	RESPONSE	CURRENT EVIDENCE
Separate metering of water across commercial and multi-unit tenancies		DCP	SSDA Detailed Design	DPIE	As part of the ESD Report demonstrate this will be achieved.	✓	Full points in <i>Credit 6 - Metering and Monitoring</i> will be achieved by metering distinct uses and floors, and smart metering systems will be used to present and report daily usage data.	
Separate metering of water across commercial and multi-unit tenancies		DCP	CC	DPIE	Prior to CC provide detailed design schematics showing how this criteria will be met.	Pending	Aiming to achieve full points in Credit 6 - Metering and Monitoring. Design schematics will be provided prior to CC.	
Separate metering of water across commercial and multi-unit tenancies		DCP	OC	DPIE	Prior to OC provide final 'As Constructed' design schematics showing this criteria has been achieved.	Pending	Aiming to achieve full points in Credit 6 - Metering and Monitoring. Design schematics will be provided prior to OC	
Implement the Integrated Water Cycle Management (IWC) Strategy		SEARS	SSDA Detailed Design	DPIE	Demonstrate that the strategies in the IWC has been integrated in the project designs and how those initiatives have been coordinated with the Concept Plans and Water Sensitive Urban Design strategy required to be lodged as part of future Development Application.	✓	Water Sensitive Urban Design strategy provided prior to DA. Hydraulics allowed for calculations of roof drainage (concrete roof) 100-year event and for Podium drainage level 20-year ARI Event. Hydraulics allowed for part of the non-trafficable roof areas to discharge to rainwater tank and to reuse system. The Podium will be served by 300mm outlet drains to EnviroPods before draining to the stormwater system or OSD. WSUD Strategy will be specified in Civil Design Report through use of cartridge filters. Stormwater discharge is managed through regional OSD infrastructure. AECOM will demonstrate site discharge meets public SW capacity (without OSD if possible). Stormwater Peak Discharge: Stormwater is being designed to ensure that pre-development peak discharge is not exceeded through the use of on-site detention Currently a combination of vegetated swales, rainwater re-use and engineering structures will be used to meet pollution reduction targets CCAP and resilience: DRAINS modelling used to explore a range of increased rainfall intensity and coordination with alternative supply (e.g. onsite generation and water storage). DRAINS will review impact of increased rainfall intensity. Potable water reduction with the use of rainwater tanks to offset irrigation demand	Refer to Appendix A4 for some of the development's WSUD strategies.
	BASIX Water rating of 60 (residential)	TR	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	As part of the WSUD Management Plan demonstrate a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Not targeted	Stretch goal not targeted. The BASIX water rating of 60 would be hard to achieve without some quite extreme recommendations for the subject development, which are costly and difficult to achieve.	
	Achieve 5 points in Green Star credit 'Potable Water'	TR	Prior to SSDA Detailed Design Lodgement	DPIE	As part of the WSUD Management Plan demonstrate a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Not targeted	Stretch goal not targeted - currently only targeting 3 credits in the prescriptive pathway which are the efficient fixtures, rainwater reuse and landscape irrigation. Water based heat rejection is being used (cannot claim 2 credits) and is more energy efficient than a air based rejection system. The fire protection system test water credit was not targeted.	
	5-star NABERS Water (Office/commercial, hotel or retail)	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	As part of the WSUD Management Plan demonstrate a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	✓	A 5-Star NABERS water rating will be achieved	
	Embed best practice Water Sensitive Urban Design (WSUD) principles. Pollutant discharge loads not to exceed Nitrogen 45, Phosphorus 65, Suspended Solids 85, Gross Pollutants 90.	TR	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	As part of the WSUD Management Plan demonstrate a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Partially met	Report (and MUSIC Modelling) will demonstrate reduction in pollutants as noted through a combination of cartridge filters and GPFs. The pollutant discharge reduction targets are listed below; TSS 80% Gross Pollutants 90% Total Nitrogen 45% Total Phosphorus 60% - the requirement for 65% is different to the Schedule 7 requirement (partially met) Total Petroleum Hydrocarbons - 90% Free Oils 90%	
	Project to model and demonstrate reduction to mains potable water demand by 50% at the precinct scale, against a 2016 reference case (CCAP Precinct modelling)	TR	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	As part of the WSUD Management Plan demonstrate a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Pending	Report (and MUSIC Modelling) will demonstrate % of potable water re-use.	

