

URBAN HEAT ISLAND MITIGATION STRATEGY

DEEP SOIL AND PERMEABILITY



Deep Soil and Permeability

- Deep soil zones to support the establishment and long-term health of large canopy trees maximised across the site where possible.
- Permeable surface areas are maximised to reduce heat retention and improve groundwater infiltration.
- Impervious paving and hardstand areas have been minimised wherever practical within the constraints of the site's operational requirements.
- Site soil moisture retention is integrated through soil amelioration and mulching to support vegetation during periods of extreme heat and drought.
- Natural cooling processes through evapotranspiration and infiltration are promoted across the site.

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TREE CANOPY COVER



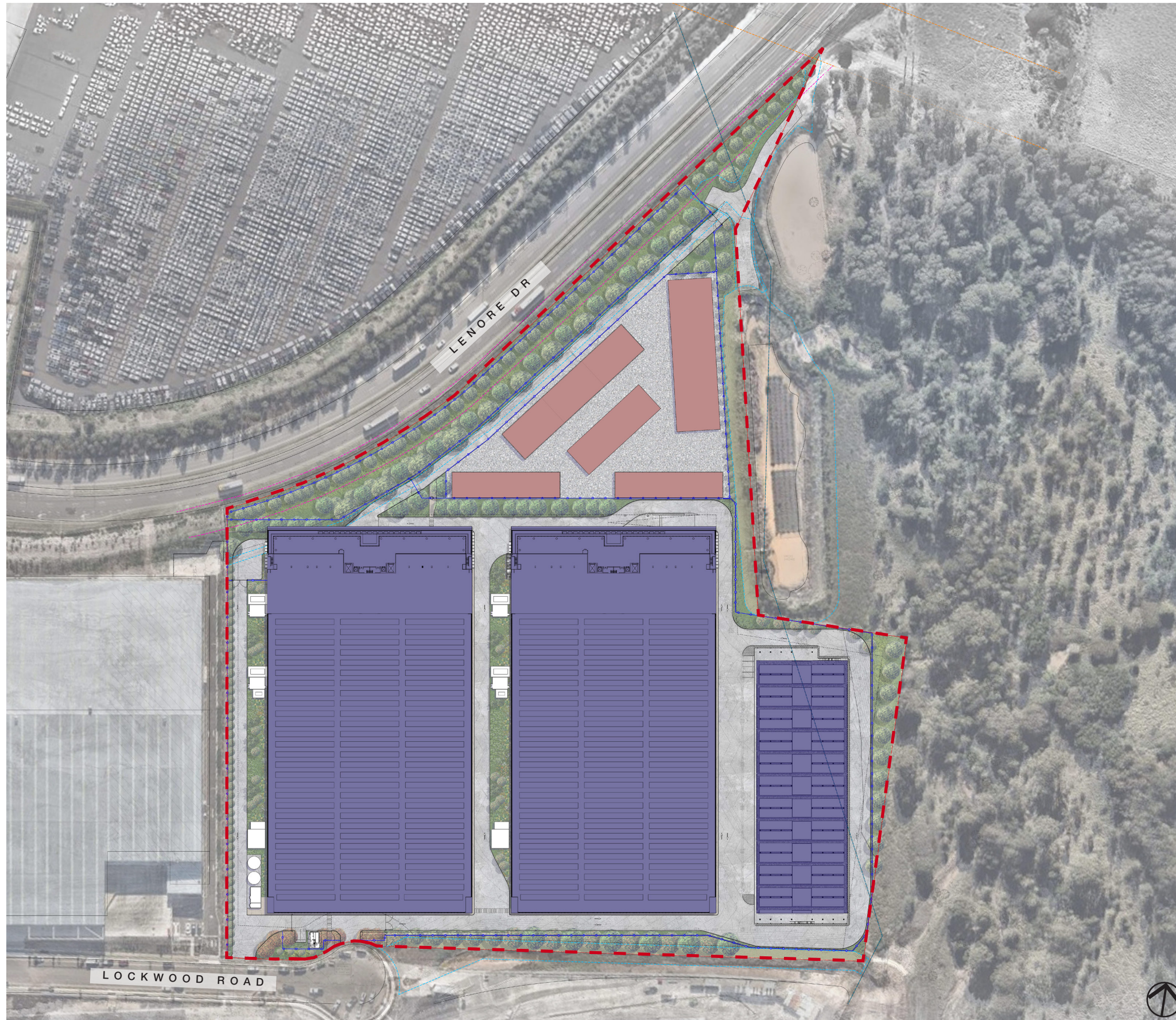
CONTEXT PLAN

Tree Canopy Cover

- Urban tree canopy coverage has been increased across over the site where practical to provide shade over streets, footpaths, parking areas and buildings.
- The landscape design prioritises large-growing, climate-resilient native tree species in areas where suitable adapted to Penrith's hot western Sydney climate.
- Embellishment of continuous canopy corridors to improve pedestrian comfort and reduce surface temperatures.
- Thermal comfort through reduced solar exposure and increased evapotranspiration has been enhanced across the site where appropriate.

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REFLECTIVE SURFACES



CONTEXT PLAN

Reflective Surfaces

- High solar reflectance (high albedo) materials for roofs, pavements and building facades incorporated into the architectural design.
- Reduced heat absorption using lighter-coloured surface treatments have been specified where appropriate.
- Cool roof technologies incorporated to decrease building cooling demands and ambient air temperatures.
- Extensive areas of dark asphalt and heat-absorbing materials will be minimised where possible.

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WATER SENSITIVE URBAN DESIGN (WSUD)

