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ATSYD2-SSD-REP-ESD-010

Greenbox Architecture  
**Lane Cove West Data Centre**  
SSDA Site Infrastructure Statement

Issue 2 | 4 February 2019

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 259234

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# Document verification

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# 1 Introduction

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The purpose of this report is to summarise the infrastructure requirements of the proposed data centre development.

## 2 Site Utility Infrastructure Details

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### 2.1 Power

The project team has been in discussions with Ausgrid about the project and possible electrical supply options. Ausgrid have confirmed that the requested capacity and arrangement is available from a nearby 132kV Sub-Transmission Switching Station (STSS) at Lane Cove.

It is envisaged that 2 new 132kV radial feeders will be constructed from the Ausgrid Lane Cove STSS, connecting to a new private 132kV substation on the proposed site. The two new feeders will provide for N+1 security of electrical supply.

Options have been provided by Ausgrid as to possible overhead and underground 132kV cable reticulation routes from the STSS to the site 132kV substation. The final reticulation routes, including whether diverse cable routes are required for the feeders are still under investigation. New Ausgrid easements will be required along the routes in accordance with Ausgrid standard NS143.



Figure 1: Overview of Lane Cove STSS and proposed AirTrunk site

## 2.2 Water

An existing DIA150 Sydney Water main is present along the southern boundary of the site at the entrances on both Sirius Road and Apollo Place. Connections at one or both of these locations should be possible.

Our initial assessment is that the existing DIA150 main will be sufficient for the first phases of the project. As the site develops it may be necessary to increase this connection to DIA200. This will involve upgrading approximately 300 meters of existing main. This upgrade will not be needed for at least 5 years and may not ever be required.

A flow and pressure enquiry has been submitted to Sydney Water and we are awaiting a response.

## 2.3 Sewer

An existing DIA225 sewer line runs along the southern border of the site. It is envisaged that a connection will be made along this line, and will involve pumping as the site is lower than this existing line and other nearby infrastructure.

It is not envisaged that an upgrade to this line will be required. The possible requirement to upgrade the water supply is driven by the need for make up water to cooling towers – the majority of this water will be consumed on site (evaporated), not put to drain.

## 2.4 Communications

Both Optus and NBN have infrastructure in the vicinity of the site on Sirius Road and Apollo place which may be appropriate for construction and site operations.

Numerous high capacity communications connections to the site will be needed to support the proposed data centre operations. The end user of the facility is already in discussions with several network providers to make these connections available.

## 2.5 Gas

The site does not require a gas supply.

## 3 Electrical Substation Details

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A new 132kV privately owned substation will be procured to serve this site only.

The substation will be fed by 2No. new 132kV Ausgrid feeders from the Lane Cove STSS. The exact ownership demarcation line between the end user and Ausgrid is to be agreed but is anticipated to be at the location where the incoming 132kV Ausgrid feeders terminate into the client owned 132kV switchgear in the

new substation. The substation itself will be owned by the end user and further MV and LV distribution on the site will be a private network.

The infrastructure in the substation will include:

- 3No. 45MVA 132/11kV transformers. It is envisaged that 2No. transformers will be installed initially, with the 3rd installed at a later date as the site electrical load increases.
- A 132kV Gas Insulated Switchgear (GIS) unit to allow for control of the incoming 132kV feeders, and protection and distribution to the 45MVA transformers.
- 3No. 11kV switchgear units to allow for protection, control, and distribution of power around the site via an 11kV private network.
- 3No. Neutral Earthing Resistors to allow for reduction of the substation fault current to an acceptable level.
- 2No. 11/0.4kV Station services transformer to supply the electrical demands of the substation.
- Additional miscellaneous equipment relating to SCADA, protection, control, and operation of the substation.

## 4 DBYD Site Assessment

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We have undertaken a DBYD assessment of the site. The following drawings showing various services in the vicinity of the proposed site are attached for reference:

- SK-9001: Existing Sydney Water Infrastructure
- SK-9002: Existing Jemena Infrastructure
- SK-9003: Existing AusGrid Infrastructure
- SK-9004: Existing NBN Infrastructure
- SK-9005: Existing Optus Infrastructure