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	TARGET SOURCE	CONTROL STAGE	ASSESSMENT AUTHORITY	TIMELINE / APPROVAL MECHANISM	STATUS	RESPONSE	CURRENT EVIDENCE
	Consideration should be given to design that can achieve 'water positive' in operation outcomes i.e. the site recycles more water than it uses.	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	As part of the WSUD Management Plan demonstrate a technical feasibility assessment has been undertaken to achieve this target. Where the assessment determines the target is not achievable in full, justification is to be provided. A viability assessment should be included where cost is considered prohibitive. Where it is determined that performance beyond the minimum, mandatory controls can be achieved this will form a planning condition in the SSDA and further evidence of compliance will be required at both CC and OC.	Not targeted	Stretch goal not targeted. The irrigation system will be via onsite recycled water off non-trafficable roof only and filtration plant to avoid any toxic/environmental risk to any plants. Positive recycled water (The site recycles more water than it uses) is not adopted option due to the risks associated with recycled water and the difficulties of management to those risks to acceptable levels. The risk associated with the recycled water vary from health risks such as Microbial pathogens in wastewater, Bacteria Viruses, Protozoa, Helminths and environmental risks Some of the common environmental risks from recycled water such as Salinity, Sodidity, Sodium, Chloride, Nitrogen, Phosphorus. Ongoing monitoring is required to ensure good risk management on the other hand these risks are too costly to manage and the reuse scheme may not be economically viable. To avoid the above-mentioned risks associated with the recycled water and its management process, the site will use the rainwater only for recycling to irrigation use only off non-trafficable roof. Grey water/Black water recycle options was not adopted options to avoid the associated health risks which make it not the preferred options for the residential apartments use in addition to the required ongoing monitoring and management for the reuse scheme and associated non economical cost.	
Materials and Waste - Assess and reduce footprint of major construction materials AND Minimise and/or increase re-use of waste material								
	Achieve 1 point in 'Responsible Building Materials' credit (Green Star) for timber	TR	SSDA Detailed Design	DPIE	As part of the ESD Report and Green Star Pathway demonstrate that 1 credit in 'Responsible Building Materials' have been targeted. If this is not achievable, justification should be provided in any case.	✓	1 point will be achieved in the 'Responsible Building Materials' credit (Green Star) for timber.	
	95% of construction waste diverted from landfill (excluding contaminated materials)	TR	SSDA Detailed Design	DPIE	As part of the CEMP demonstrate the target will be considered. Note that achieving this could contribute 1 point to the Green Star assessment under 'Construction and Demolition Waste' so it is recommended that these items are considered in coordination.	✓	The project has committed to diverting ≥95% of construction waste from landfill, and maximise the reuse and recycling of materials on-site where considered appropriate. In order to achieve the target of 95%, a detailed construction and demolition waste diversion plan has been prepared in the waste and resource recovery report which is done by the waste consultant. For additional information, refer to construction waste management report prepared by construction management consultant, and the final notification from the excavation contractor.	
	Consider how the proposal can minimise organic waste and reduce all waste as far as possible towards zero waste in operation (i.e. zero waste to landfill)	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	Prepare a detailed Waste Management Plan demonstrating how operational waste arising from the development can be reduced as far as possible towards zero waste to landfill	✓	A 70% operational waste diversion target has been set for the project. This includes landfill diversion targets, full segregation, organics, residential and commercial waste streams. This strategy is incorporated into the Operational Waste Management Plan, which addresses waste diversion estimates including segregation of recyclables and food waste.	
