

Mamre Road Data Centre Campus – Waste and Resource Recovery Management Plan

A Submission to Plan Project Management

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In the spirit of reconciliation MRA Consulting Group acknowledges the Traditional Custodians of Country throughout Australia and their connection to land, sea and community. We pay our respects to Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging.

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Glossary

Terminology	Definition
AS	Australian Standard
C&D	Construction and Demolition
C&I	Commercial and Industrial
DA	Development Application
DCP	Development Control Plan
EPA	Environment Protection Authority
LGA	Local Government Area
MGB	Mobile Garbage Bin
MRA	MRA Consulting Group
MRDCP	Mamre Road Development Control Plan 2021
PLEP	Penrith Local Environmental Plan 2010
WRRMP	Waste and Resource Recovery Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

1 Introduction

MRA Consulting Group (MRA) was engaged by Plan Project Management to prepare a Waste and Resource Recovery Management Plan (WRRMP) related to the proposed Mamre Road Data Centre Campus development. The project area for the proposed development, 706-752 Mamre Road, Kemps Creek (Lot 10 DP 1280592), constitutes the main development site with areas across the 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 in DP 709347)
- GPT Group site to the South known as 754 Mamre Road, Kemps Creek (Lot 180 in DP 1290397)

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

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

- Approximately 26 shells across four-storey 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, and
- Site preparation, including earthworks, stormwater, sewer, roads, and associated infrastructure.

This WRRMP addresses the requirements of Consent Authority (NSW Department of Housing, Planning and Infrastructure (DPHI)) and conforms to the following environmental planning instruments and reference documents:

- Mamre Road Development Control Plan 2021 (MRDCP)
- Penrith Local Environmental Plan 2010 (PLEP)
- State Environmental Planning Policy (Industry and Employment) 2021
- Planning Secretary's Environmental Assessment Requirements (SEARs) SSD-92743706 (September 2025).

Consideration has also been given to the following supplementary documents in the preparation of the WRRMP:

- Penrith City Council (2014) *Industrial, Commercial And Mixed-Use Waste Management Guidelines* derived from Penrith Development Control Plan 2014 (PDCP)
- NSW EPA (2021) *NSW Waste and Sustainable Materials Strategy 2041. Stage 1: 2021 – 2027*
- NSW EPA (2012) *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*

A WRRMP has been prepared in accordance with MRDCP and states the following objectives for waste management:

- a) To facilitate sustainable waste management in accordance with ESD principles.
- b) To manage waste in accordance with the 'Waste Hierarchy' to:
 - Avoid producing waste in the first place;
 - Minimise the amount of waste produced;
 - Re-use items as many times as possible to minimise waste;
 - Recycle once re-use options have been exhausted; and
 - Dispose of what is left, as a last resort, in a responsible way to appropriate waste disposal facilities.
- c) To achieve waste minimisation targets as set out in the *Waste Avoidance and Resource Recovery Act 2001* and *NSW Waste Avoidance and Resource Recovery Strategy (2007)*.
- d) To support the circular economy in line with the NSW Circular Economy Policy Statement.

This WRRMP is used to inform the building design to deliver best practice waste management and promote sustainable outcomes at the demolition, construction and operational phases of the development. The WRRMP

addresses waste generation and storage associated with demolition and construction works through redevelopment, and ongoing occupation of the proposed use.

1.1 SEARs Requirements

This WRRMP has been developed to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning and Environment as part of the State Significant Development assessment process (SEARs Reference SSD-92743706). The waste requirements from the SEARs are presented below in Table 1.

Table 1: Planning Secretary's Environmental Assessment Requirements

SEARs	Sections in this Report
Waste – a waste management report the quantities and classification of all waste streams to be generated on site during construction and operation of the development, including e-waste	Sections 4.1, 4.2, 4.3 Sections 6.2, 6.3
waste storage, handling and disposal	Sections 5, 6.4, 7
the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the <i>NSW Waste and Sustainable Materials Strategy 2041</i>.	Sections 2.4.1, 4.2, 4.3 Sections 5, 7

2 Background

2.1 Description of the Proposed Development

The site is proposed for development as a data centre campus, comprising:

- Approximately 26 shells across four-storey 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, and
- Site preparation, including earthworks, stormwater, sewer, roads, and associated infrastructure.

Site preparation activities relevant to this WRRMP also include demolition of the existing single-storey building, vegetation clearing, and removal of timber and wire fencing.

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

Staged construction of the development is summarised in Table 2.

Table 2: Proposed development staging summary

Development Summary		
Stage 1	Phase 1	• 4 x four-storey data centre buildings and a central technical office building (Sub-Parcel A) • A sub-parcel electrical substation • An incoming electrical switching station and campus electrical substation, including a STATCOM • A three-storey central campus-office with staff and visitor carparking • Temporary turning circle off GPT site and temporary construction access • Site access roads and internal driveways around sub-parcel A • A fire control centre, pump room, fire water tanks and associated infrastructure • An onsite detention tank
	Phase 2	• 4 x four-storey data centre buildings and a central technical office building (Sub-Parcel B) • A sub-parcel electrical substation • Internal driveways around sub-parcel B
	Phase 3	• 4 x four-storey data centre buildings and a and a central technical office building (Sub-Parcel C) • A sub-parcel electrical substation • Internal driveways around sub-parcel C
	Phase 4	• 4 x four-storey data centre buildings and a and a central technical office building (Sub-Parcel D) • A sub-parcel electrical substation • Internal driveways around sub-parcel D
Stage 2	Phase 5	• 5 x four-storey data centre buildings and a and a central technical office building (Sub-Parcel E) • A sub-parcel electrical substation • Internal driveways around sub-parcel E • Rainwater and wastewater collection tanks and respective treatment plants

Development Summary		
		Multiple water storage tanks
	Phase 6	5 x four-storey data centre buildings and a and a central technical office building (Sub-Parcel F) - A sub-parcel electrical substation - Internal driveways around sub-parcel F
	-	Construction of Road 1

2.2 Location

The project area for the proposed development, 706-752 Mamre Road, Kemps Creek (Lot 10 DP 1280592), constitutes the main development site with areas across the 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 in DP 709347).
- GPT Group site to the South known as 754 Mamre Road, Kemps Creek (Lot 180 in DP 1290397).

