

Project Pluto, McCredie Road Data Centre SSDA Architectural Design Report

Prepared for Goodman
23rd April 2025



Acknowledgment of Country

We acknowledge the Traditional Custodians of the land and pay our respects to Elders past, present and future. We honour Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to our society.

Executive Summary

This Architectural Design Report has been prepared by Greenbox Architecture to accompany a State Significant Development Application (SSDA) for a Data Centre Development.



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Project Overview

Project Overview

Project Introduction

This Architectural Design Report has been prepared by Greenbox Architecture on behalf of Goodman Group to accompany a State Significant Development Application (SSDA) for a data centre development.

The site is located at 132 McCredie Rd, Guildford West within the Cumberland Council Local Government Area (LGA), approximately 28.7km west of the Sydney CBD. The area subject of the data centre development is 71,710sqm (legally described as Part Lot 1 DP 596315).

The project comprises the construction of a data centre development, including the following key components:

- Site preparation works including, bulk excavation and removal of existing hard standing and structures on the site, tree and vegetation clearing, and bulk earthworks;
- Construction, fit out and operation of a data centre with a maximum height of 26.5m (RL 46,070) and total gross floor area of 29,444 m²
- Comprising at-grade parking for 53 car parking spaces and 2 accessible car parking spaces, two loading dock spaces, two levels of technical data hall floor space with incorporating a total of nine data halls, ancillary office space located on the ground floor.
- Provision of required utilities, including: underground fuel storage, two switch-rooms, four industrial water storage tanks
- Vehicle entry and egress driveways located along McCredie Road
- Internal access road
- Associated landscaping and site servicing
- Installation of services and drainage infrastructure



Aerial view of site location

Legend:

--- Site location



Project Overview

Project Introduction

Descriptor	Project Details
Project Area	The subject site has an area of 71,710sqm
Proposed Use	Data centre with ancillary office space.
Project Description	<ul style="list-style-type: none"> <input type="checkbox"/> Construction, fit out and operation of a data centre with a maximum building height of 25.5m and a maximum flue height of 26.5m (RL 46,070) and total gross floor area of 29,444 m². <input type="checkbox"/> Comprising at-grade parking for 53 car parking spaces and 2 accessible car parking spaces, two loading dock spaces, two levels of technical data hall floor space with incorporating a total of nine data halls, ancillary office space located on the ground floor. <input type="checkbox"/> Provision of required utilities, including: underground fuel storage , two switch-rooms, four industrial water storage tanks <input type="checkbox"/> Vehicle entry and egress driveways located along McCredie Road <input type="checkbox"/> Internal access road <input type="checkbox"/> Associated landscaping and site servicing <input type="checkbox"/> Installation of services and drainage infrastructure
Gross Floor Area	29,444 sqm
Building Height	25.5 metres (with a maximum flue height of 26.5 metres) over three storeys
Data Houses	9 data halls
Car Parking	55 car spaces including 2 DDA spaces
Utilities	Provision of required utilities including: <ul style="list-style-type: none"> <input type="checkbox"/> 67 x diesel generators + 1 house generator <input type="checkbox"/> 10 x above-ground diesel storage tanks <input type="checkbox"/> 4 x above-ground water tanks for industrial water <input type="checkbox"/> 3 x above-ground water tank for fire water <input type="checkbox"/> 2 x switching stations.
Operations and Management	The facility will be operated on a 24-hour, 7 day a week basis.

Project Overview

Response to SEARs

This report has been prepared in response to the requirements contained within the Secretary’s Environmental Assessment Requirements (SEARs) dated 4th April 2024 issued for the SSDA (SSD-69223466 Project Pluto Data Centre). Specifically, this report has been prepared to respond to the SEARS requirement issued below.

Item	Description of Requirement	Section Reference (this Report)
<p>4. Built Form and Urban Design</p> <p>Part 4 of the key issues and documentation section of the Planning Secretary’s Environmental Assessment Requirements.</p> <p>“identify design options considered during the iterative process and demonstrate the proposed development has been optimised to provide an integrated built-form design and to minimise amenity impacts by having regard to the relevant evaluation criteria in the Government Architect’s <i>Better Placed</i> design policy.”</p>	Explain and illustrate the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach.	Refer Section 03 - Built Form and Design Strategies
	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.	Refer Section 03 - Built Form and Design Strategies
	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.	Refer Section 03 - Built Form and Design Strategies Refer Section 4.3 - Facade Design and Materiality
	Demonstrate how the development will achieve good design in accordance with the seven objectives for good design in Better Placed.	Refer Section 05 - Design Response to GANSW
	Assess how the development complies with the relevant accessibility requirements.	Refer Accessibility Report

Site Context and Analysis

Site Context and Analysis

Regional Context



Aerial view of Greater Sydney

Legend:

- Site
- Parramatta CBD
- Sydney CBD
- Sydney Airport

Site Context and Analysis

Local Context

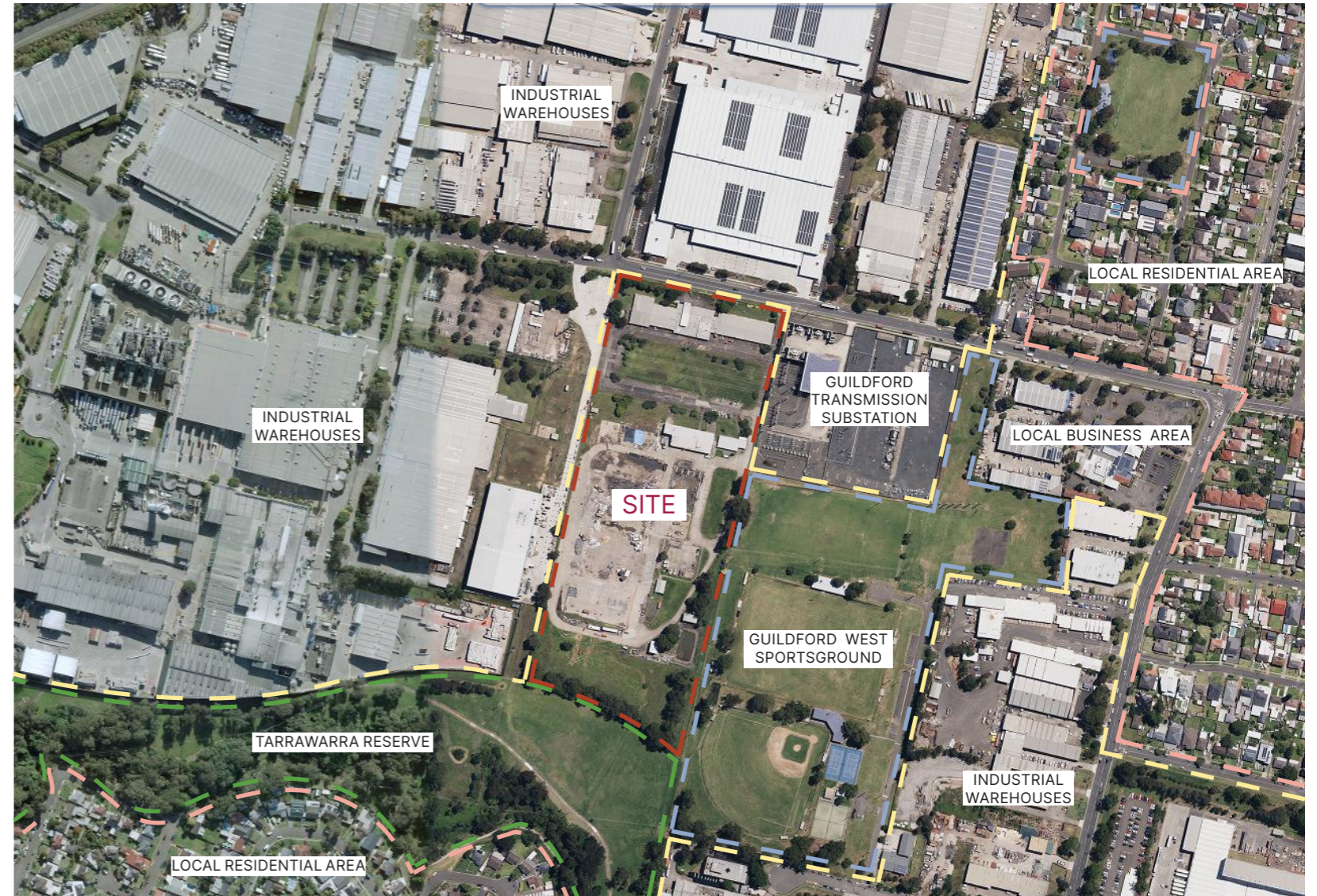
This page gives an overview of the local context.

To the south, of the site is a nature reserve, offering a green, open space that serves as a key recreational area for the local community. This reserve is frequently used by residents for activities such as walking, jogging, running, and informal gatherings. The proximity of this natural area enhances the local amenity and contributes to the area's overall appeal.

On the western and northern sides, of the site, industrial buildings dominate the streetscape, reflecting the area's mixed-use character. These buildings house various businesses, contributing to the economic activity of the surrounding precinct. The industrial nature of these areas creates a contrast with the quieter, residential and recreational zones nearby.

The eastern boundary of the site, which does not front a public street, directly adjoins the Guildford West Sports ground. This private recreational facility provides additional amenities to the community, including sports fields and courts. The sports ground is actively used for both organised sports and casual recreational activities, making it a valuable community asset.

The northern boundary of the site, faces McCredie Road, a key local thoroughfare that connects various residential, commercial, and industrial areas. This frontage provides important vehicular and pedestrian access to the site, influencing site planning and design considerations. McCredie Road's role as a connecting route enhances the accessibility of the site, further contributing to its strategic significance within the local context.



Aerial view of site location

Legend:

- Site
- Tarrawarra Reserve
- Local Residential Area
- Local sports ground
- Industrial area

Site Context and Analysis

Site Description

The subject site is approximately 71,710 square meters and features a rectangular shape oriented in a north-south direction. Located in the suburb of Guildford West, it shares its eastern boundary with the suburb of Guildford West.

The site's terrain is primarily characterised by small shrubs and grasses, creating a natural and somewhat open landscape. Along the boundaries of the site, there are larger trees and landscaping features that contribute to its visual appeal and provide a buffer from surrounding areas.

Site Zoning and Use

According to the Cumberland Local Environmental Plan (LEP) 2021, the subject site is located within Zone E4 General Industrial zone.

Extracted from the Cumberland LEP 2021, following is the list of permitted and prohibited use within this zone:

2. Permitted without consent

Nil

3. Permitted with consent

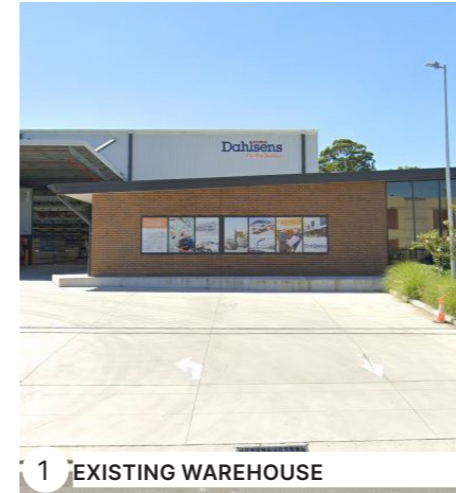
Centre-based child care facilities; Depots; Food and drink premises; Freight transport facilities; Garden centers; General industries; Goods repair and reuse premises; Hardware and building supplies; Industrial retail outlets; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Liquid fuel depots; Local distribution premises; Markets; Neighbourhood shops; Oyster aquaculture; Plant nurseries; Rural supplies; School-based child care; Take away food and drink premises; Tank-based aquaculture; Timber yards; Warehouse or distribution centres; Any other development not specified in item 2 or 4

