



**Mamre Road Data Centre Campus**  
**SSD-92743706**  
**706-752 Mamre Road, Kemps Creek**  
**Earthworks Strategy Report**

Plan Project Management

3/12/2025

25-1282

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# 1. Introduction

This Earthworks Strategy Report has been prepared by AT&L on behalf of Plan Project Management in support of a State Significant Development Application ([SSD-92743706](#)) for the proposed development of the **Mamre Road Data Centre Campus** located at 706-752 and 754-786 Mamre Road, 1-23 Aldington Road, Bakers Lane and portions of Mamre Road and Aldington Road, Kemps Creek (the Site).

This report outlines the various constraints and inputs that were considered in the development of the proposed site grading of the Mamre Road Data Centre Campus. The development of the final levels needs to consider multiple inputs, various constraints and control points internally and external to the site, the proposed DCP road layout, neighbouring properties, cut and fill volumes, stormwater runoff with the overarching consideration of the function design to ultimately deliver a high quality data centre development suitable for end-user operational requirements.

The overall objectives of developing the final earthworks levels across the site, as is the case across each of the development sites within the Mamre Road Precinct, include:

- Achieve as close as possible to a balanced cut to fill outcome.
- Minimising retaining walls where possible and level pads to suit the proposed built form of the data centre parcels.

## 1.1. Background

In 2021, AT&L were engaged by the Mamre Road Land Owners Group (LOG) to develop an overall earthworks strategy for the entire precinct. At that stage, it was estimated that development of the precinct would generate approximately 14,000,000 m<sup>3</sup> of cut to fill across the precinct, with around 400,000m<sup>2</sup> of retaining walls.

Subsequently, AT&L was engaged by Aliro / ISPT to prepare civil design documentation, including bulk earthworks and site grading, for the Summit at Kemps Creek development located on the same site as the Mamre Road Data Centre Campus. The Bulk Earthworks Plan that supported the SSDA for Summit at Kemps Creek, most recently lodged in April 2025 in support of SSD-30628110, is reproduced below as **Figure 1**.

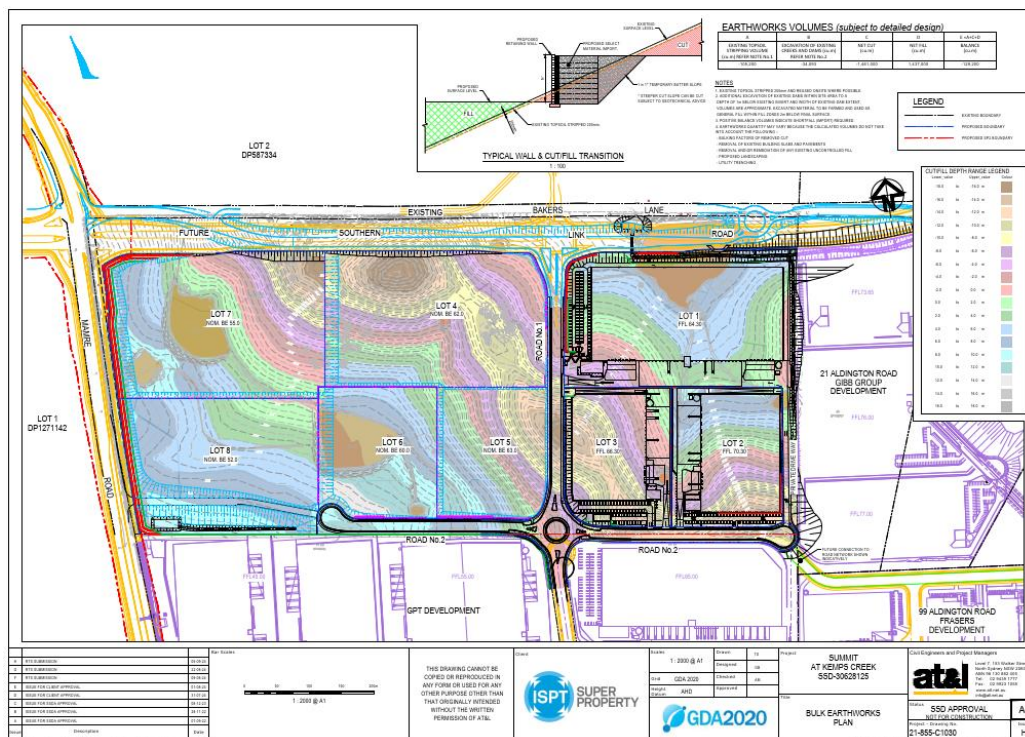


Figure 1: Bulk Earthworks Plan for Summit at Kemps Creek development (AT&L, September 2024)

Throughout the design development of the Summit at Kemps Creek Masterplan a significant number of iterations of the masterplan were prepared to provide the most functional and tenant driven design taking into consideration the current topographic, drainage and access constraints on the site.

The bulk earthworks and site grading proposal that supported the Summit at Kemps Creek SSDA was developed to meet the needs of future tenants as well as considering the existing topography, the DCP road layout, adjoining site levels, existing and proposed levels of Mamre Road and the future Southern Link Road and the stormwater strategy for the estate.

The site grading and bulk earthworks strategy to support the proposed development of the Mamre Road Data Centre Campus is generally consistent with the strategy that supported the Summit at Kemps Creek SSDA.

## 1.2. Site Description

The Site for the proposed development, 706-752 Mamre Road, Kemps Creek (Lot 10 DP 1280592), constitutes the main development site with areas across shared boundaries to the east and south (described below) utilised to facilitate roadworks and bulk earthworks:

- Gibb Group site to the east known as 1-22 Bakers Lane, Kemps Creek (Lot 40 DP 708347).
- GPT Group site to the south known as 754 Mamre Road, Kemps Creek (Ancillary works (roadworks and bulk earthworks) will also be undertaken on adjoining properties to the south (Lot 180 DP 1290397).