The Site is within the Penrith Local Government Area (LGA) and forms part of the IN1 General Industrial zoned land within the Western Sydney Employment Area, pursuant to the State Environmental Planning Policy (Industry and Employment) 2021.

Figure 1: Site and surrounding area



Source: Nearmap, 2025.

2.3 Zoning and Use

The Site is zoned as IN1– General Industrial and SP2 – Infrastructure according to the State Environmental Planning Policy (Industry and Employment) 2021.

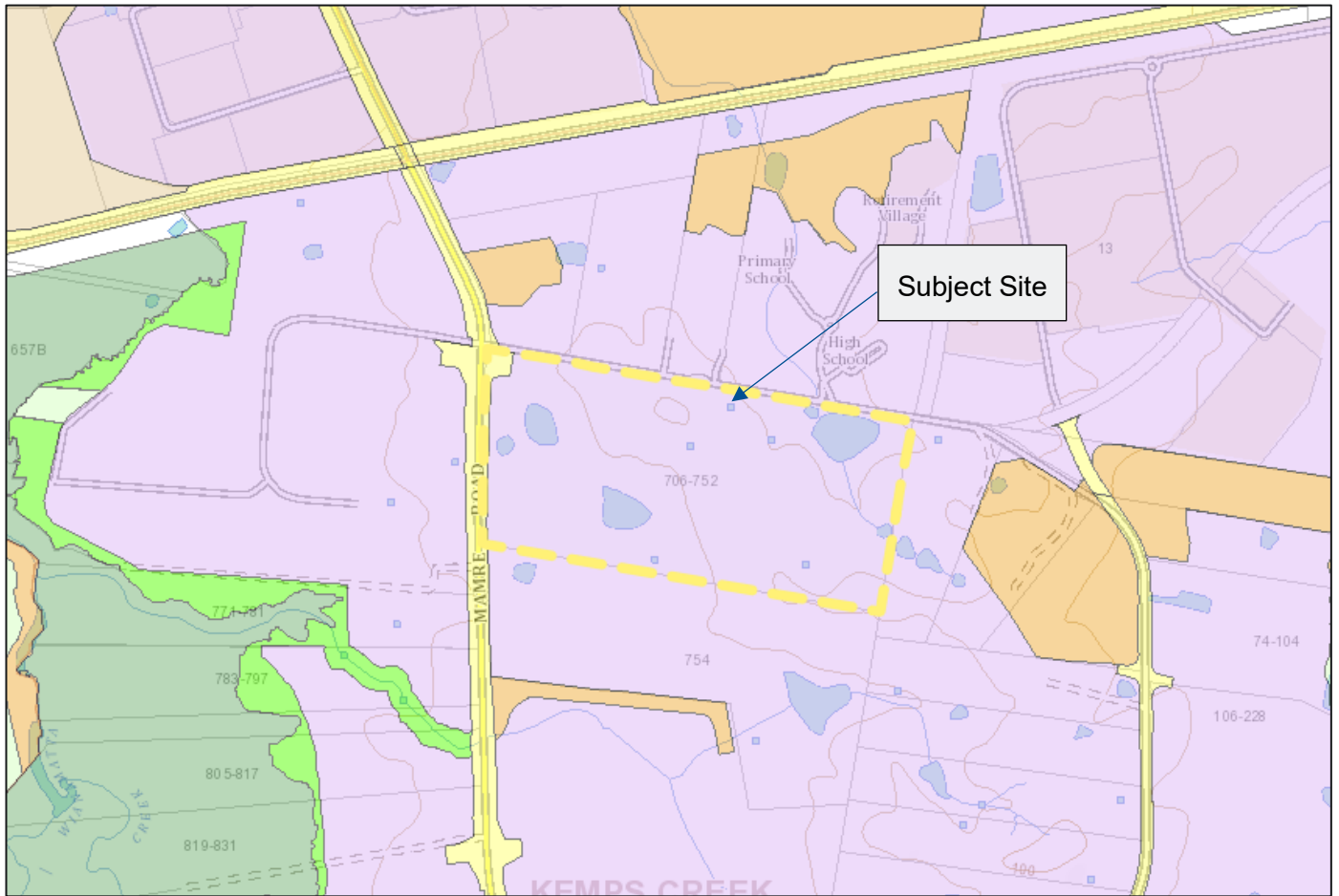
The objectives of IN1– General Industrial zone are:

- To encourage employment opportunities and to support the viability of centres.
- To minimise any adverse effect of industry on other land uses.
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.
- To support and protect industrial land for industrial uses.
- To minimise any adverse effect of development on the natural environment.

The objectives of SP2 – Infrastructure zone are:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

Figure 2: Land use zone map



Source: NSW eSpatial Planning Viewer, 2025.

The majority of the site is currently vegetated, with a single residential dwelling occupying the land.

2.4 Strategic Context and Guidelines

2.4.1 NSW Waste and Sustainable Materials Strategy 2041 – Stage 1: 2021-2027

With numerous strategic plans and government policies guiding the evolving waste management landscape in NSW, this Strategy is referenced within the SEARs and has been detailed here for context.