Site Context and Analysis

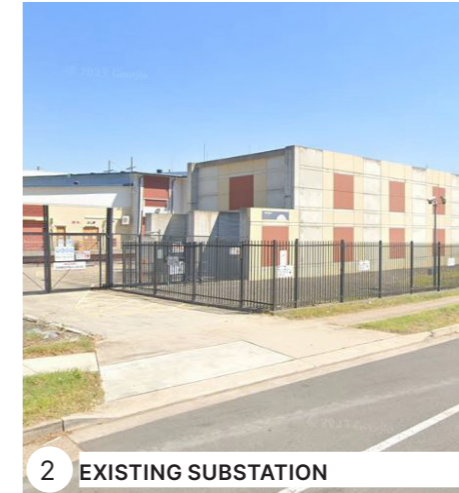
Existing Character



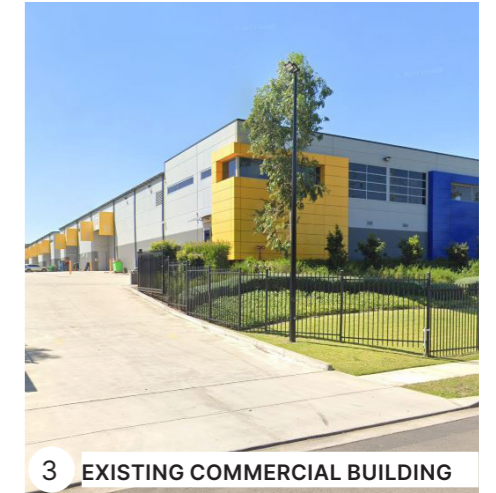
Aerial view of site location



1 EXISTING WAREHOUSE



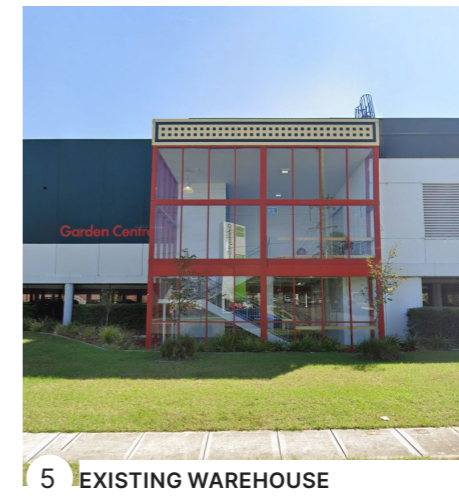
2 EXISTING SUBSTATION



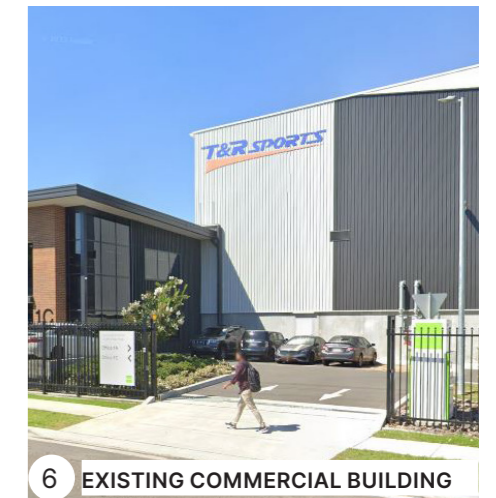
3 EXISTING COMMERCIAL BUILDING



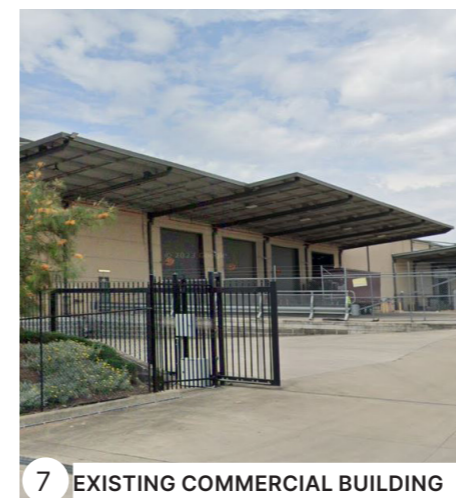
4 BASEBALL FIELD



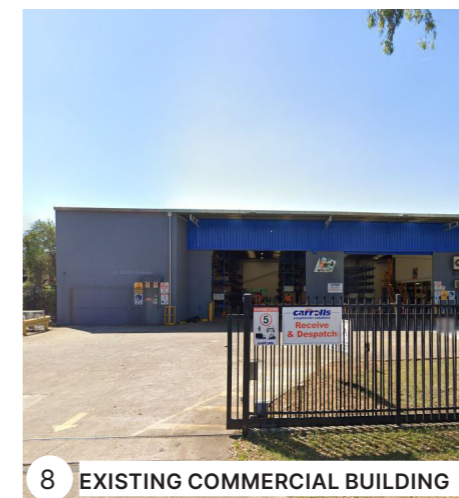
5 EXISTING WAREHOUSE



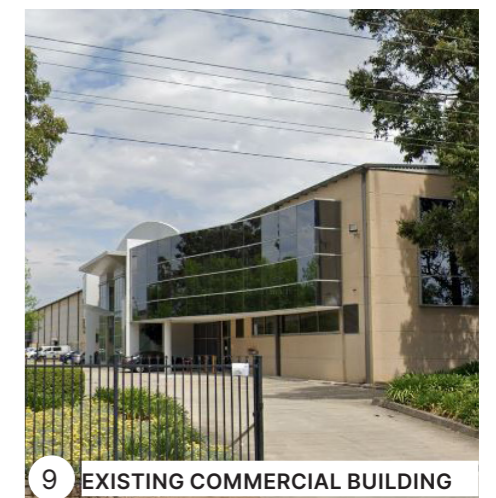
6 EXISTING COMMERCIAL BUILDING



7 EXISTING COMMERCIAL BUILDING



8 EXISTING COMMERCIAL BUILDING



9 EXISTING COMMERCIAL BUILDING

Site Context and Analysis

Surrounding Site Views



Aerial view of site location

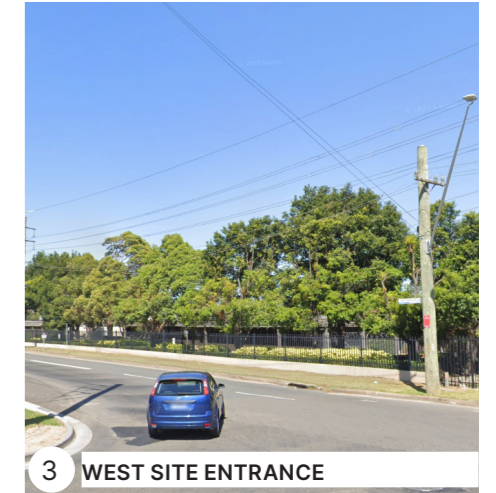
--> Key Views



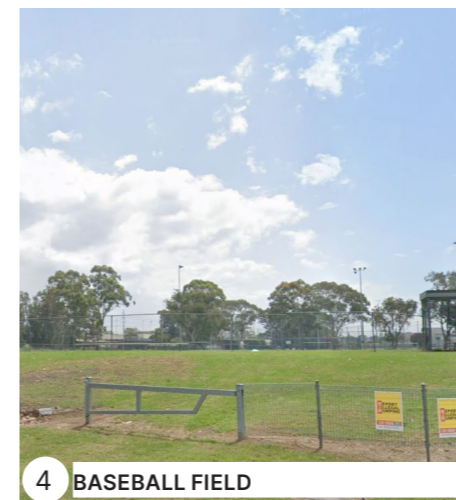
1 SITE ENTRANCE



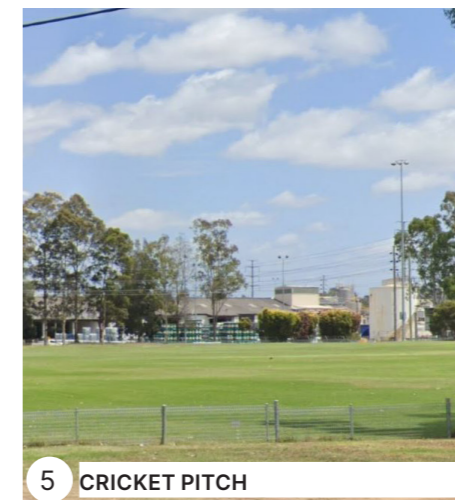
2 HEMINGWAY RESERVE



3 WEST SITE ENTRANCE



4 BASEBALL FIELD



5 CRICKET PITCH



6 SOCCER FIELD



7 INTERSECTION

Site Context and Analysis

Internal Site Views

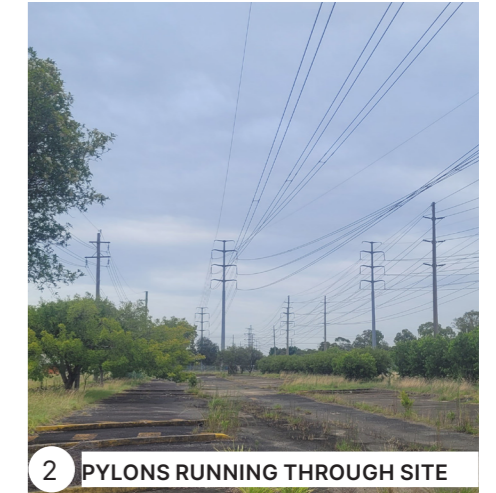


Aerial view of site location

Dominating substation with cables overhead



1 ADJACENT SUBSTATION WITH CABLES



2 PYLONS RUNNING THROUGH SITE

Industry overgrown



3 PIPES OVERGROWN



4 BARBED WIRE FENCE

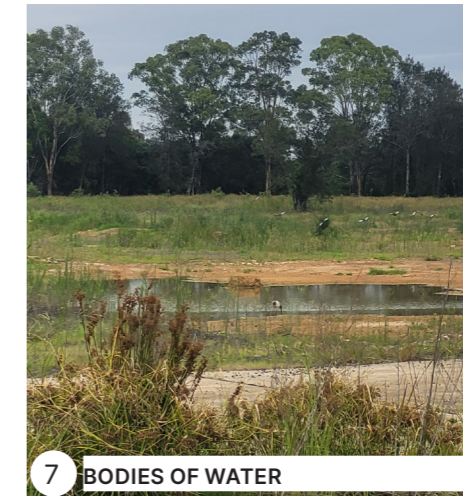


5 CONCRETE PODIUM

Layering of the site



6 CONCRETE SLABS ON SITE



7 BODIES OF WATER



8 CONCRETE, SHRUBS, TREES

Site Context and Analysis

Internal Site Elevations

EXISTING SUBSTATION

SPORTS FIELD 2

SPORTS FIELD 1



View of the eastern boundary of the site

NEIGHBOURING INDUSTRIAL ESTATE

PYLONS



View of the western boundary of the site

Site Context and Analysis

Existing Site Condition

The site has a gentle slope from north to south, with an overall fall of approximately 4 meters between the northern and southern boundaries.

Along the eastern edge, is a swale zone—a carefully engineered landscape feature designed to manage stormwater runoff. Unlike traditional drainage systems, a swale incorporates a gentle, often vegetated, slope. Its purpose is to slow down and filter water, making it a critical natural response to overland flooding.

Legend:

--- Site location



Water basin

--- 4m fall in site



Site Context and Analysis




Solar and Wind Analysis

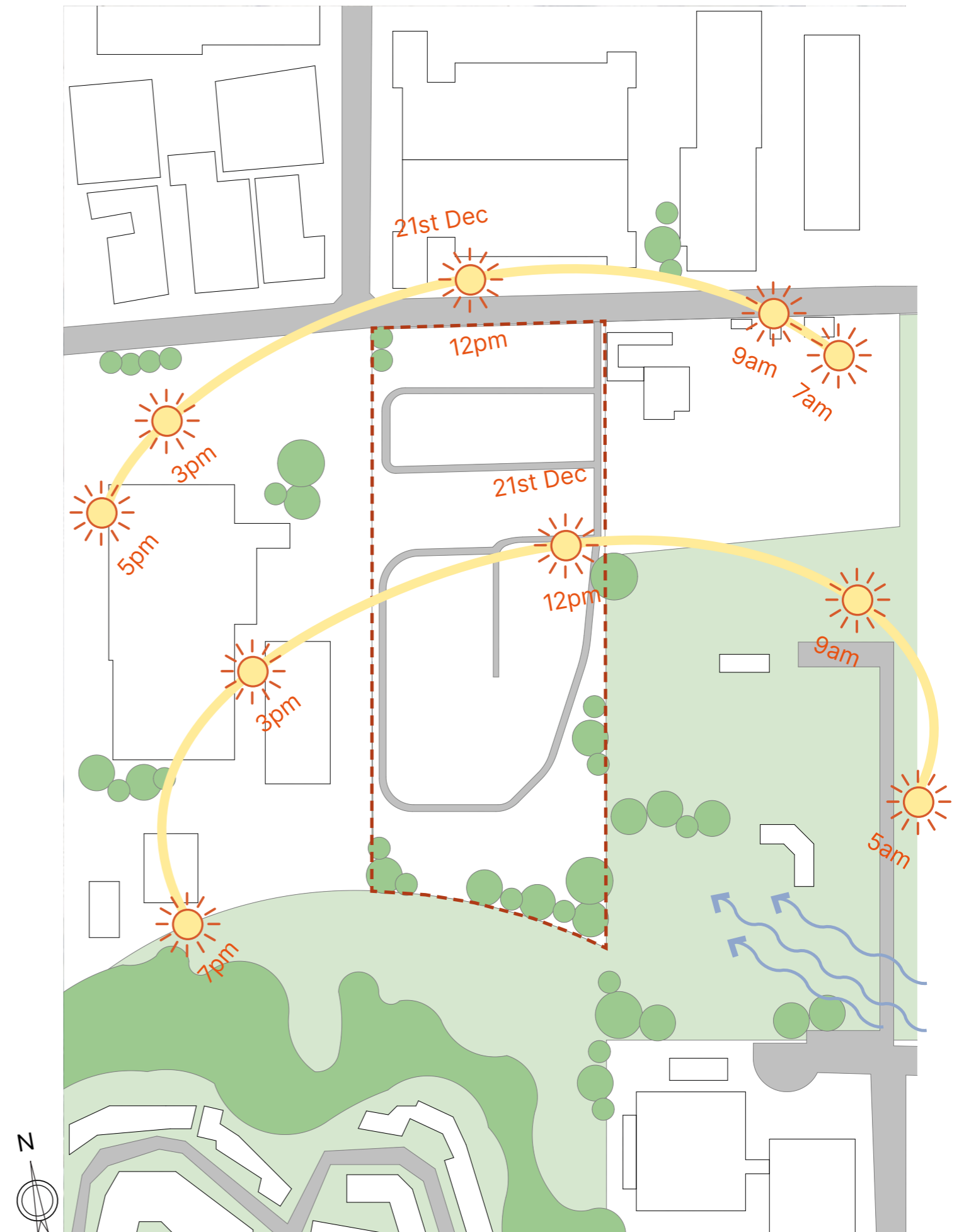
Solar Analysis: The office and front-of-house components are north-facing to maximise natural daylight, reduce heating and cooling costs, and enhance energy efficiency. This orientation improves occupant comfort, supports passive solar design, and integrates well with sustainability goals.

Wind Analysis: Guildford West experiences eastern and southeastern winds in summer and western and northwestern winds in winter. The site's flat topography means minimal wind disruption, allowing the design to optimise natural ventilation and microclimate adaptability.

Overall, the solar and wind analysis has shaped a sustainable, energy-efficient design that enhances comfort and environmental performance.

Legend:

-  Site location
-  Sunpath
-  Prevailing wind



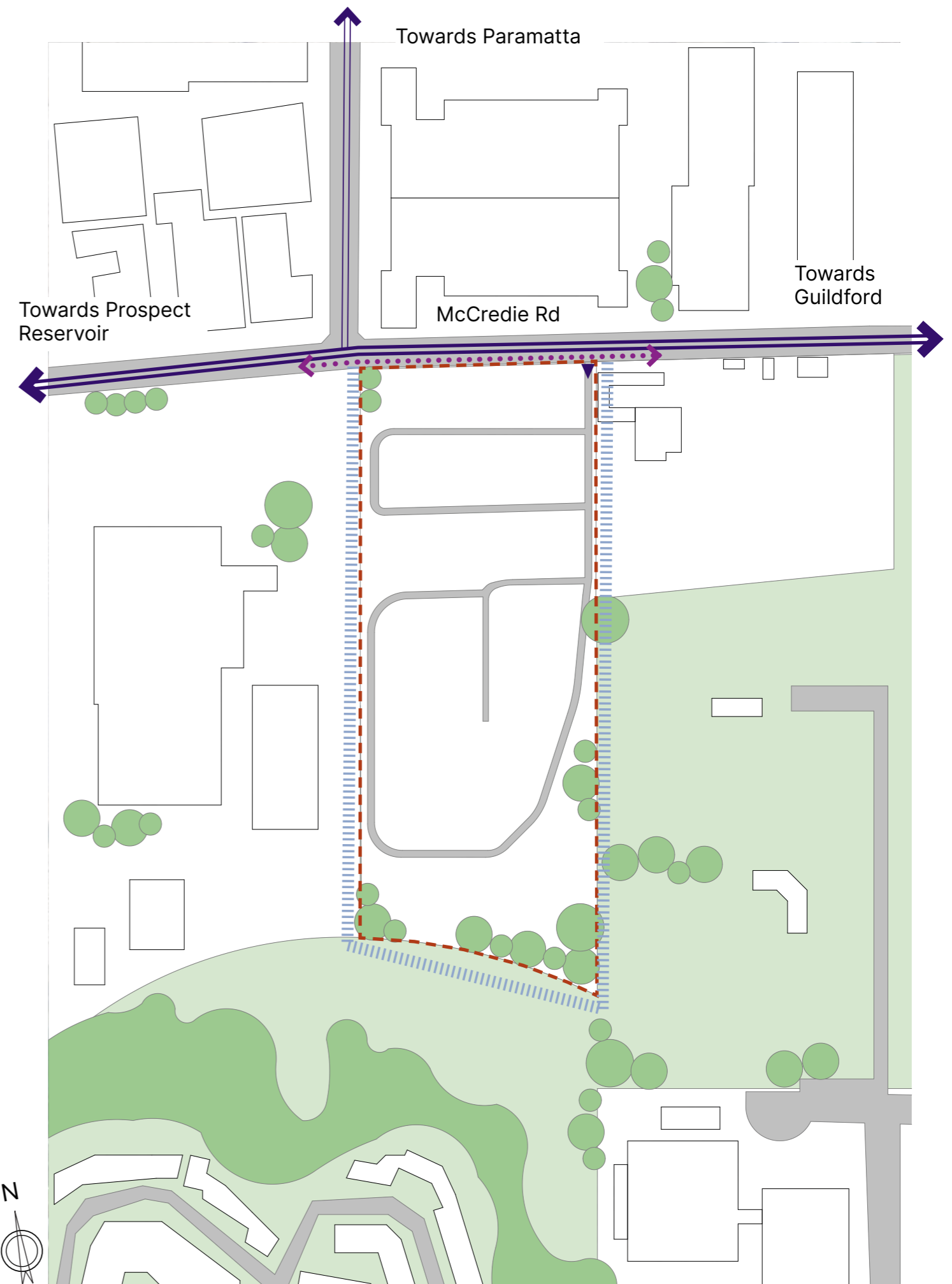
Site Context and Analysis

Access

The main vehicle entry at the northeast corner of the site ensures efficient access from McCredie Road, accommodating large vehicles while maintaining security and functionality. A security truck trap and rejection bay allow for thorough vehicle screening before entry, enhancing safety without disrupting operations.

A dedicated fire brigade access road around the building perimeter ensures emergency response capability, with an additional emergency entry at the northwest corner providing alternative access if needed.

The design integrates landscaping and aesthetics, incorporating buffer planting, security fencing, and screening to blend functionality with the surrounding environment.



Legend:

- - - - - Site location
- ||||| Prohibited access to site
- ↔ Main road link
- ▶ Site access
- ⋯ Pedestrian access

Site Context and Analysis

Greenery and Biodiversity

The nature reserve located to the south of the subject site is classified under the Environmental Conservation (E2) zone according to the Cumberland Local Environmental Plan (LEP) 2021. This zoning designation is intended to protect areas with significant environmental value, including native vegetation, wildlife habitats, and ecosystems that contribute to biodiversity within the region. The Environmental Conservation zone places stringent controls on development, prohibiting activities that could potentially degrade or harm the natural integrity of the reserve. This includes restrictions on clearing vegetation, altering natural landforms, or introducing structures that may impact the area's ecological balance.

The zoning also aligns with broader conservation strategies aimed at preserving green corridors, which are essential for maintaining the movement of wildlife and sustaining ecological networks across urban and suburban landscapes. The nature reserve plays an important role in providing a natural buffer between developed areas and supporting local flora and fauna, contributing to the overall environmental health of the region.

The current development proposal does not involve any activities or works that would disturb or encroach upon the nature reserve. The design and planning of the project have taken into consideration the proximity of this environmentally sensitive area to ensure that its biodiversity and ecological value remain protected. Measures will be implemented to manage construction impacts, such as controlling noise, dust, and runoff, to further ensure that the reserve's integrity is maintained throughout the project lifecycle.



Site Context and Analysis

Critical Views and Sensitive Receivers

The primary viewpoints towards the subject site are from McCredie Road, as well as from the adjacent Guildford West Sports ground and the nearby nature reserve to the south. These areas provide significant open spaces that offer clear and prominent views of the site.

Legend:



Site location



Key building aspect



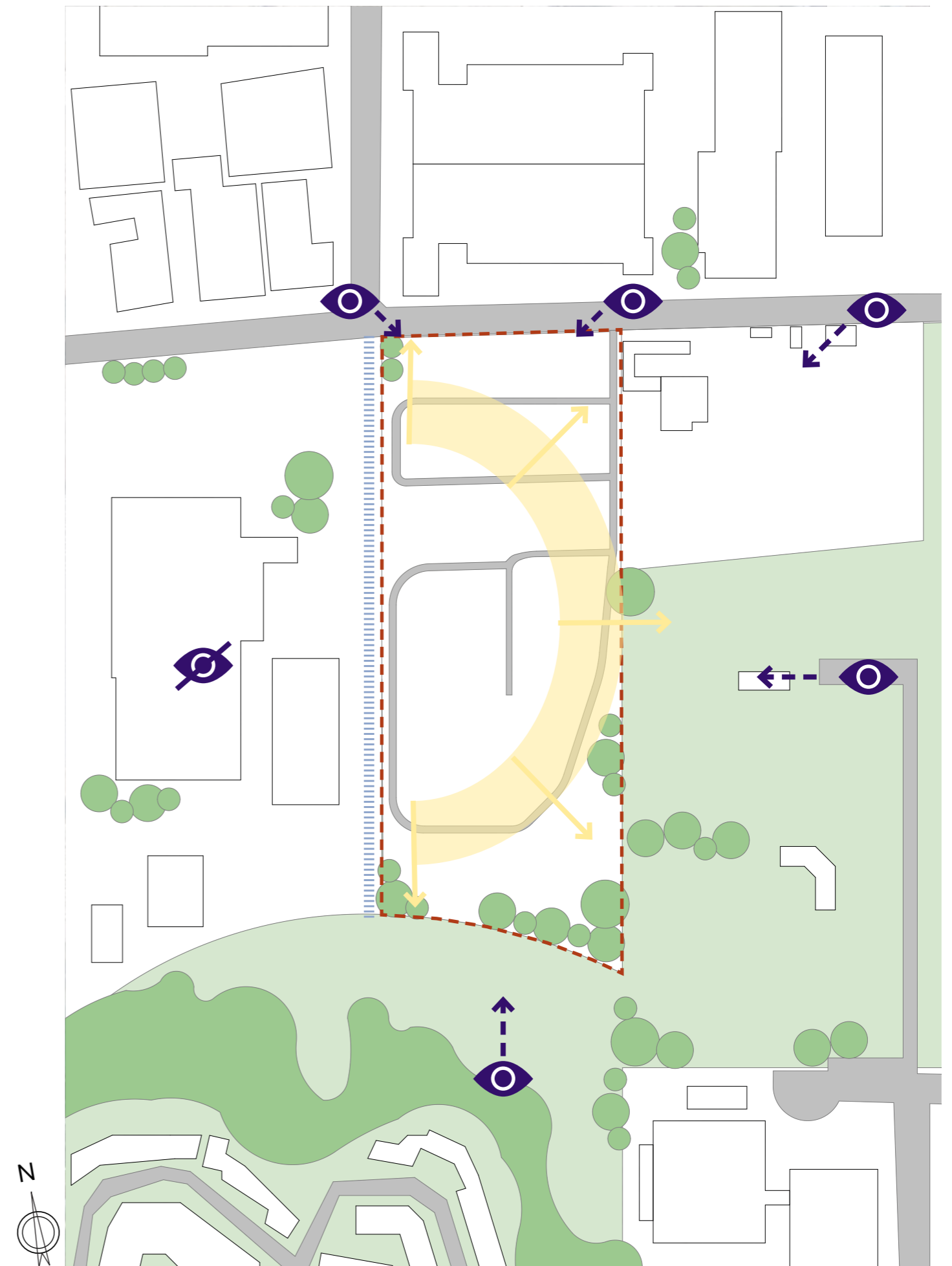
Sensitive receivers



Secondary aspect



Secondary facade



Site Context and Analysis

Easements and Setbacks

Mandatory Setbacks:

A mandatory 5m street setback is maintained, including a 3m deep landscape zone. Front setbacks will not be used for storage or for the displaying of goods. Additionally, these setback zones will not be utilised for excessive signage, or for the loading or unloading of goods.

Additional applicable controls are as follows:





- For side boundaries adjacent to non-industrial zones other than residential, a building setback of 4m is required. The minimum width of landscaping within this setback must be 2m.
- For rear boundaries adjacent to non-industrial zones other than residential, a setback of 4m is also required, with a minimum width of landscaping within this setback of 2m.