Additionally, power supply lead-in from Sydney-West Substation is proposed as part of the development, which traverses through multiple landholdings.



Figure 2: Site Area (imagery source: nearmap, 10 October 2025)

## 1.3. Project Description

The site is proposed for development under a State Significant Development Application (SSDA) as a data centre campus comprising:

- Approximately 26 shells across four-storeys data centre buildings (4x four shells and 2x five shells), including six technical office buildings, plus a campus office.
- Incoming and internal electrical substations and associated infrastructure
- Site preparation, including earthworks, stormwater, sewer, roads, and associated infrastructure.

## 1.4. Supporting Documentation

The following documentation should be read in conjunction with this report:

- a) Civil Drawings (AT&L)
- b) Civil Infrastructure Report (AT&L, October 2025)
- c) Erosion and Sediment Control Plan (AT&L, October 2025)
- d) Water and Stormwater Management Plan (AT&L, October 2025)

## 2. Compliance with SEARs

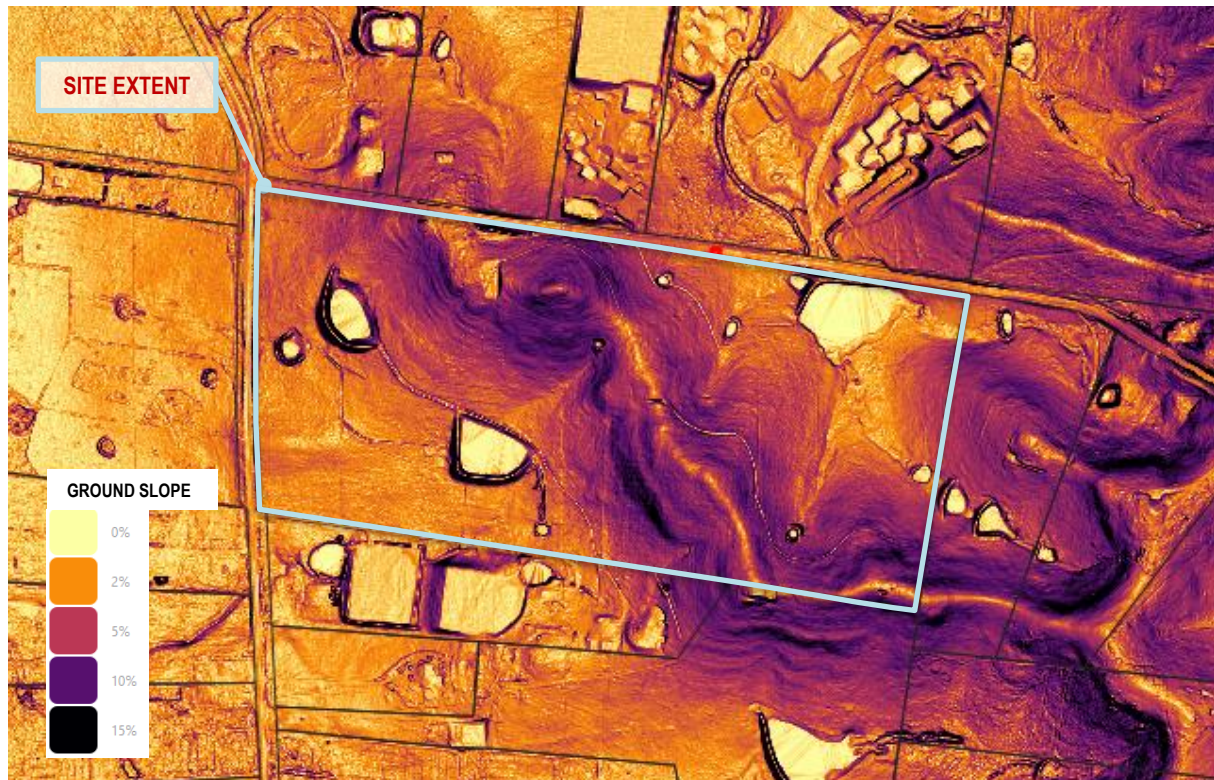
This report responds to the NSW Planning Secretary’s Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning, Housing and Infrastructure (DPHI) in September 2025. **Table 1** below summaries all key civil infrastructure issues raised in the SEARs and how they have been addressed in this report.

*Table 1: Planning Secretary’s Environmental Assessment Requirements addressed in this report*

Key Issue listed in the SEARs	Response
<b>Suitability of the Site</b>	
<ul style="list-style-type: none"> <li>■ <i>Detailed justification for the proposal and that the site can accommodate the proposed development having regard to its potential environmental impacts, effect on neighbouring sites, strategic context and existing site constraints, including:</i> <ul style="list-style-type: none"> <li>▶ <i>An options analysis of the proposed bulk earthworks to seek to deliver balanced cut and fill and minimise the height and visual impact of the development and proposed retaining walls, with consideration of proposed works and levels on adjoining properties.</i></li> </ul> </li> </ul>	<p>An options analysis of the proposed bulk earthworks is outlined in <b>Section 7</b>.</p> <p>This options analysis accounts for the topographic characteristics of the site (summarised in <b>Section 3</b>), the design objectives for the proposed development of the Mamre Road Data Centre Campus (outlined in <b>Section 4</b>), various constraints associated with the site and the proposed development (outlined in <b>Section 0</b>) and the outcomes of the recommended earthworks strategy (outlined in <b>Section 6</b>).</p>
<b>Infrastructure Requirements</b>	
<ul style="list-style-type: none"> <li>■ <i>Details of earthworks, including cut and fill volumes, and how the earthworks strategy has been designed to appropriately integrate finished levels with surrounding properties, development and infrastructure and minimise amenity impacts from any boundary retaining walls.</i></li> </ul>	<p>Details of the recommended earthworks strategy, including earthworks volumes, are outlined in <b>Section 6</b>.</p>

### 3. Site Characteristics

The Site in its existing condition is characterised by undulating topography. A ridgeline runs across the site, generally aligned from south-east to north-west. The ground slope either side of the ridgeline is generally between 6% and 15%. Elsewhere across the site the ground slope is generally 2-3%. A slope analysis of the existing topography is presented in **Figure 3**.