	Undertake a Life Cycle Assessment to advance business approach to sustainable materials, and to inform an approach to zero carbon in embodied energy of projects	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	Within the ESD Strategy and as part of the overall review and consideration of materials, undertake a preliminary LCA according to the methodology provided in the 'Life Cycle Impacts' credit in Green Star.	✓	A Life Cycle Assessment is planned for the development using the 'Life Cycle Impacts' credit in Green Star.	
	100% timber sourced for construction (by cost weight) is Forest Stewardship Council Certified or agreed equivalent (i.e. Australian Forestry Standards)	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	Within the ESD Strategy provide a commitment to achieving this requirement. Note that achieving this could contribute 1 point within the 'Responsible Building Materials' credit in Green Star so it is recommended that this credit is considered in the pathway.	Partially met	100% was deemed not to be logistically feasible. Instead, a 95% target that aligns with Green Star will be achieved.	
	Assessment and reporting of materials used against International Living Future Institute's 'Red List'	LSPS	Prior to SSDA Detailed Design Lodgement	Contractual arrangement	Within the ESD Strategy and as part of the overall review and consideration of materials, provide details on how the Red List has been used to inform materials selection. https://www.gba.org/resources/green-building-methods/materials-red-list/	Not targeted	Stretch goal not targeted. The use of the 'Red List' was deemed onerous for this development, and logistically impractical to achieve.	
Land Use and Ecology - Minimise projects footprint on local land and ecology								
75% of the development plan area to be covered with green canopy, vegetation or landscaping/building elements that reduce the impact of heat island effect		DCP	SSDA Detailed Design	DPIE	Urban Design and Landscape Plan to provide details of this target being met or exceeded.	✓	Site area: 7,969m ² Combination of UHI mitigation strategies achieved: 6,482 m ² Therefore an area of approximately of 81% is covered by elements that reduce the UHI effect.	Refer to Appendix A5 for heat island effect mitigation strategy calculations.

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	TARGET SOURCE	CONTROL STAGE	ASSESSMENT AUTHORITY	TIMELINE / APPROVAL MECHANISM	STATUS	RESPONSE	CURRENT EVIDENCE
As a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of GFA, whichever is larger. Vertical or horizontal landscapes are acceptable. Indigenous species are to be used, this should be local/ endemic indigenous species.		UDG	SSDA Detailed Design	DPIE	Landscape Plan to provide details of the required ratio being achieved, along with details of plant species.	✓	Ground Floor 40% of plaza to receive extensive tree canopy to mitigate heat island effect 40% of plaza to have vegetated & permeable surfacing under storey ground covers - to mitigate heat island effect and WSUD Paving materials proposed to be stone in buff and light variants to avoid heat absorption Proposed building awning and shade devices to mitigate heat island effect WSUD and other green space increased in the design of the public open space to minimise impacts of flooding Use low risk bushfire vegetation on planned greenspace Cycle and walking paths and cycle infrastructure in the design. Appropriate native plant species to mitigate water usage - OSD tank used for irrigation Communal Open spaces 45% of communal open spaces to receive extensive tree canopy to mitigate heat island effect 78% of podium to have vegetated & permeable surfacing Increase in permeable areas - lawn expansion to avoid excessive paved handstand areas Under storey ground covers - to mitigate heat island effect and WSUD Paving materials proposed to be stone in buff and light variants to avoid heat absorption BBQ shade devices to mitigate heat island effect WSUD and other green space increased in the design of the public open space to minimise impacts of flooding Appropriate native plant species to mitigate water usage - OSD tank used for irrigation Community gardens provided with water tanks to encourage urban agriculture and increase the developments sustainability and resilience measures Active play areas proposed to encourage active and fitness opportunities	
As a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of GFA, whichever is larger. Vertical or horizontal landscapes are acceptable. Indigenous species are to be used, this should be local/ endemic indigenous species.		UDG	CC	DPIE	Prior to CC provide final 'As Designed' Landscape Plan showing this criteria has been achieved.	✓	As above	