- Sewer**
- Sewer Main (with flow arrow & size type text)
  - Disused Main
  - Rising Main
  - Maintenance Hole (with upstream depth to invert)
  - Sub-surface chamber
  - Maintenance Hole with Overflow chamber
  - Vent shaft EDUCT
  - Vent shaft INDUCT
  - Property Connection Point (with change to downstream MFL)
  - Concrete Encased Section
  - Terminal Maintenance Shaft
  - Maintenance Shaft
  - Rodding Point
  - Lamp hole
  - Vertical
  - Pumping Station
  - Sewer Rehabilitation
- Water**
- Water Main - Potable (with size type text)
  - Disconnected Main - Potable
  - Proposed Main - Potable
  - Water Main - Recycled
  - Special Supply Conditions - Potable
  - Special Supply Conditions - Recycled
  - Restrained Joints - Potable
  - Restrained Joints - Recycled
  - Hydrant
  - Maintenance Hole
  - Stop Valve
  - Stop Valve with Bypass
  - Stop Valve with Tapers
  - Closed Stop Valve
  - Air Valve
  - Valve
  - Scour
  - Reducer / Taper
  - Vertical Bends
  - Reservoir
  - Recycled Water is shown as per Potable above. Colour as indicated

**SITE AREA - 39,453M2**

**BUILDING AREA :**

GROUND FLOOR - 14,578M2  
 LEVEL 1 = 12,974M2  
 LEVEL 2 = 4,979M2

**TOTAL GFA = 32,531**

FSR= 32,531 / 39,453  
 = **0.82:1**

Issue	Date	Description

Project Manager

Services Design

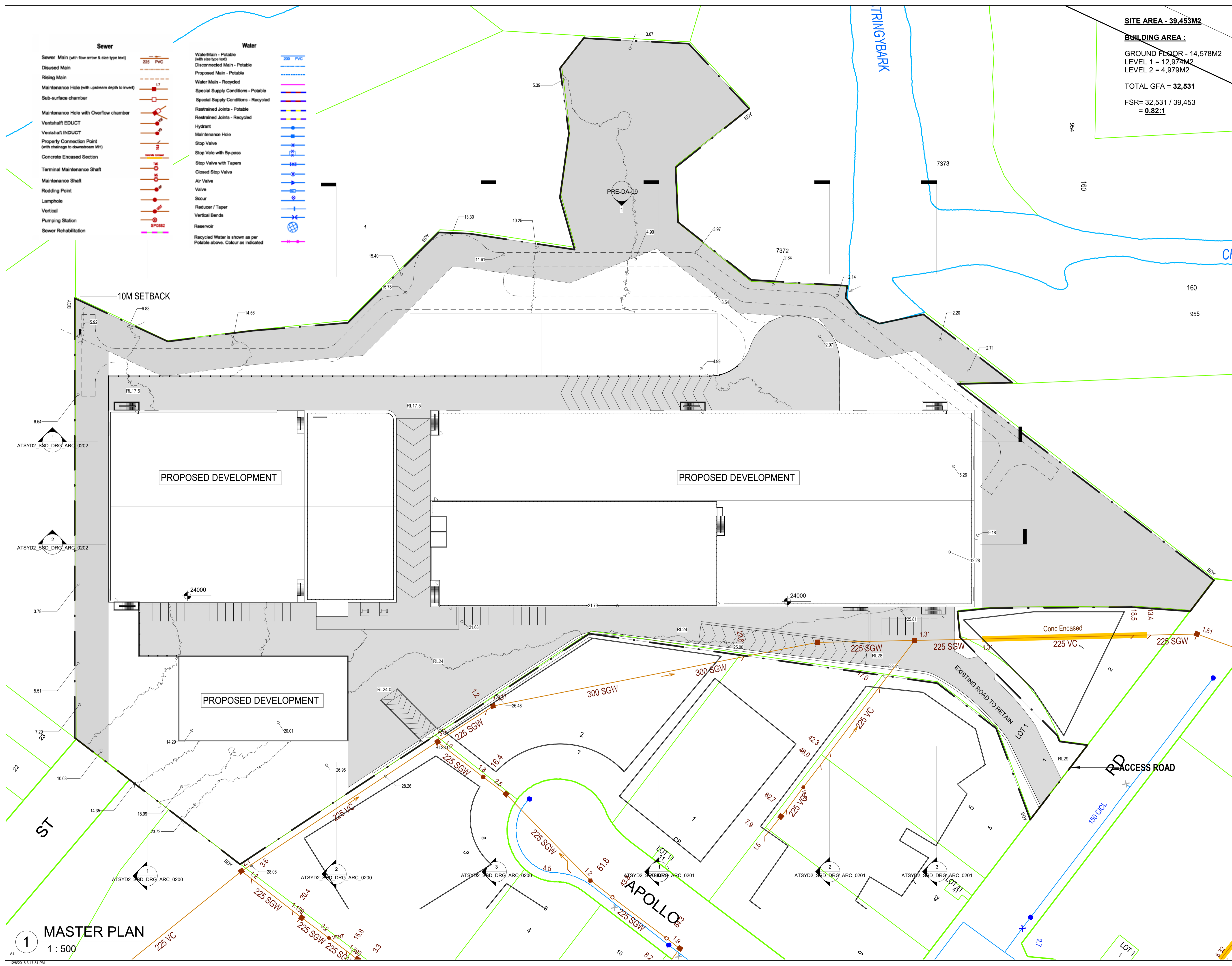
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Lane Cove West Data Centre  
 JN 259234