*Figure 3: Slope analysis of existing site topography (based on NSW Government LiDAR data, 2019)*

The highest ground elevation within the Site is approximately 85 mAHD adjacent to the south-eastern corner. The lowest ground elevation is approximately 42 mAHD at the south-western corner adjacent to Mamre Road. The lowest point adjacent to Bakers Lane is approximately 54 mAHD.

Most of the site in its existing condition is pervious, other than a single residential building and several access driveways.

The site, as with the majority of the precinct, is steep in nature and will require significant earthworks to allow for the intended use to occur. Earthworks of 10m plus will be common on the ridge lines with fill zones also exceeding 10m in some areas.

Delineation of the internal drainage catchment and external catchment that drain through the Site is presented in **Figure 4**.

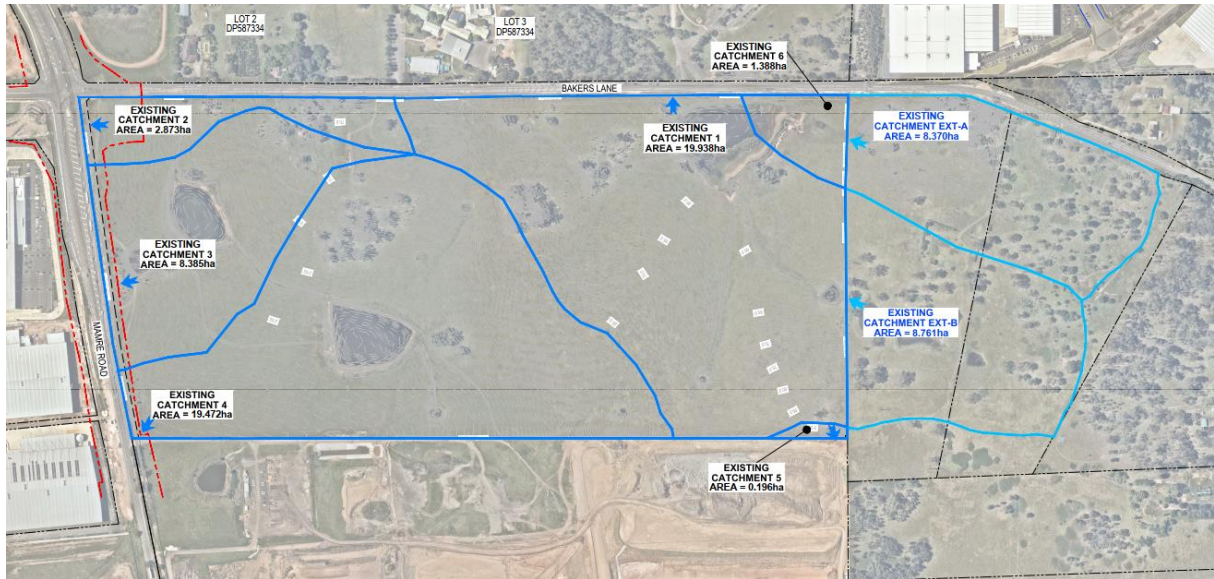


Figure 4: Catchment extents under existing conditions

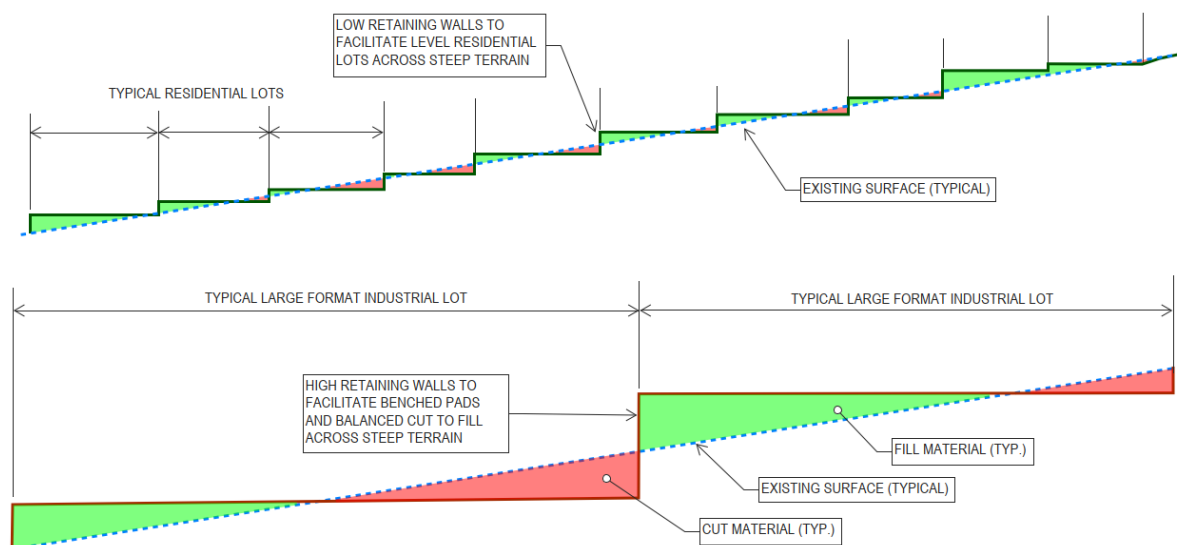
## 4. Design Objectives

The objectives of developing the final earthworks levels across the site, as it has been across each of the development sites within the MRP, are:

- To achieve as close as possible to a balanced cut to fill outcome
- To minimise the heights and extents of retaining walls as much as possible.
- To minimise the overall heights of buildings (measured from existing ground level).
- To provide a level pad outcome to suit the intended built-form across the Mamre Road Data Centre Campus.

