

78 Lockwood Road Data Centre

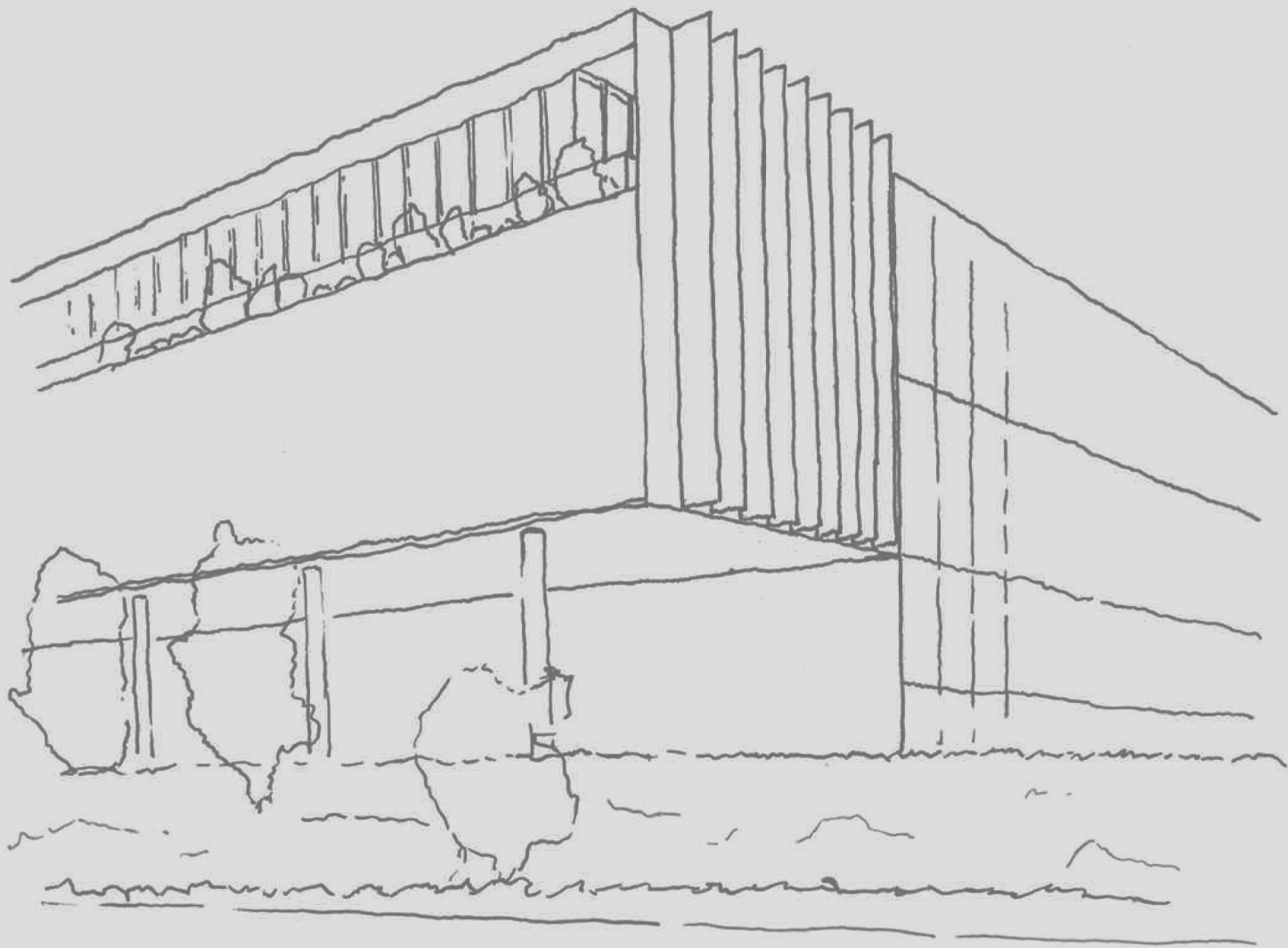
Erskine Park, NSW

78 Lockwood Road Data Centre

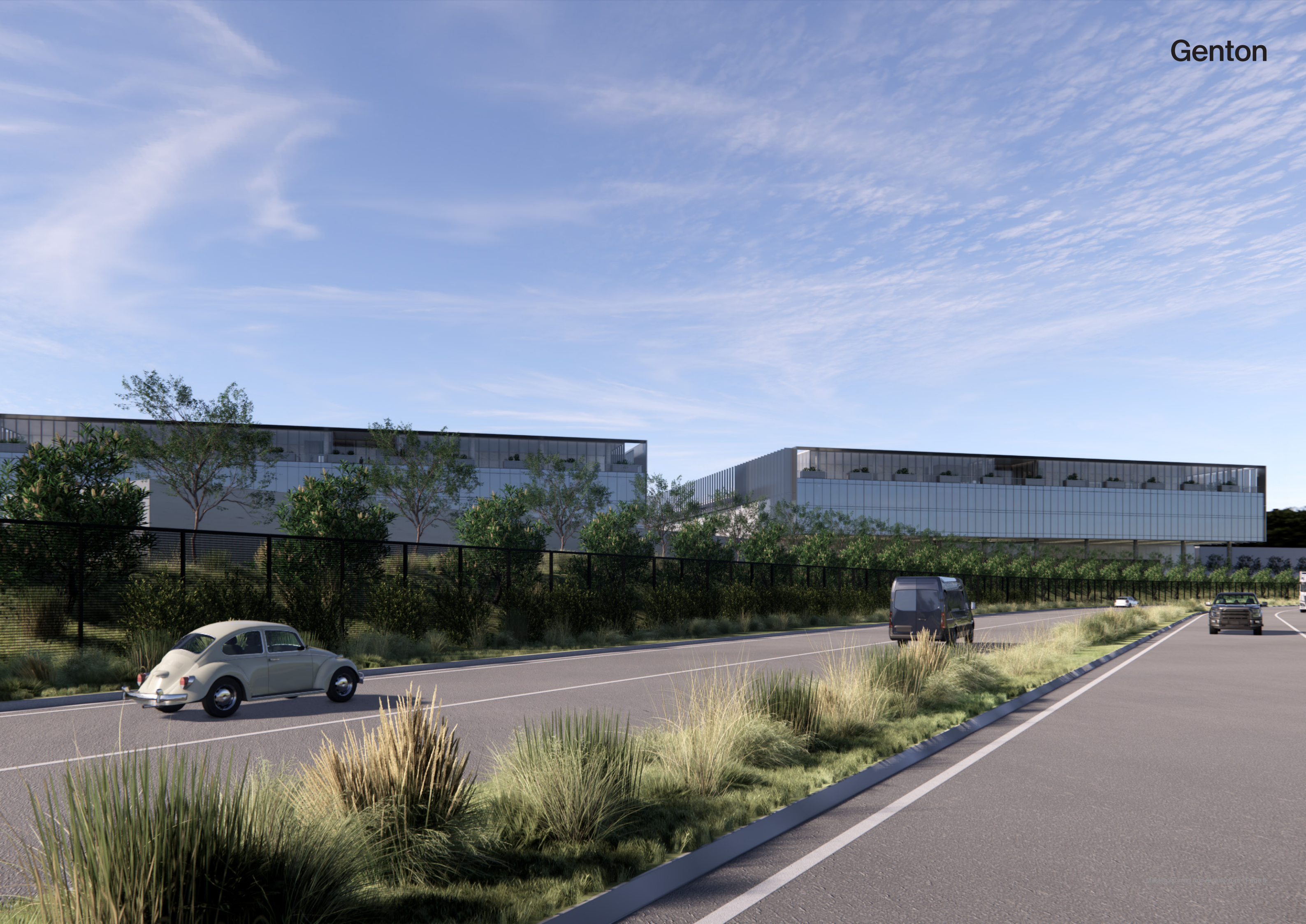
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**Genton acknowledges Traditional Owners across
Australia on whose land we live, work and design.**

Index Page



01	Introduction	
	1.1 Executive Summary	7
	1.2 Project Vision	8
	1.3 Project Key Facts	9
	1.4 Project Frameworks	10
	1.5 Development Summary	11
	1.6 SEARS Response	12
02	Country + Context	
	2.1 Site Location	14
	2.2 Local History + Context	15
	2.3 Connecting with Country	17
	2.4 Precinct Evolution	18
	2.5 Erskine Business Park Connections	19
	2.6 Site Analysis	20
	2.7 Site Mapping + Analysis	21
	2.8 Site Views	22
	2.9 Limitations + Opportunities	24
03	Urban Response + Built Form	
	3.1 Design Principles	27
	3.2 Massing + Form	28
	3.3 Functional Stack	31
	3.4 Access + Circulation	32
	3.5 Facade Systems	34
	3.6 Elevations + Materials	35
	3.7 Building + Landscape	37
	3.8 Project Frameworks	38
04	Landscape + Sustainability	
	4.1 Sustainability Initiatives	41
	4.2 Landscape Design	42
05	Built Form Analysis	
	5.1 GFA + Area Schedule	44
	5.2 Envelope Studies	45
	5.3 Overshadowing Studies	46



01

Introduction

Executive Summary

The 78 Lockwood Road Data Centre will be an iconic set of buildings, representing the epitome of data management, storage, and processing. Seamlessly integrating technology, this campus will foster an interconnected environment where data-driven systems will enhance efficiency, sustainability, and overall functionality.

Massing Strategy

The scale of the built form is broken down by creating two separate buildings - the scale of which is then further reduced by creating top floor setbacks, and creating facade articulation through an open entry undercroft at upper ground. Different uses within the building are able to be read across the northern facade with office levels clearly differentiated from parking, back-of-house, services, and terrace spaces. The placement of built form on the site allows for optimal site movements and access. The office massing has been put forth as the main elevation, screening the services masses behind it as a way of efficiently laying out the site. The front of house (FOH) and back of house (BOH) will also be split over two levels to further screen the back of house processes, while allowing a further element of site safety in allowing pedestrians their own pathways.

Sustainability

We have approached sustainability as an integral aspect of the building design. The core sustainable challenge of data centre buildings is the power required to cool the heat generated by the data racks, and here water will be collected from the large roof areas to assist with this. Amenity for occupants of the building has also been considered with openable facades and access to terrace spaces providing opportunities to reduce reliance on mechanical cooling to office areas while also providing access to green spaces. To the north of the built form native vegetation will be planted, providing a green interface to Lenore Drive, reducing the urban heat island effect of the site and enhancing pedestrian comfort. The design also

contemplates future reuse with large column grids and high floor to floor heights, allowing for adaptation to new functions at the end of the building's initially contemplated use.

Connection

The proposal is sensitive to the land which it is a part of, and does not disturb the natural waterways and bushlands around the site, but rather adds to them. in an attempt to further care for the land.

Industry

The site is located within the 'Fitzpatrick Industrial Estate', an area of approximately 140 hectares on Lenore Drive, roughly defined as the Erskine Business Park, and located within the Western Sydney Employment Area (WSEA). The WSEA has long been identified as the single largest greenfield industrial precinct to serve the growing demand for industrial lands in the Sydney Metropolitan Area for the next 20 to 30 years. As a result, implementing this data centre typology will see the campus slot into the overall precinct, adding to the current Erskine Park urban form with great input.

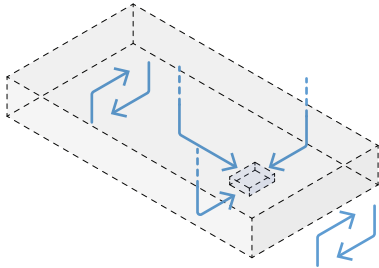
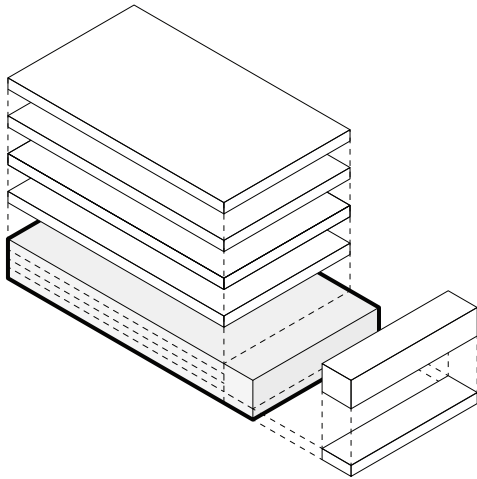
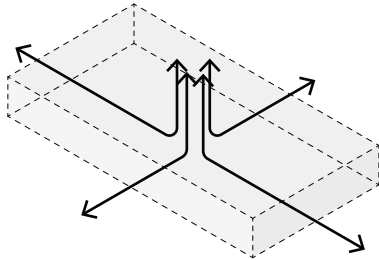
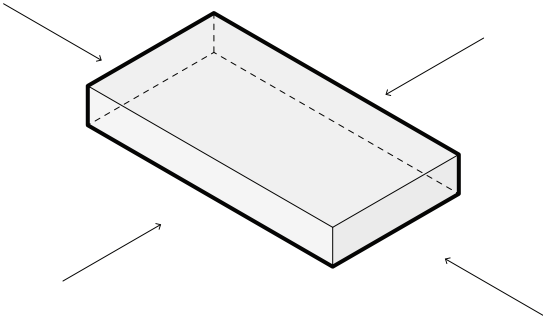
Technology

The role of a data centre has never been more important. There exists a need for a space to store data, while also powering the growth and development of new technologies, IT services, and the rapid advancement of AI, to be able to connect people all over the world. This attitude will extend beyond the physical campus, emphasising collaboration and communication to a vibrant and responsive urban environment.

The proposed development (SSD-82211208) is seeking approval for the construction and operation of a data centre with an operational capacity of 384 MW including a building height of 26.5 m, 55,651 sqm of GFA, substation, water storage, ancillary infrastructure and landscaping.

Project Vision

Overall Concepts



Flagship Building

The proposal will be an iconic set of buildings representing the epitome of data management and processing. The importance of the flagship building is that it will serve as the benchmark and model for future data centres to emulate. It will also contribute significantly in promoting economic development and growth through job creation, job diversity and increased investment in the Western Sydney District.

Connected Building

The rise of on-demand services, the growth of IT, and the rapid evolution of AI means the role of the data centre has never been more important. 78 Lockwood Road Data Centre will become the home of data, powering the growth and development of Western Sydney and connecting people all over the world. Seamlessly integrating technology, it fosters an interconnected environment where data-driven systems enhance efficiency, sustainability and overall functionality.

This connection will extend beyond physical infrastructure, emphasising collaboration, communication and the seamless integration of various elements, such as connections to Country contributing to a vibrant and responsive urban ecosystem.

Massing + Purpose Differentiation

The rationale of massings is to able to differentiate the requirements, program and functions of the building, to create the best outcome for its inhabitants. 78 Lockwood Road Data Centre is massed in a manner in which sustainability and wellbeing are put first and foremost, and to protect and secure sensitive data. It functions as a data centre, office and plant, whilst also serving as a landmark and gateway.

Water Collection + Reuse Systems

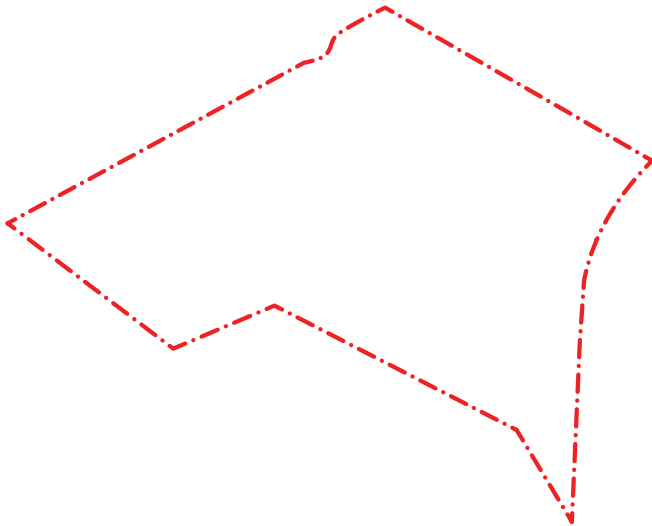
Sustainability and water are core to the design ethos. Water is required to cool the data centre down, however it poses the question of relationship, care and responsibility to Country. Water is imbued with and carries the stories and histories of millennia; nurturing life, redesigning landscapes and sustaining ecosystems. And now, water will help with the continuation of holding these stories, for the preservation of knowledges.

In respect to this, the data centre has an obligation to implement the principle of recycling and reciprocity. Using innovative immersion water cooling technologies, the data racks everpresent in this data centre will be continually cooled, with the water circulating itself through the campus.

Rainwater will be captured and recycled for reuse within the building. Landscaping species require little irrigation and extend the waterway-style planting into the site.

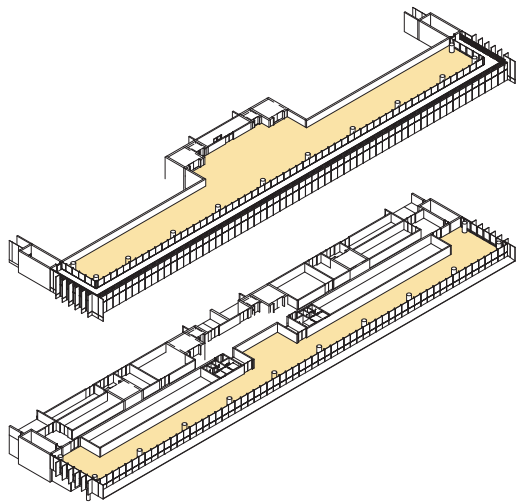
Project Key Facts

Overall Development



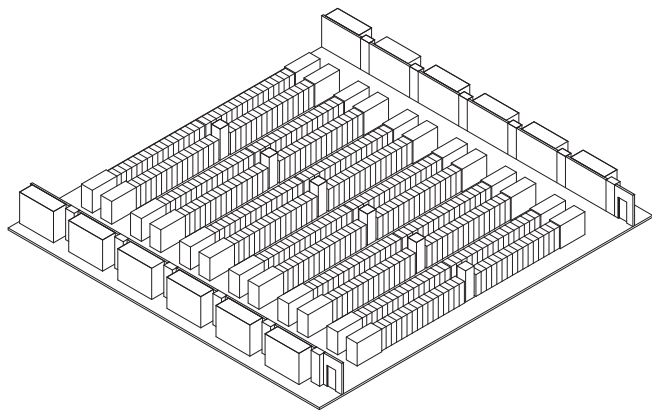
Site

- 1 Total site area is 77,241.97 square metres.
- 2 Height of 15m allowable under Penrith DCP 2014.
- 3 Numerous project frameworks apply, including Western City District Plan, Employment Lands Strategy, State Environmental Planning Policy (Industry and Employment) 2021, and so on.



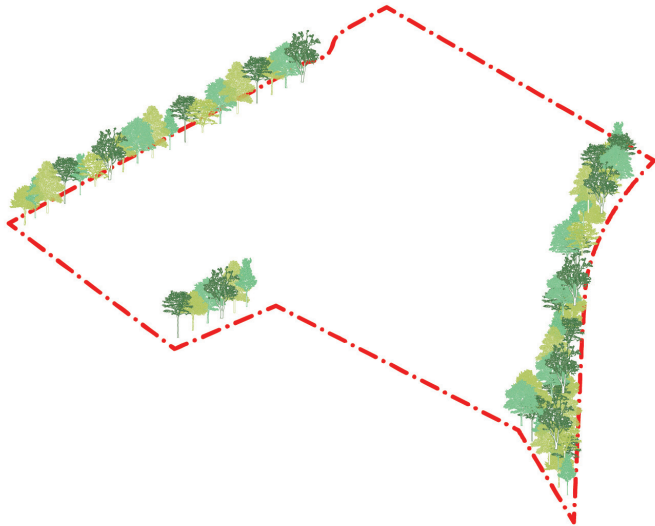
Offices

- 1 3,120 square metres of office space over three (3) floors per building - 6,240 square metres in total.