Endeavour Energy Powerline Easement:

An easement runs across the site from east to west, providing space for electrical transmission lines and two transmission line support towers. The easement has a depth of approximately 70 meters, and regulations prohibit any building envelope or structures within this zone. Low-level landscaping, car parking and access roadways are permissible in this zone, and as such will be utilised accordingly.

This area also accommodates a proposed OSD basin. The basin is effectively a trench in the ground that supports excessive water in the event of flooding. It is proposed to be vegetated appropriately and will cleverly form part of the overall landscape design.

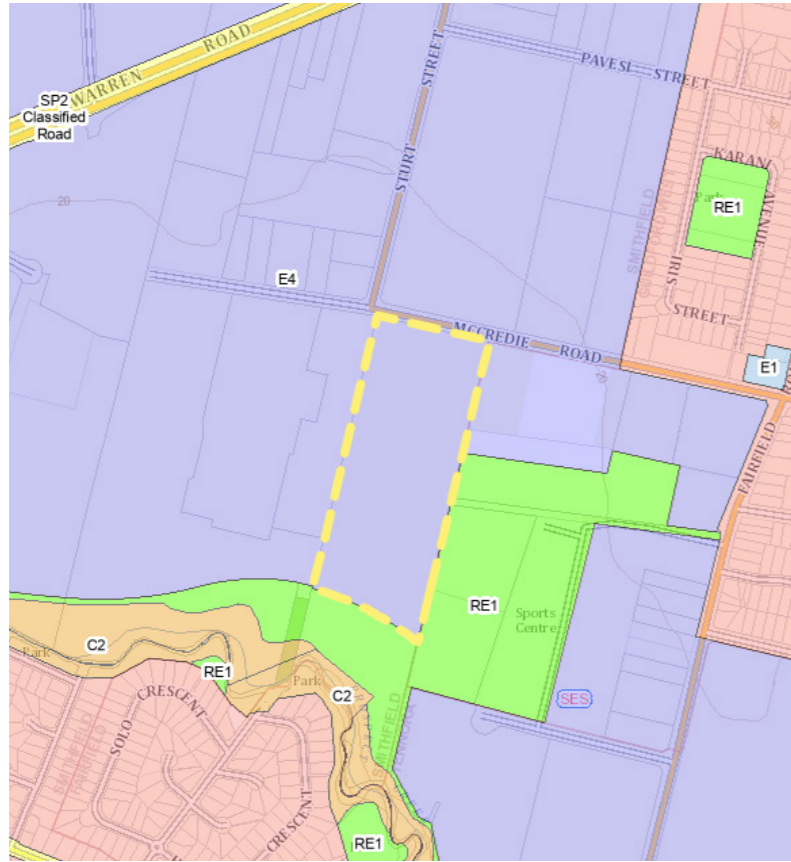
Legend:

- | | | | |
|---|----------------------|--|---------------|
|  | Site location |  | Easement zone |
|  | 2m Landscape setback | | |
|  | 4m Building setback | | |



Site Context and Analysis

Planning Controls



Land Zoning

- R2 - Low Density Residential
- RE1 - Public Recreation
- E4 - General Industrial
- E1 - Local Centre
- C2 - Environmental Conservation;
C2, Environmental Management



Floor Space Ratio (FSR)

- 0.45 - 0.49



Building Height

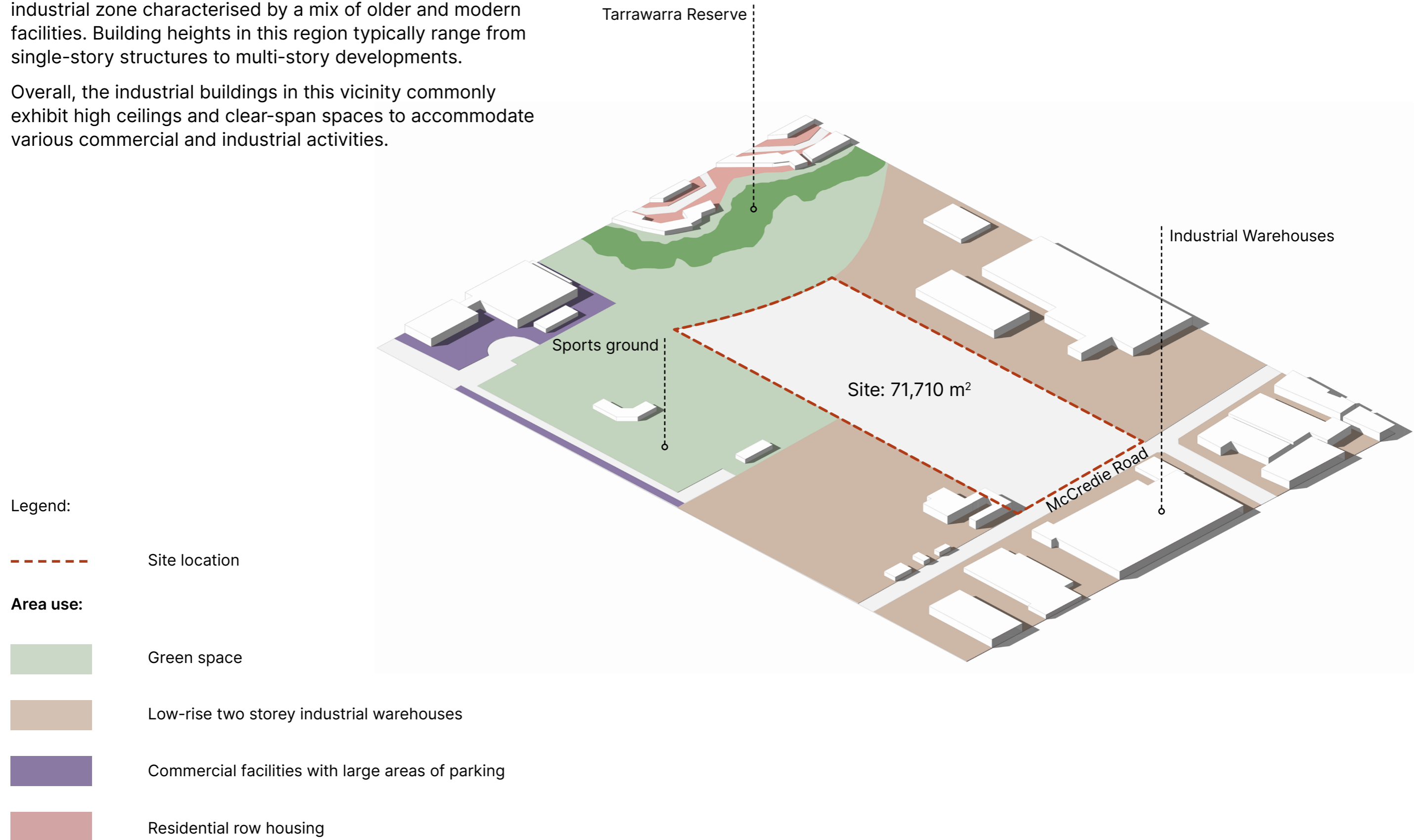
- 9 - 9.9 m

Site Context and Analysis

Surrounding Heights & Uses

The area surrounding 132 McCredie Road is primarily an industrial zone characterised by a mix of older and modern facilities. Building heights in this region typically range from single-story structures to multi-story developments.

Overall, the industrial buildings in this vicinity commonly exhibit high ceilings and clear-span spaces to accommodate various commercial and industrial activities.



Built Form and Design Strategies

Built Form and Design Strategies

Site Constraints and Opportunities

Opportunities:

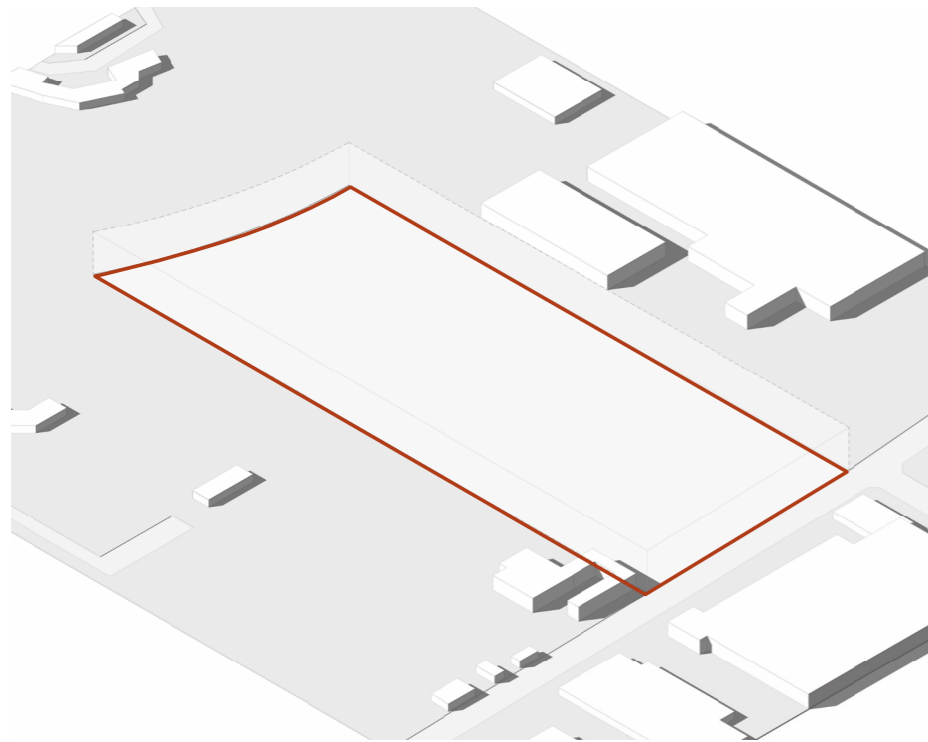
- Strategic Location: Guildford West is well-placed for a large Data Centre due to its proximity to major infrastructure, transport links, and access to reliable power and network connectivity.
 - Industrial Context: The existing industrial development to the west and north provides compatibility with large-scale commercial and technological developments, minimising land-use conflicts.
 - Site Size & Flexibility: The available land allows for a scalable, modular design to accommodate evolving data centre needs.
 - Natural Vegetation & Buffering: The established vegetation along the eastern and southern boundaries can provide a natural buffer, reducing visual and noise impacts on adjacent areas.
-

Constraints & Considerations:

- Southern Views: Critical views from the nature reserve to the south are to be managed through landscaping, screening, or architectural treatments.
- Eastern Views: The sports field to the east presents another visual sensitivity, necessitating careful massing, façade treatments, and vegetation buffers to minimise intrusion.
- Environmental Protection: Construction and operational impacts on surrounding vegetation are to be mitigated to preserve ecological values and avoid disruption to the site's natural features.

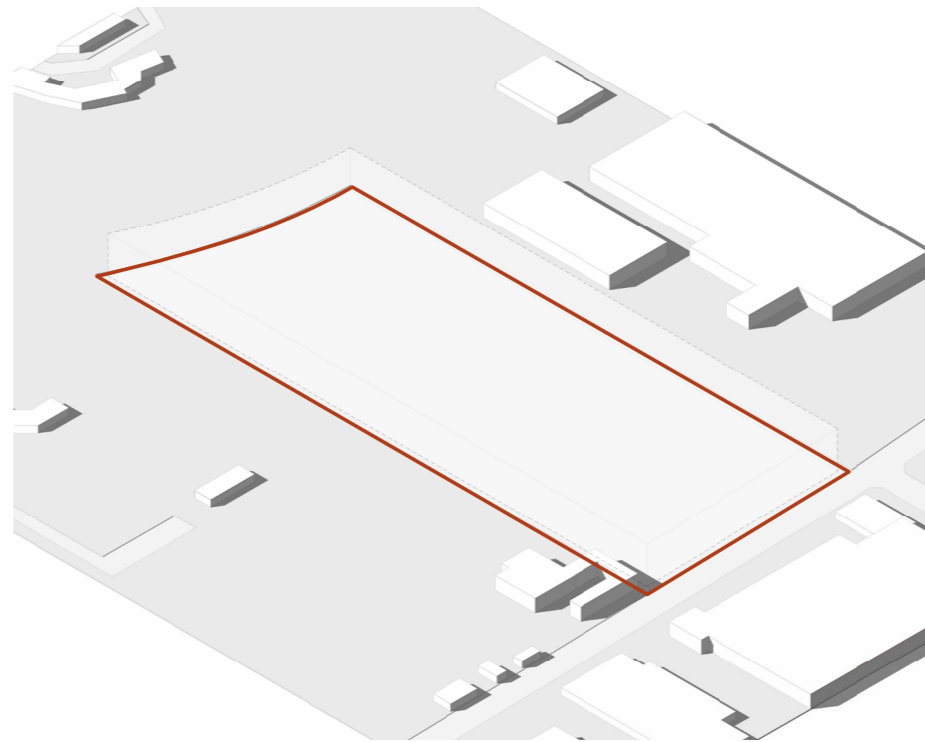
Built Form and Design Strategies

Building Massing



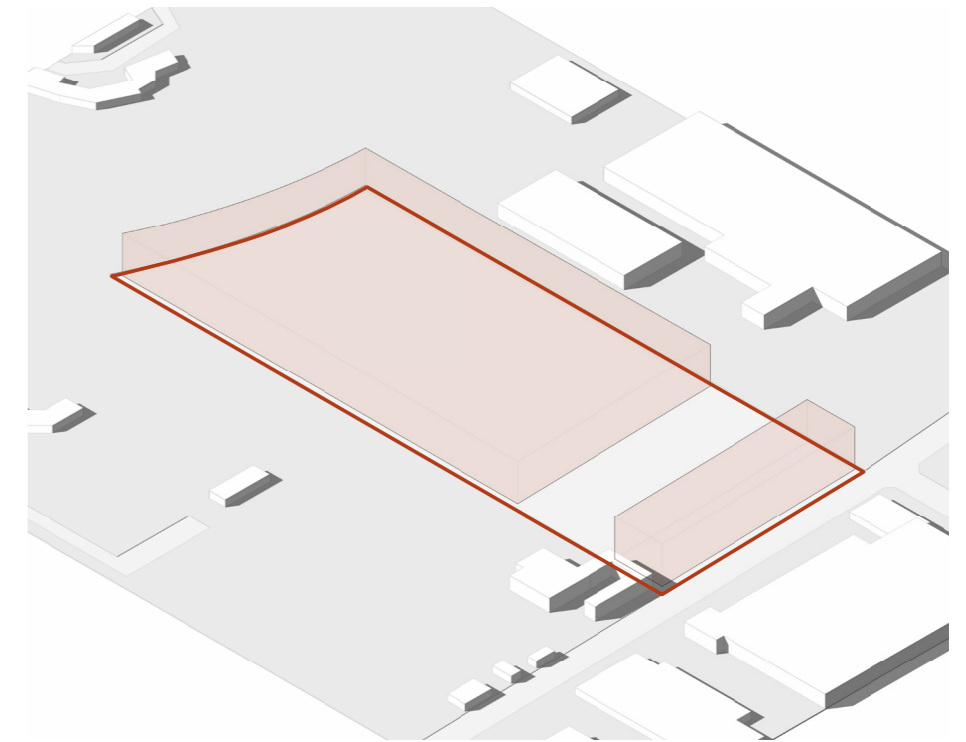
1. Site

Site boundary is indicated in red outline with opaque box showing maximum envelope.



2. Site with DCP setbacks applied

DCP setbacks of 4m from boundary edge are applied.



3. Site with DCP setbacks and easements

Existing easements are taking into consideration - the opaque red box indicates where the building mass can be place.

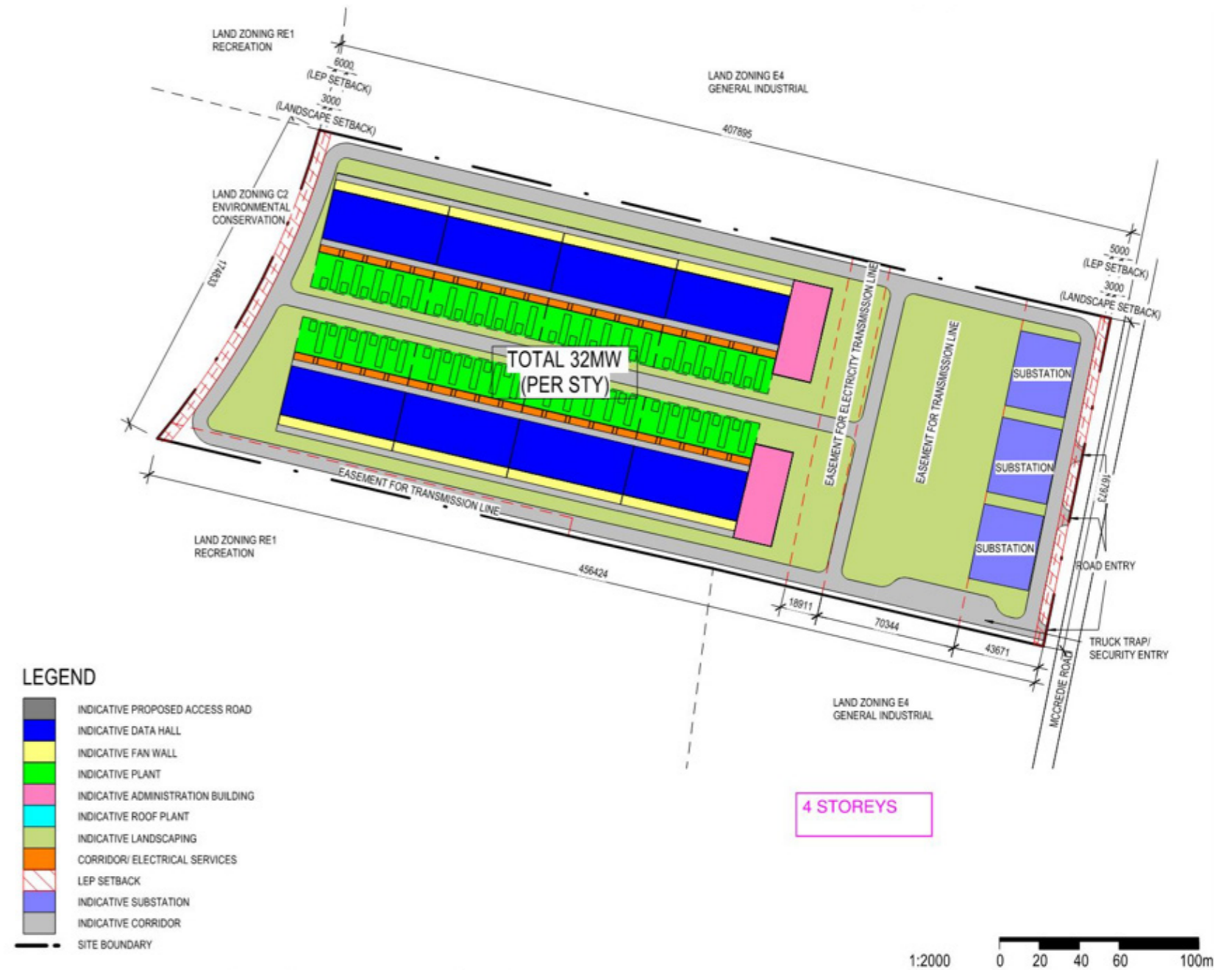
The Proposal

Design Evolution

Original Test Fit Proposal

The initial concept began with two separate buildings planned as a footprint test-fit within the subject site. Each building involved an accessway on all four sides. The initial design included generator/ service gantries that presented to the internal accessway. Further development of this plan revealed an internal congestion that prohibited the craning of generators into the gantry spaces.