The proposed Mamre Road Data Centre Campus has been generally divided into six (6) parcels, each with an area of between 4.2 ha and 5.0ha. The Campus will also comprise shared facilities including an electrical substation adjacent to Mamre Road (approx. 1.9ha), a Central Operation and Support Hub (COSH) Building and campus ring road to provide access to each of the parcels. Key characteristics of the proposed development pertaining to bulk earthworks and site grading are outlined below:

- Each data centre parcel will be graded flat to allow for the built-form associated with each of the data centre shells. To achieve as close as possible to a balanced cut to fill, extensive retaining will be required within and surrounding the site.
- As opposed to a residential subdivision which is able to better follow the existing terrain with multiple retaining walls at each allotment, this site will require larger walls at the surrounds of each parcel and at the interface between parcels. In essence, the larger the lot or parcel, the higher the retaining walls (either cut or fill) that are required to enable ground levels that support development of those lots or parcels. The area of a typical residential lot is considerably smaller than the data shell parcels at the site. For example, a residential subdivision with lots in the order of 300 to 500 square metres each offers opportunity for smaller retaining walls than the proposed data centre parcels that will vary between 42,000 and 50,000 square metres each. A diagrammatic representation of the difference between residential subdivisions and large-format industrial subdivisions across steep terrain is presented below in **Figure 5**.
- Overland flow from the development sites will be conveyed through the roadways to their existing lawful points of discharge.
- While steps have been taken to attempt to reduce the height of retaining walls at interfaces with the surrounding development sites, there are some areas where reducing or removing them completely is not possible. This is primarily due to the governing levels of each site being vastly different.



**Figure 5: Comparison of site grading, cut/fill and retaining walls for a typical residential and industrial subdivision**

The intent of the proposed development of the site is to produce six (6) level building pads to facilitate the development of data centre parcels. Each data centre parcel will contain either four or five data centre “shells” and a shared tech building. Each data centre shell (including the building structure and back-up generators adjacent to the structure), will be four-storeys with overall dimensions of approximately 93 metres by 46 metres.

The size and scale of the proposed data centre parcels is based on an optimised “kit of parts” design that has been developed to optimise construction and operational efficiency, and to maximise the spatial efficiency of the data generation and storage capacity within each of the shells.

The cut and fill requirements within the site have been defined through multiple design iterations and careful consideration of various factors within and surrounding the development site, in particular the levels of existing and planned roads within and adjacent to the site (Mamre Road, Bakers Lane, future Southern Link Road, proposed estate roads 01 and 02). Further discussion of the constraints relating to the proposed earthworks strategy that will support development of the Mamre Road Data Centre Campus are outlined in **Section 5**.

## 5. Constraints

Several constraints within and surrounding the site impacted the way the site has been graded in order to achieve the required design objectives and provide sound engineering outcomes. These constraints are summarised below.

### 5.1. Roadworks and surrounding development sites

The Site sits within an overall masterplan for the Mamre Road Precinct established under the *Mamre Road Precinct Development Control Plan* (NSW Department of Planning, Industry and Environment, 2021). The surrounding sites and road reserve are also currently undergoing designs which impact the development site. These include:

- The future Southern Link Road (SLR) along the northern boundary of the Site (to be delivered by others separate to the proposed development of the Mamre Road Data Centre Campus).
- Mamre Road upgrade along the western boundary of the Site.
- Road No. 1, running in a north-south direction through the site to connect to the future SLR (delivered by others) and Road 1 within the adjacent Yiribana Logistics Estate (Lot 180 DP 1290397, currently being developed by GPT Group).
- Road No. 2, which will run along the southern side of the site, east of Road No. 1 and will ultimately connect to the adjacent 1-51 Aldington Road developments (Lot 40 DP 708347, proposed to be developed by Gibb Group) and 99-111 Aldington Road site (Lot 37 DP 258949, proposed to be developed by Frasers Property Industrial).

Typically, major external road upgrades are designed separately to adjacent internal development sites as they are governed by stringent design guidelines that may not necessarily result in a favourable interface to adjacent sites. Based on this, any external roadworks are adopted as constraints in terms of position and levels.

As the site is within an employment (warehousing and distribution centre) precinct, the roadway designs need to account for large vehicles, in this case the design vehicle being a 30m long PBS Level 2 Type B vehicle (check vehicle is a 36.5m PBS Level 3 Type A vehicle). Roadway designs for these vehicles typically have lower grade limits and horizontal/vertical curves to ensure the design vehicle is able to traverse the roads.

The development sites surrounding the proposed Mamre Road Data Centre Campus are similarly large-scale industrial developments, resulting in large flat pad sites located over the existing undulating ground surface. Due to this, interfaces at the property boundaries typically result in large level differences, as the governing entry level for the sites are set from vastly different locations along the estate-road network.

### 5.2. Stormwater

The management of overland flow paths both from within and surrounding the site is also a key constraint when grading a site. Sydney Water have typically restricted the redirection of catchments from one catchment to another to no greater than  $\pm 10\%$ .