Data Halls and Associated Plant

- 1 Sixteen (16) data halls per building - thirty-two (32) halls in total.
- 2 Around 15,000 square metres of plant level space per building - 30,000 square metres in total

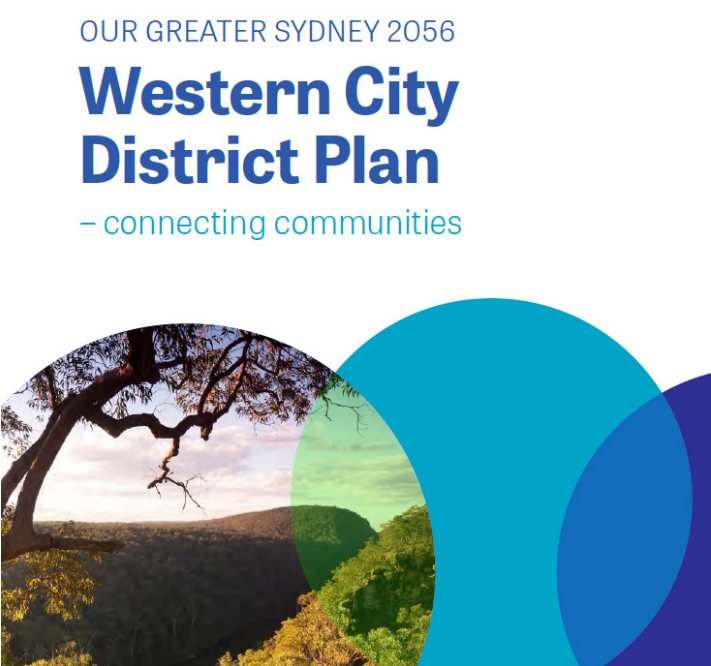


Landscape

- 1 14,882 m² dedicated to landscape (19.26% of total site area)
- 2 14,733 m² dedicated to deep soil landscape (19.07% of total site area)

Project Frameworks

Strategic Planning Frameworks



Western Sydney City District Plan – 2018



Penrith Economic Development Strategy - 2023-2031



Penrith Employment Lands Strategy – 2021



Local Strategic Planning Statement - 2020

Western City District Plan

The proposed data centre aligns with the vision of the Western City District Plan (District Plan) as it will facilitate jobs and economic activity within the Western Sydney Employment Area (WSEA) which is identified as a developing industrial and employment area well connected to transport links.

Penrith Economic Development Strategy

The proposed data centre aligns with the vision of the Penrith Economic Development Strategy as it will contribute to the already strong growth occurring within Penrith, capitalising on the largest remaining supply of employment land in Greater Sydney. The nature of the jobs data centres provides can contribute to upskilling of the workforce, diversifying the economy to provide different roles within construction and operation, and in turn nurturing the jobs of the future. This also positions the area around Erskine Park and Penrith as an attractive destination for these knowledge-based and IT-based jobs, inspiring innovation and technical expertise.

Employment Lands Strategy

The proposed data centre aligns with the vision of the Employment Lands Strategy as it will contribute to the establishment and expansion of the economic development and employment growth of the Penrith lands. Penrith City is at a turning point and the value of advanced information and communication technologies is at an all time high - the proposed campus fits in perfectly with this concept. The proposal incorporates improved amenity in these employment areas and creates a place where people want to work. Lastly, the proposal also begins to diversify the industrial context and the types of jobs provided for the area.

Local Strategic Planning Statement

The proposed development aligns with the vision of the Local Strategic Planning Statement by focusing on connected communities, both in the literal sense of connecting people through data and technology, but also extending beyond that, emphasising collaboration and connection. Other key initiatives of this statement that the proposal aligns with includes building on the '30-minute city' concept, where residents have access to diverse jobs and services within 30 minutes of each other; being located within the Greater Penrith to Eastern Creek Growth Area, which has been identified for its potential to capitalise on significant transport and infrastructure investment; and being able to provide land for high technology jobs, education, innovation, research and development.

Development Summary

Overview

The proposed development (SSD-82211208) involves the construction and operation of a data centre and ancillary infrastructure, substation, water storage, offices and amenities, at the location of 78 Lockwood Rd, Erskine Park (101/DP1268632). The site is zoned as IN1: General Industrial located within the Penrith City Council LGA, and has street frontages towards Lenore Dr (North) and Lockwood Rd (South).

The total site area of 78 Lockwood Rd is 77,241.97 m² with a GFA of 55,651 m² over three storeys - giving it a FSR of 0.72:1.

- This project will be delivered in two construction stages as follows:
- Stage 1: East Building, Substation and Generator Gantry
 - Stage 2: West Building

- The project comprises the construction of a data centre development including the following key components:
- Site preparation and bulk earthworks.
 - Construction of a three-storey data centre development, with a maximum height of 26.5 metres and a combined total gross floor area (GFA) of approximately 55,651 sqm including technical data halls, office and administrative areas, and ancillary circulation space.
 - At grade car park under croft (34 parking spaces) within the building footprint and other onsite parking (44 parking spaces) comprising 78 parking spaces.
 - Landscaping and associated public domain works.
 - 170 generators for backup power.
 - Business identification signage zones.
 - Extension and augmentation of physical infrastructure and utilities, as required including new on-site substation towards the north of the lot and water storage tanks integrated within the building footprint.

55,651 m²

GROSS FLOOR AREA (GFA)

32

DATA HALLS

78

CAR PARKING SPACES

14,733 m² (19.07%)

DEEP SOIL AREA

170

TOTAL x GENERATORS

14,882 m² (19.26%)

ASSOCIATED LANDSCAPING

450 MW

SITE CAPACITY (MEGAWATTS)

24 HR - 7 DAYS/WEEK

HOURS OF OPERATION

SEARS

Response

Industry Standard SEARS

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 11 April 2025, issued for the SSDA (SSD-82211208). Specifically, this report has been prepared to respond to the SEARs requirements issued below.

Items	Description of Requirement	Response
Design Quality	Demonstrate how the development will achieve design excellence in accordance with any applicable EPI provisions	Section 1.4
	Demonstrate how the development will achieve good design in accordance with the seven objectives for good design in Better Placed	Refer to Appendices for EIS
Built Form and Urban Design	Explain and illustrate the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach	Section 02, 03, 04, 05 Refer to Appendices for Architectural drawings and BCA report
	Demonstrate how the proposed built form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, streetscape and existing and future character of the locality	
	Demonstrate how the building design will deliver a high-quality development, including consideration of facade design, articulation, materials, finishes, colours, any signage and integration of services	

Image Source & Document Reference:
Site access & traffic related items subject to further detailed advice
Proposed retention & demolition of existing trees subject to further advice

02

Country + Context

Site Location

Surrounding Context

01 | Greater Sydney and proximities

Located between key metropolitan hubs such as Parramatta, the Sydney CBD, and the future Bradfield City Centre, the site sits within the Erskine Business Park precinct. The Erskine Business Park precinct serves as a vital infrastructure and logistics network for Greater Sydney. Its central position enables efficient connectivity across the region, supporting the movement of goods and services while playing a critical role in Sydney's growing economic and industrial networks.



Local History + Context

History of Site

01 | Gomerrigal-Tongarra

History has given us sparse records about the Gomerrigal-Tongarra people. The Gomerrigal-Tongarra inhabited both sides of South Creek to the East of the site, where it became a meeting place for other Dharug clans to gather. As part of the Dharug-speaking Indigenous peoples, their lifestyle was probably similar to others of the Dharug clans. They were hunter-gatherers over specifically defined territories, in this case, mainly the banks of South Creek. Men and women had particular roles in the clan which were clearly defined; children were given a totem name; traditional medicine was carried out by the ‘koradji’ or doctor; and, like all Indigenous people they had a spiritual Dreaming.

History of this clan and their customs has been scarcely documented due to the absence of rock carvings, marked trees or any other art forms within the area. In addition, their culture was virtually destroyed within a century because of European settlement.

02 | Land Tenure

Erskine Park was the name of a 3,000 acre grant made in 1818 to James Erskine (1765-1825). The grant covered an area east of the present Mamre Road to Ropes Creek taking in what are now the suburbs of St. Clair and Erskine Park. James Erskine was born in 1765 in Ireland and was a career soldier who fought in the West Indies, Ireland and the Peninsular Campaigns. He arrived with his regiment in Sydney on the “Matilda” in August 1817. He was sworn in as Lieutenant-Governor on September 12, 1817. On 8 May 1818, Erskine was granted 3000 acres (1214 ha) of land from Mamre Road to Ropes Creek. Ownership of Erskine’s land changed hands over time, including Andrew Thompson who established the Lenore Estate dairy farm in the late 1890s. In the early 1900s, the NSW government acquired Thompson’s estate and surrounding areas as part of the Closer Settlement policy where further subdivisions were implemented for new settlers to purchase plots.



Erskine Park, South Creek. Courtesy of Mitchell Library, State Library of New South Wales



Erskine Park, NSW. Courtesy of Mitchell Library, State Library of New South Wales



Plan of the Erskine Park Estate near the town of Penrith subdivided into farms - Hoghton, H & Degotardi & Co. (1851)

Local History + Context

History of Site

03 | Agriculture and Pastoralism

The history of Erskine Park is directly associated with the early agricultural development of the Cumberland Plain, being constructed to provide an overland passage of goods between the fertile lands of the Cumberland to Sydney. The majority of agricultural works and land were concentrated towards the creek lines of the area. As agricultural technology developed, arable production was moved further away from the creek lines and towards the pastures.

In conjunction with agricultural cultivation, pastoralism also became an integral part of Erskine Park and surrounding areas. Stock grazing within the area primarily consisted of cattle grazing. These grazing lands also became the site of new cattle breeding. An increased emphasis on improvements of cattle breeds and the ability through rail transportation to sell fresh milk, butter and cheese to the Sydney market allowed the dairy industry to rapidly expand. This also worked with the development of a tanning industry.

04 | Industry

Extractive industries began to emerge in the 1900s, following the majorly pastoral and agrocltural 1800s. Most notably, a gravel quarry was established in 1925, and acquired by CSR Readymix in 1961, providing significant amounts of materials for the road building and construction material requirements of the Sydney region. The quarry pit expanded as demand for blue metal (crushed basalt) and breccia in road making and in concrete construcion grew. Towards the 1980s, resource reserves became limited, and options for its redevelopment started forming. From this site, industrial complexes grew around it, forming what Erskine Park has become now; the new center of Sydney's industry - becoming home to transport, postal, warehousing and manufacturing hubs for the rest of the Sydney region.



1947 Aerial - SixMaps



Current Aerial - Nearmaps



1965 - Erskine Park Quarry (2km West of site)



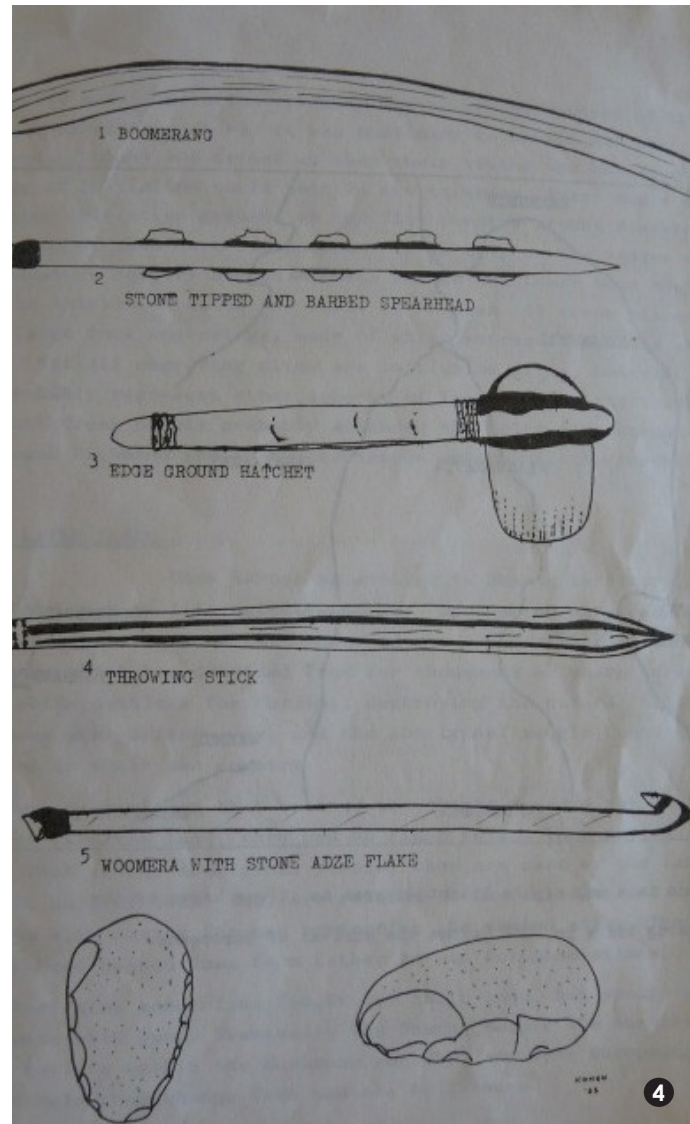
1986 - Erskine Park Quarry (2km West of site)



2020 - Erskine Park Landfill (2km West of site)



1



4



5

Connecting and Caring for Country

Understanding Traditional Land

Ersine Park is situated on Dharug (also spelled as Darug or Dharuk) land, the traditional country of the Aboriginal people who have inhabited the area for thousands of years. This traditional land stretches roughly from the coast, north to Wisemans Ferry, west into the Blue Mountains, south along both sides of the Nepean River to Appin, and east approximately along the Georges River to Botany Bay.

The Dharug people made campsites on higher ground, with access to Ropes Creek and many other water sources in the areas surrounding, and would move with the seasons to take advantage of plentiful plants and animals. Evidence of Dharug life, particularly in the form of tools, can be found across many creeklines in these areas.

Through the Connecting with Country Framework of 2023, the design places itself in alignment with the following objectives:

- Objective 1 - Healthy Country
- Objective 2 - Healthy Community
- Objective 3 - Protecting Aboriginal Cultural Heritage
- Objective 4 - Cultural Competency
- Objective 5 - Better Places

In an attempt to Connect and Care for Country, this proposal situates itself away from the historical waterway of Ropes Creek and its surrounding bushland, allowing the areas to remain largely untouched. In addition,

the landscape strategies of the site focus on the native flora found along these waterways and the extension of these native species into the site. This further reinforces the element of Caring for Country, and strengthens the relationship of the site with the surrounding Country. The Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) has several publications relating to Bushcare and protecting and conserving Aboriginal landscapes, which our proposal largely aligns with.

The development is also situated on a cleared site, with no need for removal of trees or flora. The proposal works carefully with existing levels and flood plains to minimise invasive cutting manoeuvres into the land. The natural screening that is present in the adjacent conversation area is seen as a key element, and this natural screening is extended to the north of the site along Lenore Drive.

The strategies present here attempt to support the practices we should be undertaking when it comes to Country and design. In doing so, the proposal further strengthens its alignment in Connecting and Caring for Country.

CONNECTING
WITH
COUNTRY

3

1. Map of Traditional Land Owners with Dharug Land highlighted

2. Tom Thumb's Lagoon, NSW
Painted by John Prout 1847

3. Connecting with Country
Framework - 2023 GANSW

4. Tools used and found along creeks
and waterways by the Dharug people

5. Aboriginal Bushcare
Image taken from "Burning Love, Living Ngurra: Healing Country, Healing Hearts and Sharing Minds in Dharug Country."

Precinct Evolution

Future

When we look towards the future of this industrial precinct, there is substantial growth being forecasted. This is in alignment with Penrith City Council's various strategic and planning frameworks that have been established over the recent years.

The proposal must look towards the future, not only in terms of economy and employment, but in terms of placemaking and surrounding context.

The site, while it currently sits towards the edges of the Erskine Business Park, is predicted to be at the centre of various new developments and precincts over the coming years. The proposal further solidifies its place here, not only engaging with its current context, but grounding itself to engage with future context, 'connecting' various precincts to one another, and establishing itself as a major campus within Erskine Park.



Erskine Business Park Connections

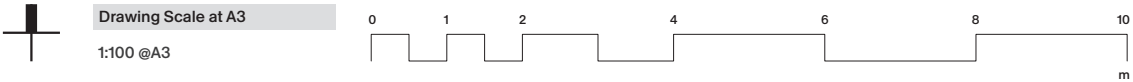
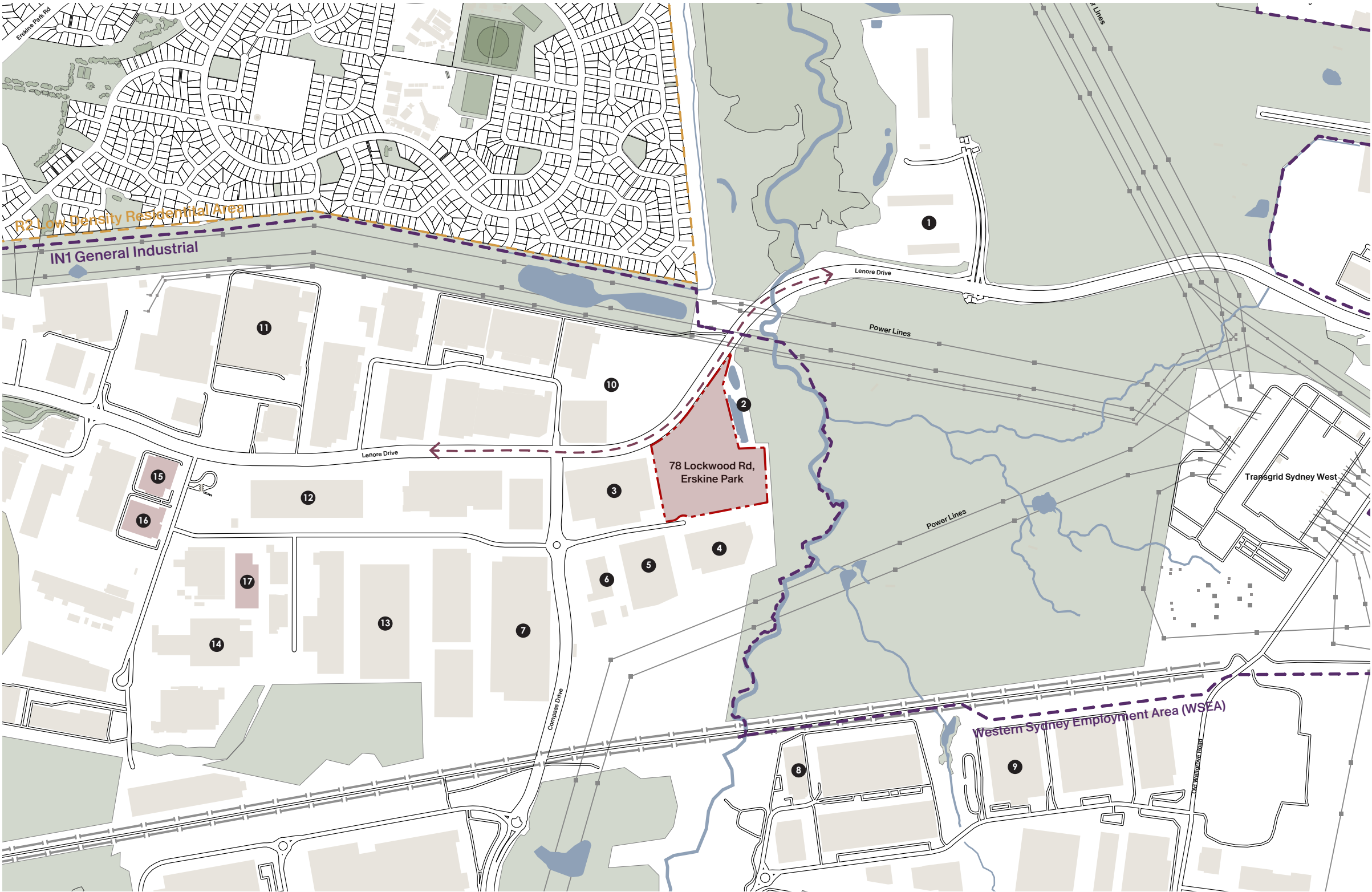
Erskine Park Context

Legend

Locality Plan

- 1 | ETP-JCG JV Precast Plant & CTP-AFJV Yard
- 2 | Water Catchment Area
- 3 | CEVA Logistics
- 4 | Future Development
- 5 | DHL Supply Chain
- 6 | Lindsay Transport
- 7 | DHL Supply Chain
- 8 | FedEx Station
- 9 | Winc Australia Warehouse
- 10 | AutoNexus Erskine Park
- 11 | Blue Star Global Logistics
- 12 | Mulford Plastics
- 13 | DHL Supply Chain
- 14 | Coles Retail Ready Operations
- 15 | Digital Realty Data Centre SYD10 / Rackspace Sydney
- 16 | Digital Realty Data Centre SYD11
- 17 | Digital Realty Data Centre SYD14

The site occupies a prominent gateway fronting Lenore Drive and sits on the edge of the industrial context that makes up the Erskine Business Park. To the east of the site, the industrial use gives way to an environmental conservation area, where Ropes Creek flows through. The site's position along the main thoroughfare of Lenore Drive and the conservation area frontage provide for opportunities to respond to the high visibility of traffic to the north and connect new landscaping on the site to existing vegetation and flora strategies within the environmental conservation area.



