

Project Dune

Sustainability Management Plan

The Proponent

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1 Executive Summary

Project Dune is a multi-stage data centre campus planned in Campbellfield, Victoria. The development is designed to deliver an ultimate capacity of approximately 336MW.

Located at 300-340 Barry Road, Campbellfield VIC 3166, the campus will be delivered in stages, comprising:

- Stage 1 – 48MW (2 Storey building) Current stage which is detailed in all our reports
- Stage 2 – 48 MW (2 Storey building)
- Stage 3 – 48 MW (2 Storey building)
- Stage 4 - 48MW (2 Storey building)
- Stage 5 – 72MW (3 Storey building)
- Stage 6 – 72 MW (3 Storey building)

On-site Battery Energy Storage System will be integrated within the overall site infrastructure, with a 5MW system proposed as part of Stage 1.

The proposed development considered key principles of environmentally sustainable design in its intention to deliver a new data centre facility.

The development incorporates sustainable design initiatives that address the whole life of the building from conception, through construction, to operation. These include:

- Energy efficiency and management, with the objective to reduce energy usage, peak energy demands, reduce greenhouse gas emissions and monitor performance to identify inefficiencies and identify opportunities for future improvements
- Water efficiency and management, with specification of lower water demand cooling methods, high efficiency fixtures and fittings, reduction of irrigation requirements, and an effective water metering strategy to identify losses early and opportunities for future improvements.
- The investigation of sustainable material selection including those with lower embodied energy (supported by a life-cycle assessment), EPDs and transparent sourcing evidence
- Landscaping prioritising native vegetation and provision of quality green spaces, for improved amenity and aesthetics, including reduction of urban heat island
- Provision of EV-charging parking within the secure boundary, and associated with the technology hub
- Connections to existing and planned future public transport and active transport infrastructure, and provision of facilities to enable active transport
- Indoor environment quality improvements including controls to prevent the entry of pollutants into the building, and quality ventilation to indoor pollution sources
- On site collection and separation of recyclables including batteries and e-waste
- The application of green accreditation for Project Dune to provide robust, holistic assessment of sustainability outcomes throughout the design, delivery and operation of the new building.

2 Introduction

2.1 Purpose

This report has been prepared to demonstrate a commitment to sustainability for the proposed facility at Barry Road, Campbellfield, Victoria, in accordance with relevant planning standards and policies. The proposed development has considered the elements of energy and water efficiency, transportation, waste and building management.

The sustainability objectives to be met for the project have considered the limitations and opportunities of the existing site, environmental amenity of the surroundings and relevant planning policies. This report has been prepared on behalf of the Proponent for submission with the Development Application.

2.2 Sustainability Benchmarks

As part of its overall commitment to sustainability The Proponent is committed to:

- Creating a renewable energy strategy for the Project including sourcing renewable energy, and implementing on-site renewable energy generation and on-site storage systems.
- Undertaking an embodied carbon assessment to inform lower embodied carbon material selection, and focus design efficiency to achieve lower embodied carbon.
- Implementing opportunities to improve water efficiency, and investigating alternative water sources.
- Undertaking a robust, holistic, independently certified sustainability ratings for Project Dune. LEED has been selected as the applicable rating tool for Project Dune.

The sustainability strategy outlined in this SMP will be reviewed with respect to design intent, buildability and budget at each point in the project design construction, practical completion and occupation.

The sustainability initiatives described in this report will form the basis for detailed analysis during the design development stage of the project. There may therefore be subsequent amendments to specific sustainability elements throughout the project, without compromising the underlying environmental objectives and sustainability targets.

2.3 Site Overview and Proposed Development

The Proponent proposed to develop a data centre at the following site:

300-340 Barry Road, Campbellfield VIC 3061

The project is master-planned across two key stages, with Stage 1 detailed within this Sustainability Management Plan. Stage 2 of the development will be detailed within a future planning submissions supported by a sustainability management plan which will follow the key principles specified within this report.

The overall development will comprise four data centre buildings with a total IT capacity of approximately 336 MW, consisting of an initial 48 MW Stage 1 build and a future 288 MW expansion. The data centres will be accommodated within two - and three - storey buildings, supported by ancillary structures such as administration offices, security facilities, and plant areas.

The works will be delivered in multiple phases, as illustrated in Figure 1

- Total site capacity = 336MW
- Stage 1 – 48MW (2 Storey building) Current stage which is detailed in all our reports
- Stage 2 – 48 MW (2 Storey building)
- Stage 3 – 48 MW (2 Storey building)
- Stage 4 - 48MW (2 Storey building)

- Stage 5 – 72MW (3 Storey building)
- Stage 6 – 72 MW (3 Storey building)

This Sustainability Management Plan is detailed for Stage 1 of the development only.