In order to provide a non-worsening outcome to the waterways/road reserves/adjacent properties, the existing lawful points of discharge must be maintained to their pre-developed peak outflow rates or where other discharge points have been identified by Sydney Water. In order to achieve this, on-site detention is utilised for internal flows, while external catchments are collected and conveyed through to their existing lawful point of discharge. Due to the large ridge running through the centre of the site, external catchments entering the site currently discharge to different lawful points of discharge at the adjacent road reserves.

### 5.3. Geotechnical conditions

The results of a detailed geotechnical investigation covering the site (PSM, October 2025) shows that bedrock in the form of sandstone and shale is present approximately 600mm to 1m below the existing surface. Site levels will need to be set in an attempt to reduce the volume of cut within these rocky areas. Although due to the very steep nature of the existing topography, deep cuts will need to be undertaken to deliver the flat pads.

It is expected hard rock will be encountered within the deep cut zones. It is expected the excavated rock will be crushed on site and where possible, oversized rock will be used for rip rap and rock armour around stormwater structures.

#### 5.4. Building height

A key consideration in the development of the bulk earthworks strategy is the preference to limit the overall building height relative to existing ground level to minimise potential visual impacts. The trade-off against limiting building heights relative to existing ground level is the balance of bulk earthworks across the site.

## 6. Recommended Earthworks Strategy

### 6.1. Overview

The intent of the proposed development of the site is to produce level pads to facilitate the development of each of the data centre parcels (typically between 4.2 ha and 5.1 ha). The creation of level pads for the data centre parcels will require benched earthworks across the site.

The cut and fill requirements within the site have been defined through multiple design iterations and careful consideration of the following:

- Undulating topography within the Mamre Road Precinct, resulting in the requirement of extensive cut and fill to facilitate economic development and provide flexibility to cater for the staged development of the Mamre Road Data Centre Campus.
- Provision for connectivity to and interfaces with adjoining lands, including the following adjacent sites:
  - ▶ 1-51 Aldington Road (SSD-74784709, 'Prepare EIS' status as of October 2025)
  - ▶ 754-770 and 784-786 Mamre Road (SSD-10272349, Approved on 22 September 2023 and Under Construction)
  - ▶ 99-111 Aldington Road (Frasers Property Industrial site, DA lodged to Penrith City Council in June 2025)
- Achieving as close as possible to a balance of cut to fill to minimise the volume of material that needs to be imported or exported, allowing for management of topsoil and over-excavation (desilting) required within existing farm dams.
- Minimising the height and extent of retaining walls fronting the Southern Link Road, Mamre Road and internal estate roads as much as possible.
- Avoiding extensive cut in bedrock sub-surface units.
- Meeting the requirements for the end-use of the site, being that it will cater for built form of data centre parcels and associated infrastructure including service roads, electrical substations, water tanks and fuel tanks for back-up generators.
- Provision of a final design solution that addresses water management requirements, including stormwater quantity and quality management, external catchments, stormwater drainage (major and minor system), flooding and discharges.

It is recommended that the proposed earthworks design contained within the AT&L documentation provides the most contextually and economically appropriate design in consideration of the above requirements.

Refer to drawing CIV-02031 for the proposed Bulk Earthworks Plan. A summary of the estimated cut and fill volumes across the site is presented in **Table 2**.

**Table 2: Summary of proposed cut and fill volumes across the site**

#### TOTAL EARTHWORKS VOLUMES *(subject to detailed design)*

A	B	C	C	D	E =A+C+D+E
EXISTING TOPSOIL STRIPPING VOLUME (cu.m) REFER NOTE No.1	EXCAVATION OF EXISTING CREEKS AND DAMS (cu.m) REFER NOTE No.2	EXCAVATION OF EROSION AND SEDIMENT BASINS	NET CUT (cu.m)	NET FILL (cu.m)	BALANCE (cu.m)
-91,000	-34,100	-57,000	-1,499,200	1,346,200	-335,100 (EXPORT)

NB: These volumes exclude allowances for bulking and compaction, excavation of footings and services trenches, select materials (e.g., retaining wall backfill) and engineered fill.

The volumes presented in **Table 2** are based on the current design at the time of SSDA submission, and further detailed design of the site infrastructure and campus-wide building works may alter these volumes. It is assumed that topsoil from the Site will be reused on Site by blending with general fill material.

All imported materials will comply with the requirements of the Import Fill Protocol and geotechnical specifications for the development. Topsoil stripping, blending and placement will be undertaken in accordance with the geotechnical engineering specification for the project.

## 6.2. Batter design

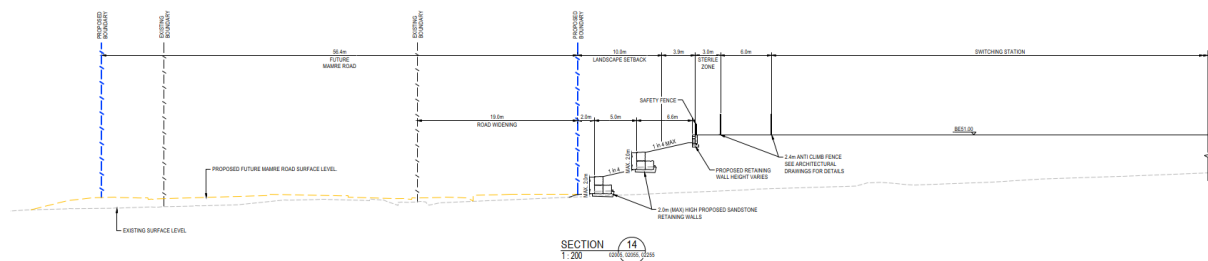
Any permanent batters steeper than 1 in 5 will be vegetated in accordance with Penrith City Council requirements. All external batters to the development have been limited to no steeper than 1 in 3.