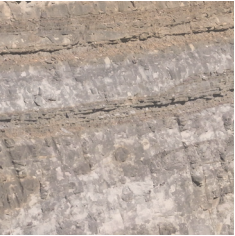
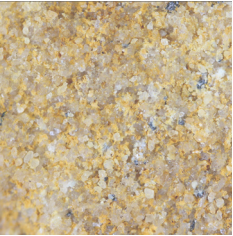
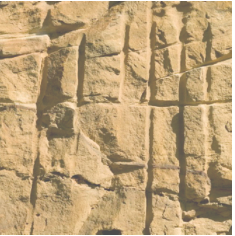
Site Analysis

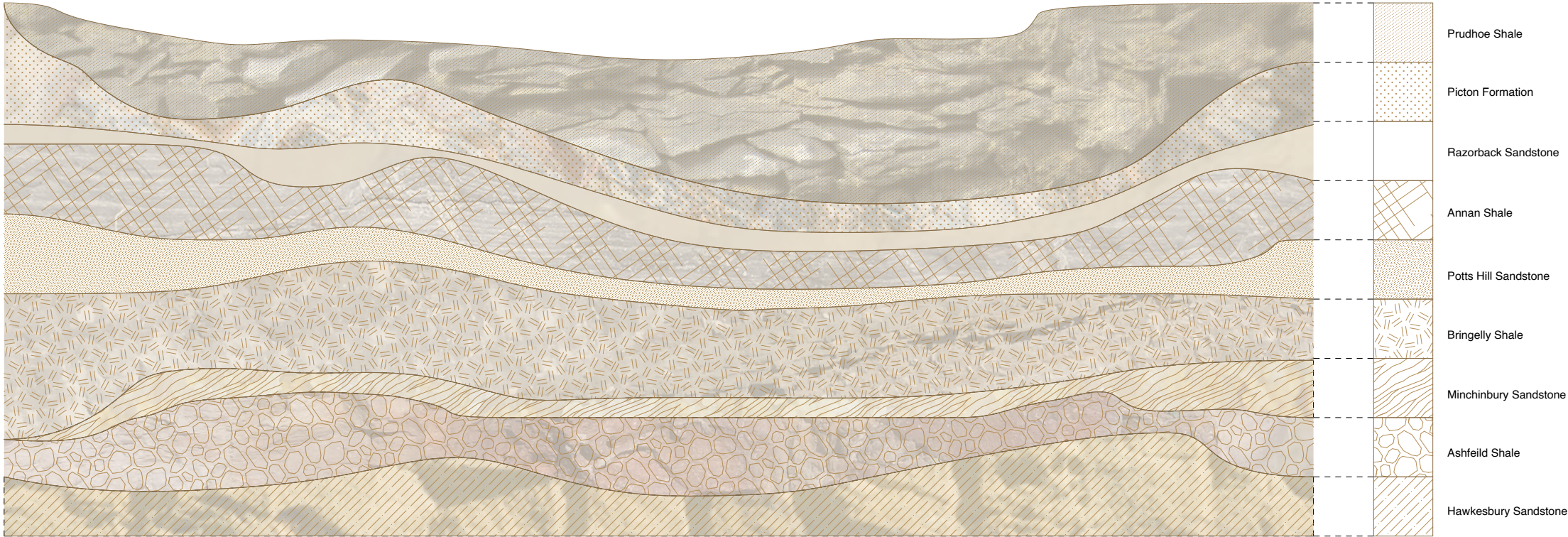
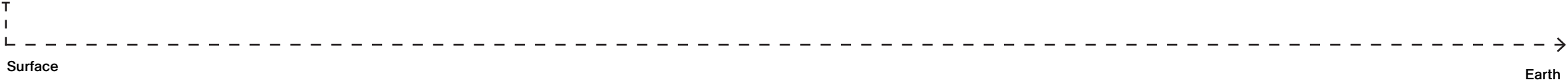
Geology

01 | Geology Buildup

The Wianamatta Group is a geologic zone that is found in the Sydney Basin, primarily in the western and southern parts of Sydney. It represents the youngest sedimentary layout in the basin and plays an important role in both geotechnical and environmental contexts due to its widespread presence in these areas.

The Wianamatta Group is the youngest Triassic sedimentary unit in the Sydney Basin, dominating much of the Cumberland Plain across western and southern Sydney. Comprising of three main formations: Ashfield Shale, Minchinbury Sandstone, and Bringelly Shale. Ashfield Shale formed in low-energy marine or lacustrine settings, the thin Minchinbury Sandstone represents former barrier-island beach sands and the Bringelly Shale reflects deposition in swampy, alluvial plains with scattered sandstone channel lenses.

Prudhoe Shale	Picton Formation	Razorback Sandstone	Annan Shale	Potts Hill Sandstone	Bringelly Shale	Minchinbury Sandstone	Ashfeild Shale	Hawkesbury Sandstone
								
Shales with numerous gratwacke-type sandstone lenses beomcing prominent towards the top.	A very variable formation in lithology and thickness. Alternating graywacke-type sandstone (promintent at the top) and shales (prominent at bootom)	Generally massive greywake-type sanstones but shale lenses and parting are common	Dark green and black shales with plant remains and iron oxide modules. Thin graywake-type sandstone lenses common.	Graywacke-type sandstone sometimes massive but usually broken by shale lenses	Dark green and black shales with abudent plant fragments and iron oxide modules. Thin graywacke-type sandstone lenses and bands common.	Calcareous graywacke-type sandstone with black shale lenses and sideritic modules	Black mudstone and silty shales with frequent sideritic mudstone (clay - ironstone) bands.	Passage beds: Alternating bands of black shale and orthoquartzite sandstone (often calcareous)
Max, 120 feet.	Average, 100 feet.	Approx, 70 feet.	Approx, 40 feet. Max, 120 feet.	Approx, 40 feet.	Approx, 200 feet.	Approx, 20 feet.	Approx, 200 feet.	Thickness, 0-50 feet Massive orthoquartzite (pure quartz) type sandstone with occasinal balck shale lenses.



Site Mapping + Analysis

Ecological Communities

Ersine Park, as well as 78 Lockwood Rd, is historically characterised to have Cumberland Plain Woodland (CPW) ecology. The CPW includes the following ecological communities, with some overlapping and some being subregions of the Woodland. The site within the boundary is now cleared from all trees and major flora.

01| Cumberland Plain Shale Woodland (CPSW)

The CPSW sits offset from the River Flat Eucalyptus Forest and is present in areas with large masses of trees surrounding Ropes Creek. The canopy forms an open woodland to woodland structure to a height of approximately 25m, with a canopy cover of between 10-25%. Canopy trees are generally 10-30 years of age. The canopy is represented by a mixture of forest red gum, grey box, broad leaved ironbark, narrow leaved ironbark, thin leaved stringybark and rough-barked apple.

The mid-storey ranges to a height of approximately 15m. Again, forest red gum is the most common species in the mid-storey with white-feather honeymyrtle and occasional broad-leaved ironbark. The understorey consists of Parramatta green wattle, green wattle, blackthorn and falcate wattle.

The ground cover is dominated by native species to a height of 1m, including kangaroo grass, wallaby grass, Cymbopogon, basket grass and a variety of native herbs.

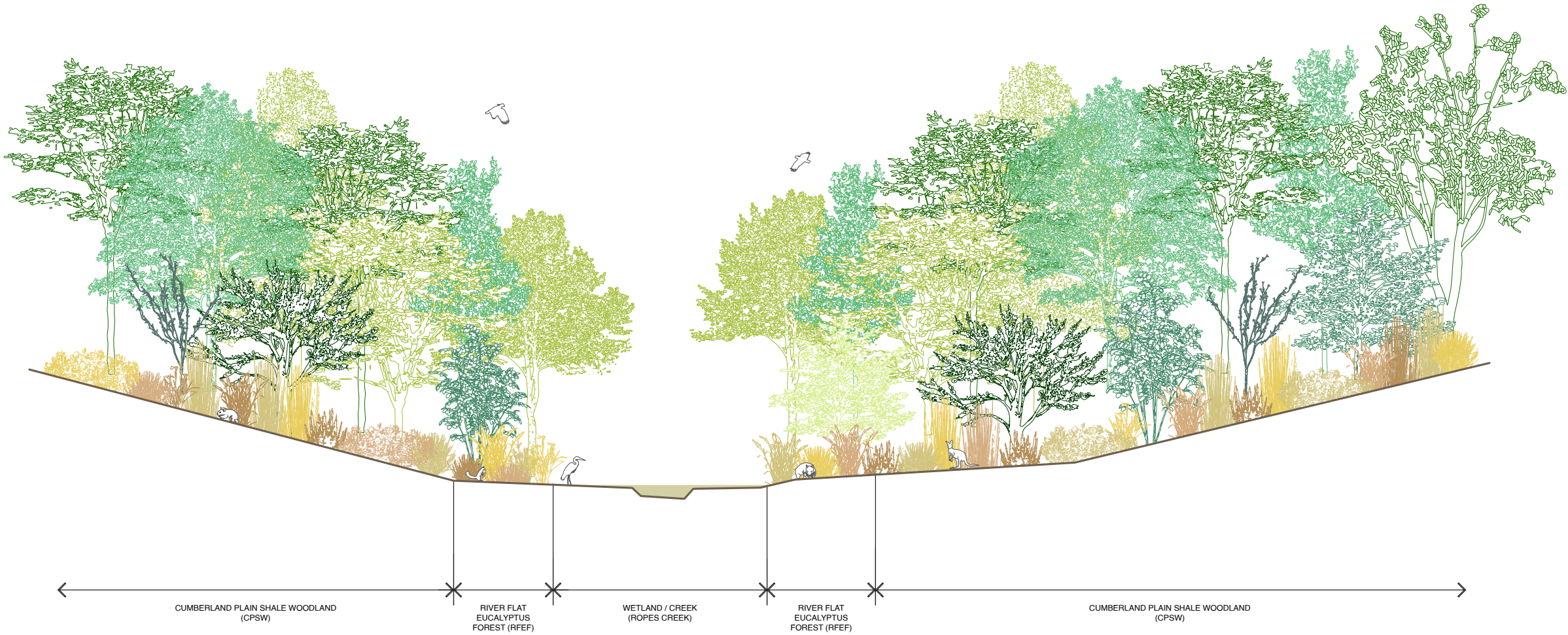
02 | River Flat Eucalyptus Forest (RFEF)

The RFEF follows closely the outline of Ropes Creek, in which the vegetation forms a thin strip along the creeks edge. The vegetation is consistent with and meets the criteria for its classification and are also subject to some exotic non-typical species.

The canopy forms a woodland structure to a height of approximately 30m and with a canopy cover of between 15-35%. Canopy trees are generally 10-35 years of age. The canopy consists of broad leaved apple, cabbage gum, rough-barked apple, swamp oak, white-feather honeymyrtle and prickly-leaved paperbark.

Again there is a mid-storey comprising of swamp oak, white-feather honeymyrtle, cabbage gum and Acacia species. The understorey ranges from 2-4m in height and includes blackthorn and common hop bush.

The ground cover comprises mostly native species to a height of 1m and includes swamp goodenia, swamp pennywort, kidney weed and common rush.



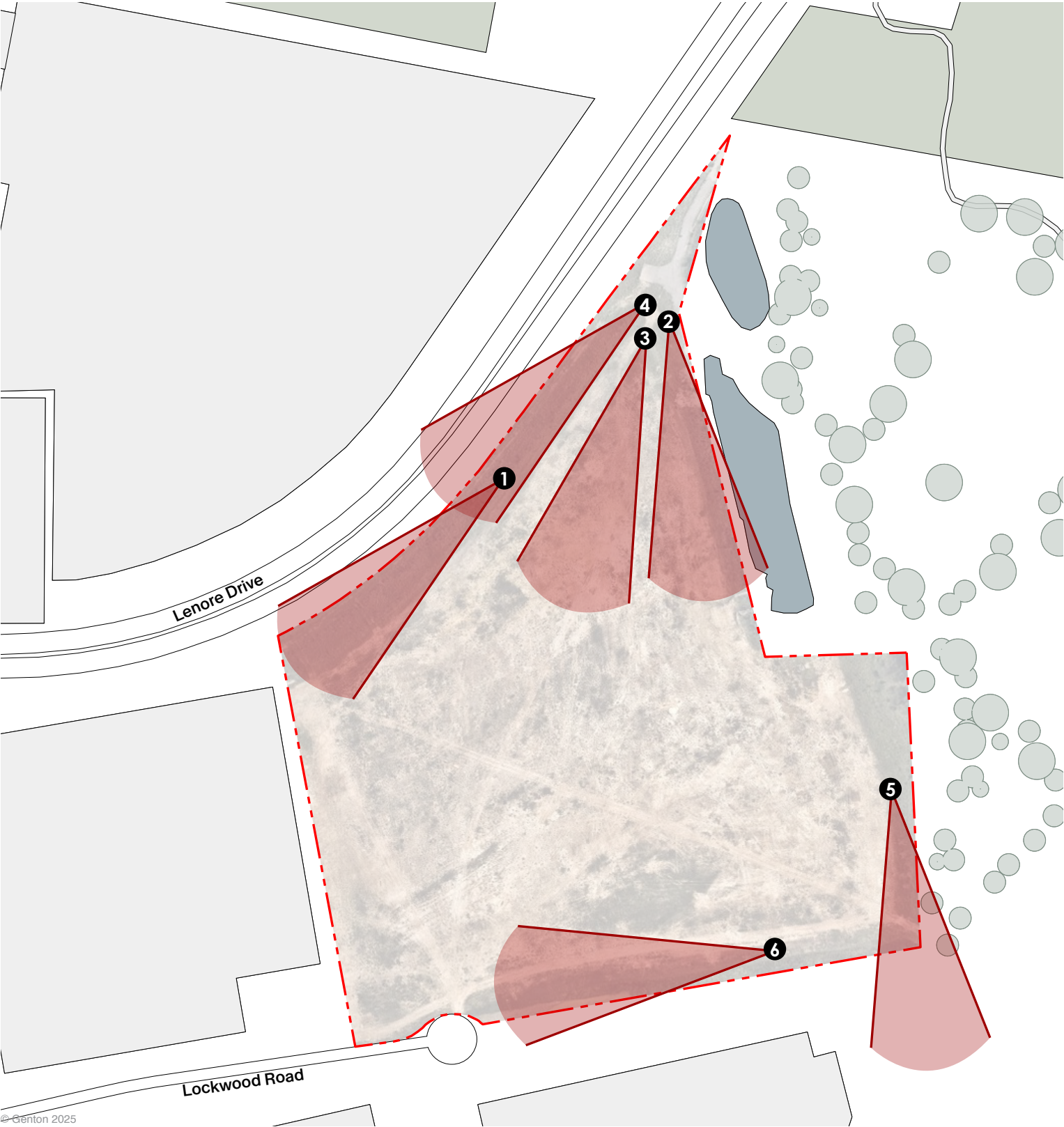
Site Section of Ropes Creek



Map of Cumberland Plain Woodland (CPW) in NSW

Site Views

Within Site



Site Views

Street Views



Limitations + Opportunities

Site Limitations

Legend

- Water/Creek
- Context buildings
- Green space
- Flood prone areas
- Site Boundary
- Setback
- Easements
- Underground Gas
- Underground Electricity
- Underground Telecommunications
- Underground Sewerage
- Site Entrance

01 | Setbacks

There is a range of setbacks that need to be addressed according to the Penrith Council DCP 2014 and the neighbouring Ropes Creek Conservation zone.

02 | Easements and Services

The easements are in place to protect underground services and drainage zones, while also preventing overbuilding for future construction of infrastructures.

03 | Flood Prone Areas

The development needs to respond to the flood prone areas of the site towards the east and ensure flood lands are kept undisturbed as much as possible to protect the campus.

04 | Site Entry

There is only one current entrance into the site from Lockwood Road, so all internal access needs consideration from this site entrance.

05 | Height Limits

Built form will take into account overshadowing and relevant height controls which require new development to fit below a height of RL 230.5m AHD. Clear consideration must be made in relation to height with scale, visual impact and building facades.



Limitations + Opportunities

Site Opportunities

Legend

- Water/Creek
- Context buildings
- Green space
- Views from Residential Zone
- Views from Lenore Drive (obstructed by green berm)
- Major transport corridor

01 | Green Berm

The Green berm to the North of the site provides screening towards services and plant structures on the ground floor plane.

02 | Lenore Drive Street Frontage

The site occupies a prominent and highly visible location along Lenore Drive, which serves as the primary entry point to the Erskine Business Park. There is also the landscaped berm to this frontage, which can allow views over this area and to other activated uses of the site.