The substation was proposed at the northern section of the site. It was nominated for its strategic placement to optimise the efficiency of supplying electrical power infrastructure to the site. In this process, the funWater basinental requirements such as setbacks and easements are accounted for.



Site plan of original test fit proposal

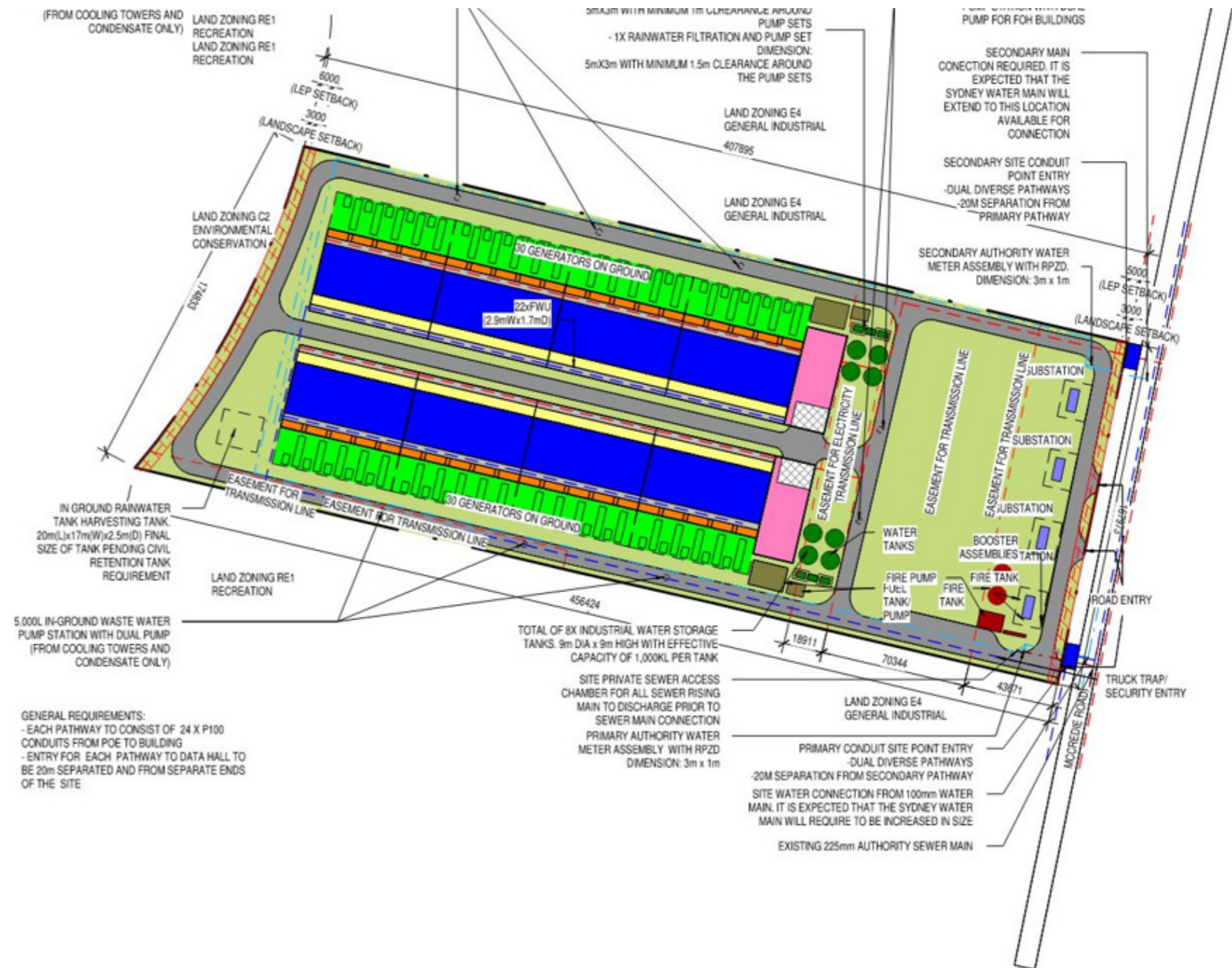
The Proposal

Design Evolution

Concept Progression

The initial concept began with two separate buildings planned as a footprint test-fit within the subject site. Each building involved an accessway on all four sides. The initial design included generator/ service gantries that presented to the internal accessway. Further development of this plan revealed an internal congestion that prohibited the craning of generators into the gantry spaces.

The substation was proposed at the northern section of the site. It was nominated for its strategic placement to optimise the efficiency of supplying electrical power infrastructure to the site. In this process, the funWater basinal requirements such as setbacks and easements are accounted for.



Site plan of progression of the concept

Built Form and Design Strategies

Facade Development

The facade design of the proposed data centre has evolved in response to changes in the building's functional requirements and spatial configuration, balancing operational efficiency with visual appeal.

Initial Design Response

The initial concept addressed the placement of generators and services along the east and west elevations. To maintain ventilation and improve the external appearance, perforated metal screens were incorporated, serving a dual purpose:

- Ventilation and Functionality: The perforated metal allowed adequate airflow to the generators and services, ensuring operational efficiency.
- Aesthetic Articulation: The patterned perforations introduced visual interest, breaking up the long elevations and creating a dynamic play of light and shadow.

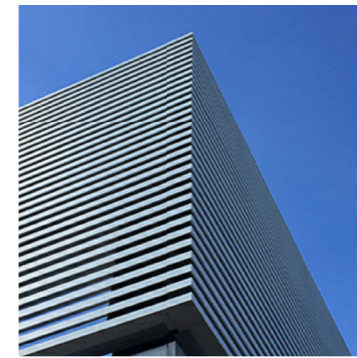
Design Evolution with Plan Reconfiguration

Following an internal layout reconfiguration, the need for ventilation along the east elevation was removed, allowing for a solid facade. This shift opened new opportunities for architectural expression:

- Expressed Fire Stairs: Fire stairs were expressed as external elements, adding verticality and breaking the horizontal emphasis of the facade.
- Materiality and Texture: The use of precast concrete with varied textures and colouring articulated the facade, contributing to a cohesive design language.
- Glazed Recesses: Glazed recesses were introduced to avoid a monolithic appearance, enhancing the facade's articulation.

Summary

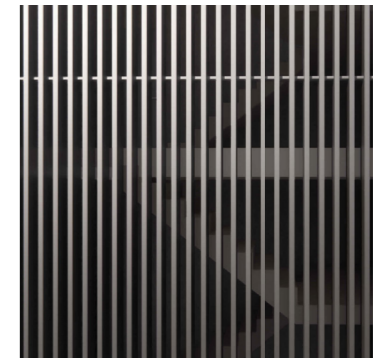
The facade design evolved from ventilated perforated metal screens to a solid, articulated form, reflecting functional changes while enhancing aesthetic quality. The incorporation of expressed fire stairs, textured precast concrete, and glazed recesses creates a balanced, functional, and visually compelling composition.



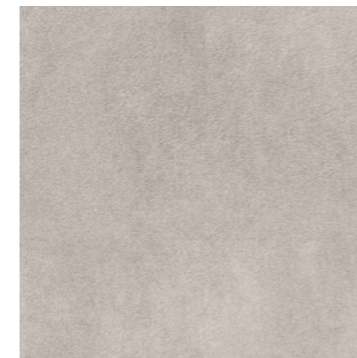
Acoustic louvred screen



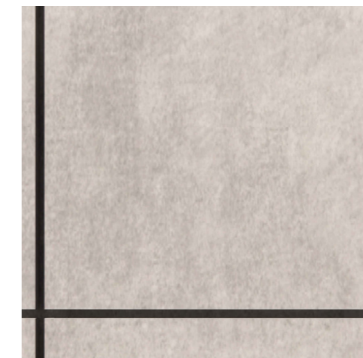
Glazing



Vertical louvred screen



Precast concrete panels



Formwork joints

Materials Board

Built Form and Design Strategies

Facade Development

The north elevation of the proposed data centre has evolved from a solid, monolithic concrete facade to a more dynamic and functional design. Initially, the design featured a heavy concrete frontage, which risked appearing uninviting. This was refined by incorporating glazing, which enhances both functionality and aesthetics.

Design Evolution and Glazing Integration

The introduction of large glazed panels with mullions and transoms brings natural light into office spaces, improving user comfort and reducing reliance on artificial lighting. The transparent material palette distinctly separates the office area from the solid concrete mass of the data centre, improving visual clarity and aiding way finding. This added architectural detail creates a balanced and appealing rhythm to the facade.

Building Entry and Identity

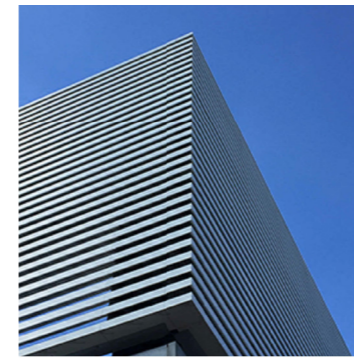
A minimalist black awning marks the main entry, providing weather protection while subtly emphasizing the office component's identity and accessibility without overwhelming the overall design.

Rooftop Planting and Facade Softening

Rooftop planting above the front areas introduces greenery, softening the solid surfaces and enhancing the building's street presence. This vegetative layer adds aesthetic value, blends the building with its surroundings, and adds depth to the elevation.

Summary

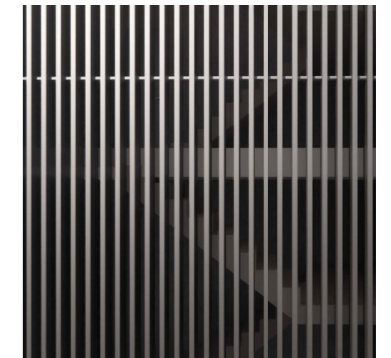
The north elevation has transformed from a utilitarian concrete facade to an engaging, functional frontage. The addition of glazing and careful detailing distinguishes the office areas, while the black awning and rooftop planting enhance the building's overall architectural expression and public interface.



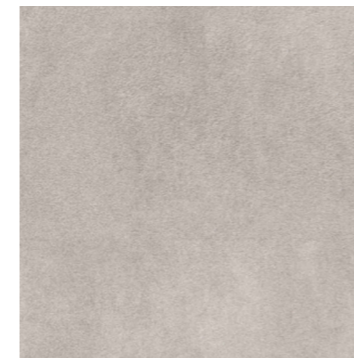
Acoustic louvred screen



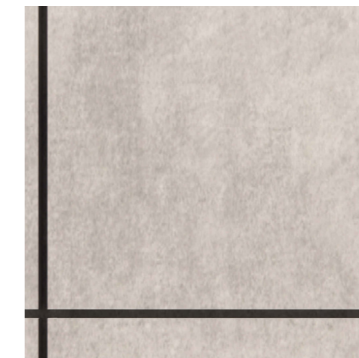
Glazing



Vertical louvred screen



Precast concrete panels

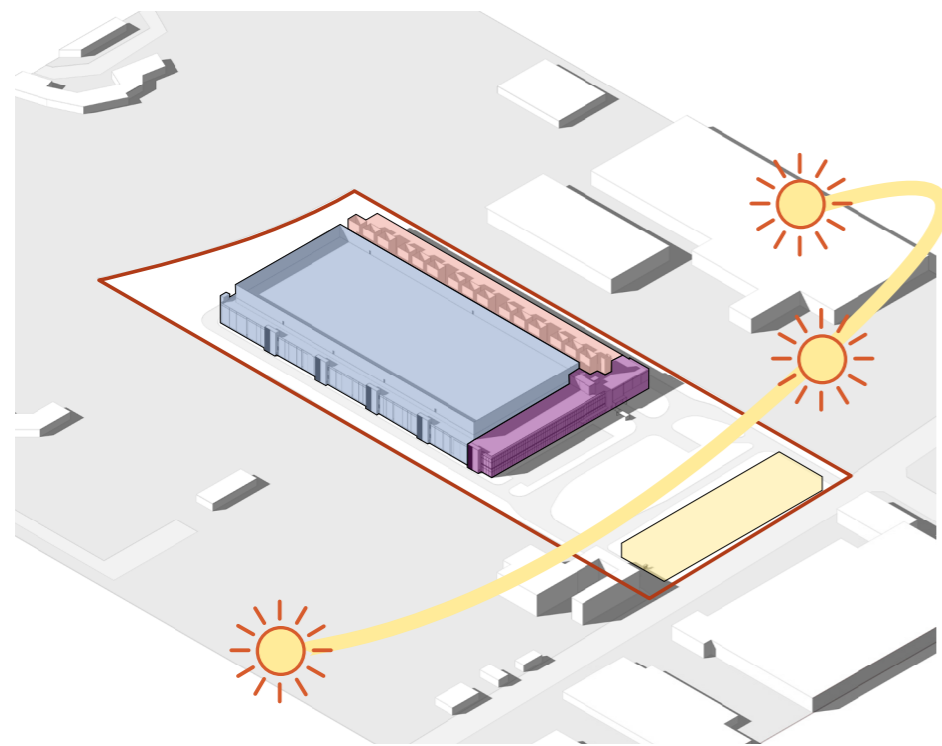


Formwork joints

Materials Board

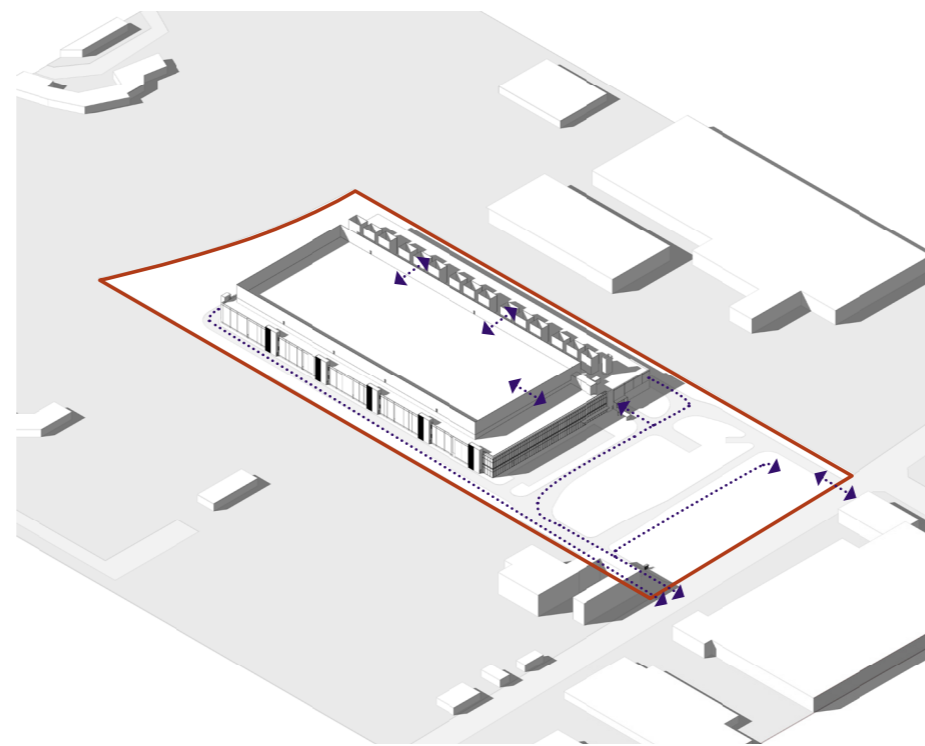
Built Form and Design Strategies

Building Form



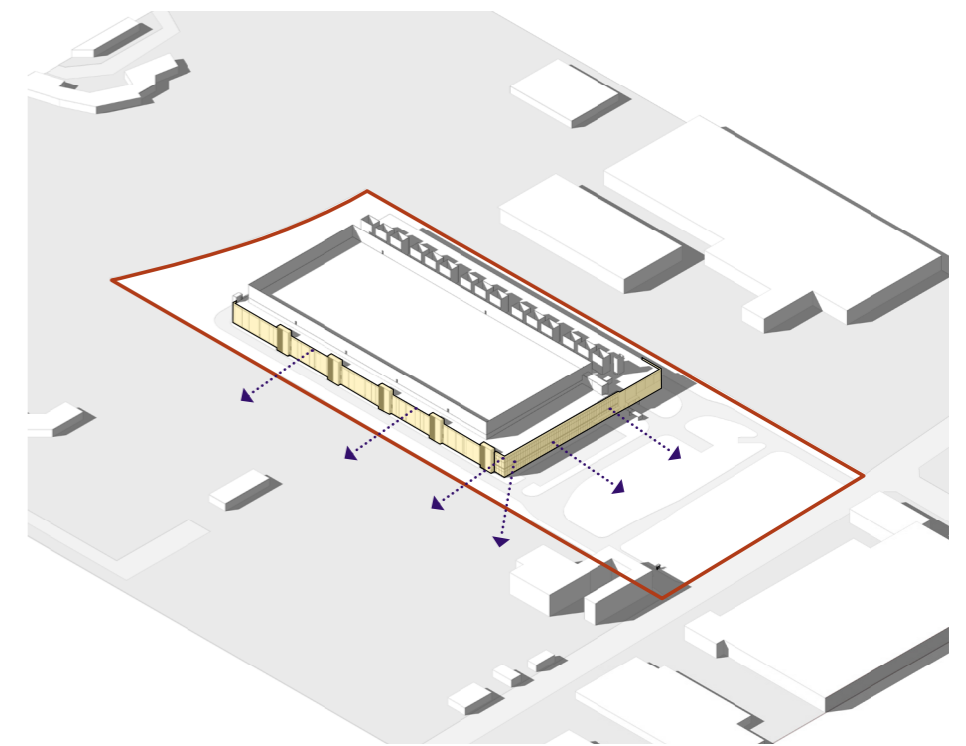
4. Functionality

The building uses maximise the opportunities of the site, orientating the front of house areas towards the north, offering a large regular area of the data halls and facing the services towards the adjacent industrial land.



5. Access & Connections

Through the arrangement of uses, each part of the site is logically connected for maximum ease of use.



6. Frontages

The primary aspect of the site will face towards the site entrance and the adjacent sensitive receivers.