Any temporary batters constructed during the works will be in accordance with recommended maximum batter slopes as per the geotechnical investigation report and ongoing advice from the Level 1 geotechnical engineer. All temporary batters will be stabilised with appropriate methods and vegetated where required.

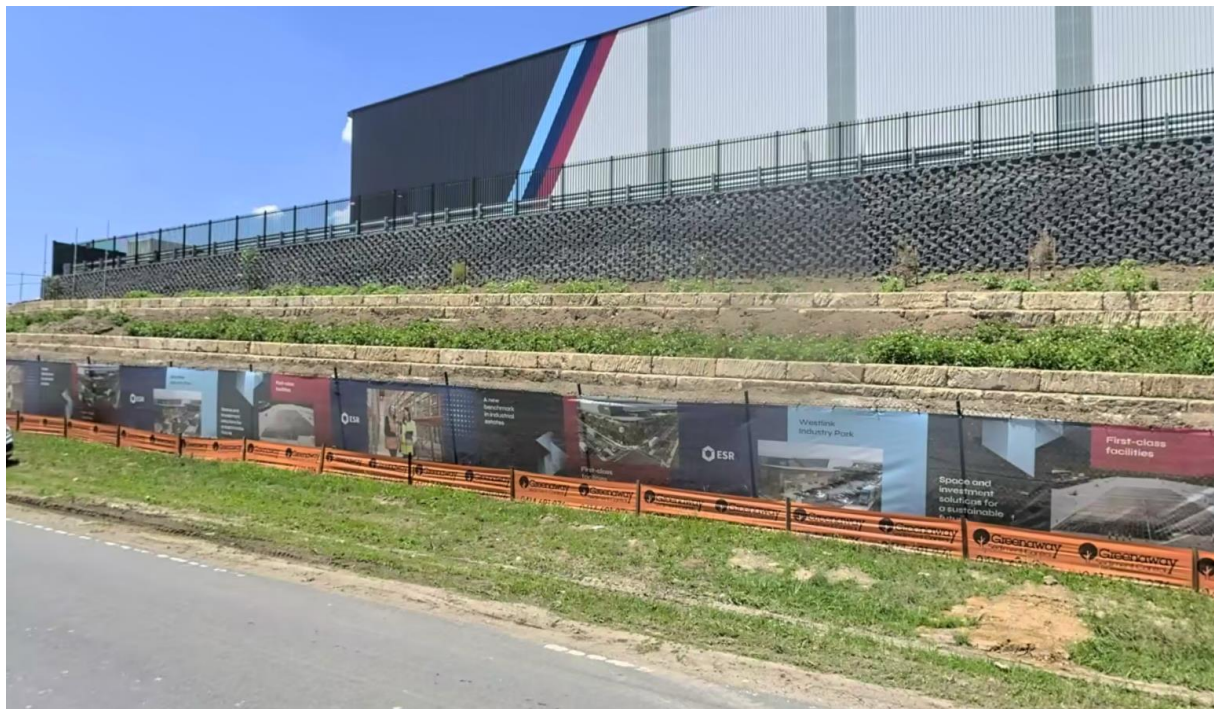
## 6.3. Retaining walls

Where possible, batter slopes will be provided to accommodate level changes. Where this is not possible, retaining walls will be constructed adjacent to the road reserve and within the Mamre Road Data Centre Campus between data centre parcels. A keystone product or other similar block will be adopted for all retaining walls and will be detailed on the civil drawings. Refer to **Figure 6** to **Figure 8** inclusive for examples of proposed retaining walls. Refer to Drawings CIV-02081 to CIV-02084 inclusive for proposed retaining wall locations.

Where retaining wall heights exceed 2 metres, a tiered retaining wall such as that shown in **Figure 6** will be adopted, in accordance with Section 4.4 of the Mamre Road Precinct DCP.



**Figure 6: Typical retaining wall section adjacent to Mamre Road**



**Figure 7: Example of retaining wall in location of fill adjacent to road reserve (source: Apple Maps, 25 November 2025)**



*Figure 8: Example of retaining wall in location of cut*

Retaining walls will be designed and constructed using standard industry practices, standards and guidelines. All retaining walls will be constructed on a staged basis and as required to suit the development earthworks. Where walls are not constructed, a batter of 1 in 4 will be maintained for stability purposes. Any batter steeper than 1 in 5 shall be vegetated.

All retaining walls will have pedestrian and vehicular safety barriers (if required) in accordance with Austroads Guidelines as required.