SK-9001: Sydney Water Exiting Infrastructure

Date: 17/12/18

Status: for information



**1 MASTER PLAN**

1 : 500

**SITE AREA - 39,453M2**

**BUILDING AREA :**

GROUND FLOOR - 14,578M2

LEVEL 1 = 12,974M2

LEVEL 2 = 4,979M2

TOTAL GFA = 32,531

FSR= 32,531 / 39,453  
= **0.82:1**

Issue	Date	Description
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Project Manager		
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Services Design		
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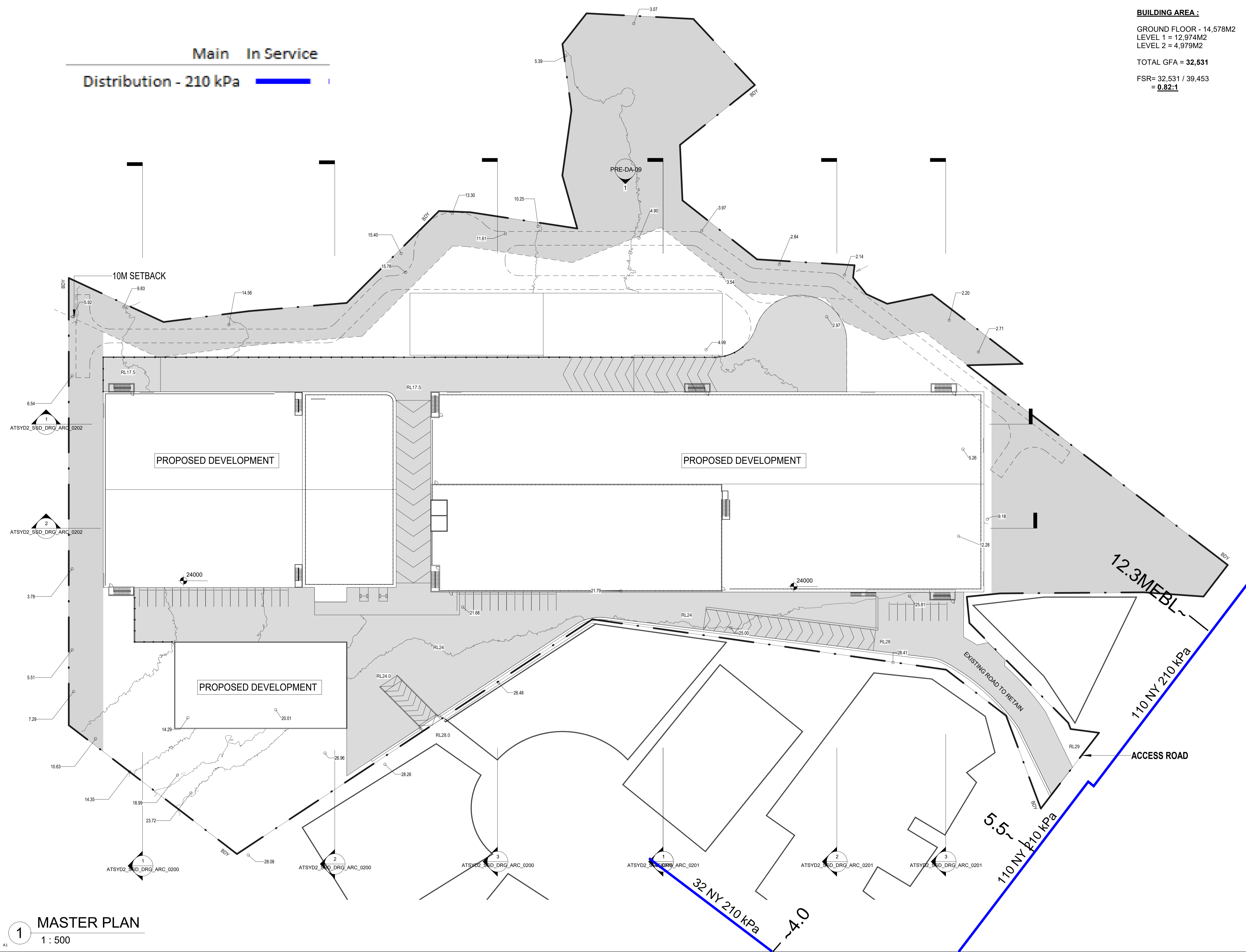
Lane Cove West Data Centre  
JN 259234