In June 2021, the NSW Government released Stage 1 of its *NSW Waste and Sustainable Materials Strategy 2041* (WSMS). The strategy aims to continually improve the state's policies and targets for waste reduction and landfill diversion. Stage 1 of the strategy sets the following targets:

- Reduce total waste generated by 10% per person by 2030
- Have an 80% average recovery rate from all waste streams by 2030
- Significantly increase the use of recycled content by governments and industry
- Phase out problematic and unnecessary plastics by 2025
- Halve the amount of organic waste sent to landfill by 2030.

Implementing waste management measures for this development in line with the WSMS will support achievement of the State's 80% landfill diversion target for both the construction and demolition (C&D) sector and the operational phase of the development.

2.4.2 Additional NSW Guidelines

Additional guidance documents and policies considered in the preparation of this WRRMP are summarised in Table 3 for general NSW guidance.

Table 3: NSW Guidance summary

Guideline	Purpose
Mamre Road Precinct Development Control Plan 2021 (MRDCP)	The MRDCP 2021 applies to land within the Mamre Road Precinct as identified by State Environmental Planning Policy (Western Sydney Employment Area) 2009. As a result, the PDCP 2014 no longer applies to this land. A Waste and Resource Recovery Management Plan has been prepared in accordance with the MRDCP, and states the following objectives for waste management: a) To facilitate sustainable waste management in accordance with ESD principles. b) To manage waste in accordance with the 'Waste Hierarchy' to: ○ Avoid producing waste in the first place; ○ Minimise the amount of waste produced; ○ Re-use items as many times as possible to minimise waste; ○ Recycle once re-use options have been exhausted; and ○ Dispose of what is left, as a last resort, in a responsible way to appropriate waste disposal facilities. c) To achieve waste minimisation targets as set out in the <i>Waste Avoidance and Resource Recovery Act 2001</i> and <i>NSW Waste Avoidance and Resource Recovery Strategy (2007)</i>. d) To support the circular economy in line with the NSW Circular Economy Policy Statement.
Penrith City Council (2014) <i>Industrial, Commercial And Mixed-Use Waste Management Guidelines</i>	The Guidelines provides waste management design considerations and practices for all proposed Industrial, Commercial and Mixed-Use developments. Although they are derived from the PDCP 2014, the waste management principles and the waste generation rates outlined for specific commercial uses are considered to be endorsed by Penrith City Council and have therefore been applied in this report.
NSW EPA (2014) <i>Waste Classification Guidelines 2014</i>	The <i>Waste Classification Guidelines</i> have been established by the NSW EPA to assist waste generators in classifying wastes. Wastes are classified into groups that pose similar risks to the environment and human health.
NSW EPA (2021) <i>NSW Waste and Sustainable Materials Strategy 2041, Stage 1: 2021–2027</i>	The WSMS aims to continually improve the state's policies and targets for waste reduction and landfill diversion. Stage 1 of the strategy sets the following targets: • Reduce total waste generated by 10% per person by 2030 • Achieve an 80% average recovery rate from all waste streams by 2030 • Significantly increase the use of recycled content by governments and industry • Phase out problematic and unnecessary plastics by 2025 • Halve the amount of organic waste sent to landfill by 2030
NSW EPA (2012) <i>Better Practice Guidelines for Waste Management</i>	Provides advice to assist architects, developers, council staff, and building managers to incorporate better waste management practices

Guideline	Purpose
<i>and Recycling in Commercial and Industrial Facilities</i>	into the design, establishment, operation, and ongoing management of waste services in commercial and industrial developments.
Australian Government (2011) <i>Construction and Demolition Waste Guide - Recycling and Re-use Across the Supply Chain</i>	Aims to help develop effective markets for materials diverted or derived from the construction waste stream.

2.5 Assumptions

This report is a WRRMP forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this WRRMP are the final design set for the development plan from the project architect, Greenbox, 07 November 2025;
- Waste and recycling volumes are based on information provided from the Penrith City Council (2014) *Industrial, Commercial And Mixed-Use Waste Management Guidelines*, derived from the PDCP 2014, and from MRA experience (further elaborated in Section 6.3); and
- This WRRMP is a living document and therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology.

3 Classification of Waste

The NSW EPA *Waste Classification Guidelines* (2014) provides for the classification of wastes into groups that pose similar risks to the environment and human health, which are defined in the POEO Act.

Classes of waste described in the guideline are summarised in Table 4. The waste classification of expected waste streams generated during the construction, demolition and operational phases are listed in Sections 4.1 and 6.2.

Table 4: Summary of NSW EPA Waste classification

Waste Classification	Description
Special waste	Special wastes are wastes that pose specific regulatory requirements due to the risks of harm to the environment and human health. These wastes include clinical and related waste, asbestos waste, waste tyres, and anything classified as special waste under an EPA gazettal notice.
Liquid waste	Liquid waste is classified as any waste (other than special waste) that meets the following criteria: • Has an angle of repose of less than 5 degrees above horizontal. • Becomes free flowing at or below 60 degrees Celsius or when it is transported. • Is generally not capable of being picked up by a spade or shovel, and/or • Is classified as liquid waste under an EPA gazettal notice.
Pre-classified waste	Where the waste is neither liquid nor special waste, the EPA has pre-classified other commonly generated waste types, as defined in Schedule 1 of the POEO Act. This includes hazardous waste, restricted solid waste, general solid (putrescible) and general solid (non-putrescible) waste. Where material is classified as hazardous waste, it is noted that such materials cannot be directly disposed of in NSW and must be treated prior to disposal by an appropriately licensed facility/operator.
Wastes classified via chemical assessment	Where the waste does not fall into one of the above categories, chemical assessment of the material is required to finalise a waste classification as per the chemical assessment process outlined in detail in EPA <i>Waste Classification Guidelines</i> (2014).