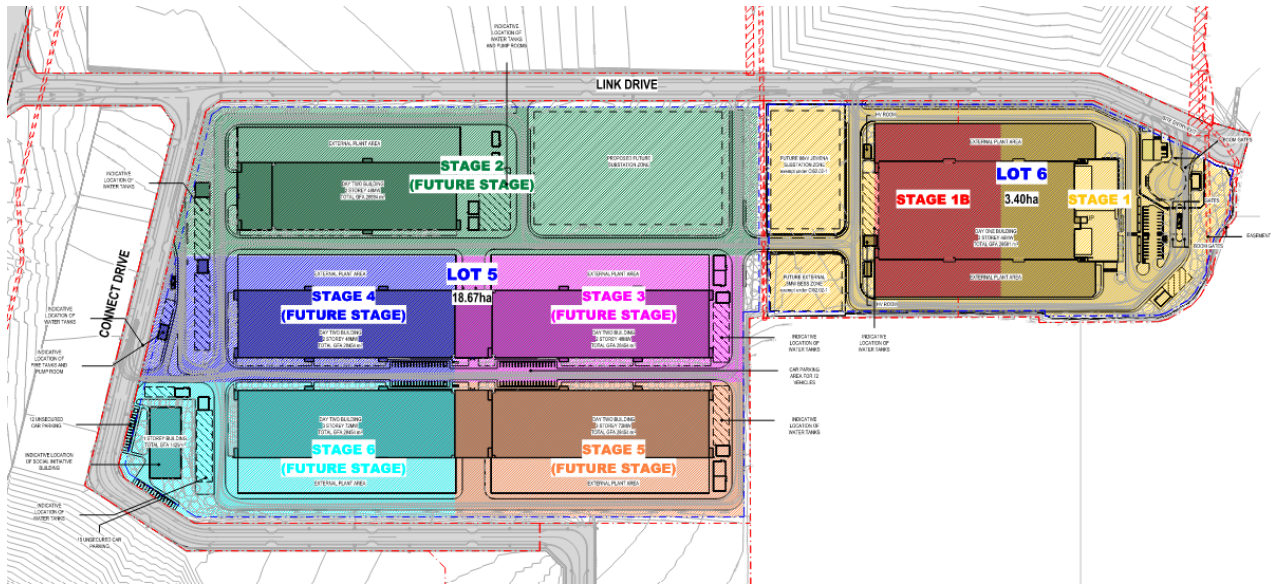


Figure 1: Stages of proposed development

2.4 Disclaimer

As the authors of this SMP, Aurecon cannot provide any guarantee or warranty of the implementation of the initiatives. This is considered the responsibility of the Proponent, design team and building contractor.

3 Planning Requirements

Submission for planning approvals in Victoria require the project to respond to the relevant council's sustainability requirements as outlined in the Victorian Planning Provisions (VPP) and Hume Local Planning Provisions. For Project Dune the relevant council requirements are from the Hume Planning Scheme (HPS), specifically, Clause 15.01-2L-03 Environmental Sustainable Design – Hume.

3.1 Environmentally Sustainable Design

This development is required to demonstrate compliance with Hume City Council's sustainability policies as outlined in Clause 15.01-2L-03 of the Hume Planning Scheme.

The relevant sustainability strategies in response to the planning scheme sustainability requirements for this development are shown in the table below.

There are several key strategies to be adopted at Project Dune, which have high potential to reduce the negative impacts of data centres, and address with high impact some of the key environment focus areas within Clause 15.01-2L-03. These are shown in **bold** below.