Built Form and Design Strategies

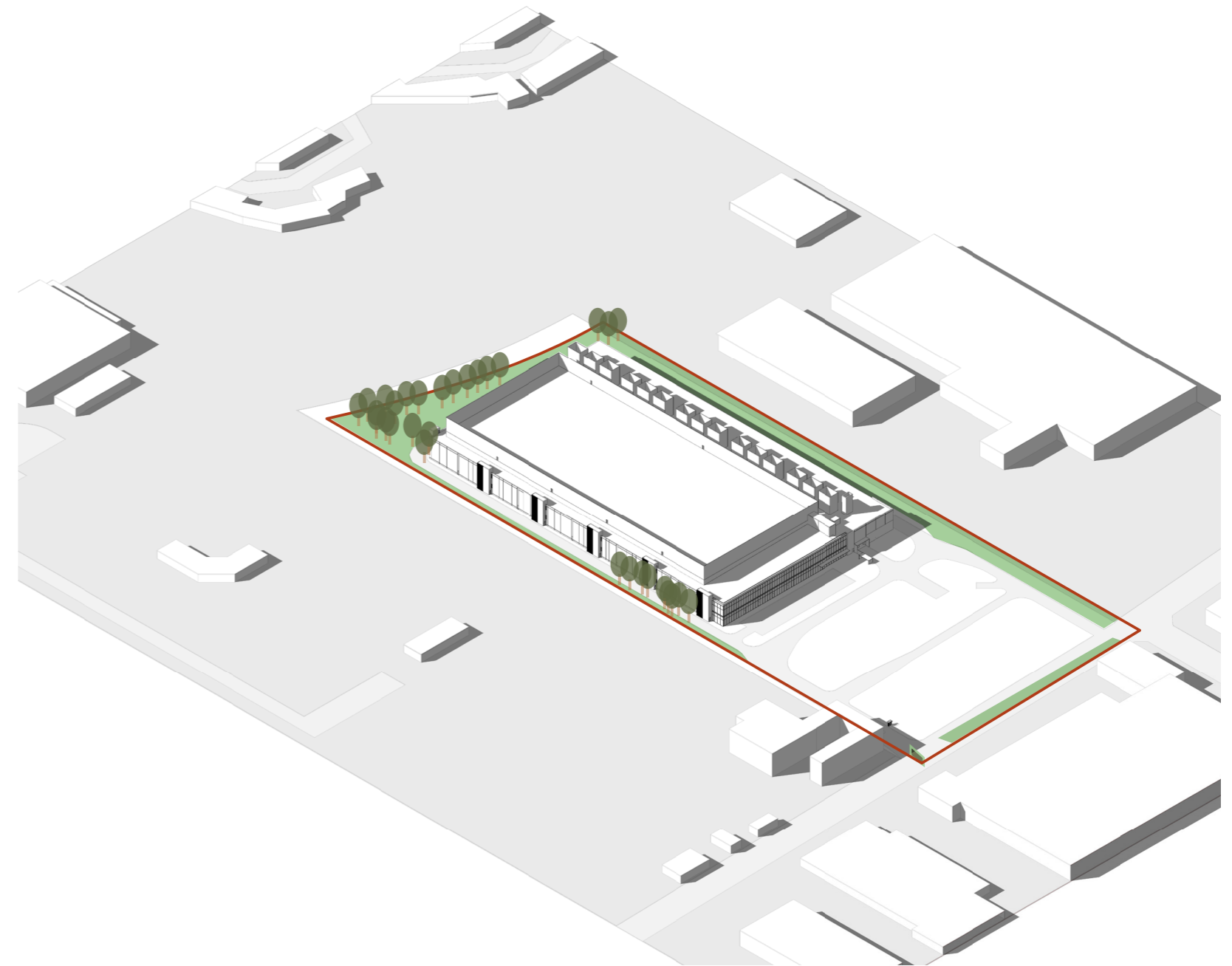
Landscaping Opportunities

The landscape architect (Arcadia) has proposed an innovative landscape solution aimed at integrating existing vegetated areas with new landscape zones. Efforts are focused on preserving existing trees wherever feasible, particularly those located predominantly along the perimeter of the site, with notable concentrations along the eastern boundary and southeast corner.

Within the existing transmission line easement north of the property, the proposal includes low-level planting and grasses. These vegetation choices are intended to visually soften the front portion of the site while adhering to the construction constraints of the easement zone.




Furthermore, the low-level planting extends through the proposed onsite detention basin, ensuring seamless integration into the overall landscape design of the site.

At the front of the property, landscaping measures are proposed to serve as a visual buffer for the substation compound adjacent to McCredie Road. Given the limited architectural treatment of these facilities, vegetation plays a critical role in softening their appearance and enhancing the visual aesthetics of the area.



Isometric view of indicative landscaping areas

Legend:

-  Site location
-  Proposed landscape area
-  Indicative tree location

Built Form and Design Strategies

Proposed Arrangement

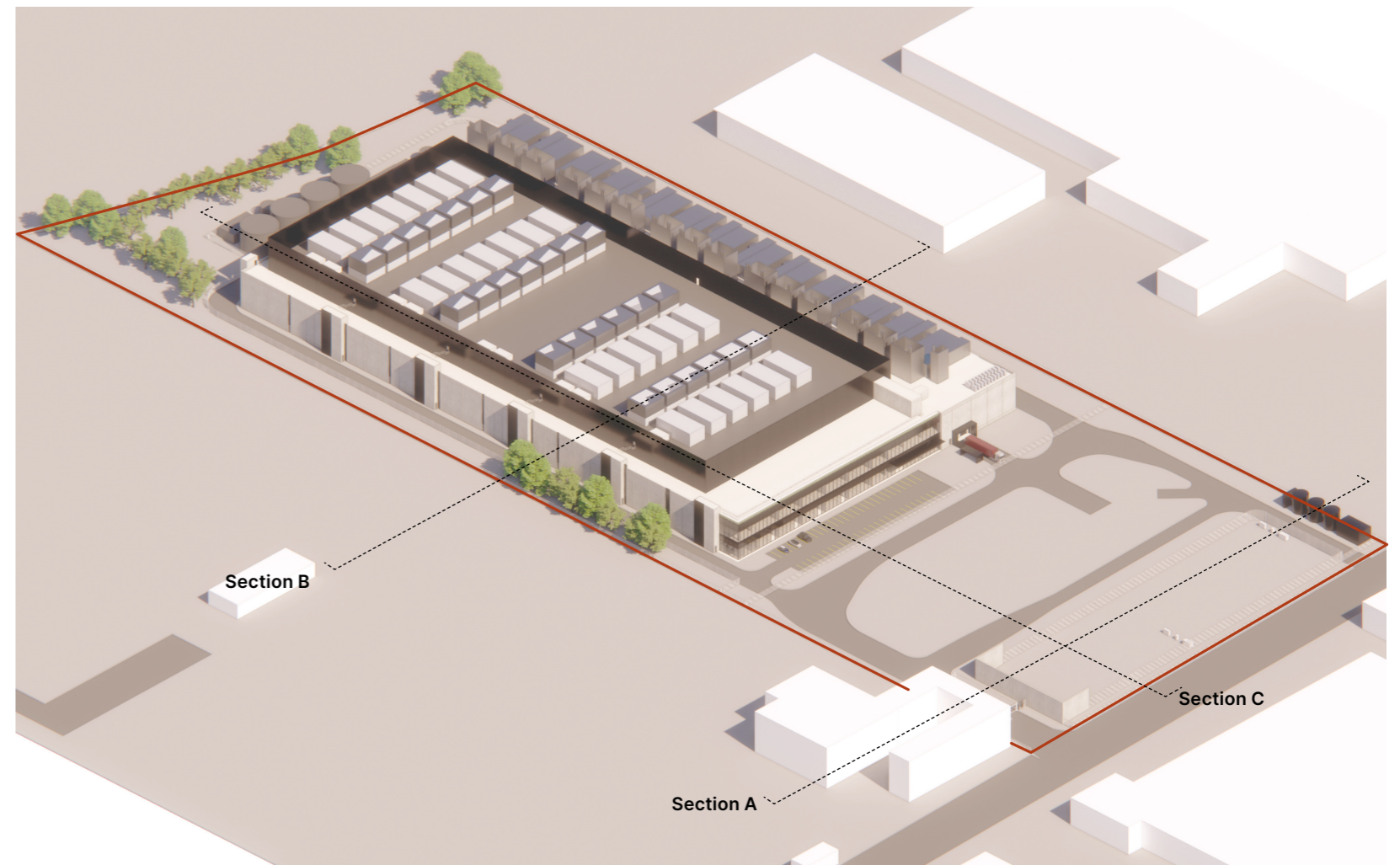
The design of the data centre at 132 McCredie Road reflects its function through its architectural form. The building is intentionally monolithic, using concrete to convey strength and protection, key attributes for housing sensitive data. The facade design takes inspiration from traditional archival buildings and modern data centres, creating an appearance that feels solid and secure.

The northern volume houses the administration areas and creates an inviting entrance, maximising daylight for office and meeting spaces. A proposed awning above the glass opening emphasises the entrance, improving accessibility and the building's presence. The overall design incorporates geometry, glazing, and light to highlight the building's focal point and main pedestrian entry.

The administration component is strategically placed towards the main access point for visibility and accessibility for clients, suppliers, and visitors. This north-facing orientation provides consistent daylight, improving the indoor environment and reducing reliance on artificial lighting.

The eastern facade, presenting to the sports fields, is more utilitarian, ensuring security while maintaining a connection to the site. Precast concrete panels with vertical joints at seemingly random intervals provide visual interest, and the stair wells include charcoal grey metal bar panels for added depth.

The data centre's primary operational services are located to the west, presenting to the industrial buildings adjacent, minimising visual impact from sensitive receiver points and effectively separating public-facing areas from operational elements.



Aerial view of proposal on site

Built Form and Design Strategies

Development in Context

The building orientation and mass has been arranged such that the site responds positively to the surrounding area.

Section A:

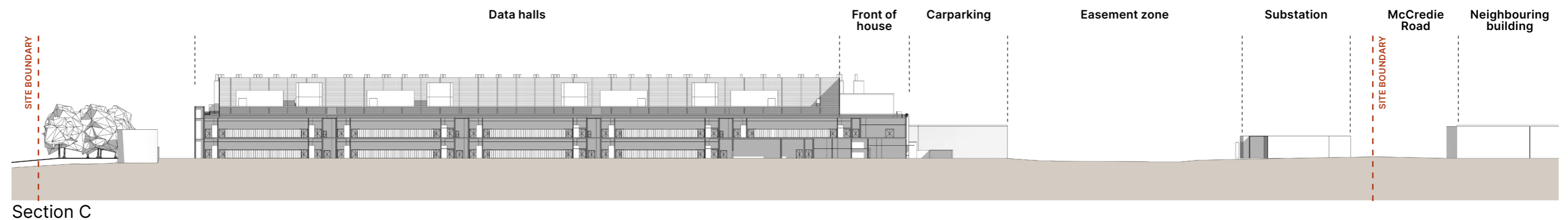
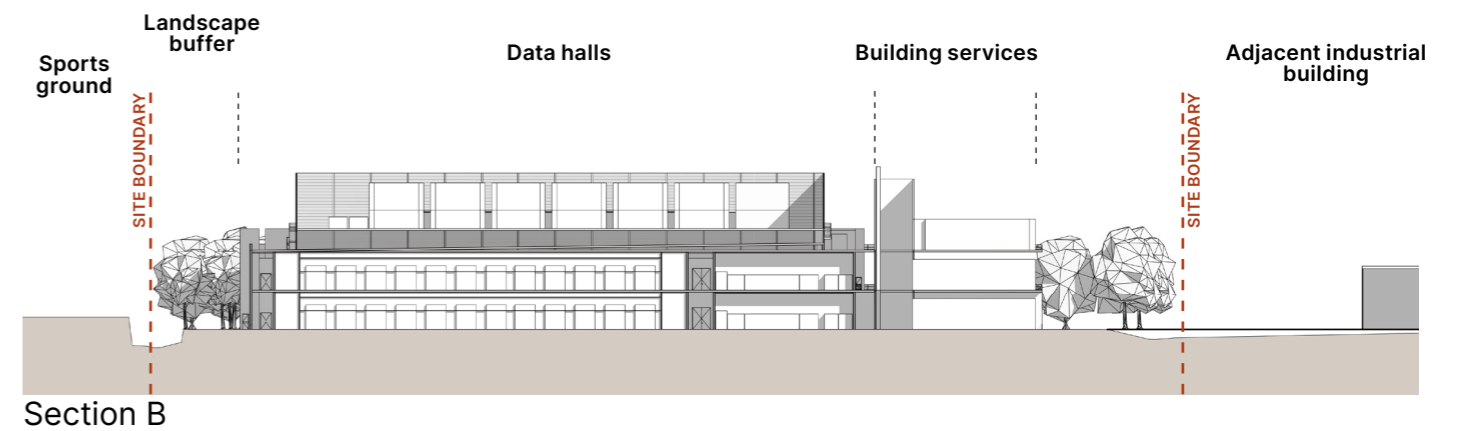
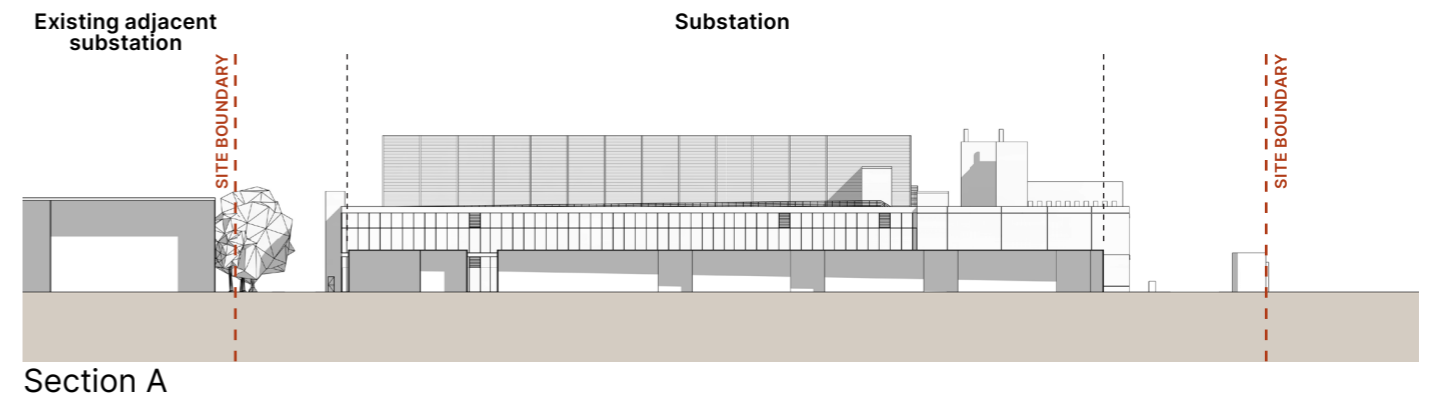
The substation has been positioned at the front of the site, responding to the adjacent substation and is arranged so that it is significantly lower in height.

Section B:

The site layout has been strategically planned to optimise functionality and minimise impact. To the west, the services area is positioned adjacent to the existing industrial land, ensuring seamless integration. To the east, the sports ground is elevated above the development's ground level, with a landscaped buffer further mitigating visual and environmental impact.

Section C:

The building arrangement is set significantly back from McCredie Road allowing a large open space to form the primary area at the front of the site.



Built Form and Design Strategies

Shadow Diagrams

The proposed two-storey data centre has been strategically designed and sited to minimise shadow impact on adjoining properties. Several key factors contribute to the minimal shadow influence, including the site's expansive and relatively isolated location, the building's north-south orientation, and the considerable distance between the proposed structure and neighbouring properties.


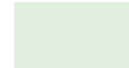
Site Context and Building Orientation

The site is notably vast and isolated, reducing the likelihood of significant shadowing on nearby properties. The building's north-south orientation plays a crucial role in minimising shadow projection onto adjacent areas, particularly during peak sunlight hours. This strategic orientation ensures that shadows primarily fall within the site boundaries or onto non-sensitive areas.

Impact on Nearby Properties

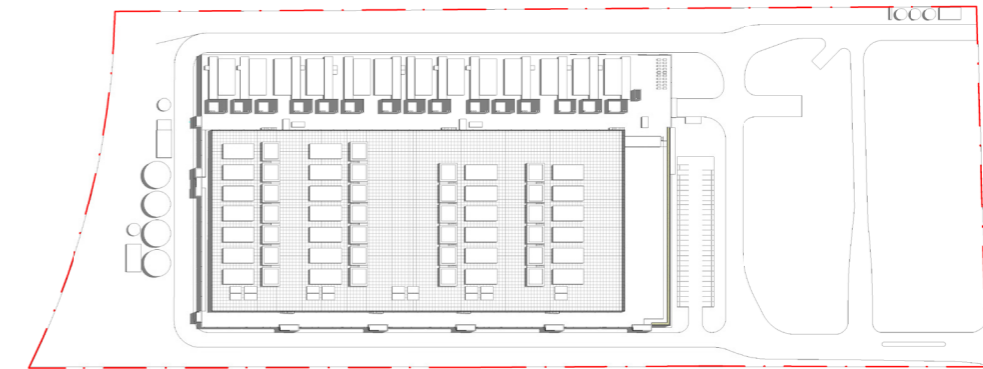
Due to the substantial distance between the proposed development and neighbouring properties, shadow impact is generally negligible. The spatial separation ensures that any shadows cast by the building dissipate before reaching sensitive areas, thus preserving the amenity of surrounding land uses.

Legend:

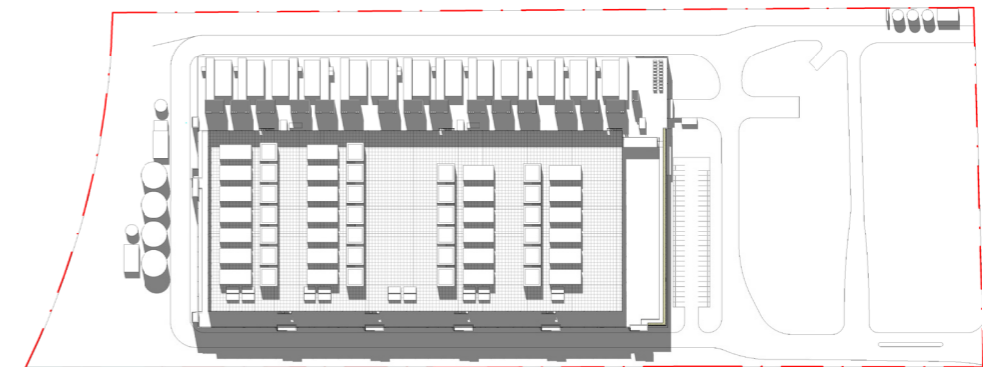
-  Site boundary
-  Adjacent sports grounds



December 21st 9am



December 21st 12pm



December 21st 3pm

Built Form and Design Strategies

Shadow Diagrams

Impact on Adjoining Sports Fields

The only notable shadow impact occurs on the adjoining sports fields to the east, specifically in the afternoon (3:00 PM) during the winter months. This effect is documented as a worst-case scenario in the drawing titled 'Shadow Diagram - June 21, 3 PM.' During this time, the sun's lower angle naturally elongates shadows; however, the impact is temporary and limited to the late afternoon period.