03 | Connection to Conservation Area

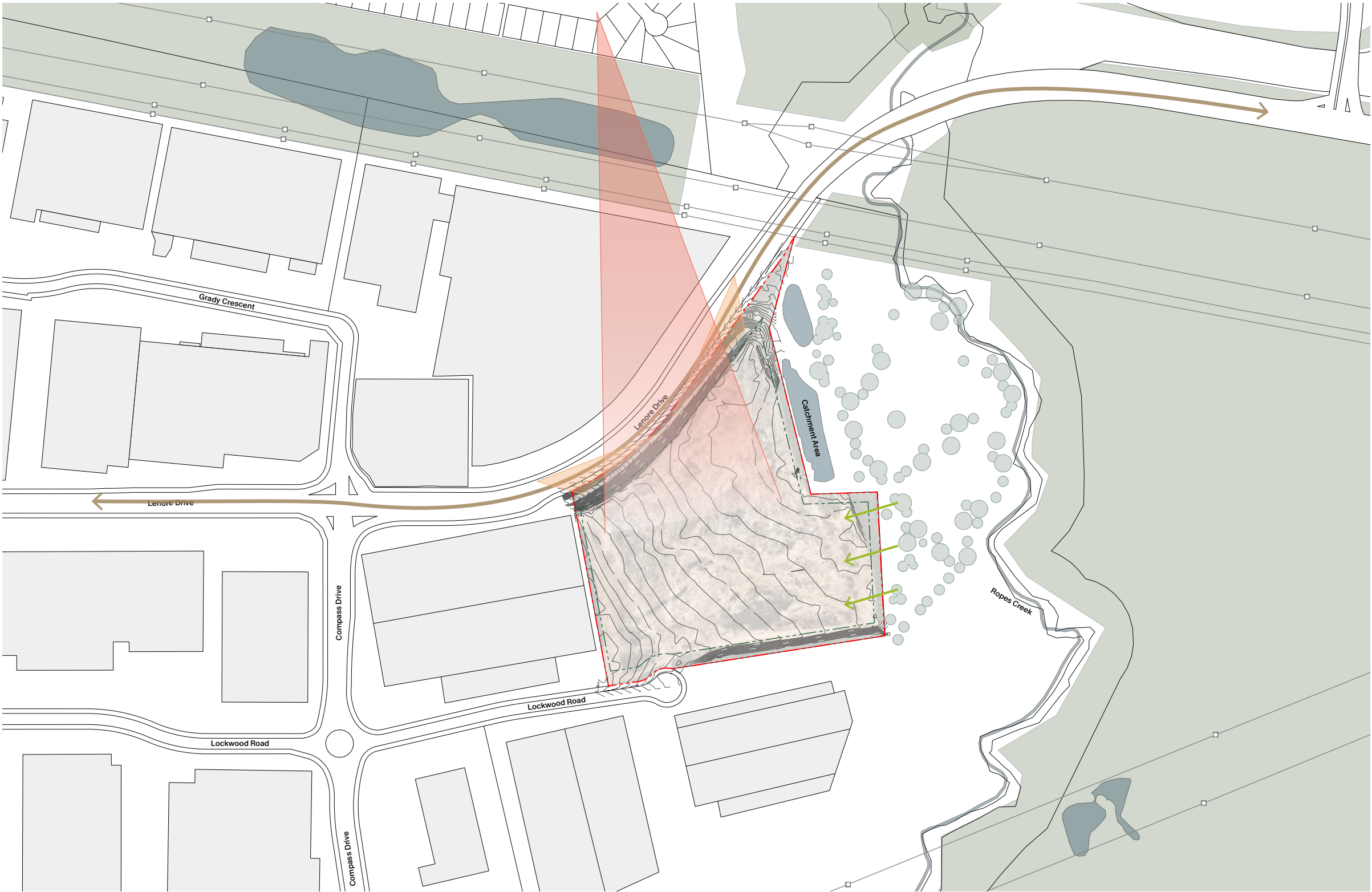
Opportunity to connect the site to the Ropes Creek Conservation Area to the east, through extension of landscaping and flora design.

04 | Viewing from Residential Zones

The building can be seen from parts of the residential zone to the North, giving further justification to provide a strong design response for the north facade.

05 | Siting

The building is part of the Western Sydney Employment Area; the largest greenfield industrial precinct with increased infrastructure and funding over the next 20-30 years, in order to provide highly skilled jobs and more diverse employment opportunities.



03

Urban Response + Built Form

Design Principles

A number of key design principles have informed the design response to the site. These include, but are not limited to:

Connected Building

While a data centre campus is 'connected' by its very nature, the proposal goes above and beyond, connecting the building to its context and its site, through the mindful material selection, the natural screening and landscaping strategies, and the notions of Caring for Country we have considered - allowing natural waterways and planting to remain untouched, and extending these planting strategies to strengthen the relationship of the building with the land.

Visual Identity

The designed massing of the site sets the office elevation of the campus to the main site frontage of Lenore Drive, providing increased activation of this frontage, passive surveillance, and visual identity. The services elements of the campus are screened by the various natural elements of the site, such as the bushlands to the east, and the green berm to the north. Landscape design has been thoughtfully considered and these natural screening elements have been added to to strengthen these natural elements. The proposal also adopts material selections in their truest form to link the campus with its context. Using strong, industrial elements such as steel, concrete and glass, the proposal highlights these materials elements in a refined way.

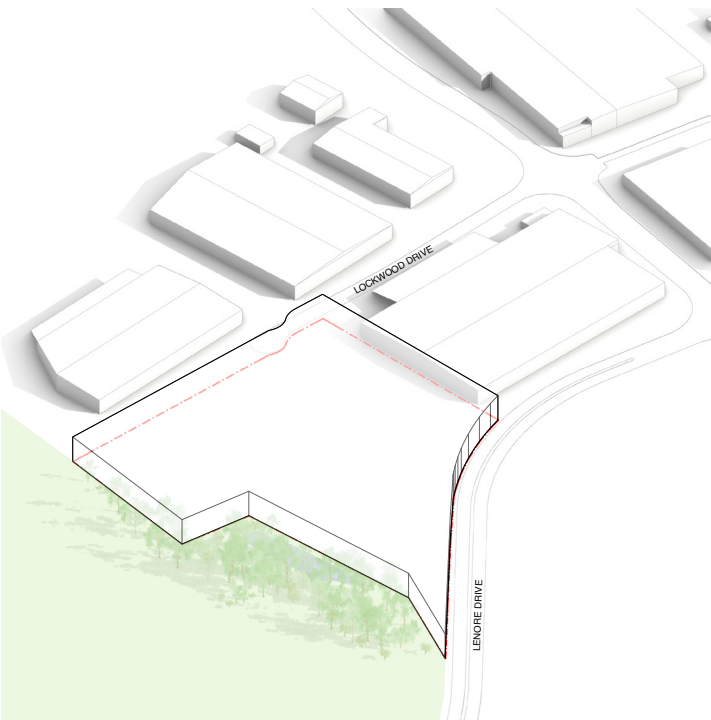
Function and Form

When it comes to any industrial facility, the movement of goods and services around a site and within a building is paramount. Because of this, safety becomes a real concern when essentially 'mixing' front-of-house pedestrian movement and back-of-house goods and services movement throughout the campus. In order to alleviate these concerns, the back-of-house functional areas have been intentionally separated from the front-of-house entrance areas through a level change. The overall site movement of goods and services will remain on a lower ground level, while the pedestrian movement, carparking and main building entrances are on an upper ground level. This strategy promotes safety throughout the site, and allows an opportunity for pedestrians to have their own separate building entrance. The entrances are setback to allow ample parking on the upper ground floor, creating a sense that the building is floating above a hidden entrance lobby.

Image: 3D Photorealistic Render of Rooftop Office Internal Space

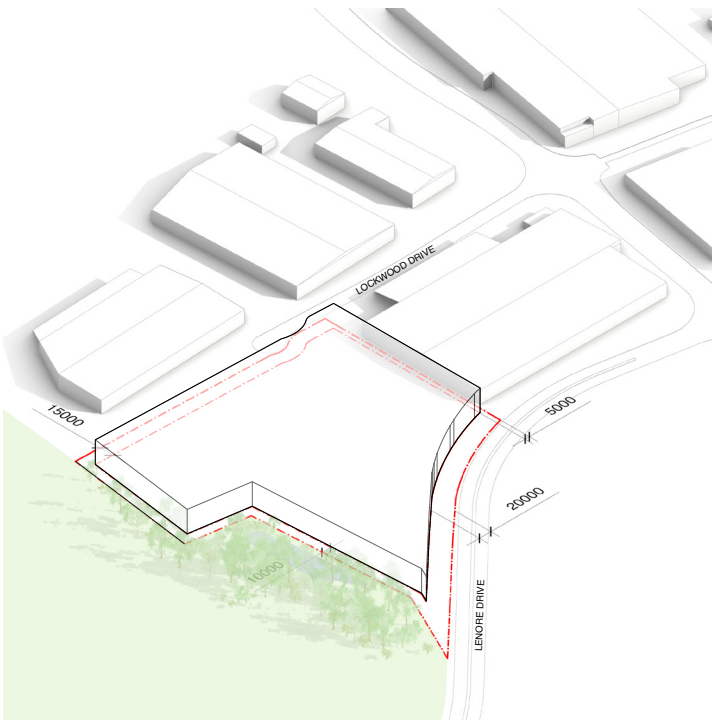
Massing + Form

Design Expression | Site



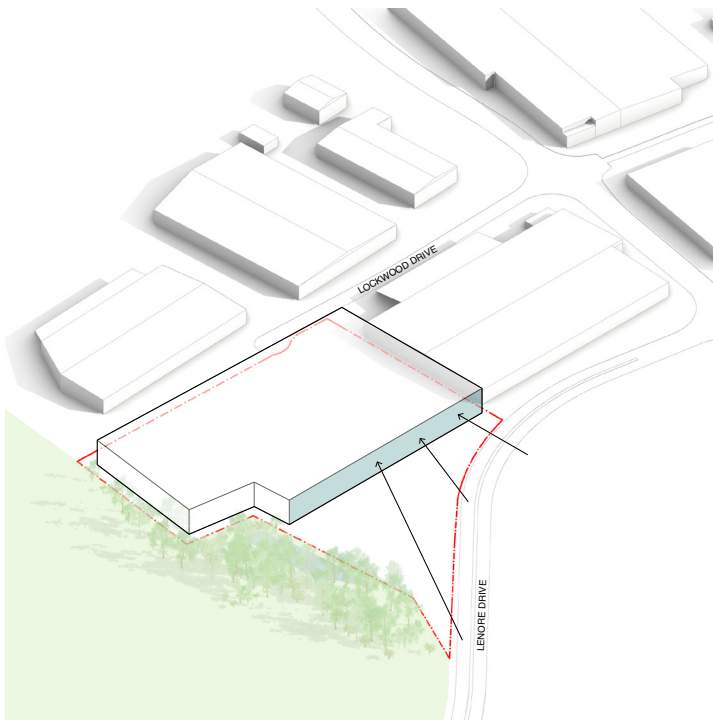
Site Boundary

The maximised envelope has been applied to the site. The site boundaries serve as critical anchors in shaping architectural massing, influencing initial forms and integrating with external site context.



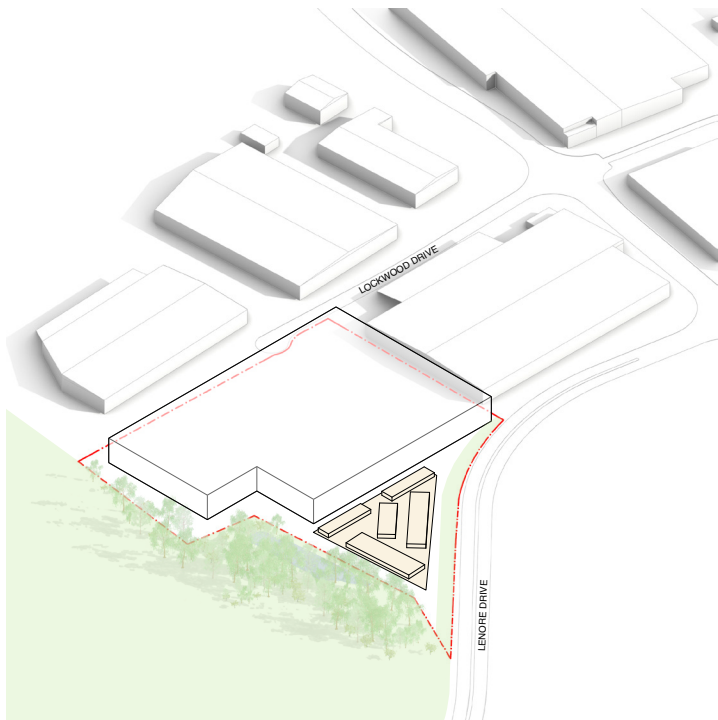
DCP Setbacks and Easement Limitations

The Penrith Council DCP 2014 sets out various requirements for built form setbacks which, when considered together, anticipate a built form located sufficiently away from site boundaries. This includes a 20m setback from Lenore Drive and a 10m setback from the adjoining C2 Environmental Conservation zone to the East. The siting of any new building is also to have regard for solar access to properties to the south.



Views Towards Site and Contextual Surroundings

The main views into the site are coming from the approach on Lenore Drive in both east and westbound directions. As cars and other transport drive on Lenore Drive, there is an important design opportunity for the North facade, and setting this facade back will allow for better viewing whilst also preventing visual obstructions from the trees to the East.

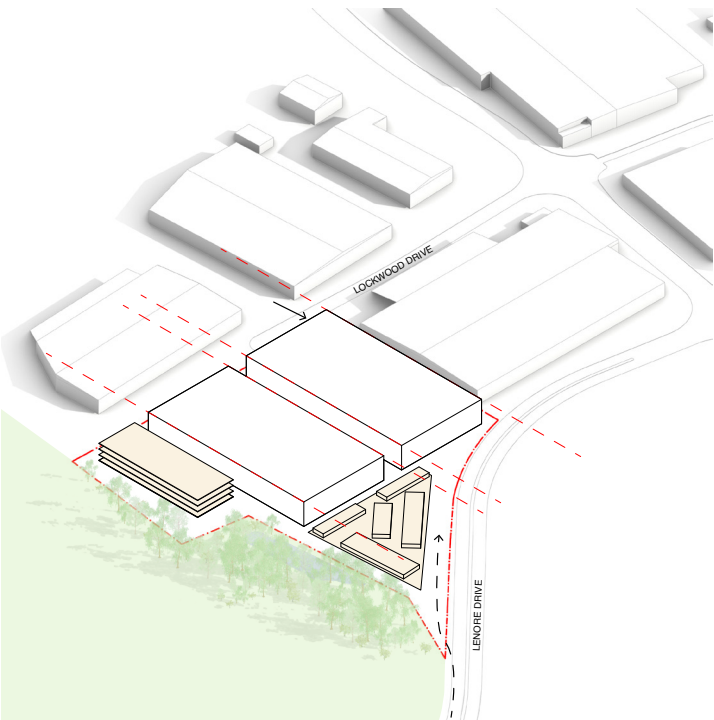


Substation Placement and Further Setbacks

Placing the substation in the remaining space helps with the overall direction for the data centre massing, internal roads and landscaping opportunities. The green berm along the north boundary of the site obscures the substation and other ground plane plant and equipment from Lenore Drive, further justifying its positioning.

Massing + Form

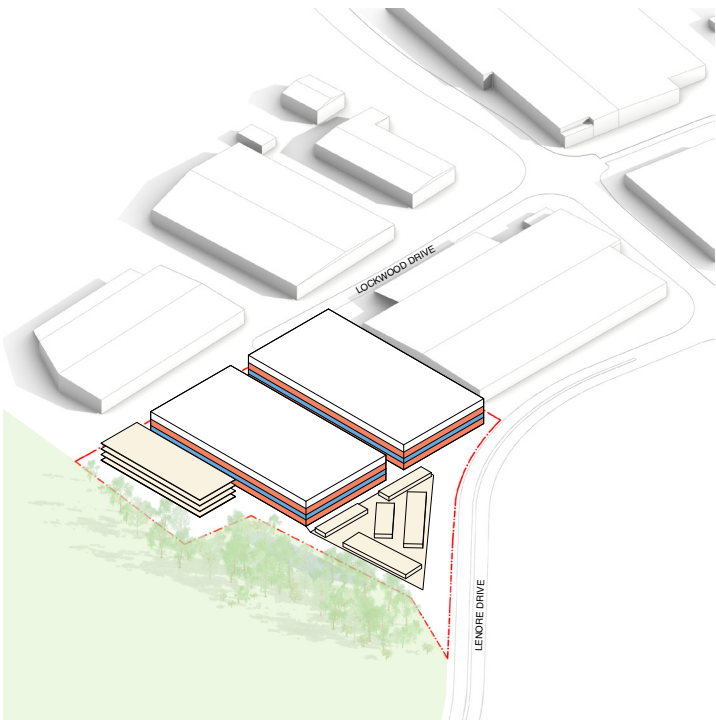
Design Expression | Building



Ground Plane Articulation and Separation of Function

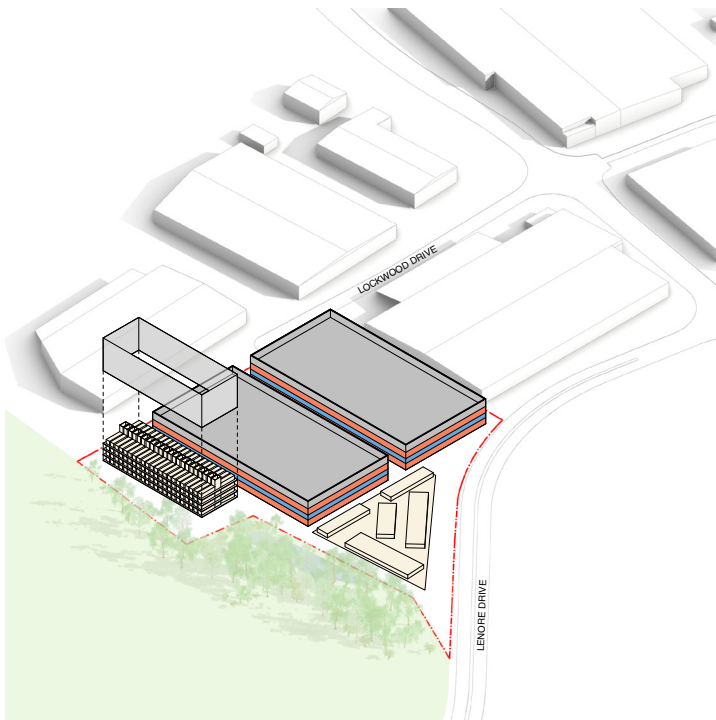
Buildings and internal roads define the overall massing. Splitting up the massing will allow for internal roads to be placed for cars and trucks, leading to better circulation within the site. Access into the site will be primarily from Lockwood Road, with potential construction access from Lenore Drive.

Strategically arranging and dividing the site into smaller masses has been undertaken to reflect the primary building functions. Each of the bigger buildings will serve as the data centre buildings with the smaller massing in the smaller eastern-most portion of site to be the generator gantry.



Data Hall and Plant Massing

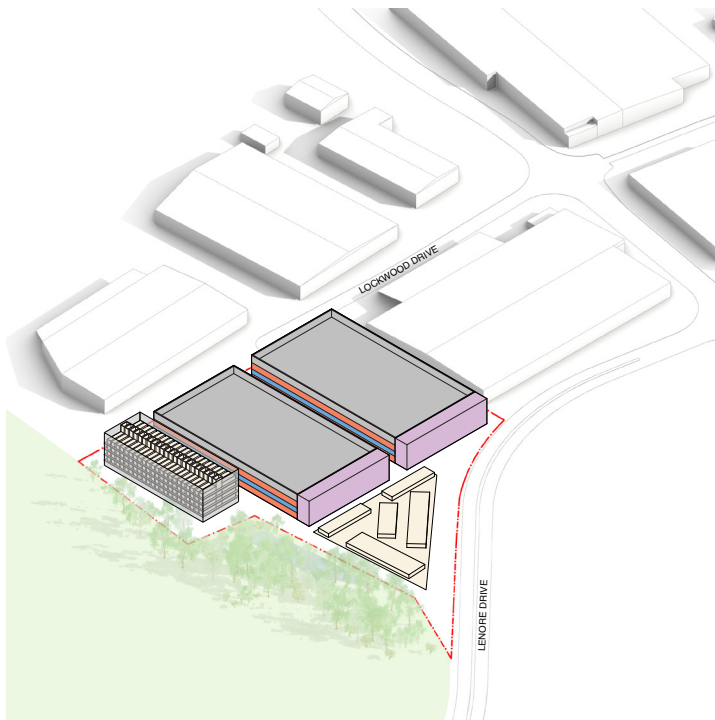
Each building will have 2 floors of data halls with a height of 6.5 m floor to floor, which will sandwich a plant floor of 5 m floor to floor height which will serve both upper and lower floors of data halls.



Generators and Services Areas

On the roof of each building there will be a series of plant, which will be screened in order to maintain the visual appeal and design of the building.

The generator gantry in the eastern part of the site will also be screened and shielded by landscaping to prevent noise pollution and to also maintain the visual appeal of the building.