4 Construction and Demolition Waste

Demolition and construction activities at the site will generate a range of construction and demolition (C&D) waste. The C&D waste generation estimates outlined in Section 4.2 and 4.3 are for the overall development.

Throughout the development process, all materials will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or unsuitable for reuse or recycling processes.

Waste storage during construction operations will involve some stockpiling of reusable material, as well as placement of wheeled bins for the separation of construction materials for recycling. A bin for residual waste or contaminated material will also be made available at the site for disposal where necessary. Bins may require alternative placement across construction operations to facilitate the safe and efficient storage of materials and will be retained within property boundaries to avoid illegal dumping.

A waste storage area shall be designated by the demolition or construction contractor and shall be sufficient to store the various waste streams expected during operations. Waste storage areas will be kept clear to maintain access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons. The waste storage area will retain multiple bins to allow for source separation of waste to allow for ease of recovery and reuse of materials.

Waste management principles, management measures and facilities in use on the site shall be included as part of the site induction for all personnel working on the site.

4.1 Waste Streams and Classification

Potential waste streams and their classification arising from typical demolition and construction activities are provided in Table 5. These are considered further in Section 4.2 and Section 4.3 which discuss site specific waste streams and management during both phases.

Table 5: Potential waste streams and their classification - construction and demolition

Waste Type	EPA Classification
Excavated Soil	Subject to Waste Classification as per EPA <i>Waste Classification Guidelines</i> (2014) following excavation
Green waste (Garden Organics)	General solid waste (non-putrescible)
Building materials including metals (e.g. roofing), wood waste, bricks/blockwork, asphalt, concrete (including building structure, cores, roof, external walls; slab), glass, ceramics, plasterboard and plastics (from packaging and pipework)	General solid waste (non-putrescible)
General refuse including food waste	General solid waste (putrescible) and General solid waste (non-putrescible)
Optic fibre and electrical wiring	General solid waste (non-putrescible)
Other electronic waste	General solid waste (non-putrescible) or Hazardous waste

4.2 Demolition Waste

The development will require the demolition of the existing one-storey residential building, clearing of vegetation, and removal of timber and wire fencing prior to commencement of excavation and construction operations.

Table 6 outlines the expected demolition waste quantities to be generated at the site, in addition to the appropriate management methods for each material type. Other materials with limited reuse potential either on or offsite will be removed in bulk bins for recycling at an appropriately licenced and capable recycling facility.

Demolition would occur in a single stage.

Table 6: Demolition waste generation estimates

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Vegetation	300 - 450	✓	✓	✓	-	0%	100%	Onsite: Mulched / chipped on site and used for landscaping. Offsite: Removed landscaping contractor facility for chipping / mulching and re-use.
Concrete	100 - 200	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Glass	<5	✓	✓	✓	-	<10%	>90%	On site: to be separated wherever possible to enhance resource recovery. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Bricks/pavers	200 - 300	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. The development will be able to reuse a number of existing building bricks as paving in landscaped areas.

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
								Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Tiles	20 - 30	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Timber (Clean)	50 - 100	✓	✓	✓	-	-	100%	Onsite: To be separated wherever possible to enhance resource recovery. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Timber (treated)	50 - 100	✓	✓	✓	-	50%	50%	Onsite: To be separated wherever possible to enhance resource recovery. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Plasterboard	20 - 50	-	✓	✓	-	<10%	>90%	Onsite: To be separated wherever possible to enhance resource recovery. Offsite: Removed to C&D facility for crushing and recycling for recovered products.

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Metals (ferrous & non-ferrous)	50 - 100	-	✓	✓	-	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D facility for recovery and recycling.
Floor covering	20 - 30	-	✓	✓	✓	50%	50%	Should be removed in bulk and sent to carpet recycler or C&D facility for recovery where possible.
Residual waste	10 - 20	-	-	-	✓	100%	-	Resource recovery dependant on facility destination capability.
Hazardous Waste	Unknown	-	-	-	✓	100%	-	Existing building may contain potentially hazardous materials. Should contaminated or potentially hazardous materials be discovered they would be handled according to the demolition and/or materials management plan
Total % Diversion from Landfill Estimated							>80%	

4.3 Construction Waste

The development will involve construction works for the following features:

- Approximately 26 shells across four-storey 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, and
- Site preparation, including earthworks, stormwater, sewer, roads, and associated infrastructure.

Table 7 outlines indicative volume to weight conversion factors for common construction materials.

Table 7: Indicative volume to weight conversion factors for common construction materials

Building waste material	Tonnes per m ³	Waste as % of the total material ordered
Soil/aggregate	1.4 – 1.6	–
Bricks	1.2	5–10%
Concrete	1.5	3–5%
Tiles/ceramics	0.5 – 1	2–5%
Timber	0.3	5–7%
Plasterboard	0.2	5–20%
Metals	0.15 – 0.9	–

Source: Green Building Code of Australia C&D Waste Criteria.

Table 8 outlines the estimated waste generation rates for materials through construction of the proposed development, in addition to the appropriate management methods for each material type. Data from other data centres has been used to estimate the quantity of construction waste that will be generated.

This data relates to the total amount of construction waste expected to be generated during the complete construction, across all phases discussed in Table 2. Where phases of construction will occur close together, materials would be retained on site for re-use in the next stage to optimise opportunities for re-use and minimise disposal and double handling.

The information below presents multiple options for materials reuse, recycling and disposal where applicable (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to landfill if contaminated).

Table 8: Construction waste generation estimations

Type of Material	Estimated Volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Excavated material	335,000	✓	✓	✓	<5%	>95%	Onsite: Reuse for fill and levelling. Offsite: Removed from site for reuse as recycled fill material or soil. Disposal: Removal of any contaminated material for appropriate treatment or disposal.
Bricks/pavers	200 - 500	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Concrete	1000 - 1500	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Tiles	50 - 100	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.