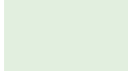

Topographical Considerations

The rising topography to the east further mitigates the potential shadow impact on the sports fields. The elevated landscape reduces the reach of shadows cast by the data centre, ensuring that the usability of the sports fields is largely preserved throughout the day.

Summary

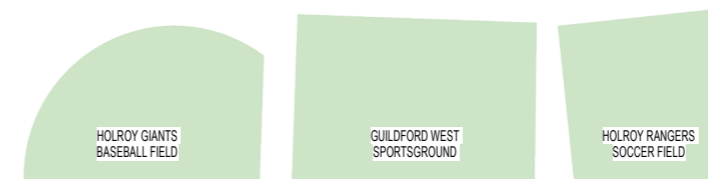
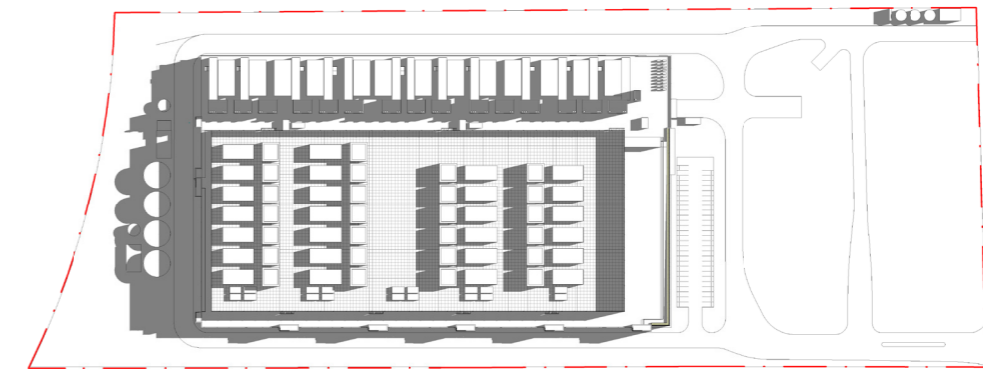
The proposed data centre's design and placement effectively minimise shadow impact on adjoining properties. The building's north-south orientation, the site's isolation and vastness, the considerable distance from neighbouring properties, and the advantageous rising topography to the east all contribute to reducing shadow influence. The only significant effect is a temporary, worst-case scenario shadow on the eastern sports fields during winter afternoons, which does not substantially impact their overall functionality.

Legend:

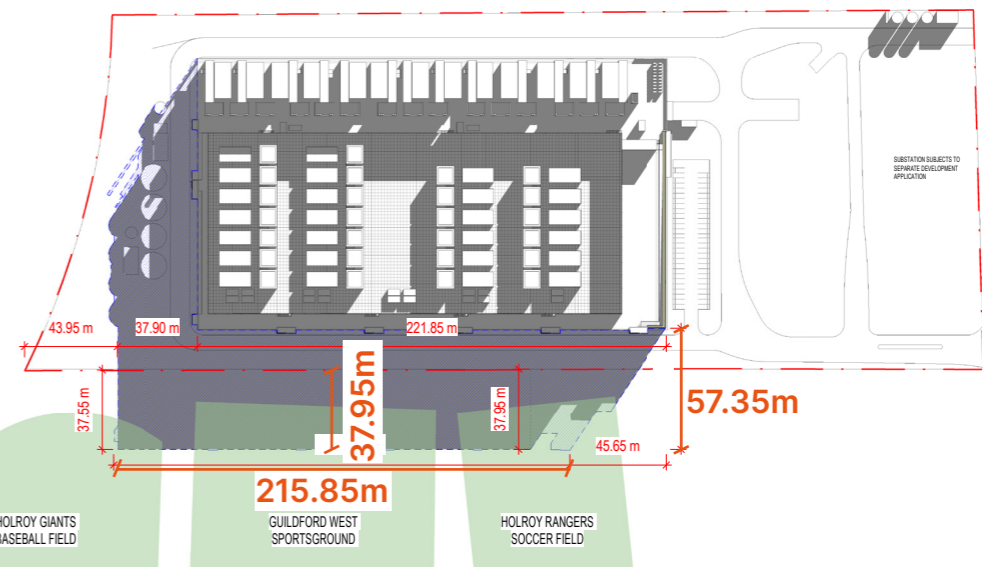
-  Site boundary
-  Adjacent sports grounds
-  Critical dimensions



June 21st 9am



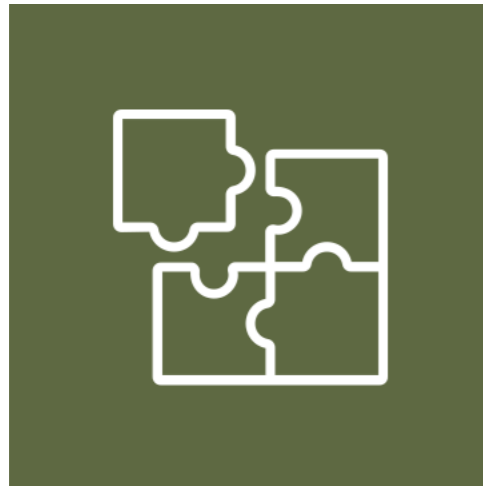
June 21st 12pm



June 21st 3pm

Built Form and Design Strategies

Key Design Principles



Seamless Integration

The design minimises visual and environmental impact while enhancing the area with landscaping and creating a more cohesive, functional environment. Through careful planning, the project improves the overall quality of the surrounding precinct.



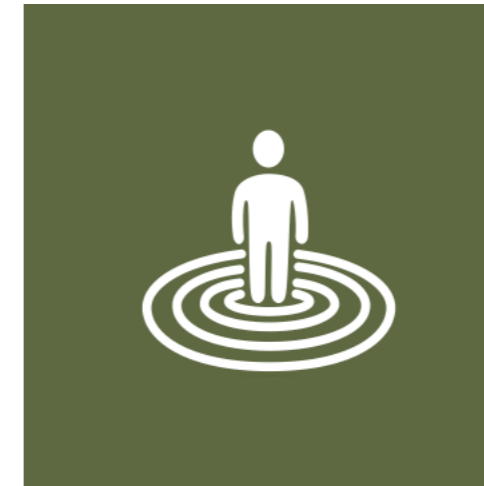
Functionality

Function plays a key role in designing data centres. The proposed scheme not only optimises functionality but also enhances efficiency, user experience, and integration with the surrounding environment.



Security

Security is a key design principle in data centre design. Landscaping plays a crucial role in softening the presence of fences and security elements around the building. By introducing landscaped areas and outdoor seating, the streetscape is enhanced, improving the overall pedestrian experience.



Human-Centric Design

Broad windows facing McCredie Road enhance the visual connection, linking the interior with the surrounding urban environment. Transparency is a key element, with human activity visible behind the glazing, promoting openness and vibrancy.

Landscaping and exterior breakout areas further improve the street-level experience for occupants.

A dynamic entry is also incorporated to enhance the arrival experience.



Sustainability

- Use of durable materials.
- Efficient design of electrical and mechanical systems optimised for their purpose.
- Energy-efficient technologies to reduce energy use and emissions.
- Water-efficient systems to reduce potable water consumption.
- Resource optimisation and waste minimisation throughout the building's life cycle.
- Low-carbon materials, structural efficiency, and recycled content to reduce embodied impacts.

The Proposal

The Proposal

Design Statement

The proposed design embodies a seamless integration of innovation, technology, and human connection. It creates a space that not only drives the digital world forward but also enhances its urban context, ensuring that technology serves people and the community.

A key design principle is a human-centric approach, evident in the building's broad, glazed frontage along McCredie Road. The expansive glazing creates a visual connection between the interior and the surrounding urban environment, inviting passers by to engage with the building. The design also ensures a defined and dynamic entry arrival. By showcasing human activity behind the transparent glazing, the building fosters a sense of openness and vibrancy, enhancing the street-level experience while reinforcing the relationship between the interior and exterior.

The building offers a variety of adaptable workspaces to support its main function as a data centre, including offices, meeting rooms and breakout zones all designed to encourage

collaboration and enhance productivity. These areas will accommodate a range of events, benefiting tenants, clients, and other industry professionals.

New green spaces provide a relaxing outdoor area for employees and visitors, while also improving privacy, and integrating the facility more harmoniously with its surrounding landscape.

The design carefully considers the building's bulk and scale to ensure it complements its urban context. By modulating the massing and incorporating varied facades, the building integrates seamlessly into the streetscape. The use of glazing and stepped forms helps break up the building's scale, creating a more dynamic, human-scale presence, while maintaining a striking architectural statement. This design is a response to both its purpose and its environment.



View of the east elevation facing the sports grounds

The Proposal

General Building Arrangement

The built form and arrangement of spaces are designed to work efficiently together, maximising the functionality within the site, as well as to respond positively to each of the surrounding area uses.

1. Data Hall

The core of the building is strategically positioned at the center of the site's most secure area, farthest from McCredie Road. It is directly connected along its longitudinal axis to both the services zone and the front-of-house area, ensuring optimal functionality and efficient operational flow.

2. Services Area

This area contains the generators and shafts which house the flues, and is positioned on the west boundary of the site adjacent to an existing industrial building. This area is furthest away from the sensitive receivers along the eastern boundary whilst maintaining a direct connection with the data halls.

3. Front of House

Positioned facing north towards the front of the site, this area is fully glazed to allow well-lit office spaces and to create an opening inviting appearance to the front of the building. The front of house spaces are closest to the site entrance.

4. Loading Bay

Positioned next to the front of house areas to ensure functionality and ease of access from the site entrance.

5. Site Access

The site features a primary access point and a dedicated emergency access, ensuring a high level of security. Both access points are located off McCredie Road.

6. Substation

The substation is positioned at the front of the site, adjacent to the existing substation on the adjoining allotment.



Aerial view of proposal on site

The Proposal

Front of Site Arrangement

The built form and arrangement of spaces are designed to work efficiently together, maximising the functionality within the site, as well as to respond positively to each of the surrounding area uses.

1. Site Access

The site is accessed directly off McCredie Road.

2. Site Control

The first entrance point is a double security zone to ensure a high level of security for the site.

3. Second Barrier Control

The barrier on this line forms an additional line of security before access into the building.

4. Open Area

Opportunity for landscaping due to restriction of existing easement.

5. Access Road

A access road runs the entire way round the site.

6. Main Entrance

Primary access point into the building.

7. Loading Dock

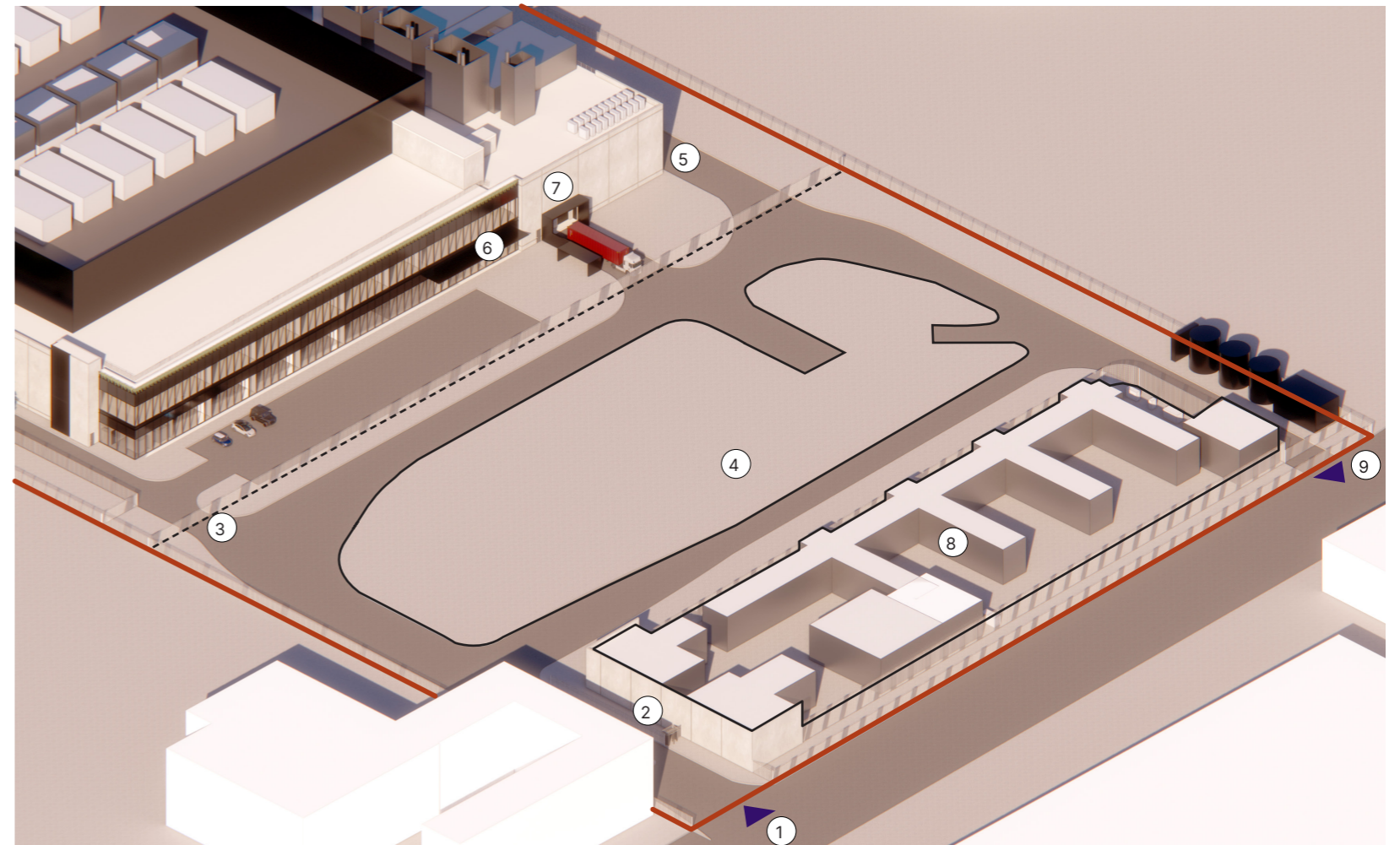
Primary loading bay for vehicles.

8. Substation

Substation compound which has boundary fencing to remain separate form the data centre area.

9. Emergency access

For emergency vehicle use only, the rest of traffic uses the main site access route.



Aerial view of the front of site arrangement

The Proposal

Site Fencing Arrangement

Fencing across the proposal is thoughtfully integrated with robust physical security measures to ensure a safe and controlled environment. The site is proposed to be enclosed by a 2.4m high dark-coloured spear-top palisade fence around the entire perimeter. This fencing provides a high level of security while maintaining a visually unobtrusive appearance that complements the modern architectural design.

At the vehicle entry point on McCredie Road, 2.4m high bi-folding palisade gates are installed. These gates provide secure access control and are designed to seamlessly integrate with the overall fencing system, ensuring consistent security and aesthetic coherence. The bi-folding mechanism allows efficient traffic flow while maintaining strict access restrictions when closed.







Example of type of palisade fencing to be proposed on site



Diagram showing the different fencing areas

Legend:

-  Gate location
-  Substation security fencing
-  Primary security fencing
-  Public area fencing

The Proposal

Signage

Key way finding and branding signage for the proposed data centre will be strategically positioned to enhance site navigation and establish a strong architectural identity. Illuminated vertical signage boards will be located at key street-facing locations (as shown to plan), including near the main site entry off McCredie Road, ensuring clear visibility and easy identification from the street.


Additional signage will be placed at crucial decision points across the site, such as near the primary access point, building entry, and loading bay, to guide visitors and staff efficiently. The graphics and illumination of the signage provide high legibility both during the day and at night, reinforcing brand presence while complementing the building's modern, minimalist design aesthetic.

The signage design will maintain a cohesive visual language consistent with the architectural form, contributing to a clear and intuitive way finding experience throughout the site.