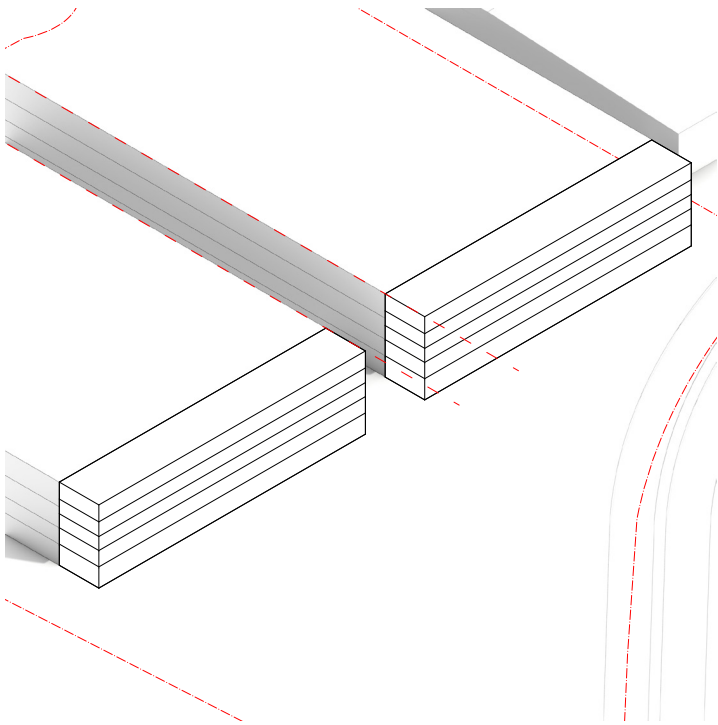


Initial Office Massing

Placing the office massing towards Lenore Drive effectively breaks down its bulk, maximises street frontage and will offer opportunity for a designed facade treatment. It will also promote the building as a landmark gateway building.

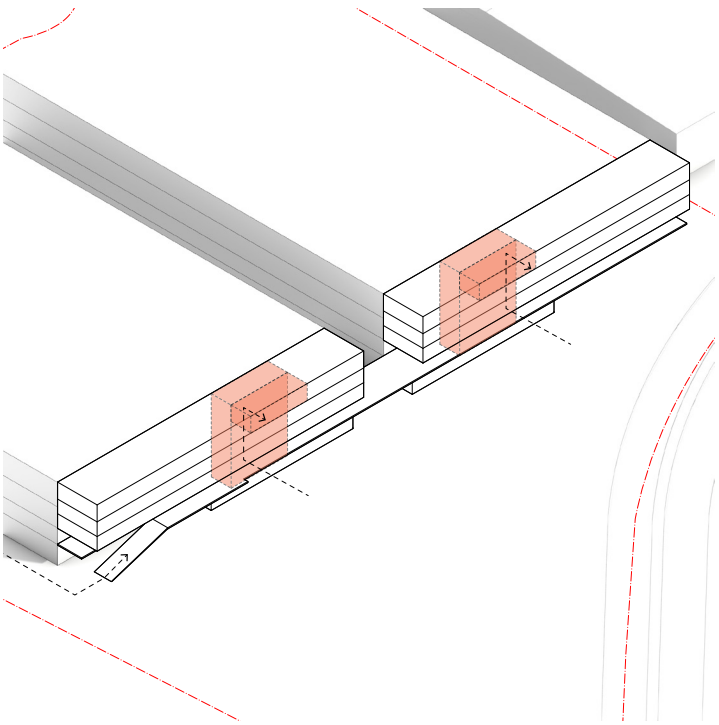
Massing + Form

Design Expression | Office



Splitting Level

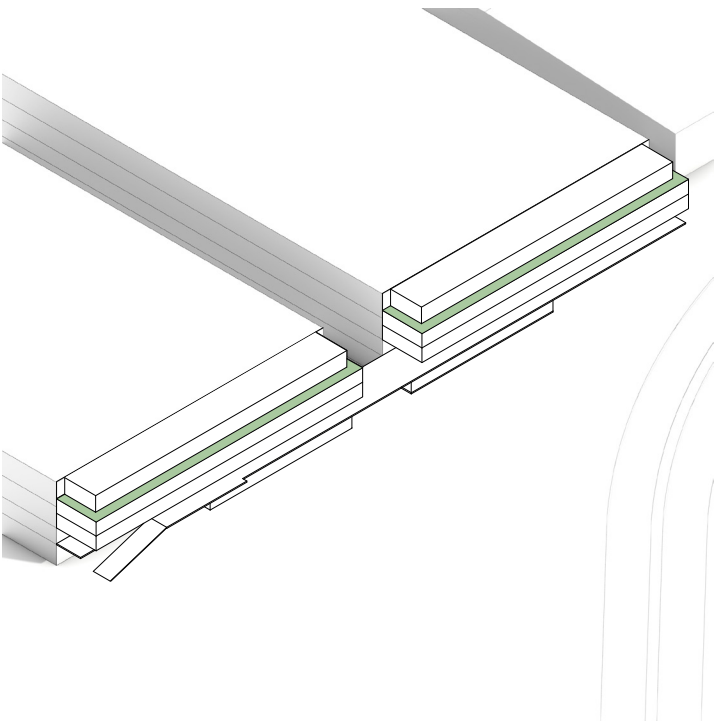
Breaking up the large office massing into levels dependent on the functions of the data centre and the requirements of the client. Data hall floors are typical taller than a usual office floor to floor height, and as a result three floors of office can fit within two floors of data halls and plant.



Minimal Entry Point, Skylobby and Circulation

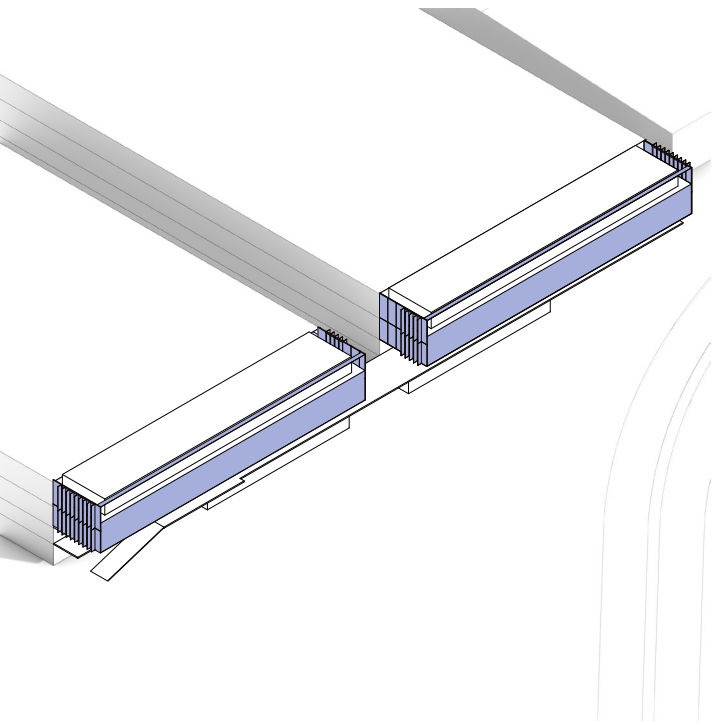
Creating an entry point through articulation of the ground plane, and separating lower ground and upper ground will allow for safety and ease of movement throughout the site. The lower ground will serve as the loading docks and back-of-house spaces. The upper ground will function as an undercroft parking space for workers and visitors, as well as the main entrance and security point to the buildings. The other levels will serve as the office spaces and allow connection into the data halls.

Entrance into the office building will be on upper ground via a minimal entry point which leads to a skylobby. From there, occupants will make their way to other office levels as required.



Terraces and Wintergardens

To articulate the massing further, there will be setbacks on the roof office level of the facade to create landscaped terraces and balconies for this floor. This creates a strong connection of biophilic design, and will help with passive cooling strategies and to promote healthy wellbeing for the workers.



Facade Articulation

As a major facade faces Lenore Drive, consideration of design is required to the north elevation. A portal frame to the north with glazing connecting to a vertical extrusion system to the east and west facade provides a uniform facade to allow the building to be read as one. The articulation of the north facade, as well as the east and west facades minimises the overall bulk and scale of the campus, with the materiality of the second skin linking the office to the longer elevations, while also providing a clear expression of the office separate to the data hall buildings.

Functional Stack

Exploded Axonometric

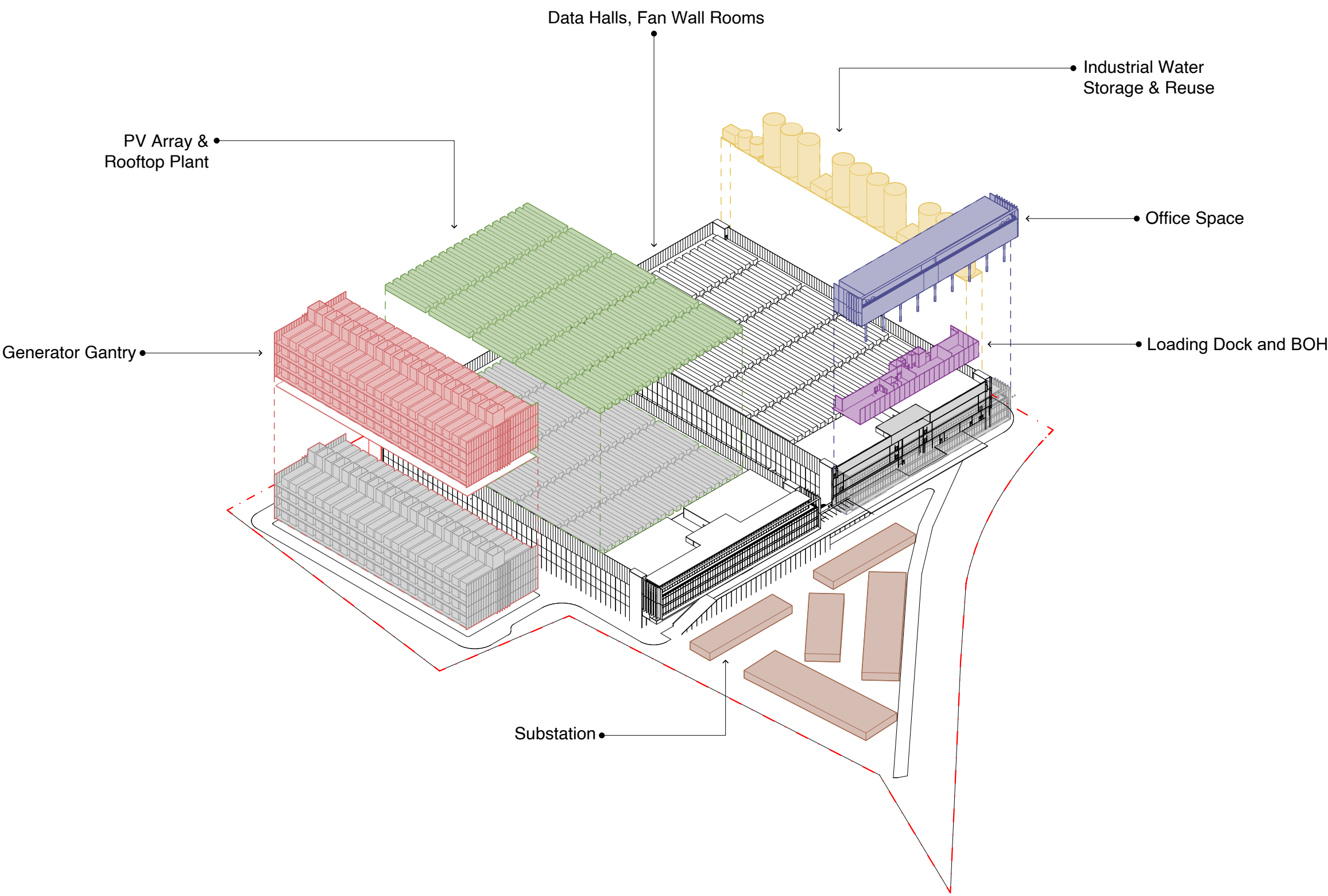
As outlined with the design diagrams, there are four key masses within the site - data hall buildings, office buildings, generator gantry, and substation - with each mass being able to be further broken down to its constituent parts. Understanding these pieces allows an understanding of scale and function, which in turn allows an architectural form to follow.

The largest of the massings is each building's data hall and plant mass. Due to its size, this mass has been intentionally located towards the south of the site, setting it back from the Lenore Drive frontage and allowing the office mass to effectively screen the mass from view. The data hall massing is made from two dedicated data hall levels, with a supporting plant level sitting between them. There is also a roof level of supporting plant infrastructure, which is open yet screened by the facades of the data hall massing.

The generator gantry has been positioned in the south-east portion of the site, in an attempt to fill a space which may otherwise be left unused due to it's shape. Placing the generator gantry in this area also allows utilises the natural screening from the surrounding bushlands of the site to the east, allowing the main elevation view to be focused on the office facades.

The substation has been positioned in the north triangle portion of the site, again in an attempt to fill a space that otherwise may be difficult to fill or left unused. A similar strategy to the gantry occurs, where due to the low level nature of the substation, the majority of this mass can be screened by the green berm on the north frontage, continuing the visual amenity from Lenore Drive.

The office masses have been considered and placed to the north frontage of the site. It acts as the building's main entrance for pedestrians, and houses many back-of-house functions for employees and heavy vehicles. The office masses provide a lobby and principal arrival point, a security office, end of trip (EOT) facilities, meeting rooms, and lift access to upper floors, while also providing secure access to the lower ground loading dock and staging areas. Floor plates have been designed with simplicity and flexibility in mind to allow for a range of tenants or clientelle. Due to the smaller depth of the each floor plate, natural light access and views out are maximised. The office rooftop level has been setback from the main building line to allow an external landscaped terrace to wrap around the floor plate. This external area provides enhanced amenity to the office spaces, while providing a potential area for events and functions. This external terrace provides the building with a softer edge when being read from the Lenore Drive frontage.



Access + Circulation

Site Movement - Plan

Product + Equipment Movement

Building loading and servicing is enabled by a dedicated loading dock for each building, which has the capacity for two 24m long vehicles each. Access to the loading dock has been separated from car and pedestrian movement through level stratification for deconfliction and safety.

Trucks and Heavy Vehicles:
Access will be from Lockwood Road through the security screening checkpoint, and then if cleared, will continue along the south to the east of the site. They make their way to the north of the site under the upper ground deck where there will be enough clearance to reverse into the loading docks where goods can be unloaded. When delivery is completed, the trucks will exit the site by making their way to the western road , exiting south to Lockwood Road.

After items have been removed from heavy vehicles in the loading docks, the products or equipment will move into either the staging area or store room. They will then move into the circulation corridor and depending on the function and security of the equipment, it will either be moved into the fan wall corridors or through the red zone area into the data halls or plant floors.

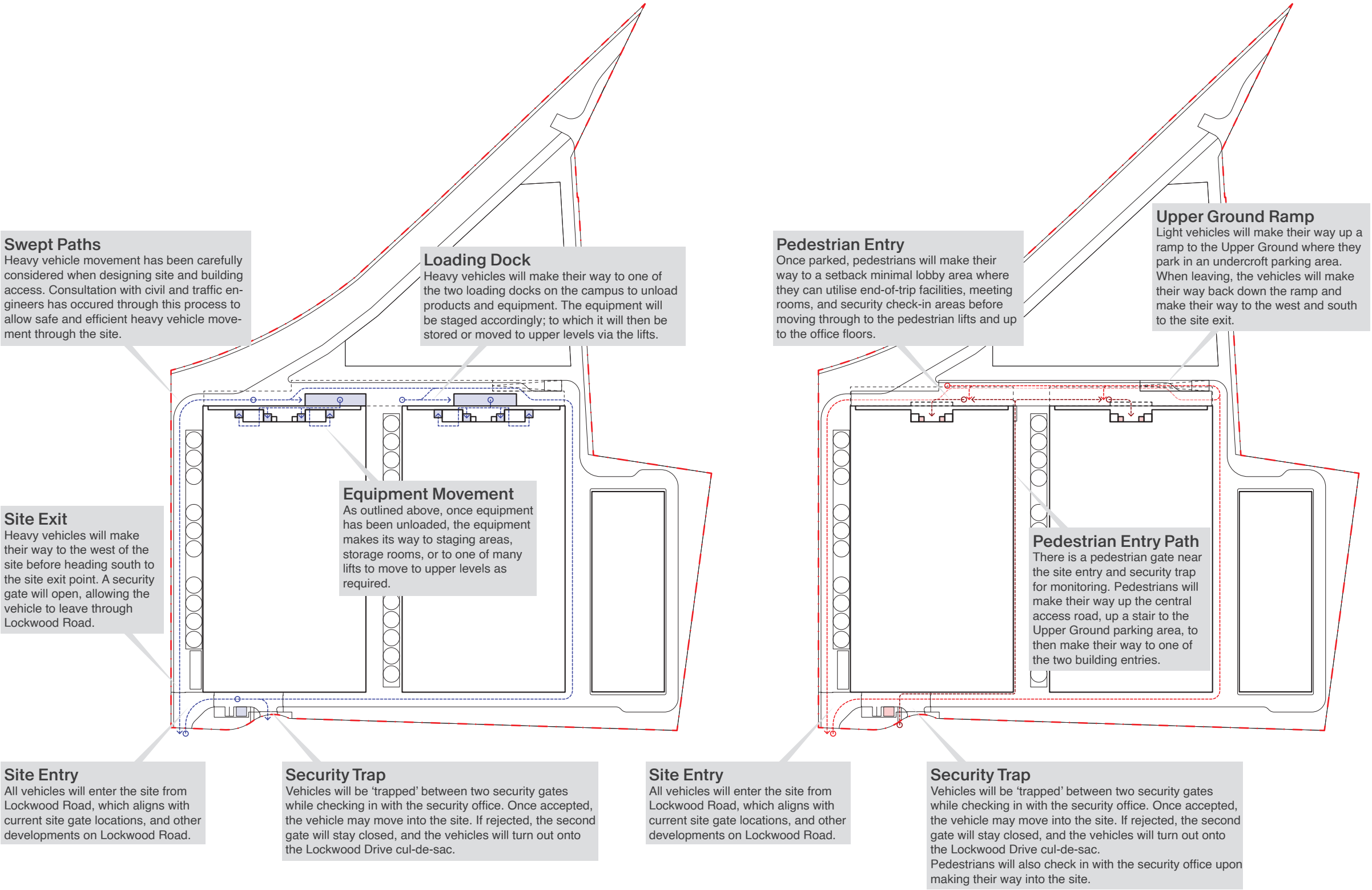
Pedestrian Movement

Pedestrian access comes from the entrance point on the parking floor. After being screened by security at the entrance, pedestrians take the pedestrian lifts to their required level, exiting to a lift lobby before moving to an office area or back-of-house area.

Cars:
Access will be via Lockwood Road where cars will be screened at the security checkpoint. From there, the cars will travel towards the eastern road and then up the ramp to the undercroft carpark. A total of 78 car parking spaces are provided, inclusive of 1 accessible parking space and 2 EV charging spaces per building. There will also be 3 motorcycle parking spaces provided. When exiting, they will go down the ramp and leave the site south onto Lockwood Road.

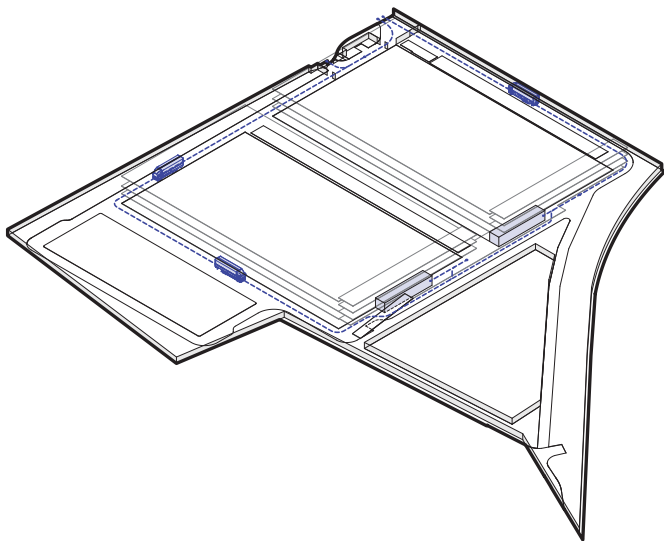
Emergency Vehicles

There are internal roads that circle all buildings on site, meaning that emergency vehicles will have site-wide access to building, plant and substation in times of need.