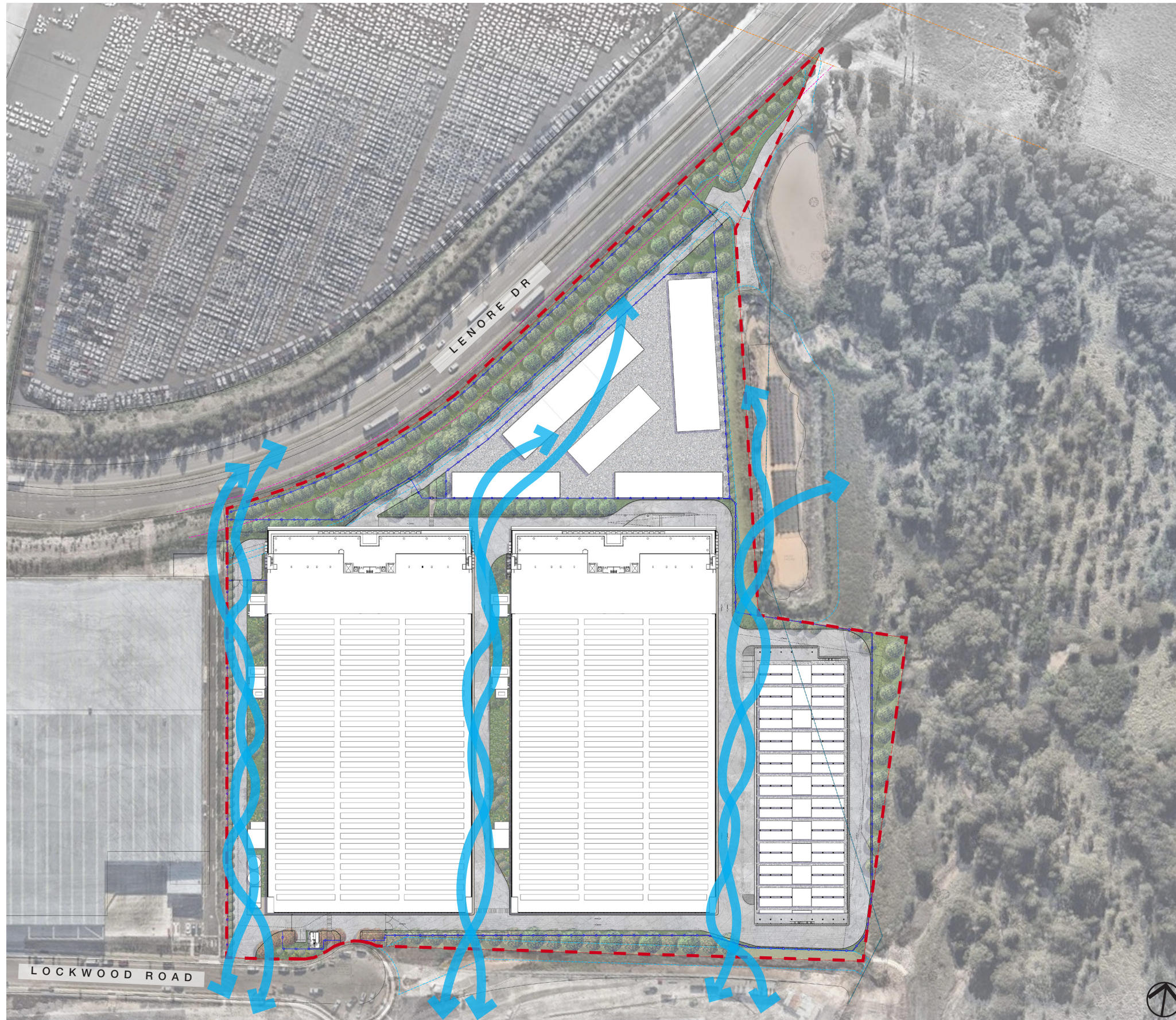


Water Sensitive Urban Design (WSUD)

- WSUD measures have been integrated into the site design to manage stormwater while providing cooling and landscape benefits.
- Bio-retention systems, raingardens and vegetated swales have been incorporated throughout the development.
- Stormwater shall be captured and stored for potential use in landscape irrigation to support vegetation health during dry periods.
- Vegetation density has been increased where possible around WSUD infrastructure to maximise cooling outcomes.
- Water quality is improved for any potential run off entering local waterways
- Urban cooling will be increased through evapotranspiration and moisture availability.

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CROSS VENTILATION



Cross Ventilation

- Built form set out and landscape layouts facilitate natural airflow throughout the site by
- capturing the main winds in summer and winter.
- Clear ventilation corridors align with prevailing summer breezes.
- Vegetation has been positioned strategically to provide shade without impeding beneficial airflow.
- Outdoor thermal comfort is improved by promoting passive cooling opportunities.
- The proposed built form position through climate-responsive design contributes to a reduction in the reliance on mechanical cooling systems.

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MICRO-CLIMATE



Micro-Climate

- A diversity of comfortable outdoor areas have been provided through integrated landscape design throughout the site.
- Shade trees and palms, general planting and awning structures moderate local temperatures around built form and pavements.
- Refuge areas that will create comfortable space during extreme heat events have been created between buildings through the use of building shade and landscape areas that will contain tropical style leafy planting.
- Buildings have been positioned to address solar orientation, wind exposure and seasonal conditions.
- Buildings create shade from the hotter afternoon western sun.
- The building's orientation north /south with the long edge facing west, casts more shade over the site than positioning the buildings east/west.
- Built footprint provides shading through under croft building entrances and gathering areas.
- Shaded terraces to rooftop level create a desirable internal/ external connection and promote biophilic design.
- Cooler microclimates between buildings and to the site edges have been created within the site.