Table 1: Clause 15.01 Project Dune responses

Focus Area	Possible strategies raised within HPS	Project Dune data centre strategies
Clause: 15.01-2L-03 (Environmentally sustainable development – Hume)		
Energy Performance	Reduce both energy use and energy peak demand through design measures such as: ▪ Building orientation. ▪ Shading to glazed surfaces. ▪ Optimising glazing to exposed surfaces. ▪ Inclusion of or space allocation for renewable technologies.	▪ Inclusion of on-site battery energy storage system (BESS) to support grid stability, reduce peak energy demand on local energy infrastructure, and improve energy mix utilised in real-time to reduce carbon impacts ▪ Energy metering to support optimising operations ▪ Energy efficient building design, including passive design solutions ▪ Procuring energy from renewable sources ▪ Inclusion of space allocation for renewable technology (allowing space for PV on rooftops, and investigating the installation of rooftop PV) ▪ Minimising the on-site usage of fossil fuels (limiting to backup diesel generators use) ▪ Using refrigerants without any CFC's ▪ A high level of commissioning and performance verification of the building once constructed
Integrated Water Management	▪ Reduce total operating potable water use through appropriate design measures such as water efficient fixtures, appliances, equipment, irrigation and landscaping. ▪ Encourage the appropriate use of alternative water sources	▪ The use of highly water-efficient cooling systems, massively reducing water consumption compared to data centres incorporating traditional water-based cooling ▪ Strategic selection of plants to minimise irrigation requirements

	(including greywater, rainwater and stormwater). ▪ Incorporate best practice water sensitive urban design to improve the quality of stormwater runoff and reduce impacts on water systems and water bodies.	▪ Efficient water fixtures/fittings ▪ 20kL rainwater tank to offset potable water usage for tech space amenities and irrigation
Indoor environment quality	▪ Achieve a healthy indoor environment quality, including thermal comfort and access to fresh air and daylight, prioritising passive design over mechanical heating, ventilation, cooling and lighting. ▪ Reduce indoor air pollutants by encouraging use of low-toxicity materials. ▪ Minimise noise levels and noise transfer within and between buildings and associated external areas.	▪ Low emitting materials will be used where possible ▪ Passive and mechanical systems will be used to limit the entry of pollutants into the building and regularly occupied spaces ▪ Provide a high level of acoustic and thermal comfort ▪ Quality views and daylighting to be prioritised in the occupied office areas
Transport	▪ Design development to promote the use of walking, cycling and public transport, in that order; and minimise car dependency. ▪ Promote the use of low emissions vehicle technologies and supporting infrastructure	▪ Inground infrastructure provisions for electric vehicle parking spaces ▪ Facilities to enable active transport, including showers and bicycle parking
Waste Management	▪ Promote waste avoidance, reuse and recycling during the design, construction and operation stages of development. ▪ Encourage use of durable and reuseable building materials. ▪ Ensure sufficient space is allocated for future change in waste management needs, including (where possible) composting and green waste facilities.	▪ Collection and separation of recyclable waste streams including e-waste and batteries ▪ Construction and demolition waste management plan with a waste diversion target will be created ▪ Investigating the use of products with EPD or with transparent material sources ▪ Undertake an embodied carbon assessment to drive embodied carbon reductions in materials selection
Urban Ecology	▪ Protect and enhance biodiversity by incorporating natural habitats and planting indigenous vegetation. ▪ Reduce urban heat island effects through building design, landscape design, water sensitive urban design and the retention and provision of canopy and significant trees.	▪ Strategic material/plant selection to mitigate urban heat island effect ▪ Limiting pollution generated during construction process ▪ Stormwater management aligned with Council requirements

- Encourage the provision of space for productive gardens, particularly in larger residential developments.

Project Dune will be demonstrating compliance with the above sustainability requirements through targeting relevant LEED credits. LEED delivers comprehensively on the above requirements from the Hume Planning Scheme. The overall LEED strategy is summarised in Section 4.

4 LEED for Project Dune

Project Dune will pursue a LEED BD+C v4.1 Data Centers certification. The project is targeting a minimum Silver rating. By achieving a Silver rating under LEED v4.1, the project will be addressing the relevant planning requirements as outlined in Section 3. A certified LEED rating also provides the assurance that a robust, holistic assessment will be undertaken for design and construction, which focuses on sustainability concerns most pertinent to data centres.

Whilst the Silver rating is a project commitment, specific initiatives adopted are subject to change during the project design and construction implementation as a result of design development, programme or further value assessment.

The key design initiatives anticipated to contribute to the LEED certification target are outlined below and will form the basis for detailed analysis during the design development stage of The Project. There may therefore be subsequent amendments to specific elements and points targeted throughout the project, without compromising the underlying LEED Silver target.