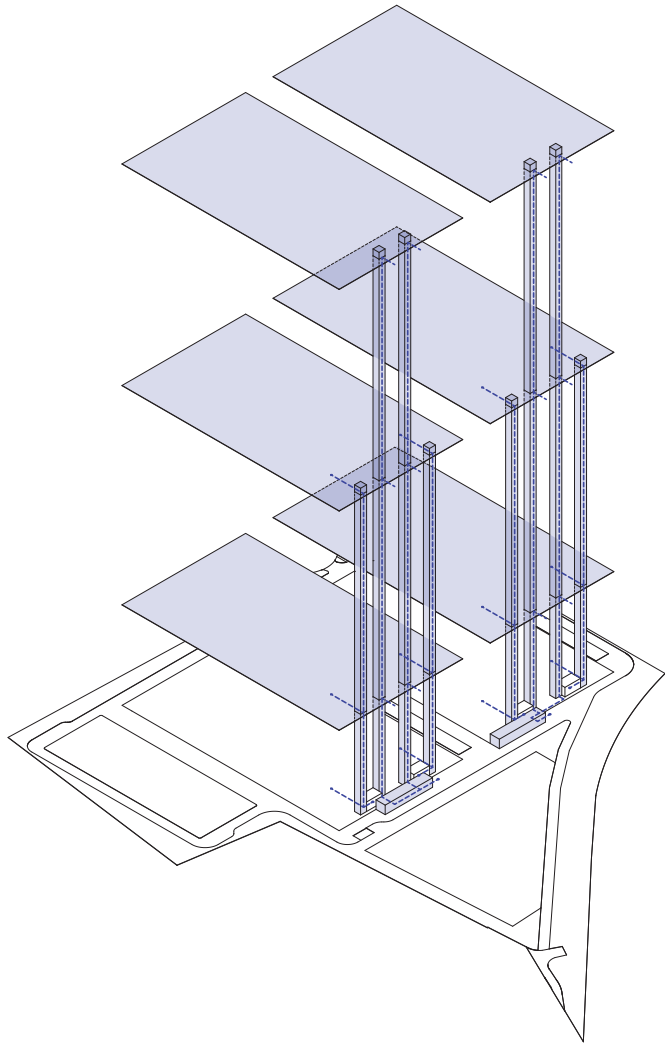


Access + Circulation

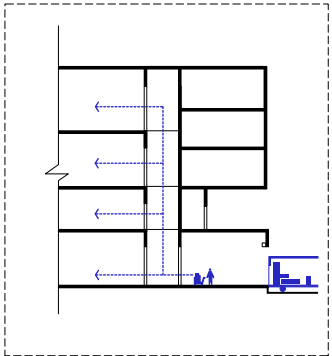
Site Movement - Axonometric



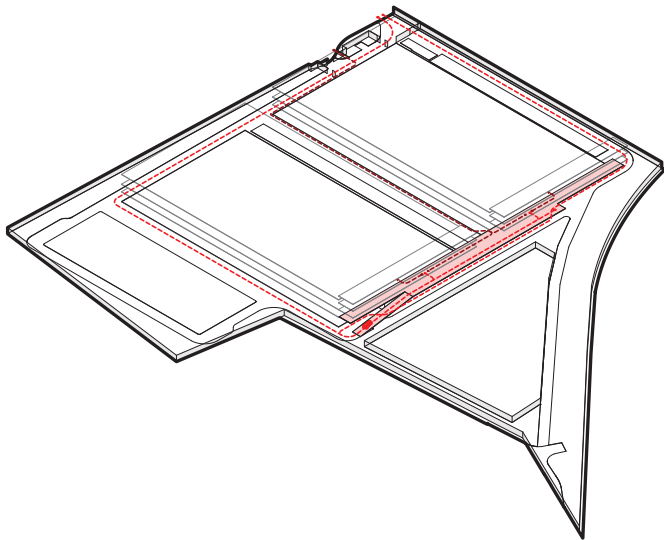
Heavy Vehicles will make their way into the site, be cleared to enter site in the security trap, and move along the southern road, up the eastern road to the loading docks at the north of the building. The vehicles then move towards the west before exiting south to Lockwood Road.



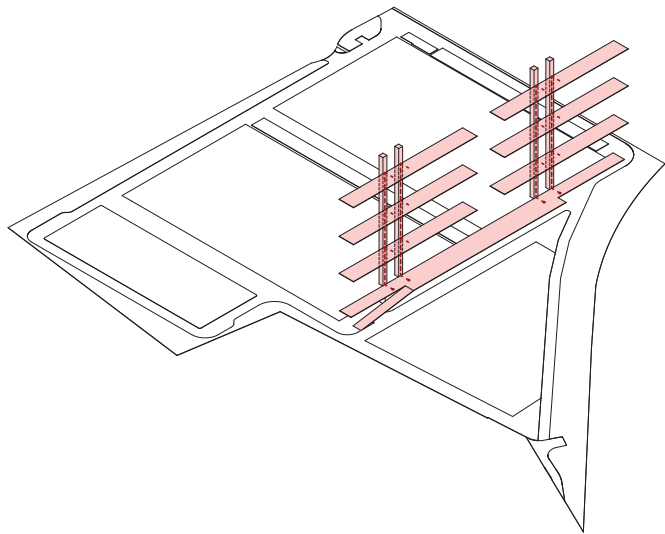
Once equipment has been removed from the vehicles, the equipment is held in a store room or staging area. Equipment can either be moved into the Goods Lifts, or moved through the Red Zone Entrance into the Data Halls, where there are dedicated Red Zone lifts for equipment movement between floors.



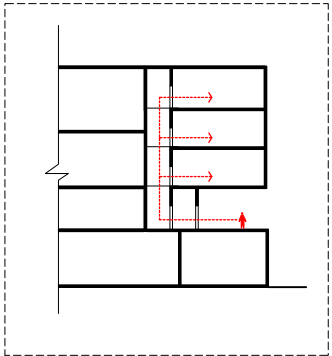
Diagrammatic Section to show typical loading dock arrangement and goods/equipment movement through data hall and plant floors.



Cars will make their way into the site, be cleared to enter site in the security trap, and move along the southern road, up the eastern road to a ramp to take them to an Upper Ground carparking deck and main building entrance. Upon exiting, cars will make their way back down the ramp, move west before exiting south to Lockwood Road. Pedestrians - should they need to walk from outside the site - will make their way through a pedestrian gate at the site entry, and up the central road to a stair, which leads them to Upper Ground. From there, pedestrians can then move into one of the building's respective lobbies.



Once pedestrians have parked on Upper Ground, they will make their way through the main building entrance, be checked in with security, and take a lift to one of the three office floors available. Meeting rooms, end-of-trip facilities, and waiting areas are also provided on Upper Ground.



Diagrammatic Section to show typical pedestrian movement through the office floors.

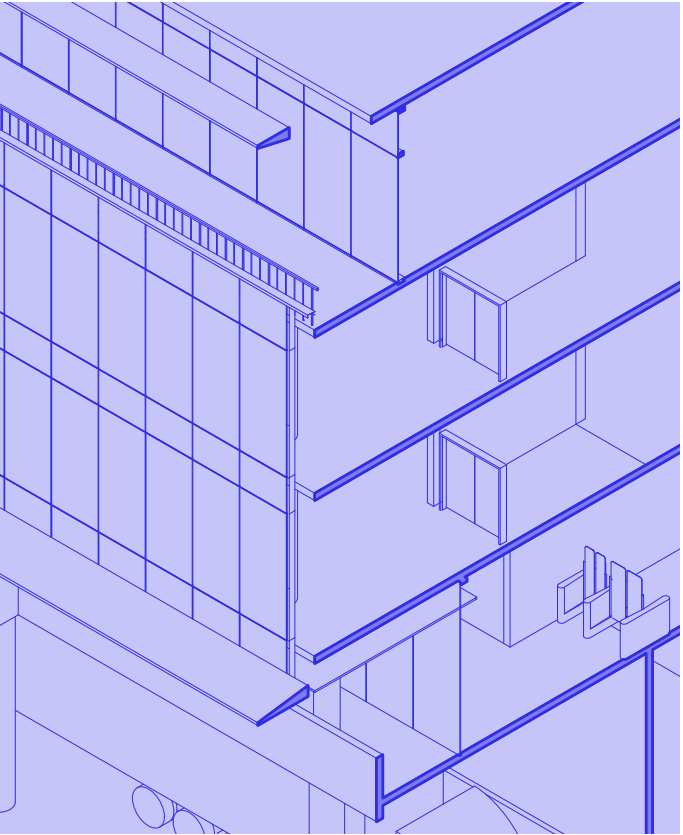
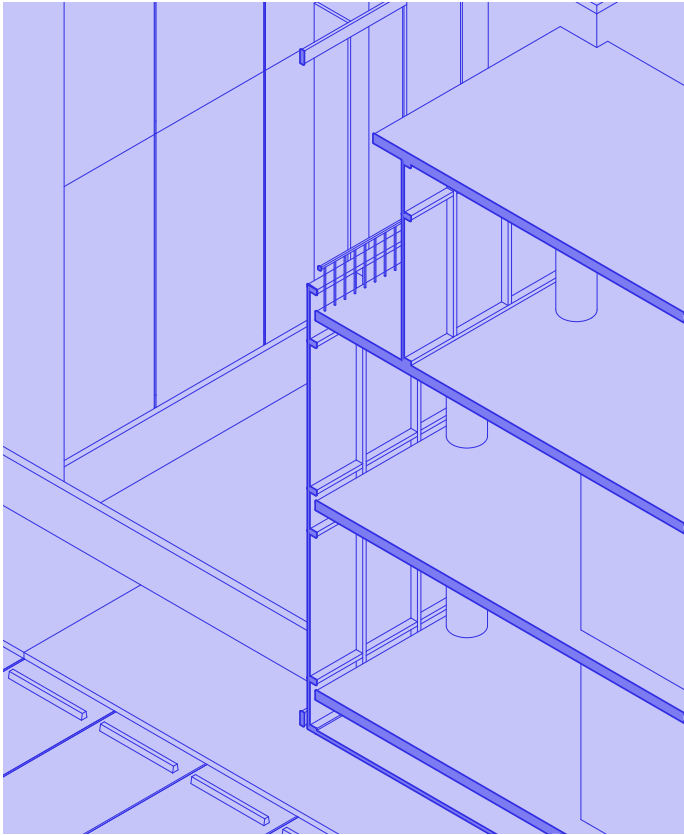
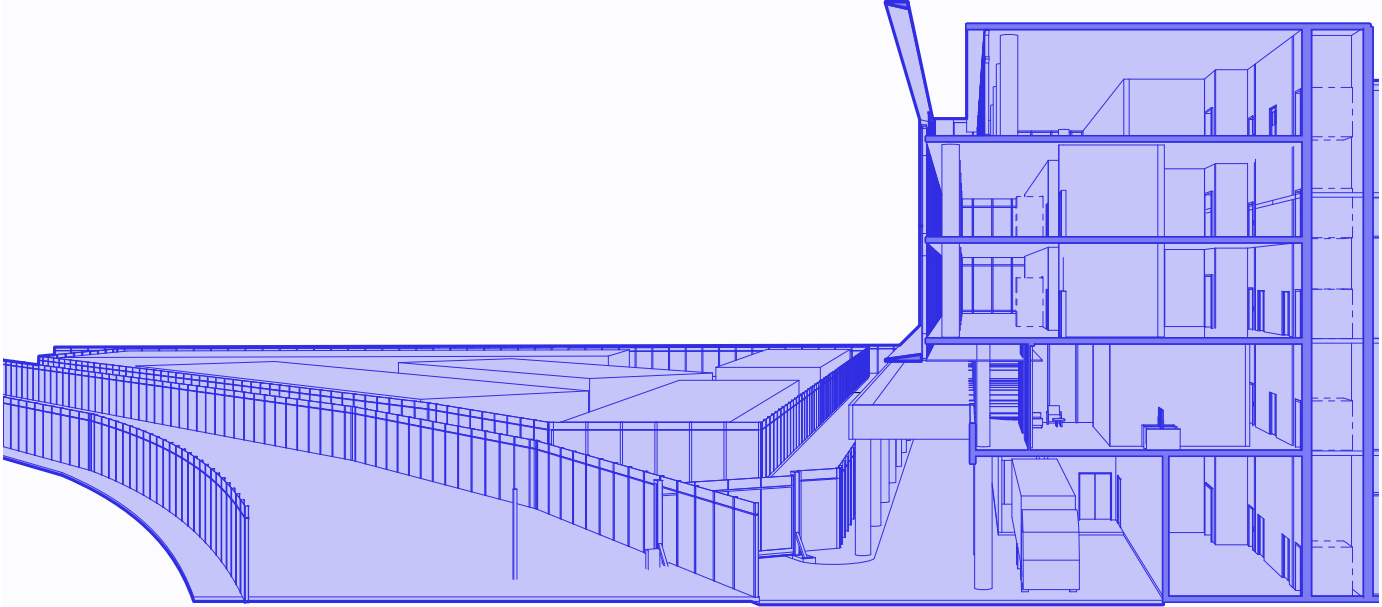
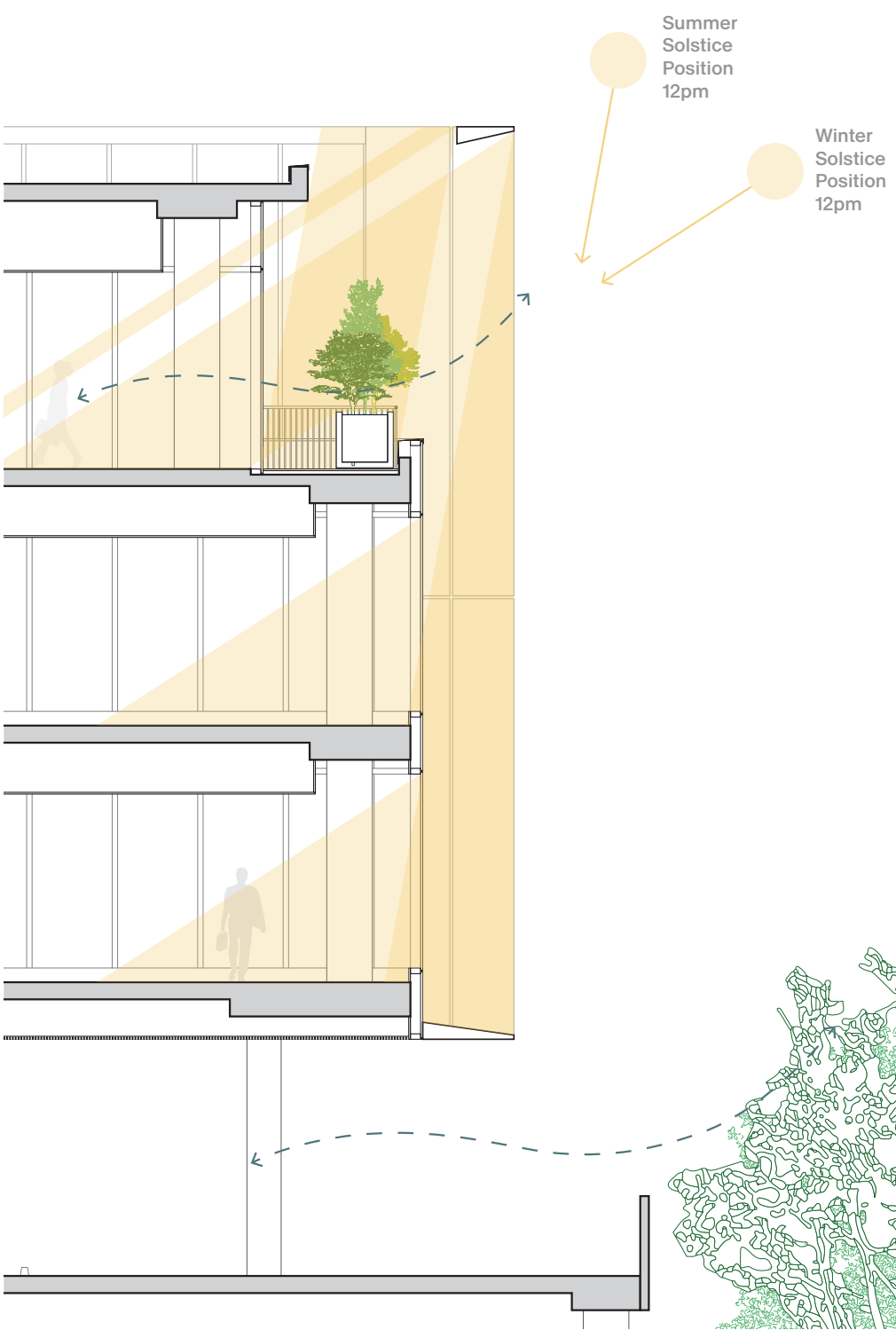
Facade Systems

Section and Diagram

The office facade utilises two different systems, each with their own purpose. The main facade is a unitised curtain wall glazing system, while the screening element of the facade is a prefinished metal cladding system.

The glazed facade has been designed in a way so that each panel is typical across the length of the facade and across levels, minimising the need for specially made panels. Floor to floor heights are kept consistent, meaning panel heights are consistent also. This assists on-site construction speeds and reduces the development's embodied carbon footprint.

Significant consideration has been taken when designing the officed screening facades. Keeping summer sun out of the offices spaces as much as possible while letting in winter sun as much as possible is a design technique that has been used for decades in Australia, and reduces the reliance on building systems by passively heating and cooling the building. As shown in the adjacent diagram, the sun higher in the sky is the position of the sun at 12pm on the Summer Solstice, essentially the worst-case positioning of the sun in summer. Due to the design of the facade, there is very little sun being taken into the office spaces, and instead there is potential to open the rooftop facades to allow for natural ventilation through the office spaces. At the time of the Winter Solstice however, the facade allows daylight to reach deep into the floor plates of the office building, passively heating the building and allowing for a reduction in energy use to heat the building.



Elevations + Materials

External Aesthetic

Clear Frameless Glass

Anti-Reflection and Security Glass

Clear Glass with Light Grey Framing

Light Grey Concrete Finish

Dark Grey Concrete Finish

The office massing is rectilinear in form and composition. There is a clearly expressed built form on the middle levels, with the ground and roof level utilising a more setback, transparent form. This aligns with the security and surveillance measures of the site, with the middle floors requiring a form of visual impedence, the ground floor requiring that transparency for monitoring of vehicles and pedestrians, while the roof level office allows itself to experience the views Erskine Park has to offer.

The building features extensive glazing to the north facade for daylight access, amenity, and outlook. A portal frame wraps the north facade, framing the main frontage and offering shading to the roof terraces.

The proposal utilises two primary glass types - a clear, transparent glass for the ground and roof level; and a anti-reflective, secure filmed glass for the middle levels. The facade system is a unitised curtain wall panel, allowing ease of procurement and replication, maintenance, and durability. The reflective nature of this glass is akin to that of the varying steel materials present in the Erskine Park surrounding context, further cementing the campus' place in the site.



Elevations + Materials

External Aesthetic

- Light Grey Concrete Finish
- Clear Glass with Light Grey Framing
- Anti-Reflection and Security Glass
- Silver Grey Prefinished Steel Cladding
- Dark Grey Concrete Finish

The east and west facades of the office massing link the north facade to the rest of the building. The north facade portal frame is attached to the east and west facade, with the materiality and depth of these facades expressed in a much more prominent manner. The prefinished steel cladding panels align with the precast concrete joints and continue the language of expressive, strong materials through the design. This facade screening becomes a placemaker, crafting a space that belongs to the people using the building.

The east and west facades, while linking the office mass to the data hall mass, also provide a clear deliniation between the two. Vertical elements are continually epxressed through this elevation, whether is be the white circular concrete columns, the vertical shading steel fins, or the vertical precast joints.