SK-9002: Jemena Exiting Infrastructure

Date: 17/12/18

Status: for information

Main In Service  
Distribution - 210 kPa



**1** MASTER PLAN  
1 : 500





Type: Telco  
Technology: Copper/Fibre

Assets

-  IN-SERVICE: Cable/ Duct/ Trench
-  DESIGNED/CONSTRUCTED: Cable/ Duct/ Trench
-  Pit/Manhole

SITE AREA - 39,453M<sup>2</sup>

BUILDING AREA :

GROUND FLOOR - 14,578M<sup>2</sup>  
LEVEL 1 = 12,974M<sup>2</sup>  
LEVEL 2 = 4,979M<sup>2</sup>

TOTAL GFA = 32,531

FSR= 32,531 / 39,453  
= **0.82:1**

Issue	Date	Description

Project Manager

Services Design

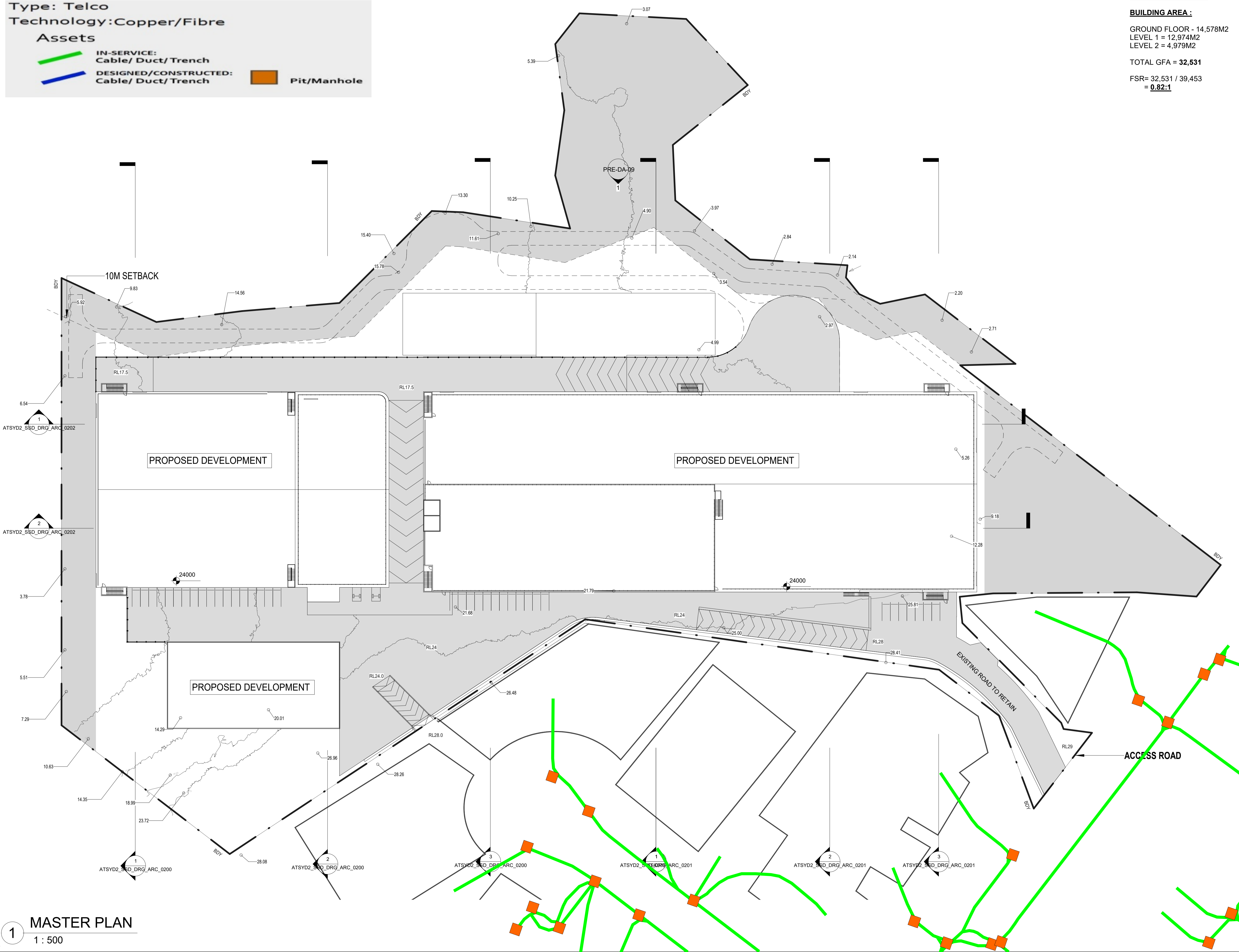
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Lane Cove West Data Centre  
JN 259234

SK-9005: Telstra Exiting Infrastructure

Date: 17/12/18

Status: for information



**1** MASTER PLAN  
1 : 500