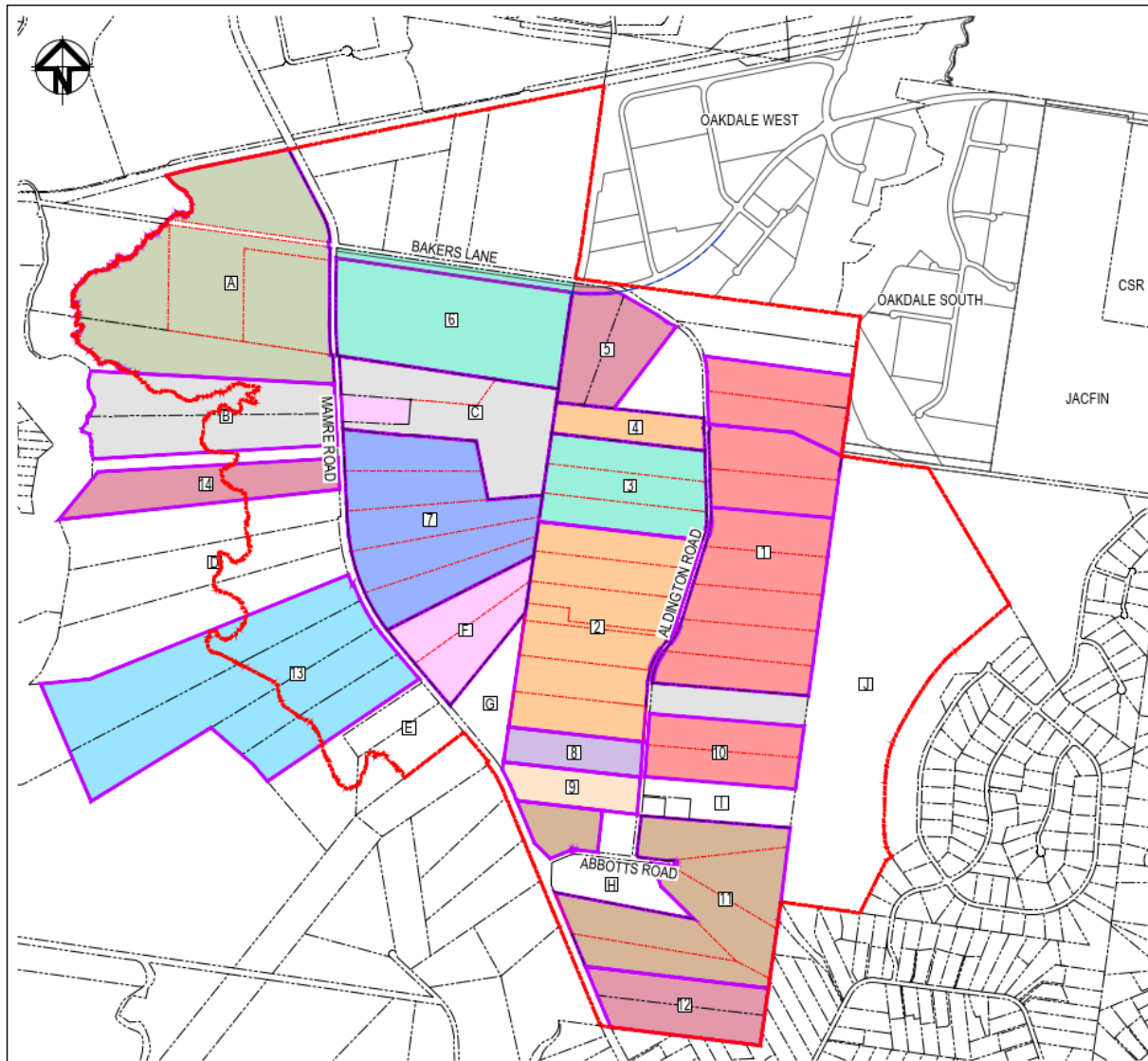
Where boundary fill walls are proposed, the construction of the boundary walls may be delayed until such time the adjacent lot is developed. If the boundary walls are delayed, a temporary batter will be constructed as an interim measure.

## 6.4. Earthworks volumes

The proposed earthworks strategy has been reviewed by AT&L considering the total earthworks and those earthworks across each of the stages.

In reviewing the total earthworks across the Mamre Road Data Centre Campus, we have developed the Bulk Earthworks Plan presented below as **Figure 9**. It is important to appreciate that the total earthworks must also consider how a single stage ties into future stages.





**Figure 10: Mamre Road Precinct Bulk Earthworks Strategy**

Disregarding development sites where bulk earthworks are complete or largely complete, there is the potential for the entire precinct to achieve a balanced cut to fill outcome subject to development timing.

For the development sites in the Precinct that AT&L is engaged on, we have been able to utilise the actual bulk earthworks volumes. For a number of sites, we have been able to access the volumes from the DA documentation and for a select few, we have had to estimate the volumes based on our overall earthworks model that was prepared for the LOG in 2021.

**Table 3: Precinct-wide earthworks volumes**

	Property Address	Developer	Cut Volume (m <sup>3</sup> )	Fill Volume (m <sup>3</sup> )	Balance (m <sup>3</sup> )
1	90 AND 200 ALDINGTON ROAD	Stockland Fife Kemps Creek	-985,000	1,220,000	235,000
7	788-882 MAMRE ROAD	Mirvac	-1,050,000	1,140,000	90,000
11	WESTLINK INDUSTRIAL ESTATE	ESR Developments	-1,350,000	1,840,000	490,000
A	THE YARDS	Barings / Frasers	-255,000	2,080,000	1,825,000