Diagram showing the different signage locations

Legend:

 Indicative signage locations

Example of type of signage to be proposed on site



The Proposal

Facade Strategy

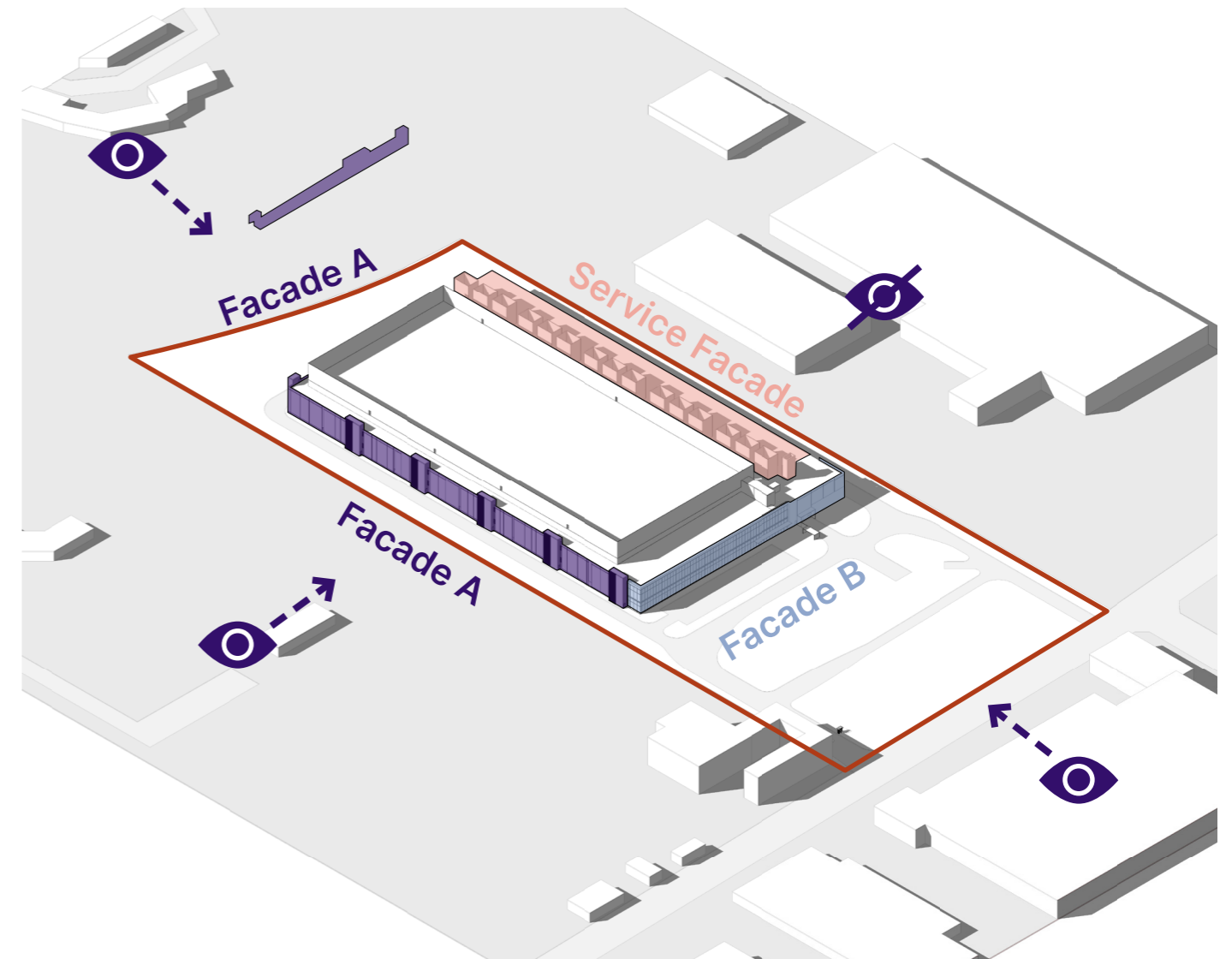
The facade needs to respond appropriately to its surroundings whilst functioning as a data centre. The strategy for each key facade is as follows:

Facade A:

- Break down long linear facade
- Develop an aesthetic that is considered to be at a scale suitable to the individual
- Provide a considered design that responds to the sensitive receivers and nestles into the context




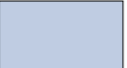


Facade B:

- Consider how the primary Eastern facade wraps around to the front
- Provide an opening/welcoming facade expression for the user of the site
- Articulate the change of uses along this elevation



Isometric view of proposal, depicting the different facade strategies

Legend:

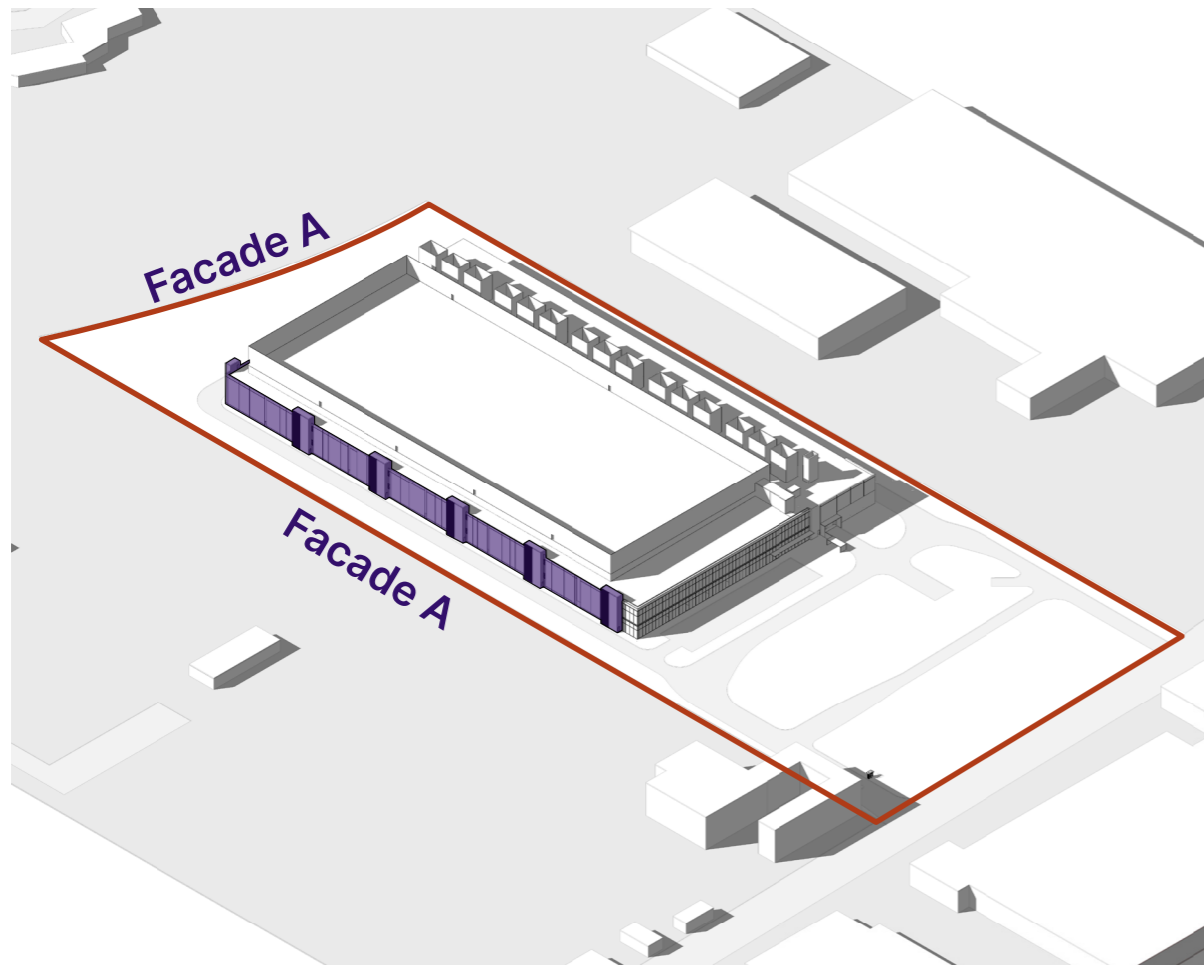
	Site boundary		Facade A
	Sensitive receivers		Facade B
	Secondary aspect		Service Facade

The Proposal

Facade A Arrangement

Facade A design strategy: the primary goal has been to articulate the long, linear facade and to break down the built form to a more relatable, individual scale.

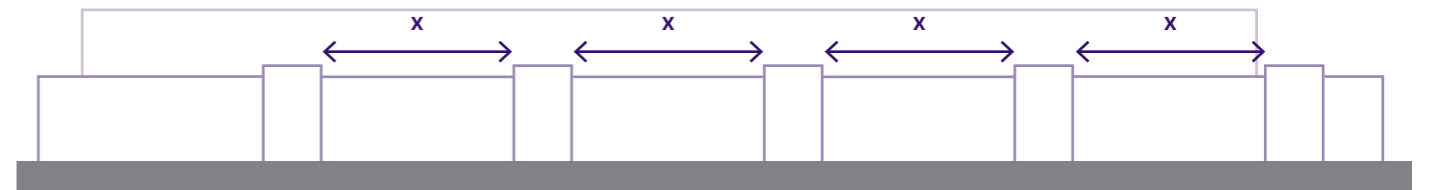
The diagrams to the right show how the facade is gradually broken down in order to achieve a balance in scale whilst maintaining a consistent overall language.



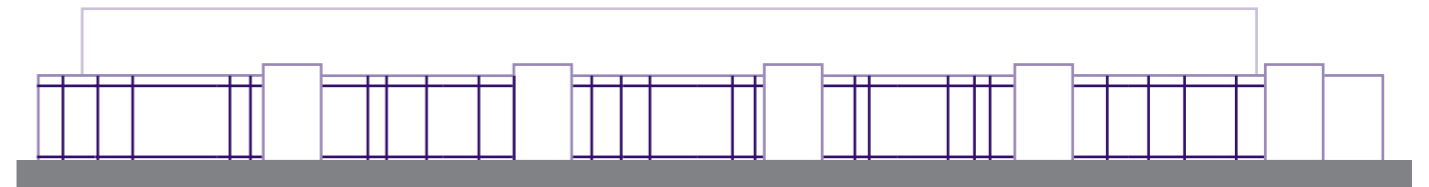
Isometric view of Facade A locations



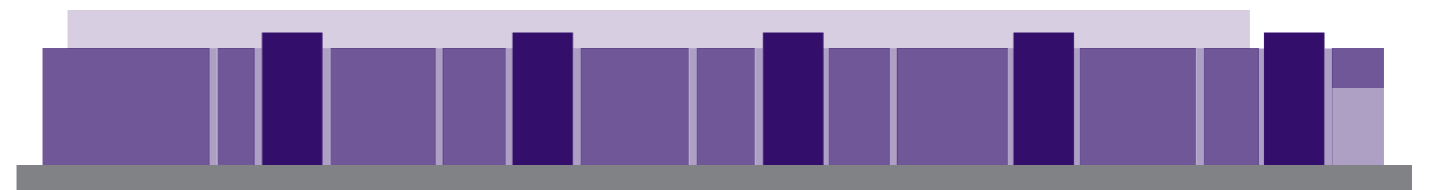
1. Long facade



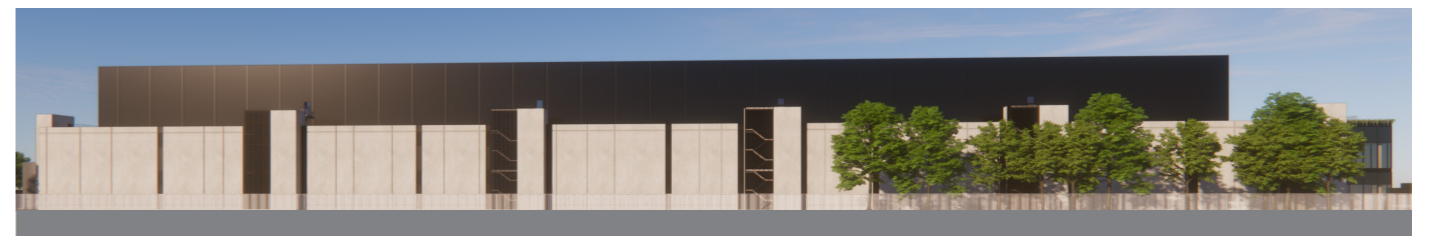
2. Create divisions at consistent spacing



3. Playfulness added through panelling divisions at irregular spacing to help further breakdown the long facade



5. Layering of facade, adding depth to the long facade



6. Proposed design

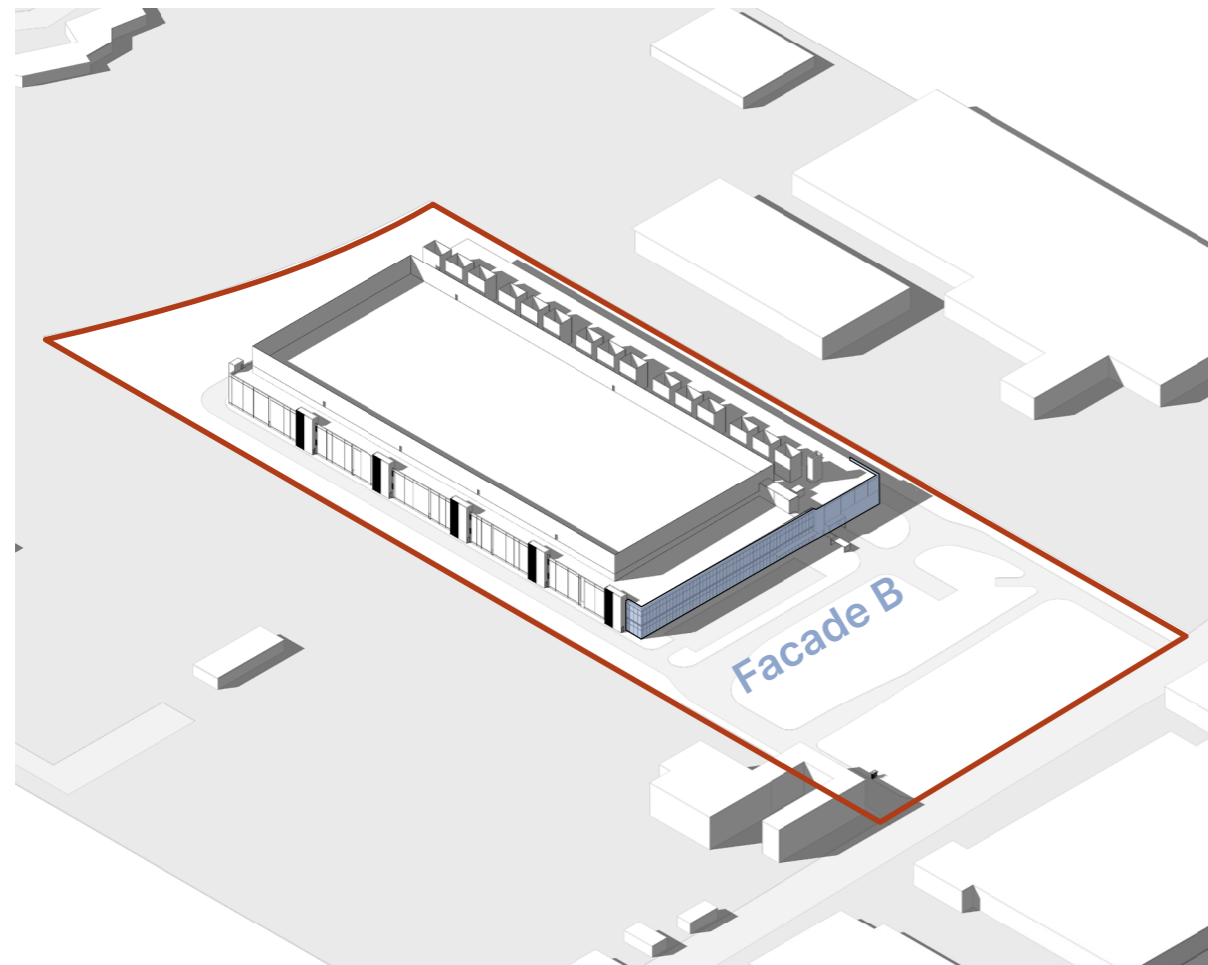
The Proposal

Facade B Arrangement

Facade B design strategy: using the established elevation language developed in Facade A, the precast concrete is wrapped around to the loading dock area.

To denote the change in use of the front of house, this area is glazed to function as a well-lit space and contrast against the precast concrete section.

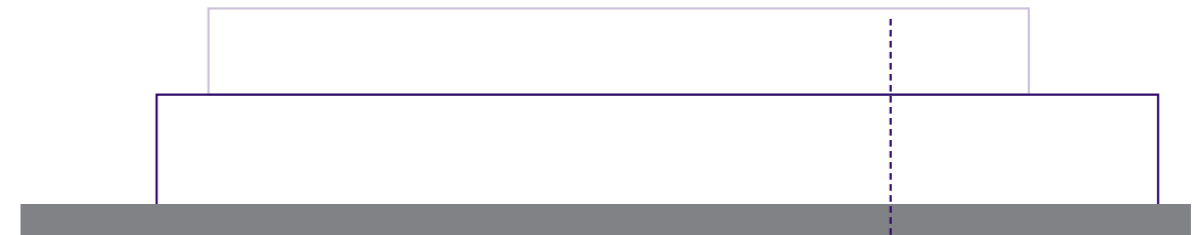
The diagrams to the right show how the facade is considered to allow both uses to function efficiently.



Isometric view of Facade B locations



1. Basic elevation



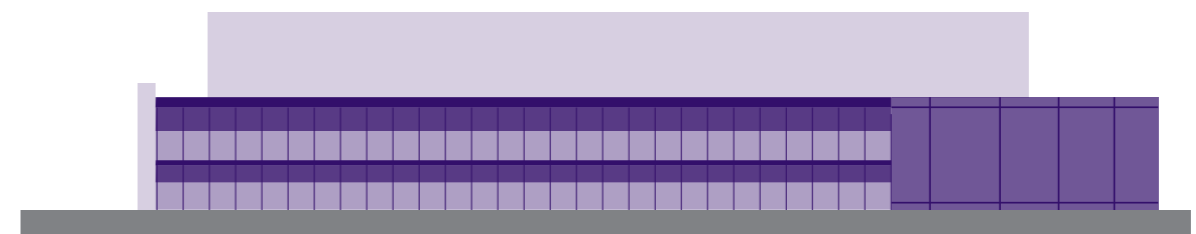
2. Delineation of uses within the elevation (front of house / loading area)



3. Front of house section - a glazed front visually open and welcoming



4. Layering of the facade through different materiality



5. Articulation to the glazed section given horizontal emphasis, panelling divisions visible in the concrete panels



6. Proposed design

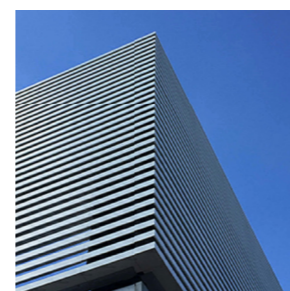
The Proposal

Materiality

The building materiality has been carefully considered to promote a timeless aesthetic. The contemporary facade is intended to give a strong character that adds to give security to the data halls within. This then opens up with large expanses of glazing at the front of the site creating an open inviting appearance to the user.