Type of Material	Estimated Volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Timber (clean)	50 - 100	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Timber (treated)	50 - 100	-	✓	✓	50%	50%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Plasterboard	100 - 200	-	✓	✓	<10%	90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier or removed to a C&D/plasterboard recovery facility for recovery where possible.
Glass	10 - 20	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Metals (ferrous & non-ferrous)	50 - 100	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse or removed to C&D facility for recovery and recycling.

Type of Material	Estimated Volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Floor covering	50 - 100	✓	✓	✓	<10%	>90%	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Fixtures and fittings	50 - 100	✓	✓	✓			On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Electronic waste	50 - 100	-	✓	✓	<10%	>90%	Offcut wires and electronics separated where possible or returned to supplier for reuse.
Packaging materials (pallets, wrap, cardboard, etc)	100 - 300	-	✓	✓	<10%	>90%	Returned to supplier where possible or separated by material type for resource recovery.
Residual waste	50 - 100	-	✓	✓	100%	-	Resource recovery dependant on facility destination capability.
Total % Diversion from Landfill Estimated						>90%	

4.4 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 9).

Table 9: Waste service contractors and facilities

Role	Details
Recommended Waste Collection Contractor	The following are local skip bin operators for consideration in the management of excavation and construction waste for the site: • Sydney Skip Bins; • Phantom Skips; • Pardz Waste Services. Or another supplier as elected by the building contractor.
Principal Off-Site Recycler	The following are local C&D processing facilities for consideration in the management of C&D waste generated at the site: • Hi Quality Group; • ADL Metals Pty Ltd; • Cleanaway Cleanaway Kemps Creek Resource Recovery Park. Or another appropriate facility as elected by the waste management contractor.
Principal Licensed Landfill Site	• Bingo Industries - Eastern Creek Recycling Centre Or other appropriate facility as elected by the waste management contractor.

4.5 Site Documentation

This WRRMP will be retained on-site during the construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers).

Responsibility for the WRRMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder.

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date of collections;
- Description of waste and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name.

Waste management documentation, the logbook and associated dockets and receipts must be made available for inspection by an authorised Council Officer at any time during site works.

5 Construction and Demolition Waste Management Systems

The C&D waste management measures outlined in the following section forms the basis of waste management for the overall development.

5.1 Waste Storage, Handling, Transport, and Disposal

5.1.1 Storage

Considering the nature of the proposed works, waste management infrastructure should include the retention of several skip bins for the storage of separated demolition and excavation material. Waste should be placed in designated bins and collected on a regular schedule, as bins become full. It is understood that C&D waste materials will not be stored or stockpiled in areas across the shared boundaries to the East (Lot 40 in DP 709347) and South (Lot 180 in DP 1290397).

All problem and hazardous wastes would be stored in separate areas or bins, as they may require special treatment. Any asbestos found on-site must be stored in a separate container and wrapped in thick plastic. Any flammable liquids would be stored in a bunded area; however, this is not likely to be necessary at the site.

Recyclable materials would be source-separated onsite, where possible, in labelled bins according to the type of material (e.g., masonry, metals, paper, and plastics), to enable improved recovery rates.

Separate site Mobile Garbage Bins (MGBs) would be retained on site to collect general waste and recycling associated with the use of the site by C&D personnel. As this waste stream will primarily consist of office-type and staff-related waste, a minimum provision of 2 × 240 L MGBs each for general waste and recycling is recommended, with bin numbers to be adjusted in accordance with the expected size of the construction crew.

5.1.2 Handling

The handling of waste would be dependent on the waste type.

- Inert waste would be collected for recycling or disposal, as appropriate.
- Any soils that are tested and deemed to be contaminated would be sent to an appropriate facility for management and disposal.
- Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM) may be reapplied to the land onsite. VENM may be applied to land off-site without a resource recovery order and exemption. ENM requires a resource recovery order and exemption to be applied to land offsite.
- Asbestos can only be disposed of in landfills that are licensed to receive it. It must be handled and transported in a specific manner as outlined in the management measures below.
- Problem wastes include tyres, paint, car batteries, gas bottles, oils and chemicals, which would be disposed of at facilities that are able to receive these materials.

The Business Recycling website businessrecycling.com.au provides a directory of locations where waste can be recycled or safely disposed of.

All material generated would be separated where possible, to maximise resource recovery potential and reduce the need for disposal of residual materials to landfill. Any material deemed unsuitable for reuse or recovery would be disposed of at an appropriately licensed landfill.

5.1.3 Recycling of Materials

The reuse and recovery potential for the expected waste product includes (but is not limited to) the methods outlined in Table 10

Table 10: Expected waste streams during C&D activities related to preliminary infrastructure works

Waste Material	Reuse or recovery Potential
Brick, Rubble, Stone, Ceramic, Tile, etc.	Sent to C&D processing facility for crushing and reuse as fill material.
Virgin Excavated Natural Material	Reuse as fill material.
Excavated Natural Material	Reuse as fill material. Compliance with ENM order and exemption is required for offsite application.
Timber (treated and non-treated)	Sent to organics processor or C&D processing facility for mulching for reuse.
Metals (ferrous & non-ferrous)	Fixtures and fittings returned to manufacturer for reuse (if applicable) or recycling at a lawful facility.
Plastic	Recycling at a lawful facility.
Paper & cardboard	Recycling at a lawful facility.
Residual or non-recoverable material	Disposal at a lawful facility.
Asbestos	Disposal at a facility licensed to receive asbestos.
Hazardous and problem waste streams	Disposal/recycling at a facility which is able to accept the particular type of waste.