The east and west facade system is a system that is readily available, and - like the north facade - is durable and allows ease of maintenance. This facade screening continues the reflective language of the north facade, further establishing that architectural link between them.



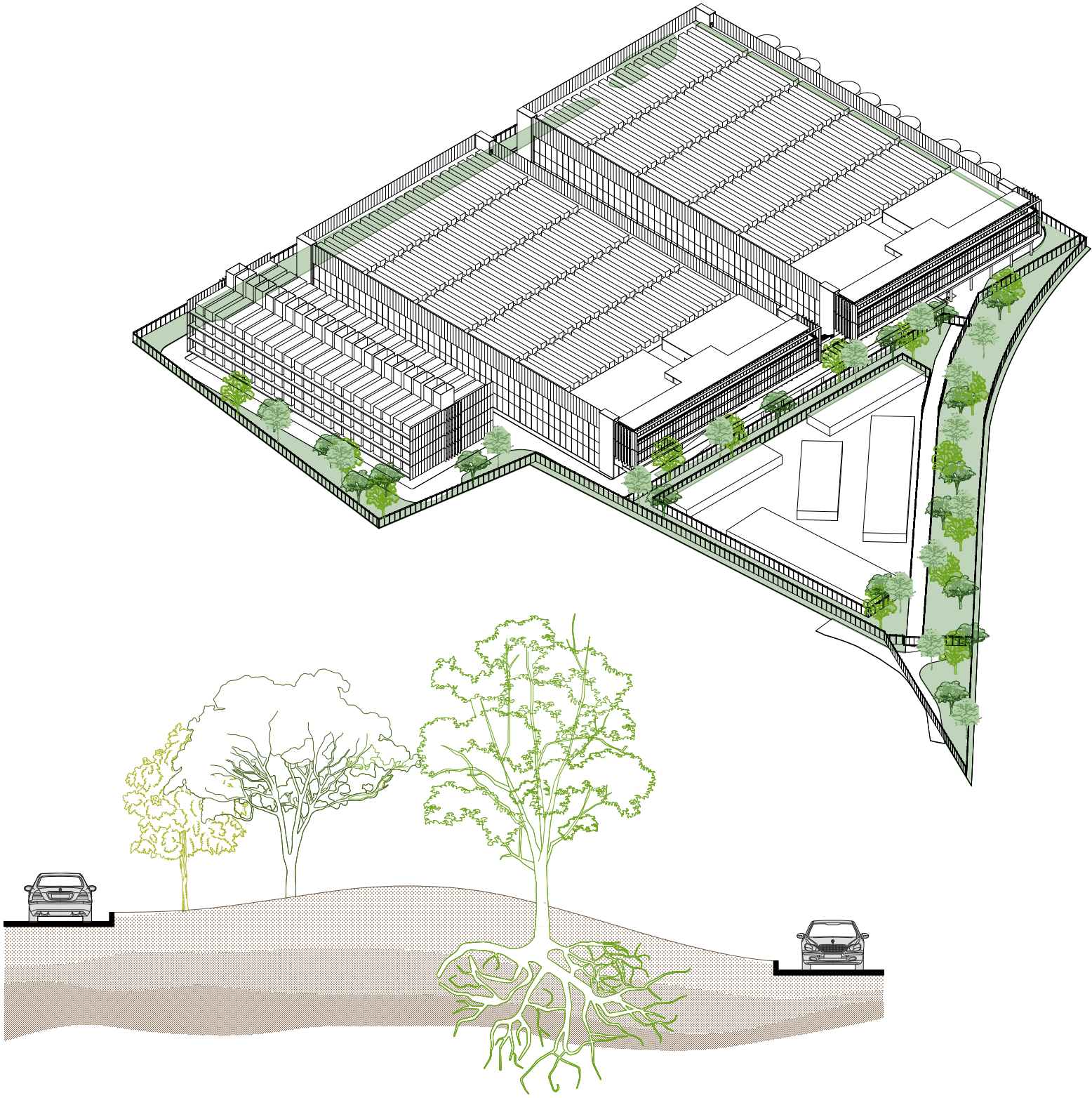
Building + Landscape

Landscape Strategies

The site has no existing trees currently onsite, and as a result, no clearing or removal of trees is required. The site however is very unique, with the land sloping towards the east to an existing waterway adjacent to the land, as well as a four metre high green berm running along almost the entire length of the Lenore Drive boundary.

While there are extremely specific security requirements when it comes to the development, we have proposed to keep and add to the uniqueness of the site, utilising it in a way that benefits the proposal. The green berm will be added to with native planting to help screen the lower ground back-of-house processes that occur at site level. The flora that is found in and around the natural waterways will be extended into the site to improve and strengthen these areas, adding an element of Caring for Country to the development.

There is an opportunity for planting along the rooftop terraces to enhance biophilic design principles, as well as extending the native planting found around the site into the built form. In doing so, it enhances the quality and amenity of the office spaces of the building, with the terraces offering an area for events, gatherings and functions.



Project Frameworks

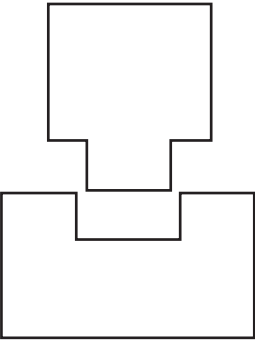
Strategic Planning Frameworks



Better Placed Design Policy – 2017

In compliance with the Planning Secretary’s Environmental Assessment Requirements (SEARS), the development adheres to the following strategic frameworks and statutory controls.

The Better Placed Policy establishes guidelines to achieve good design within the built environment in New South Wales. Good design ultimately creates buildings that are efficient, user friendly and important to people, enjoyable, respectful, and provide additional value to the community and surrounding contexts. The Government Architect New South Wales (GANSW) defines a well-designed building or built environment as being healthy, responsive, integrated, equitable, and resilient.

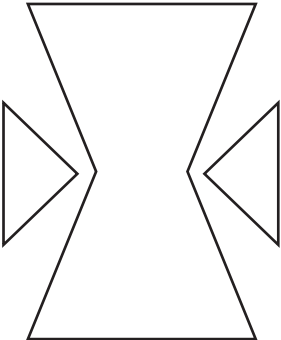


OBJECTIVE 1.

Better fit

Contextual, local and of its place

- The design is derived from the site, its contexts and social landscape, in conjunction with the local histories and ecologies. It serves as an evolving hub for advancement in the Western City District, whilst also acknowledging Country through it’s thoughtful design.
- The proposal has been designed to fit within the Erskine Business Park, within an industrial area defined by the immediate industrial land that has large format warehouses and typologies, allowing the building typology to compliment its surrounding context.
- The proposal responds proactively to its surrounding context and makes a positive contribution to the streetscape, economy, and neighbouring sites, siting and orientating the building in a way that conceals external plant from street view, allowing prominent building elevations and perimeter landscaping to flourish.
- Material selections have been carefully designed to suit the surrounding neighbouring developments, tying the proposal to its context. The quality of building compliments the local character and setting of the site, while meeting technical requirements of the facility.
- The bulk and scale of the proposed campus has been broken down to create a fine-grained architectural response that minimises overshadowing to neighbours, while activating the main Lenore Drive frontage.
- The decision to leave the waterways and the green berm largely untouched and rather extend the native planting species into the site and overall design is a conscious decision in Caring for Country and utilising already effective landscaping strategies of the site, which is turn contributes to the quality and amenity of the immediate context.

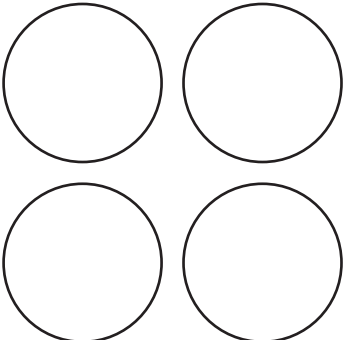


OBJECTIVE 2.

Better performance

Sustainable, adaptable and durable

- Sustainability is a central aspect of functional and whole of life design. The project will achieve an environmentally sustainable response by considering various principles relating to sustainability, adaptability and durability through balancing it’s long building life and infrastructure capabilities with its considered site response.
- Efficient energy systems and efficient construction systems reduce operational costs, operational carbon and embodied carbon.
- The building floor plates have been designed with adaptability in mind, with a large span structural grid allowing future potential floor plate and program reconfiguration.
- The proposal has been designed to minimise waste through construction and during building operation, minimising unnecessary emissions and pollution.
- The proposal has been thoughtfully considered in its material approach, selecting strong, durable materials. The proposal also limits the need for additive elements, utilising pre-finished materials and elements constructed offsite, achieving public interest without increasing embodied carbon.
- The proposal enhances the site surrounding green areas with additional native landscaping, increasing the already rich ecological value of the site.



OBJECTIVE 3.

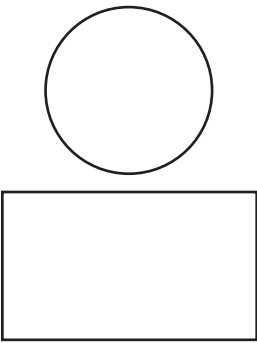
Better for community

Inclusive, connected and diverse

- The proposal of this building typology of the data centre adds to a diverse amalgamation of building types in Erskine Park.
- The proposal provides an essential social and community infrastructure asset that facilitates (both digitally and contextually) the core ideas of social and community connection and inclusivity.
- The building will increase employment and economy to the local community, supporting the social growth of the area.
- Through careful consideration of the north-facing facade and landscaping strategies, the proposal will help activate and uplift the Lenore Drive frontage and soften the overall scale of the campus.

Project Frameworks

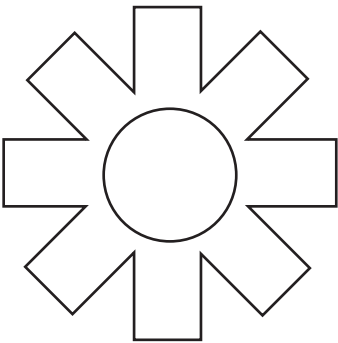
Strategic Planning Frameworks



OBJECTIVE 4.
Better for people

Safe, comfortable and liveable

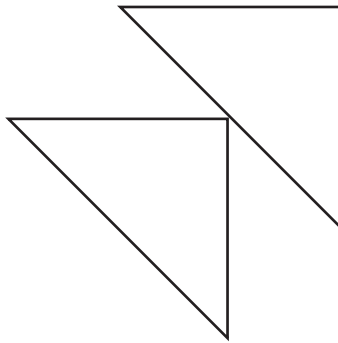
- The building has been designed with a focus in providing the best outcomes for its users and inhabitants, with importance placed on safety, cleanliness and comfort, both operationally and within the workplace.
- The proposal has been designed with clear delineation of site access and movement, with intentional level separation of the ‘front-of-house’ movement of people, and the ‘back-of-house’ movement of goods/ services. This is done through keeping the back-of-house movement hidden on lower ground, while elevating the front-of-house movement to upper ground.
- The office building has been designed to provide high quality working accommodation. This includes excellent access to daylight and views, access to the external rooftop gardens, and clear internal wayfinding and movement. End of Trip facilities have been provided for each building and will contribute to the quality of the occupant and user experience. For staff, having access to better and healthier areas of wellness is central to the design.
- Equipment movement has also been considered within the data halls and supporting facilities, with circulation and access considered greatly in regards to generous clear widths, direct access, and efficiency and visibility.
- For the community, the visual aesthetic of the building contributes to public interest, which is done through considered design moves for the visible facades, as well as landscaped green spaces for native regeneration.



OBJECTIVE 5.
Better working

Functional, efficient fit for purpose

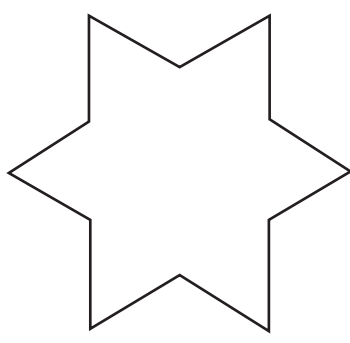
- All aspects of the proposal have been designed to be highly functional, efficient, fit for purpose, and logical. This is evident at both the site level when it comes to site movement, access, and building servicing, through to the planning of internal spaces - offices, plant, and data halls - and through to the design of ESD initiatives.
- While facilities of this nature are typically engineered for functionality alone, this proposal balances the pragmatic with the form, ensuring the proposal can contribute to its place and local community beyond that of a typical data centre. The Erskine Park Logistics Estate allows buildings to work together in providing efficient and productive outcomes, utilising connective infrastructure.



OBJECTIVE 6.
Better value

Creating and adding value

- The building will provide value for the community by providing a piece of infrastructure that is resilient and of long-term value. The design raises the infrastructure standards, both pragmatically and aesthetically, of Erskine Park, and in the future will become the pinnacle of design in the area and beyond.
- The proposal will be a valued investment for the industry and the community, all whilst providing clear employment and economic benefit, both during construction and operation.
- The proposal also encourages sustainable practices, and this focus will provide whole of life value across many fronts.



OBJECTIVE 7.
Better look and feel

Engaging, inviting and attractive

- The proposal provides a high quality and considered architectural response that is reflective of the campus’ primary purpose, while also ensuring there is a clear link and contribution to site and context.
- The proposal stays true to the industrial elements it showcases - concrete, steel and glass - distinctly expressing these elements in their truest form. There is a deeply articulated primary frontage that is not only environmentally performative, but also visually engaging.
- The overall volume and massing of the building has been set well back from the site boundary in most cases, including new landscape zones and extending already existing landscape zones to soften the streetscape and enhance the quality of experience of the development.
- The development supports Caring for Country principles in its design and use, embedding knowledge and paying respect to the site’s First occupants. The extension of landscapes and waterways ensures continuation of heritage and Aboriginal culture.

04

Landscape + Sustainability

Sustainability Initiatives

Framework Guide

Site Potential + Climate

Western Sydney has extremely unique climatic patterns that can be utilised to reduce reliance on building systems when creating architectural environments. Orientating the office mass to the north of the site and continuing the office facades to the east and the west ensures maximised opportunities for daylight access. The northern facade has been designed with shading in mind, and has been carefully curated with vertical and horizontal elements to allow winter sun to reach into the spaces as much as possible, while screening summer sun to minimise reliance on HVAC systems. There is minimal site disturbance proposed, with the site levels aligning to existing site form rather than cutting away, and no existing buildings or trees onsite meaning less invasive manoeuvres - beneficial from a Caring for Country perspective - and less of a carbon footprint during construction.

Construction + Operation

In an attempt to link the campus to it's place, the proposal utilises materials true to their nature and true to their context. The materials and facade systems selected are primarily prefabricated, seeing a reduction in embodied carbon and overall construction periods by preparing and constructing elements off-site before delivering to site. During operation, the facility employs liquid cooling technology, ensuring a greater capacity in a smaller floor plate size.

Indoor Environmental Quality

As outlined prior, there are several strategies the proposal establishes in order to utilise the site's climatic conditions to passively service the campus. As an added benefit, utilising these passive strategies also contributes to the quality and amenity of the offices, enhancing indoor environmental quality and human health of occupants. Allowing winter sun to filter through to the offices while blocking summer sun enhances the overall thermal quality of these spaces, while providing key views out of the building can further improve occupant satisfaction and productivity, while also reducing ill health. Having access to external spaces and greenery through biophilic design has also been shown to improve occupant satisfaction and office amenity. This greenery can act as a natural sunlight filter and fresh air filter, reducing the impact of air pollutants, noise, and harsh sun. Preference will be given through the proposal for all paints, adhesives, and sealants to have low Volatile Organic Compound (VOC) emissions.

Built Form + Design

The proposal also incorporates several sustainability initiatives such as EV parking spaces for each building, End of Trip facilities and bicycle parking for each building, photovoltaic array systems on each building's roof level, rainwater collection and reuse, and LED lighting and high efficiency plumbing fixtures.

Image: 3D Photorealistic Render of Rooftop Office Terrace Spaces



Landscape Design

Landscape Masterplan

As touched on earlier, the site is completely clear of trees and so no invasive removal or demolition of trees on site is required.

There is an extremely generous setback of landscaping to the north of the site along the Lenore Drive boundary, which has been filled with native grasses and plants, all while ensuring alignment with the campus' strict security requirements. There are also planting setbacks to the east and the south of the site, with a soft landscaping setback to the west. The east landscaped zone extends the native planting strategy found in and around the waterways into the site, while the south landscaped zone assists with screening the development from Lockwood Road.

The rooftop office floor also includes a generous amount of planting within the setback terraced area, drawing the landscape into the building to really ground the proposal, and enhancing elements of biophilic design.

Further details of the landscape design strategies can be found in the Landscape Drawings part of the submission.



SITE BOUNDARY

4100mm HT. SECURITY PERIMETER FENCE TO ARCHITECT'S DETAILS

PROPOSED TREE PLANTING REFER TO PLANT SCHEDULE

MASS PLANTING BEDS REFER TO PLANT SCHEDULE

TURF AREA

PAVED / TILED SURFACE TO FUTURE DETAIL

CONCRETE SURFACE TO FUTURE DETAIL

CONCRETE EDGING

STEEL EDGING AROUND TREE PLANTING

EASEMENT FOR DRAINAGE

EASEMENT FOR OVERHEAD POWERLINES

EASEMENT FOR UNDERGROUND CABLES

UNDERGROUND ELECTRICAL LINES

GRAVEL SURFACE

LENORE DR

ROPE CREEK

LOCKWOOD ROAD

1

2

3

4

5

6

7

8

9

10

11

12

GREENER PLACES PRINCIPLES

PRINCIPLE 1: Integration

combine green infrastructure with urban development and grey infrastructure

PRINCIPLE 2: Connectivity

create an interconnected network of open space

PRINCIPLE 3: Multifunctionality

deliver multiple ecosystem services simultaneously

NSW GREENER PLACES POLICY (GAO 2020)

TREE CANOPY COVER

TREE NO.	TREE CANOPY	CANOPY AREA (m²)	TOTAL CANOPY COVER (m²)
32	3m	7	224
59	6m	28	1652
46	8m	50	2300
60	10m	78	4680

TOTAL SITE AREA

77,241.97 m²

TOTAL TREE NO.