As a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of GFA, whichever is larger. Vertical or horizontal landscapes are acceptable. Indigenous species are to be used, this should be local/ endemic indigenous species.		UDG	OC	DPIE	Prior to OC provide final 'As Constructed' Landscape Plan showing this criteria has been achieved.	✓	As above	
Full points for the 'Heat Island Effect' credit		TR	SSDA Detailed Design	DPIE	As part of the ESD Report and Green Star Pathway demonstrate that full credits in 'Heat Island Effect' have been targeted.	✓	Full points will be achieved in the 'Heat Island Effect'. Please refer to Appendix A5 for Heat Island Effect Area Calculations. An area of approximately of 81% is covered by elements that reduce the UHI effect. To reduce the urban heat island effect, actions on site currently include; Ground Floor 40% of plaza to receive extensive tree canopy to mitigate heat island effect 40% of plaza to have vegetated & permeable surfacing under storey ground covers - to mitigate heat island effect and WSUD Paving materials proposed to be stone in buff and light variants to avoid heat absorption Proposed building awning and shade devices to mitigate heat island effect WSUD and other green space increased in the design of the public open space to minimise impacts of flooding Use low risk bushfire vegetation on planned greenspace Appropriate native plant species to mitigate water usage - OSD tank used for irrigation Communal Open spaces 45% of communal open spaces to receive extensive tree canopy to mitigate heat island effect 78% of podium to have vegetated & permeable surfacing Paving materials proposed to be stone in buff and light variants to avoid heat absorption	Refer to Appendix A5 for heat island effect mitigation strategy calculations.
Achieve 1 point in Green Star credit, 'Ecological Value'		TR	SSDA Detailed Design	DPIE	As part of the ESD Report and Green Star Pathway demonstrate that 1 credit in 'Ecological Value' have been targeted. If this is not achievable, justification should be provided in any case.	✓	The report by Ecological Australia (dated 03/11/20) on the Doran Drive Precinct development summarised the existing and proposed biodiversity values, and concludes that the Project will achieved 2 points within the Ecological Value Calculator. Notable points include; - At the time of purchase (Decorp intends to acquire the land that is currently owned by Landcom in 2021), there are no critically endangered, endangered or vulnerable ecological communities or species present on the site - No threatened species have been previously recorded within the Project site - The fauna habitat is in poor condition due to the site being within an urban area and already subject to clearing from previous construction - Biodiversity enhancements post development include planted native vegetation (groundcover, mid-storey and canopy), and exotic vegetation as lawn areas - Revegetation of native vegetation within the site, conforming to the naturally occurring vegetation of the subregion, with the less active open area spaces providing a more complete vegetation structure and increasing the likelihood of attracting native fauna - Species will include those found with the vegetation communities Sydney Sandstone Gully Forest and River-flat Eucalypt Forest, which is present within the riparian corridor of Cattai Creek west of the project site	Refer to Appendix A6 for landscaping drawings.

MANDATORY ESD CONTROLS	ESD STRETCH GOALS	TARGET SOURCE	CONTROL STAGE	ASSESSMENT AUTHORITY	TIMELINE / APPROVAL MECHANISM	STATUS	RESPONSE	CURRENT EVIDENCE
Innovation								
	Affordable housing component to be included as part of the residential development	TR	OC	Contractual arrangement	Provide a minimum of 5% affordable housing of the final number of dwellings throughout the precinct. Ensure that affordable housing is integrated into the overall development and there is no discernable housing of quality between market housing. Affordable housing stock is to be managed by a Community Housing provider for a minimum of 10 years from the date of final occupation certificate.	✓	DecoCorp have engaged Bridge Housing as their Community Housing Provider for a period of ≥10 years. This will be a minimum of 5% affordable housing of the final number of dwellings throughout the development	
	20% Silver performance level Liveable Housing	TR		Contractual arrangement	It is encouraged that a mix of bedroom numbers is provided to meet the expected future needs of the area as part of the requirement to deliver and certify, through an LHA accredited assessor, the silver performance level Liveable Housing Australia principles in all new housing, have regard to adaptability and build-in good design as a fundamental element.	✓	DecoCorp will develop LHA units that will meet the 20% requirement.	