Those responsible for managing construction and demolition materials should continue to seek opportunities for new and emerging management of materials in line with the waste hierarchy throughout construction phases.

5.1.3.1 Asbestos

The handling of asbestos requires special precautions due to the hazardous nature of the material. Any handling of asbestos waste must be performed in accordance with Clause 42 of the *Protection of the Environment Operations (POEO) Act 1997*.

Before commencing any work, a risk assessment should be carried out. Safe work procedures would be devised that minimise exposure. Handling requirements include:

1. Keep asbestos damp but prevent excess runoff water.
2. Asbestos should be collected, labelled and sealed using plastic or leak-proof containers.
3. Storage would be at a secure site in labelled, lined bins or a leak-proof container.
4. Asbestos-containing materials should be removed from the site as soon as practicable and/or collected and stored in a manner approved by the EPA or an appropriate disposal authority.
5. Transport would be in a covered, leak-proof vehicle or a manner approved by the EPA.
6. Disposal in a manner and at a site approved by EPA or an appropriate disposal authority.
7. Vehicles must be cleaned before leaving the landfill site.

5.1.4 Transport

Section 143 of the Protection of the Environment Operations Act 1997 (POEO Act 1997) requires that waste is transported to a place that can lawfully accept it. Both the owner of the waste and the transporter are legally responsible for proving the waste is transported to a lawful place.

To show that waste has been lawfully disposed of records should be kept of the following:

1. All demolition and construction waste dockets must be kept which show which facility received the material for recycling or disposal.
2. Who transported the waste (company name, ABN, vehicle registration and driver details, date and time of transport, description of waste).
3. Copies of waste dockets/receipts from the waste facility (date and time of delivery, name and address of the facility, its ABN, contact person).
4. Transport of waste materials is managed by a licensed operator.

Audits may be conducted by Council to verify that dockets have been kept and waste recycled and disposed of as described within the Waste Management Plan.

5.1.5 Disposal

The disposal of waste is recommended after recycling options have been implemented. Materials may only be disposed of materials to a facility which is licensed to take the particular type of waste.

1. The majority of waste onsite is inert, dry, non-putrescible waste which may be taken to any licensed landfill.
2. The Planet Ark Business Recycling directory or “Recycling Near You” websites can be consulted to find facilities that accepts a particular type of waste for recycling or disposal.
3. Any hazardous wastes would be disposed of to a licensed landfill or treated at a facility licensed to receive and manage the material or substance. Prior to disposal, hazardous waste must be treated to lower its waste classification, either onsite or off-site at a licensed hazardous-waste processing facility.

5.2 Management Measures

5.2.1 General Measures

The following general site management measures are recommended for preliminary site works:

- Uncontaminated soils may be reused onsite to even out cut and fill;
- It is recommended that organic waste from the clearing of trees be chipped and reapplied as mulch or delivered to an organics processor;
- No vegetation would be pushed into or applied to ecologically sensitive areas;
- Materials would be reused or recycled wherever possible;
- Separate bins would be provided for source separation of waste types where possible;
- Residual waste would be disposed of at a licensed landfill;
- Litter on the site would be managed daily to maintain a tidy environment;
- The disposal of nightsoil from portable toilets would be managed by a licensed contractor;
- Transport of waste would be managed by a licensed operator;
- Records would be kept of the transport and disposal of materials;

5.2.2 Hazardous Waste Management

- Hazardous and problem wastes would be stored separately onsite and disposed of or treated at a facility licensed to receive and manage the material or substance;

- If contaminated soils are present at the site, they would be disposed of to a licensed landfill or otherwise remediated for beneficial reuse. For example:
 - Soils determined to contain contaminants may be remediated on site through piling and aeration over time if suitable; or
 - Contaminated soils can be taken to a specialist soil wash plant capable of removing contaminants such as hydrocarbons through flocculation and other processes, therefore creating a reusable product.
- If asbestos is found onsite it would be disposed of in the following manner:
 - A risk assessment would be conducted to determine appropriate management measures,
 - Asbestos waste would be disposed of in a landfill which is licensed to receive asbestos waste,
 - Asbestos waste would be wetted, wrapped in 200um thick plastic, and sealed with tape before it is transported,
 - It would be clearly labelled as “asbestos waste”,
 - It would be transported in a covered, leak-proof vehicle,
 - Copies of receipts from landfills where asbestos was taken would be retained, and
 - If the amount of asbestos is more than 10m², a qualified asbestos removalist would be engaged.

5.3 Signage

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia 1994). Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in each C&D waste storage area or where C&D waste materials will be separated at the source. At a minimum, signage should indicate:

- *No standing* and *danger* warnings apply to the area surrounding waste storage areas;
- Contact details of the waste contractor; and
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix D).

5.4 Prevention of pollution and litter reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), the following measures are advised:

- Maintenance of open and stockpile areas;
- Ensuring waste storage areas are well maintained and kept clean;
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content;
- Taking action to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or accessing the site.

5.5 Roles and Responsibilities

It is expected that all construction personnel will commit to the WMP and be responsible for their own actions in adhering the waste management objectives. Waste management criteria (such as those contained in this report) is to be contractually binding for all contractors working on the site.

The nominated Construction Site Manager will be the key person responsible for implementation of the WMP and adherence to applicable legislation, guidelines, licensing and development conditions outlined herein.

6 Operational Waste

6.1 Overview

The operational waste management section relates to the waste generation associated with the use of multiple data centre buildings, 6 technical offices, and a three-storey central campus-office. The NSW WSMS aims to continually improve the state's policies and targets for waste reduction and landfill diversion. Stage 1 of the WAM Strategy sets a target of an 80% average recovery rate from all waste streams by 2030. To assist in achieving this target, waste streams during operation are considered and opportunities for minimising waste to landfill identified. This is detailed in the following sections.