197

TOTAL SQM CANOPY COVER

8,856 m²

TOTAL CANOPY COVER PERCENTAGE

11.46%

DCP REQUIREMENT

10.00%

DESIGN NOTES

1. SITE ENTRY FEATURE

• Feature tree (@5m OC) and shrub planting

2. EASEMENT PLANTING (LENORE DRIVE SETBACK)

• Canopy trees with non-invasive root systems (15m ht-20m ht + @10m OC) To Bushfire Management Spacing

• Native grasses and groundcovers

3. OVERFLOW LAND ZONE

• Small canopy trees

• Grasses and groundcovers

• Rows of screening shrubs on sides of fence (2-3m HT)

4. BOUNDARY BUFFER PLANTING (TREES: 15m HT+)

6. CAR ENTRY / EXIT

7. EASEMENT PLANTING (DETENTION POND)

• Native grasses and groundcovers

8. GENSET - 22 STACKS OF SIDE BY SIDE QUADRUPLLET STACKED GENS=170

9. FLOOD CORRIDOR (VEGETATED RIPARIAN ZONE)

• Native grasses and groundcovers

• Canopy trees (Endemic) To Bushfire Management Guidelines

10. RAMP TO UPPER GROUND CARPARK

11. EASEMENT PLANTING (DRAINAGE)

• Native grasses and groundcovers

12. BOUNDARY PLANTING

• Hedge planting

• Grasses and groundcovers

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Architectural Design Report | Page 42

05

Built Form Analysis

GFA + Area Schedule

Total Areas

Summary

Gross Floor Area (GFA) is defined within the standard LEP instrument as the following:

Gross floor area means the sum of the floor area of each floor of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and includes—

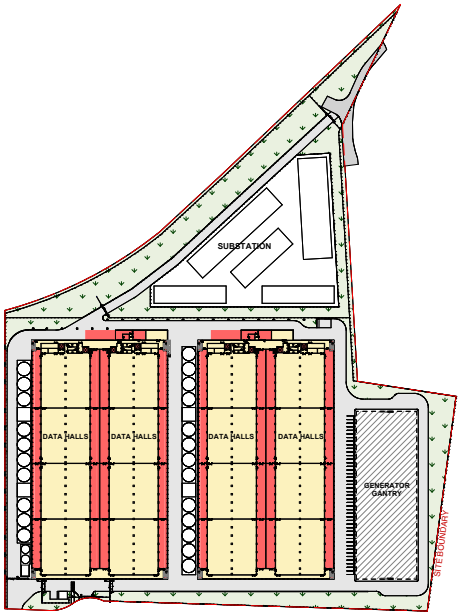
- the area of a mezzanine, and
- habitable rooms in a basement or an attic, and
- any shop, auditorium, cinema, and the like, in a basement or attic,

but excludes—

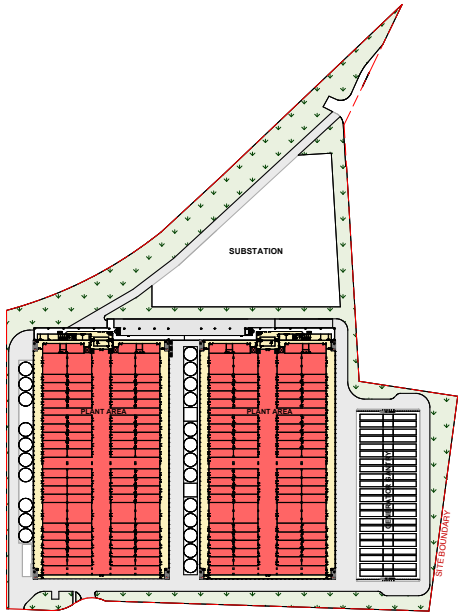
- any area for common vertical circulation, such as lifts and stairs, and
- any basement—
- storage, and
- vehicular access, loading areas, garbage and services, and
- plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
- car parking to meet any requirements of the consent authority (including access to that car parking), and
- any space used for the loading or unloading of goods (including access to it), and
- terraces and balconies with outer walls less than 1.4 metres high, and
- voids above a floor at the level of a storey or storey above.

In the plan diagrams on this page, the yellow highlights the areas included in the GFA calculation, while the red highlights those areas excluded.

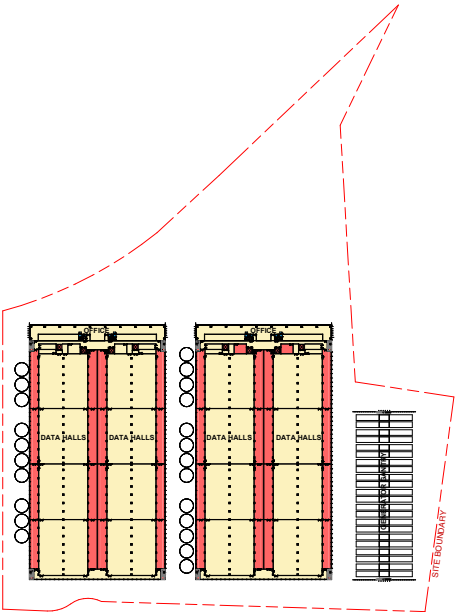
The proposal's GFA sits at 55,651 m², which is a GFA ratio of 0.72:1.



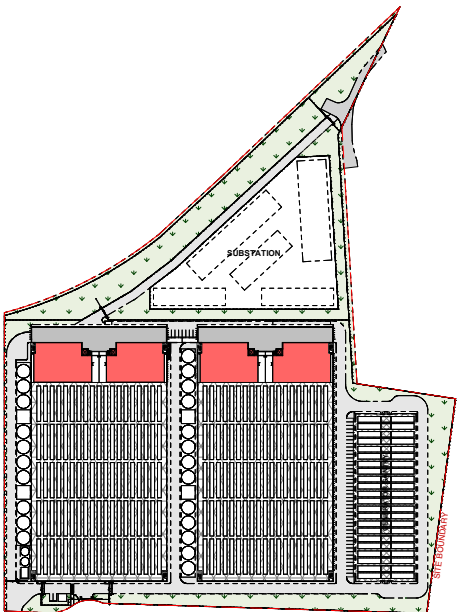
Lower Ground GFA Plan



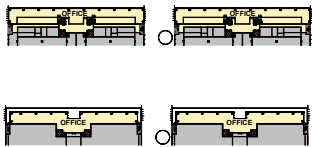
Upper Ground GFA Plan



Level 1 GFA Plan



Level Roof GFA Plan

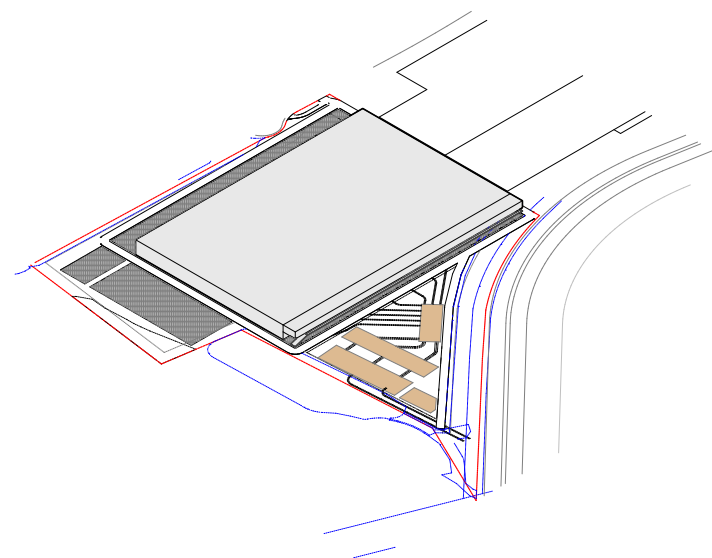


Level 2 and Level Office Roof GFA Plans



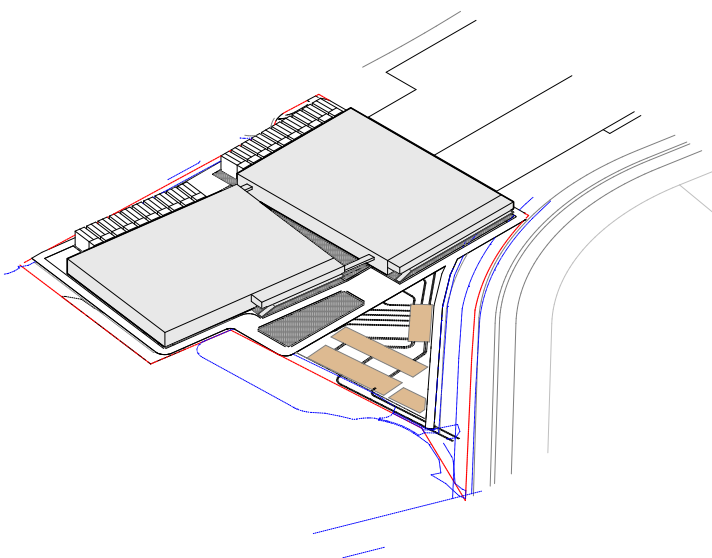
Site Design Response

Previous Massing Options



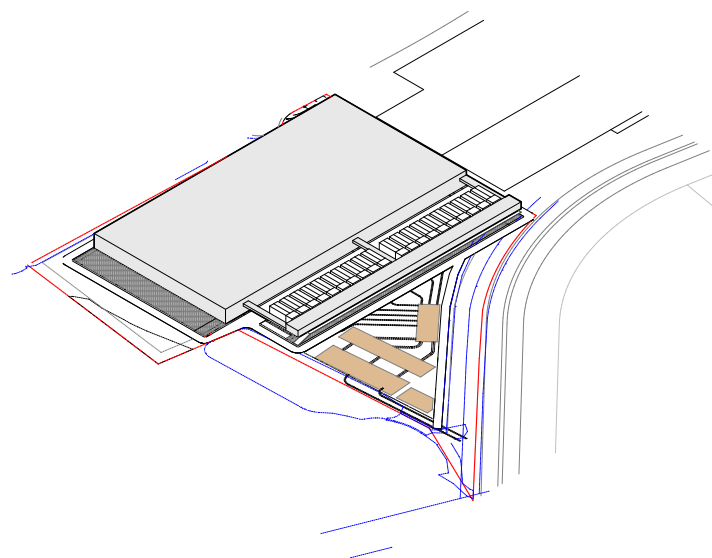
Option 1

A massing proposal with potential, however there are clashes with the road and the green berm in the north west corner, and space is restricted in the south east corner with entrances to the site. The overall site also feels heavy with the design as one mass, with the elevations reading as quite bulky throughout the design.



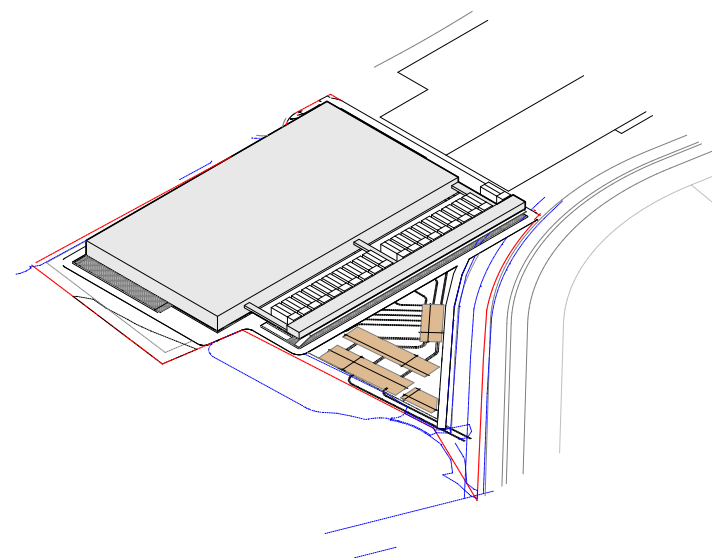
Option 2

These buildings begin to align with the boundaries of the site a little more efficiently, however there is still a similar issue with clashes of the road and the green berm in the north west, and restricted space in the south west. The east building also falls in the flood affected area of the site, which would cause potential difficulties in construction to mitigate effects. The positioning of these buildings however does creat a nice parking forecourt in the north east.



Option 3

This proposal splits the office mass from the data hall mass in an attempt to utilise the south east corner of the site more efficiently. The office still screens the generators and data hall building. What results is a much more efficient use of the site spatially, however the facility as a whole becomes less efficient due to the split of form. There are unfortunately the same clashes that arise in Option 1 and 2 - clashes to the north west with the green berm, and tightness to the south west with site entries.



Option 4

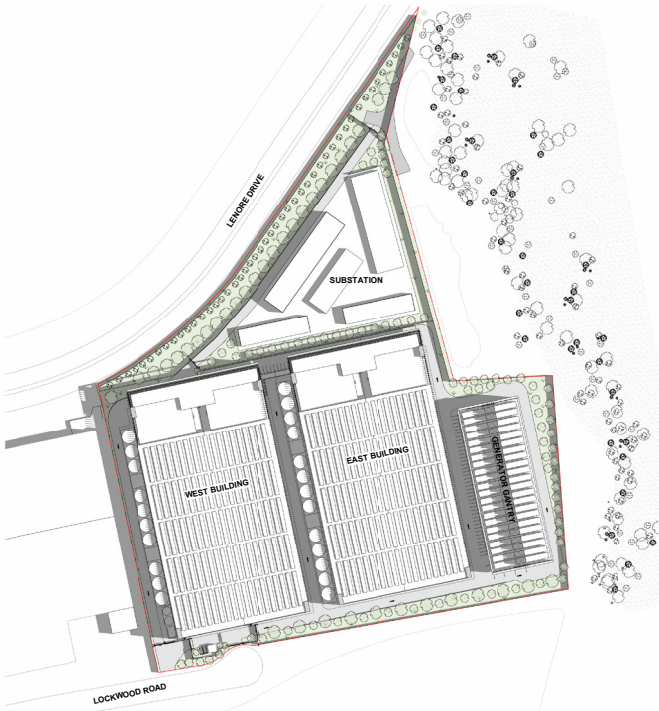
This proposal is similar to Option 3, however it attempt to alleviate some of the clashes to the north west and south west by positioning the data hall building further towards the east boundary, gaining some space in the north west and south west corners. The office still screens the generators and the majority of the data hall building, but again, like Option 3, the facility unfortunately becomes less efficient due to the split of form.

Shadow Diagrams

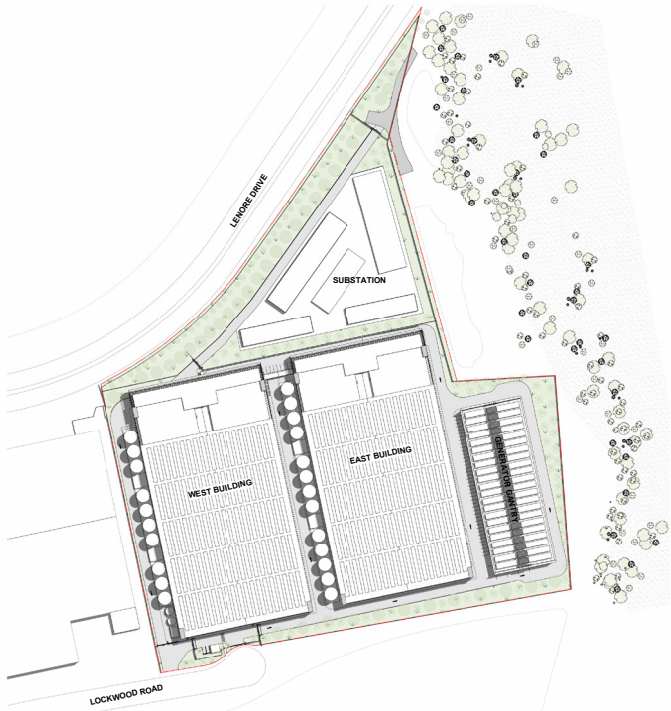
Overshadowing Studies

When looking at the site, there is only one close neighbour to the east. To the west, there is an adjacent waterway and bushland; to the north is a main road, and to the south is a road and an adjacent neighbouring building. As seen in these diagrams, the main overshadowing effects of the development - as minor as they are - are on the western neighbouring building, and will only occur from sunrise to mid-morning. By 12pm in both summer and winter, the development no longer casts a shadow on the neighbouring building. There is also a service road between the building and the site's boundary, which is also overshadowed in the morning only.

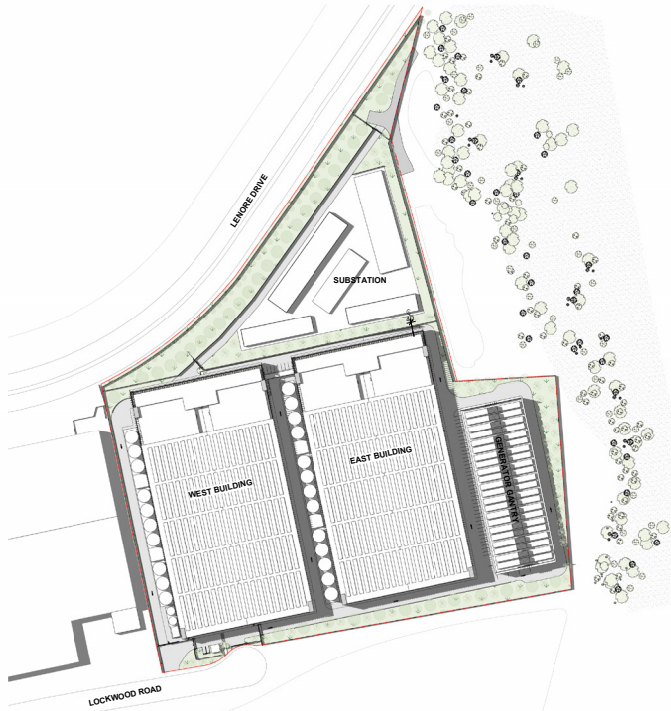
Most of the campus' overshadowing is contained within the site in summer, and occurs primarily to the south in winter, overshadowing Lockwood Road. The diagrams show very little overshadowing effect on the greater Eskrine Business Park context.



Summer Solstice (21st December) - 9am



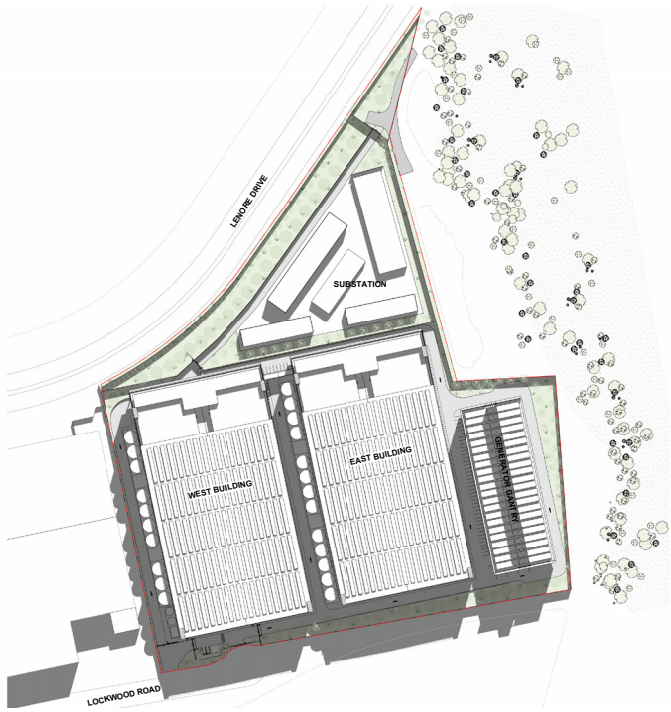
Summer Solstice (21st December) - 12pm



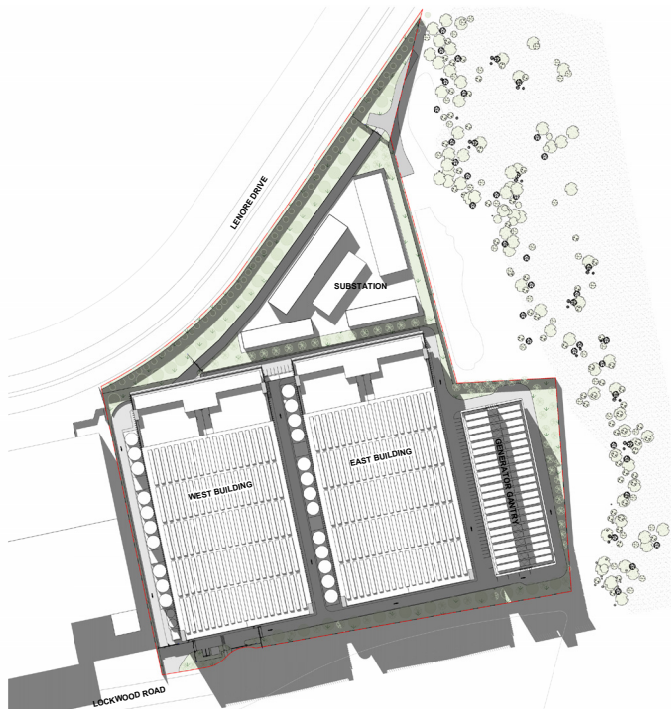
Summer Solstice (21st December) - 3pm



Winter Solstice (21st June) - 9am



Winter Solstice (21st June) - 12pm



Winter Solstice (21st June) - 3pm





Genton acknowledges the Australian Aboriginal and Torres Strait Islander people of this nation. We acknowledge the traditional custodians of the lands on which our company is located and where we conduct our business. We pay our respects to ancestors and Elders, past and present.

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