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BIODIVERSITY

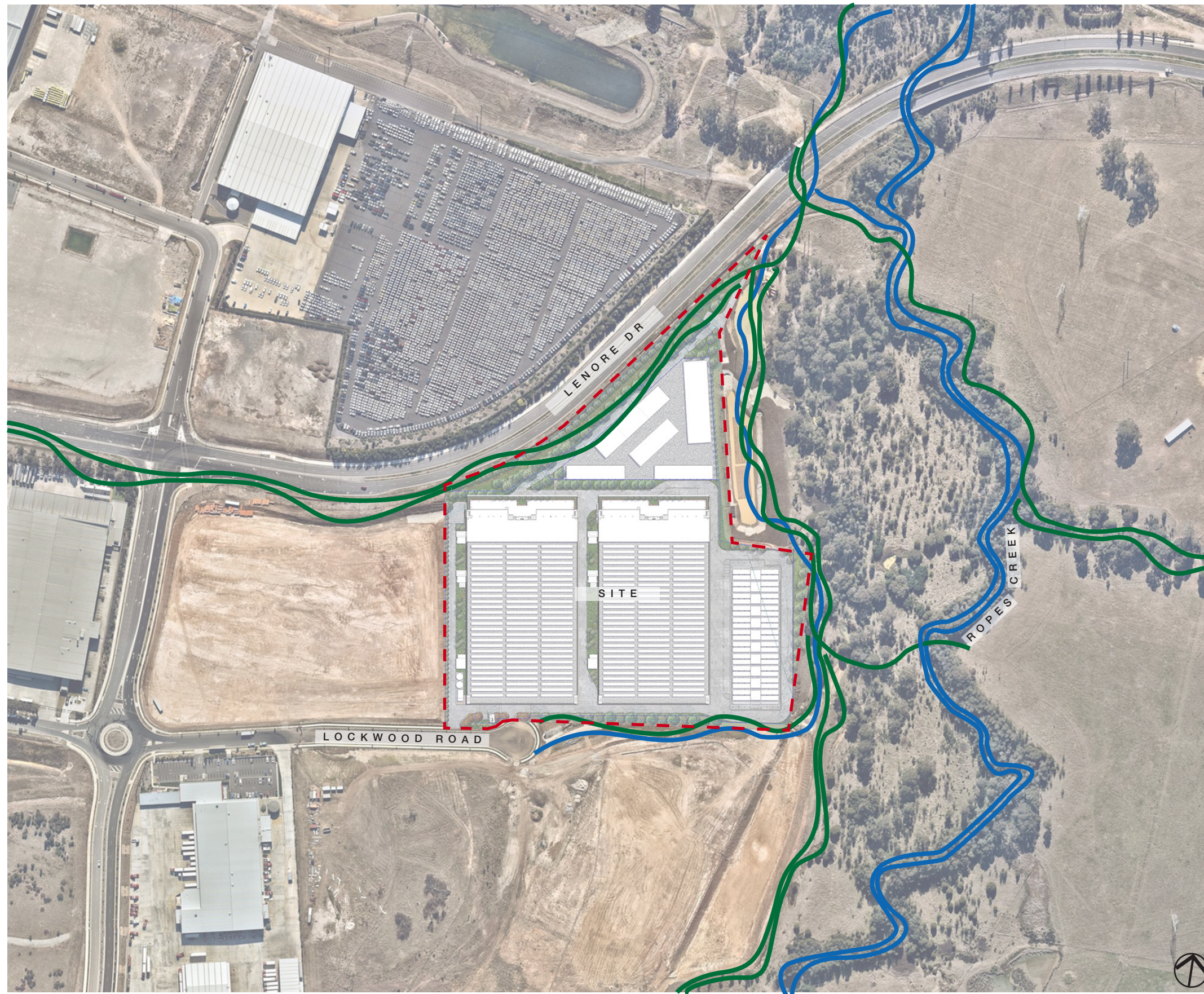


Biodiversity

- Vegetation diversity has been maximised to improve ecosystem resilience and urban cooling performance.
- Indigenous and locally native species that are adapted to Penrith's climatic conditions have been prioritised where possible
- Habitat opportunities for birds, pollinators and other native fauna have increased on site through landscape species selection
- and through the connection of green infrastructure
- Ecological connectivity between existing vegetation corridors and open spaces has been strengthened.
- The proposal delivers co-benefits including cooling, habitat creation, improved air quality and community wellbeing.

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BLUE-GREEN LINKS



Blue-Green Links

- Where appropriate interconnected networks of vegetation and water-based infrastructure has been considered throughout the site.
- Connections between open spaces, waterways, streetscapes and ecological corridors has been strengthened where possible
- Design integrates WSUD elements with urban greening initiatives to maximise cooling benefits.
- Continuous canopy cover and habitat connectivity across the landscape is promoted within the constraints of the bushfire zoning overlay .
- Pedestrian amenity is considered through shaded and thermally comfortable movement corridors.
- The proposal respects and acknowledges the broader regional green infrastructure networks identified by Penrith City Council and Western Sydney planning strategies