Table 2: Key LEED sustainability categories and relevant initiatives

Integrative Process Setting performance targets early 	Location and Transport Provisions for electric vehicle parking spaces Facilities to enable active transport, including showers and bicycle parking Site selected to avoid sensitive area of land 
Sustainable Sites Strategic material/plant selection to mitigate urban heat island effect Limiting pollution generated during construction process Stormwater management aligned with Council requirements 	Water Efficiency Air-cooled chillers implemented instead of water-based cooling, massively reducing water demand Strategic selection of plants to minimise irrigation requirements Efficient water fixtures/fittings 20kL rainwater tank to offset potable water usage for tech space amenities and irrigation 
Energy and Atmosphere Energy metering to support optimising operations Energy efficient building design Procuring energy from renewable sources Minimising the on-site usage of fossil fuels (limiting to backup diesel generators use) Using refrigerants without any CFC's A high level of commissioning and performance verification of the building once constructed 	Materials and Resources Collection and separation of recyclable waste streams including e-waste and batteries Construction and demolition waste management plan with a waste diversion target will be created Investigating the use of products with EPD or with transparent material sources Investigating the use of low embodied carbon materials where feasible (including the use of timber) 

Indoor Environmental Quality

Low emitting materials will be used where possible

Passive and mechanical systems will be used to limit the entry of pollutants into the building and regularly occupied spaces

Provide a high level of acoustic and thermal comfort

Quality views and daylighting to be prioritised



Innovation

Preventing safety risks through design



4.1 LEED Rating Boundary

This SMP and the LEED Silver strategy summarised above is only for the Day 1 Building data centre. The LEED rating boundary is shown in the blue boundary shown below. The Day 2 buildings are outside the scope of the current LEED boundary. Day 2 planning submission and design will be supported sustainability assessment for the future buildings at the time of Stage 2 endorsement.

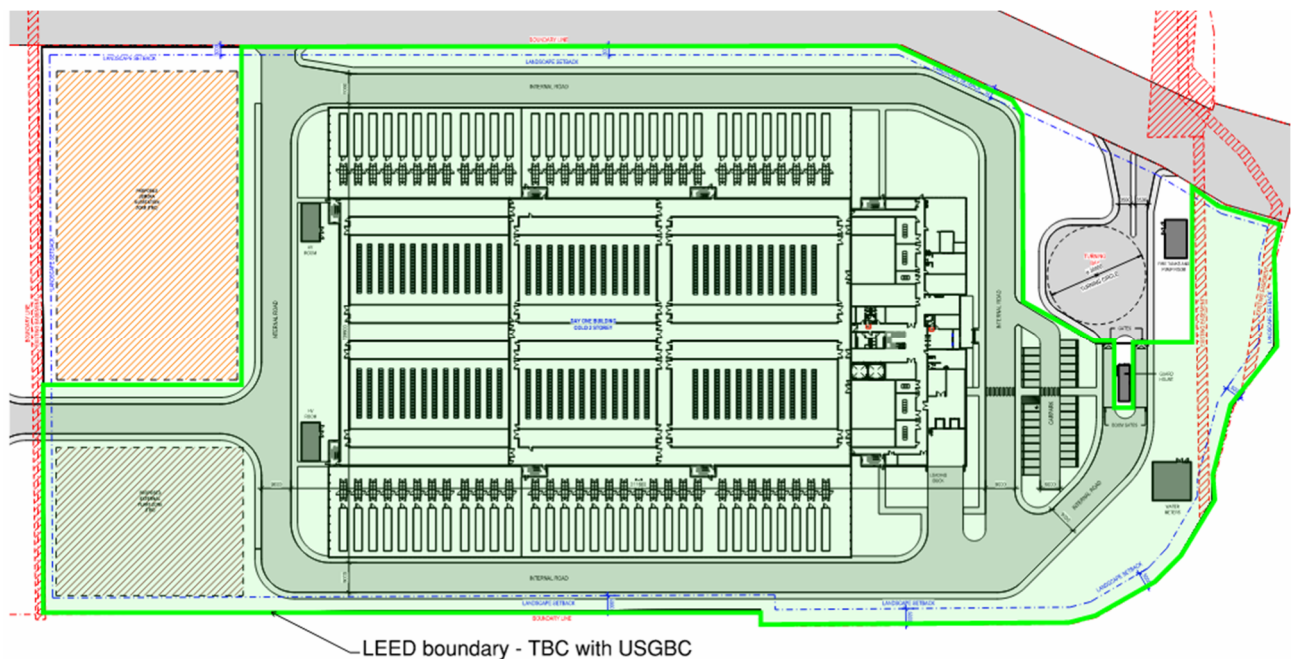


Figure 2: LEED Rating boundary for Stage 1

5 Conclusion

Project Dune proposes to address the Victorian and Local Planning Scheme requirements in relation to sustainable development through a wide range of initiatives to be applied during design, construction and operation. This structured response will be demonstrated through a LEED Silver rating resulting in measurable and effective sustainable outcomes.

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