Waste management strategies related to site operations have been established according to the MRDCP and guideline documents from the NSW EPA and Penrith Council.

The following space calculations are based off the MGBs and bulk bin dimensions sourced from NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019) (Table 11).

Table 11: Mobile Garbage Bin (MGB) and Bulk Bin capacity and footprint

Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m ²)
240	1,100	735	580	0.41- 0.43
660	1,250	850	1,370	0.86-1.16
1,100	1,470	1,245	1370	1.33-1.74

Source: NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019)

6.2 Waste Streams and Classification

The development proposes to use the site for multiple data centre buildings, 6 technical offices, and a three-storey central campus-office. The potential waste streams generated from associated operational activities and their EPA (2014) waste classification is presented in Table 12.

Table 12: Potential waste streams and their classification - operational use

Waste Type	EPA Classification	Waste Stream
Data Halls		
E-waste (e.g. from installations and upgrades)	Hazardous waste or General solid waste (non-putrescible)	Specific e-waste recycling or general waste
Cardboard, excluding waxed cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling
Plastic packaging waste including sift plastics and expanded polystyrene	General solid waste (non-putrescible)	Specific recycling or general waste
Timber and wooden pallets (e.g. from deliveries)	General solid waste (non-putrescible)	Specific recycling or general waste
Offices		

Waste Type	EPA Classification	Waste Stream
Food waste	General solid waste (putrescible)	If not compostable then general waste
General refuse	General solid waste (putrescible) or General solid waste (non-putrescible)	General waste
Drinks containers including plastics, glass and aluminium	General solid waste (non-putrescible)	Co-mingled recycling
Plastics (non-recyclables)	General solid waste (non-putrescible)	General waste
Paper/cardboard (including all types of recyclable paper)	General solid waste (non-putrescible)	Paper and cardboard recycling
Furniture and equipment	General solid waste (non-putrescible)	Bulky waste (donation, landfill or licenced facility if in commercial quantities)
General Site		
Garden waste	General solid waste (non-putrescible)	Organic waste
Chemicals from maintenance including fuels, oils and paints	Hazardous waste	Other (problem) waste (disposal at licensed facility)

6.3 Waste Generation

6.3.1 Campus office waste

Waste generation from the campus office building will arise from the following uses:

- Level 0: Warehouse, staff and meeting rooms, a canteen with indoor and outdoor seating, and a grab-and-go cafe;
- Level 1: Office areas (including a staff breakout area, meeting rooms, and board rooms); and
- Level 2: Four dorm rooms for accommodation (single-bed typology), multiple meeting rooms, a large meeting zone, an open work space, indoor and outdoor sitting areas, a kitchen (heat-and-reheat use only) and dining area.

Generation rates for specific commercial uses are adopted from the Penrith City Council (2014) *Industrial, Commercial And Mixed-Use Waste Management Guidelines*. While the Council guidelines specify warehouse waste generation rates under an 'office' typology, the report will adopt a conservative approach using the rates derived from MRA's previous experience with such commercial use.

Table 13 presents the weekly waste generated from the campus office building. Weekly generation rates are based on a 7-day operational week.

Table 13: Campus office waste generation

Use	Unit of measure	Waste Stream	Generation Rate	Total Weekly Generation
Office	~4,100m ²	General waste	10L/100m ² /day	1,435L
		Recycling	10L/100m ² /day	1,435L

		Paper & Cardboard*	-	1,435L
		Food waste**	-	1,435L
Warehouse	1,000m²	General waste	25L/100m²/day	1,750L
		Recycling	15/100m²/day	1,050L
		Paper & Cardboard*	-	1,050L
Canteen (treated as café)	~506m²	General waste	300L/100m²/day	5,313L
		Recycling	200L/100m²/day	3,542L
		Paper & Cardboard*	-	3,542L
		Food waste**	-	5,313L
Accommodation	4 dorms	General waste	5L/day/bed	140L
		Recycling	5L/day/bed	140L
TOTALS		General waste		8,638L
		Recycling		6,167L
		Paper & Cardboard		6,027L
		Food waste		6,748L

Note: #Level 0 and Level 1 kitchen areas are included under office-use as these areas will service the building population and not leased as a commercial tenancy.

**Office use, warehousing, and food tenancies are expected to generate a proportion of paper/cardboard waste of total recycling. Therefore, for the purpose of estimating waste generation, 50% of recycling is assumed to be paper and cardboard waste in this instance. Management may like to opt in to a paper & cardboard collection for further source separation at the site.*

***Food waste generation has been calculated at a rate of 50% of general waste. Management may wish to further separate this waste stream to increase landfill diversion rates.*

6.3.2 Data centre waste

Each of the site's six (6) data centre sub-parcels comprise of 4-storey data centre buildings with a centrally located technical office.

Data centre buildings

The data halls and plant service areas will only be occupied sporadically during maintenance works and therefore is not anticipated the data centres will produce any general or recycling waste.

Waste generation from maintaining or replacing servers in the data centre buildings is determined by the rate and quantity of servers being installed. This fluctuates day to day, week to week and month to month. It is understood that these areas are likely to generate significant quantities of e-waste including cabling, computer hardware, services etc. as part of maintenance and upgrades.

The operators would seek to maintain and upgrade equipment rather than replace where possible in line with circular economy principles i.e. retaining value for as long as possible. The operator would seek to minimise disposal of waste and recover and recycle as much e-waste as possible.

Technical offices

All the technical offices are expected to have the same layout comprising of:

- Technical support areas, meeting rooms, and storerooms; and
- Two waste rooms and a loading dock at the ground-level.