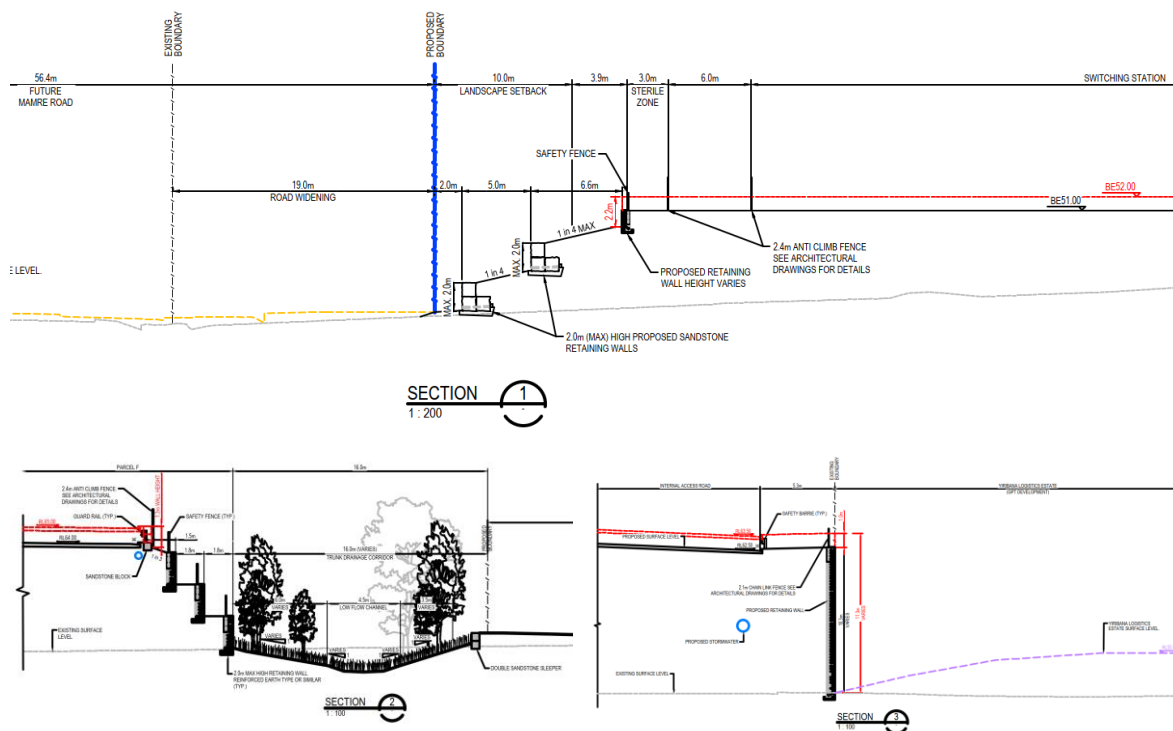
	Property Address	Developer	Cut Volume (m <sup>3</sup> )	Fill Volume (m <sup>3</sup> )	Balance (m <sup>3</sup> )
<b>2</b>	155-251 ALDINGTON ROAD	Frasers Property Industrial	-1,060,000	1,540,000	480,000
<b>3</b>	113-153 ALDINGTON ROAD	Dexus	-1,440,000	615,000	-825,000
<b>8</b>	253-267 ALDINGTON ROAD	Icon Oceania	-55,000	182,000	127,000
<b>10</b>	270 ALDINGTON ROAD	Stockland Fife Kemps Creek	-560,000	645,000	85,000
<b>B</b>	YIRIBANA WEST	GPT Group	-5,000	73,000	68,000
<b>C</b>	YIRIBANA EAST	GPT Group	-500,000	550,000	50,000
<b>6</b>	<b>706-752 MAMRE ROAD</b>	<b>Undisclosed / Confidential</b>	<b>-1,681,000</b>	<b>1,346,000</b>	<b>-335,000</b>
<b>4</b>	99 ALDINGTON ROAD	Frasers Property Industrial	-340,000	390,000	50,000
<b>5</b>	1-51 ALDINGTON ROAD	Gibb Group	-390,000	390,000	0
<b>9</b>	269 ALDINGTON ROAD	Anric Developments	-65,000	150,000	85,000
<b>12</b>	1066-1080 MAMRE ROAD	Gibb Group	-685,000	325,000	-360,000
<b>13</b>	LOG WEST	various	-235,000	335,000	100,000
<b>14</b>	805 MAMRE ROAD	Gibb Group	-50,000	60,000	10,000
<b>D</b>	LOT 27-29 DP258414		-210,000	240,000	30,000
<b>E</b>	LOTS 35-36 DP258414		-560,000	5,000	-555,000
<b>F</b>	LOTS 52-53 DP258414		-215,000	225,000	10,000
<b>G</b>	LOT 51 DP259135		-70,000	175,000	105,000
<b>H</b>	LOT 2 DP250002		-85,000	135,000	50,000
<b>I</b>	LOT 15 DP253503		-300,000	190,000	-110,000
<b>J</b>	LOT 4132 DP857093		-1,810,000	260,000	-1,550,000
		<b>Total Volumes</b>	<b>-13,835,000</b>	<b>14,205,000</b>	<b>155,000</b>

NB: Cells shaded green denote developments where bulk earthworks are largely complete. Cells shaded blue denote DA / SDA approved developments.

## 7. Options Analysis

As outlined in the sections above, the bulk earthworks strategy and site grading has been developed in consideration of various site constraints and through design development and iteration with the project architect and other specialist consultants.

An alternative option whereby the proposed bulk earthworks levels would be raised by 1 metre across the site has been considered in further detail. Select site sections showing this alternative bulk earthworks strategy are presented below as **Figure 11**. This alternative option would achieve close to a balance of cut to fill across the site. However, this option would also result in final building heights 1 metre higher than the adopted design strategy, and would result in a greater length and area of retaining walls across the site. For these reasons, this alternative option is not preferred.



**Figure 11: Site sections for alternative bulk earthworks strategy**

Considering the trade-off between material export and final building heights (and retaining wall heights and extents across the site), the recommended earthworks strategy outlined in **Section 6** is the optimum design outcome for the proposed development of the Mamre Road Data Centre Campus.

## 8. Conclusion

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The resulting site grading and bulk earthworks design has been based around the various constraints outlined above, while providing a development site that will be fit for the proposed use, with a summary below:

- Connectivity to and interfaces with adjoining sites surrounding the development.
- Provision for connectivity to Mamre Road and the ultimate road design of Southern Link Road (to be delivered by others).
- Provision for roadway connectivity to the adjacent development sites to the south and east.
- Meeting the requirements for the end use of the site, being that it will cater for four-storey data centre buildings requiring large flat pads (between 42,000 and 50,000 square metres in area).
- Retaining wall interfaces with the public domain have been minimised as much as possible.





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