Materials:

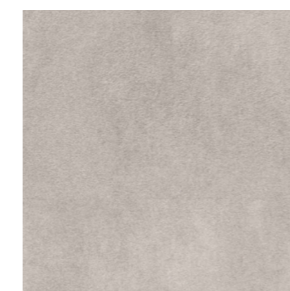
1. Acoustic louvred screen with colorbond monument finish or similar
2. Glazing with colorbond monument framing or similar
3. Grey/cream precast concrete panels with smooth finish
4. Precast concrete with formwork joints (100mm x 100mm depth)
5. Vertical louvred screen to stairwells with colorbond monument finish or similar



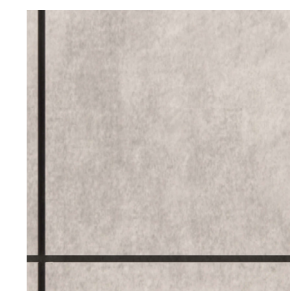
1. Acoustic louvred screen



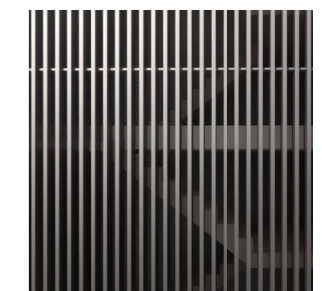
2. Glazing



3. Precast concrete panels



4. Formwork joints



5. Vertical louvred screen

The Proposal

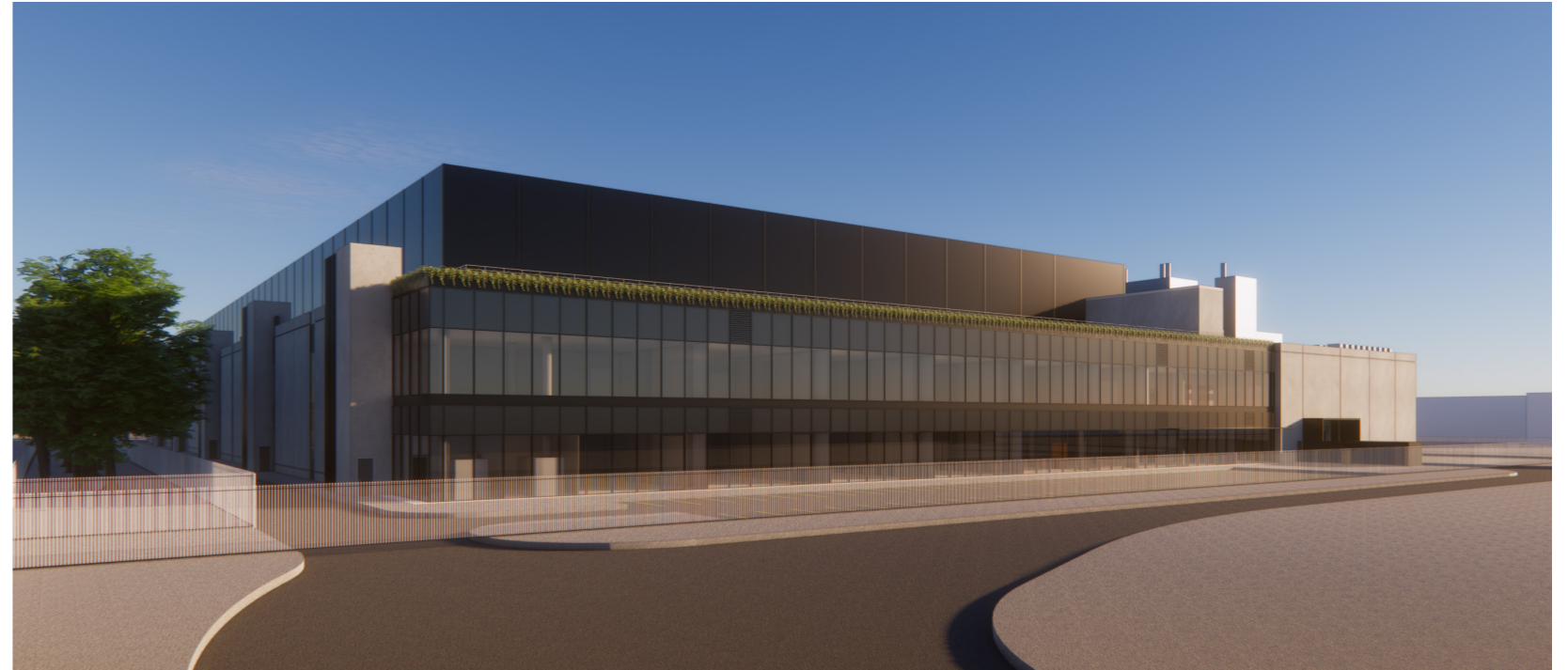
Overview

The building's facade is made of precast concrete panels, offering a modern yet simple aesthetic that maintains overall coherence in the design. This clean, minimalist approach reflects the focus on functionality while providing a timeless, contemporary look. The panels are carefully arranged to complement the design intent, introducing subtle geometry that enhances the building's visual appeal without overpowering the surrounding environment. By keeping the design straightforward and uncluttered, the facade emphasises the importance of simplicity and elegance in modern architecture.

Articulating the facade with shadow lines, glazed panels, and recesses helps humanise the scale of the building, making it more inviting and engaging for both occupants and passersby. These elements soften the building's mass and create visual depth, further supporting the overall modern design philosophy.

In addition to their aesthetic contribution, the precast concrete panels serve functional and sustainable purposes. They conceal sensitive infrastructure, such as electrical wiring and plumbing, ensuring a clean, streamlined exterior. The large scale of the panels conveys a sense of strength and protection, reinforcing the building's durability and resilience over time.

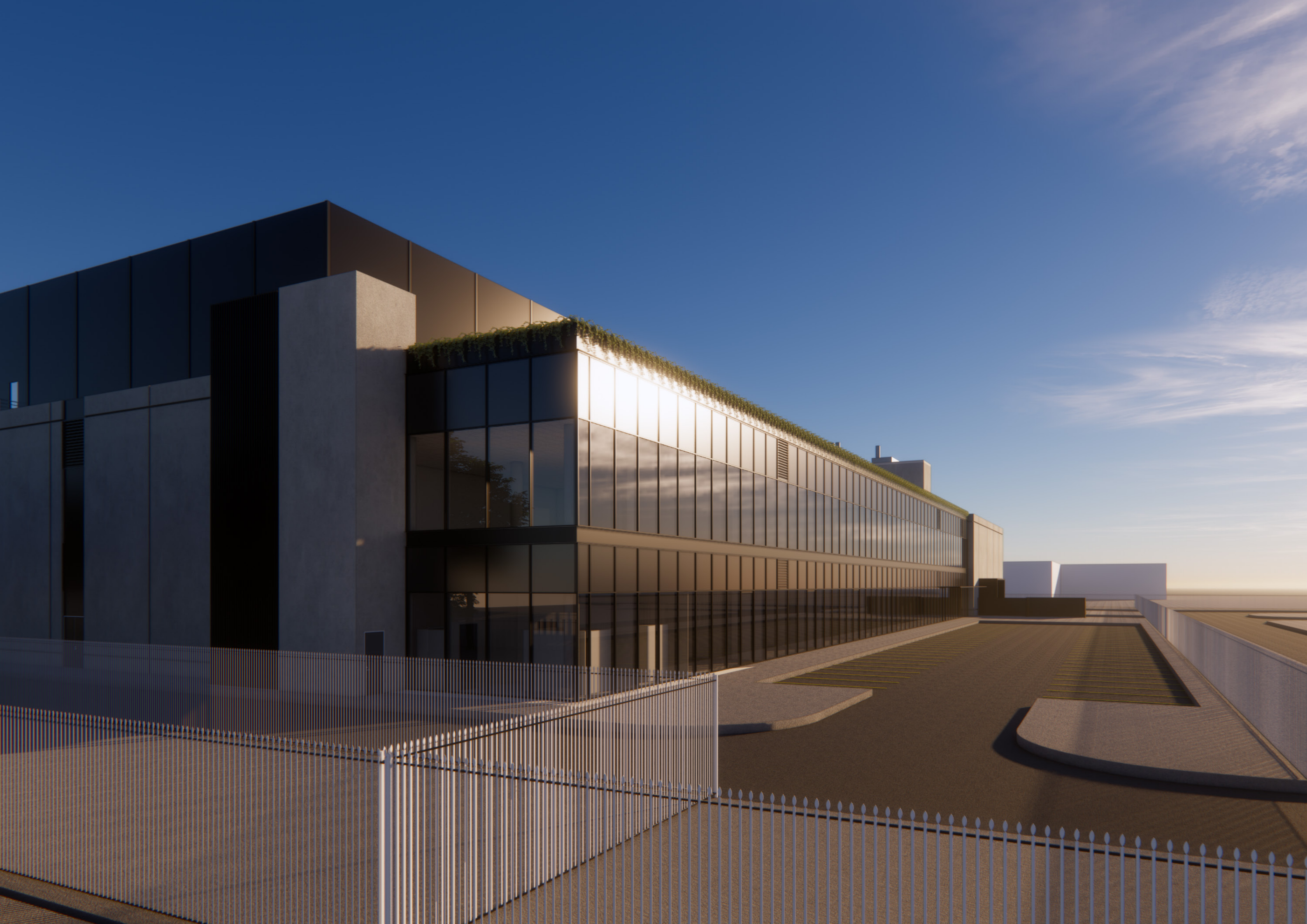
The variation in the panel arrangement adds visual interest, with vertical glazed detailing placed strategically across the facade. This approach creates a dynamic surface that both enhances the aesthetic and meets practical and durable goals, reinforcing the building's modern design and environmental considerations. Overall, the facade's simple, clean, and modern design achieves a balanced harmony between form, function, and durability.



View of the north and east facades

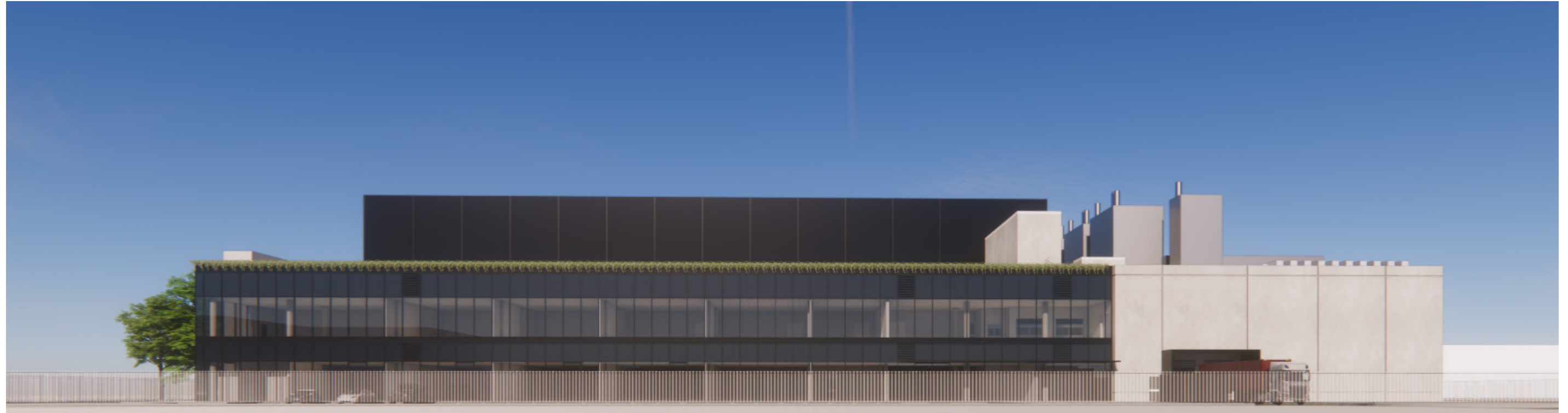


View of the north and west facades



The Proposal

Elevations



North Elevation



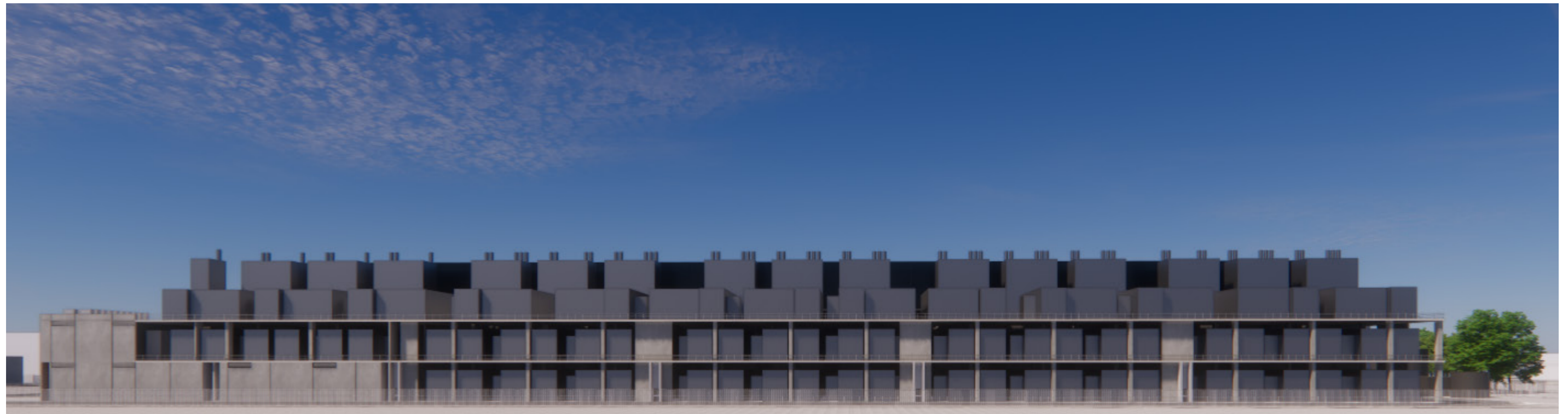
East Elevation

The Proposal

Elevations



South Elevation



West Elevation

The Proposal

Response to Statutory Requirements

The proposed two-storey data centre at 132 McCredie Road, Guildford West, NSW 2161, aims to meet several statutory requirements, including compliance with the State Environmental Planning Policy (Planning Systems) 2021, and adherence to the State Significant Development (SSD) guidelines.

State Environmental Planning Policy (Planning Systems) 2021

This policy establishes a framework for planning in New South Wales, ensuring that developments are assessed and approved in a consistent manner. The data centre project at 132 McCredie Road aims to address this policy by undergoing a comprehensive assessment process, which includes public notification and consideration of environmental impacts.

State Significant Development (SSD) Guidelines

The SSD guidelines provide a detailed explanation of the assessment process for significant developments in New South Wales. These guidelines ensure that all SSD projects are subject to a comprehensive assessment in accordance with government legislation, plans, policies, and guidelines.

Streamlined Data Centre Approval Process

In April 2021, the New South Wales Government introduced changes to planning rules to fast-track data centre planning applications in Southwest Australia. This initiative aims to encourage data centre investment in the region through streamlined processes. The data centre project at 132 McCredie Road benefits from this initiative, facilitating a more efficient approval process.

Summary

The proposed two-storey data centre at 132 McCredie Road, Guildford West, NSW 2161, aims to comply with the relevant statutory requirements, including the State Environmental Planning Policy (Planning Systems) 2021, and the State Significant Development guidelines.

Design Response to GANSW

Environmental Response

Better Placed

Better Placed is an integrated design policy for the built environment of NSW.

It reflects the shared aspirations and expectations for the spaces where we live, work, and interact. The policy establishes a clear framework to guide the creation of good design, ensuring the architecture, public spaces, and environments we build today meet our needs and will continue to serve future generations.

The Better Placed Design Policy identifies seven main objectives:

- Better fit
- Better performance
- Better for community
- Better for people
- Better working
- Better value
- Better look and feel

Objective 01.

Better fit

Contextual, local and of its place:

The building's north-south orientation and setbacks minimise shadow impact on neighboring properties, particularly the sports fields to the east, while ensuring compatibility with surrounding industrial uses. Precast concrete panels create a modern aesthetic, with shadow lines, vertical joints, and exposed fire stairs adding depth. The front elevation features glazing that distinguishes the office from the data center, enhancing natural light and creating a welcoming interface. A black awning marks the entry, reinforcing accessibility.

Rooftop planting softens the facade and integrates greenery, improving the microclimate and enhancing the building's connection to its landscape. Broad glazing along McCredie Road promotes street-level engagement and a positive community interface. The layout is designed for operational efficiency, with distinct functional zones, including the data hall and service areas, ensuring seamless integration.



Objective 02.

Better performance

Sustainable, adaptable and durable

The building prioritises durability with precast concrete panels offering thermal mass to regulate temperatures and reduce energy use. Strategic vertical glazing maximises natural light, minimising artificial lighting needs. A green roof enhances biodiversity, improves insulation, and manages stormwater runoff. The adaptable interior layout features a central data hall for secure operations, connected to front-of-house and service areas for efficient flow and future flexibility.

Durable precast concrete ensures low maintenance and long-lasting resilience. The facade reduces upkeep while conveying strength, and the fire stairs add architectural interest. The building's orientation maximises solar access, with passive shading reducing cooling loads. The site layout optimises operational efficiency, with secure data halls and an accessible loading bay, maintaining a positive community interface.



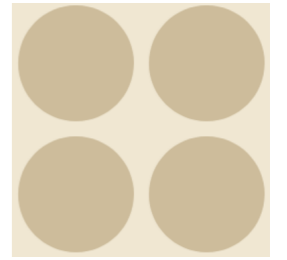
Objective 03.

Better for community

Inclusive, connected and diverse

The building promotes inclusivity through its transparent north elevation, connecting office spaces with the surrounding urban environment. Expansive glazing humanises the scale, fostering openness and community engagement. The defined entry ensures accessibility, while adaptable office spaces support diverse activities and events. The street-level frontage along McCredie Road strengthens the link between the interior and public realm, enhancing vibrancy and safety. Rooftop planting softens the building's mass, contributes to urban greening, and improves the streetscape.

Flexible workspaces encourage collaboration, while new green spaces offer areas for relaxation. The minimalist facade, with precast concrete panels and glazing, balances modern design with contextual sensitivity, enriching Guildford West's identity and reinforcing community connection.



Environmental Response

Better Placed

Objective 04.

Better for people

Safe, comfortable and livable

Safety is prioritised with the data hall positioned securely away from McCredie Road, supported by controlled access points and a secure perimeter for circulation. The glazed frontage enhances passive surveillance and reduces isolation, while extensive glazing on the north elevation allows natural light, improving comfort and productivity. Adaptable workspaces, including offices, meeting rooms, and breakout zones, are conveniently located near the front for flexibility and convenience.

The human-centric design includes a clear, accessible entry marked by a minimalist black awning. Rooftop planting softens the facade and enhances environmental well-being, while surrounding green spaces promote relaxation and community connection. The articulated facade with shadow lines and textured precast concrete enriches the user experience.



Objective 05.

Better working

Functional, efficient and fit for purpose

The building's layout is designed for operational efficiency, with the data hall centrally located for optimal security and connectivity to service and front-of-house zones. The services area is positioned along the west boundary to minimise noise and visual impact, while the clear separation of primary and emergency access routes enhances traffic flow. The loading bay's proximity to the front-of-house areas ensures efficient logistics and minimal disruption.

The front-of-house area features adaptable, well-lit workspaces that support collaboration and evolving operational needs. The facade design improves operational efficiency and environmental performance, transitioning from perforated metal screens to a solid east elevation, maintaining thermal efficiency and security while enhancing architectural expression.



Objective 06.

Better value

Creating and adding value

The design maximises economic value through efficient spatial planning and functionality. The data hall's central placement ensures security and connectivity to services and front-of-house zones, promoting operational flow and reducing maintenance costs. Flexible office spaces support long-term usability and appeal to future tenants. Precast concrete panels enhance durability, lowering lifecycle costs, while operational efficiency and environmental stewardship reduce energy consumption and costs.

The design fosters social value with its human-centric approach and glazed front-of-house area, enhancing community interaction. The building's scale harmonises with the urban context, improving the streetscape and contributing to the neighborhood's character. The facade balances functionality with aesthetic appeal, and the clear division between office and data centre components enhances navigation, positively impacting the urban environment.



Objective 07.

Better look and feel

The design achieves a timeless aesthetic with precast concrete panels, offering a minimalist look that enhances visual appeal without overwhelming the environment. Articulated shadow lines and expressed fire stairs humanise the building's scale, creating visual depth and dynamic street presence. Rooftop planting softens the concrete surfaces, integrating greenery that enhances the streetscape while promoting well-being through biophilic design.

The building's massing and facade treatments integrate seamlessly with the urban context, complementing the surrounding industrial landscape. The modern, minimalist design contributes positively to the local streetscape, enhancing the building's civic presence and establishing a cohesive architectural identity.



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