Waste generation from these buildings is expected to arise mainly from the office areas. Due to the technical nature of operations, the storerooms are anticipated to store primarily e-waste generated from day-to-day maintenance and small quantities of general waste and recyclables.

Table 14 presents the waste generated from one technical office building. Weekly generation rates are based on a 7-day week.

Table 14: Technical office waste generation volume

Use	Unit of measure	Waste Stream	Generation Rate	Total Weekly Generation
Office	~ 1,650m ²	General waste	10L/100m ² /day	1,155L
		Recycling	10L/100m ² /day	578L
		Paper & Cardboard*	-	578L

6.4 Waste Storage Requirements

Waste storage space for the campus has been calculated considering estimations of bin type and collection frequency, as described in Table 15 and Table 16.

6.4.1 Campus office waste storage

Table 15: Campus office waste storage and collection frequency

Waste stream	Waste generation (L/week)	Waste management (bins and weekly collection frequency)	Minimum Storage Area (m ²)*
General waste	8,638L	2 X1,100L bin collected up to four times	5.3
Recycling	6,167L	2 X1,100L bin collected up to three times	5.3
Paper & Cardboard	6,027L	2 X1,100L bin collected up to three times	5.3
Food waste	6,748L	8 X 240L bins collected four times	3.25
Bulky / other wastes	Other waste streams serviced as required.		10
Bin tug	Mechanical carting assistance		2
Total minimum space requirement:			~31

*Note: *Storage space requirement considers additional space of approximately (m² x 1.5) for manoeuvring of bins.*

A Waste Storage and Recycling Area (WSRA), sized approximately at 32m², will be provided on the ground floor (see Appendix A) to accommodate waste management infrastructure for the campus office detailed in the table above. As the bins will be stored within the building, unwanted access by birds or flying foxes is not anticipated. In addition, all bins will be fitted with tight-closing lids to prevent any potential intrusion.

1,100L are expected to be the most suitable option for the management of general waste and recycling streams for the proposed development. 240L bins are most suitable for the collection of food waste to allow for easier manoeuvrability and servicing. A bin tug will be provided to facilitate bin movement from the WSRA to the adjacent loading dock. It will be stored in the WSRA when not in use.

Building management can observe the bin fullness levels once the site is fully occupied and adjust the number of collections accordingly.

6.4.2 Data centre waste storage

Table 16 presents the waste storage area required for a typical sub-parcel comprising of data centre buildings and a central technical office

Table 16: Data centre waste storage and collection frequency

Waste stream	Waste generation (L/week)	Waste management options (bins and collection frequency)	Minimum Storage Area (m²)*
Data centre buildings			
E-waste	Fluctuates weekly	1 x 660L bin collected as required	1.7
Technical office			
General waste	1,155L	1 X 1,100L bin collected once per week	2.6
Recycling	578L	1 X 660L bin collected once per week	1.7
Paper & Cardboard	578L	1 X 660L bin collected once per week	1.7
Bulky / other wastes	Other waste streams serviced as required.		10
Bin tug	Mechanical carting assistance		2
Total minimum space requirement:			~20

Two WSRA's will be provided at the ground-level of each of the six (6) technical office buildings (see Appendix A) to accommodate the bin requirements outlined in Table 16. As the bins will be stored within the building, unwanted access by birds or flying foxes is not anticipated. In addition, all bins will be fitted with tight-closing lids to prevent any potential intrusion.

A bin tug (Appendix C) will be provided to facilitate bin movement from the WSRA's to the adjacent loading dock. Building management can observe the bin fullness levels once the site is fully occupied and adjust the number of collections accordingly.

6.4.3 Temporary Waste Storage

Interim bins for general waste and recyclables will be provided with capacity for at least one day's generation within the technical offices and campus office.

For office and storage areas, bins will be located in convenient locations such as kitchen areas, printer rooms, and staff circulation spaces. Interim bins for the canteen and café use will be stored within back-of-house (BOH) areas.

Cleaning staff will be responsible for the emptying of these bins daily and transporting waste to the respective main bin storage areas.

6.4.4 E-waste Storage

660L bin is recommended within the WSRA for the storage of e-waste arising from regular maintenance. The proposed bin system for the data centre buildings can accommodate fluctuations in waste generation, for example, during major upgrades, through increased collection frequencies on an as-needs basis. In line with typical data centre operations, the handling and disposal of e-waste will be managed by the contractor responsible for maintaining the data hall infrastructure.

6.4.5 Bulky Waste Storage

Space for storage of bulky waste resulting from the campus office and technical offices are available within the respective ground-level WSRA. Bulky waste removal will be organised promptly with the nominated waste collection contractor to avoid overspill.

7 Operational Waste Management Systems

7.1 Waste Management System Summary

The following specific management methods are proposed for the various collection waste streams expected to be generated at the site, including alternative waste streams outside of general waste, recycling and organics:

- **General Waste:** General waste shall be placed within a tied plastic bag prior to transferring into collection bins. For collection purposes, general waste shall be stored within a MGB.
- **Commingled Recycling:** All recyclables will be stored in commingled bins (mixed plastic, paper, cardboard, glass, aluminium, steel). All recyclables should be decanted loose (not bagged) with containers un-capped, drained and rinsed prior to disposal into the recycling bin. Paper should be flattened and placed in paper and cardboard bin if applicable.
- **Paper and Cardboard:** Should large quantities of paper and cardboard waste be generated from proposed site uses a separate service may be suitable for application at the site. The contracted waste service provider may be able to provide separate paper and cardboard bins for the source separation and collection of paper and cardboard waste.
- **Garden Waste:** It is expected that landscaping at the site will be maintained by an external contractor who will remove all vegetation waste from ongoing maintenance activities.
- **Food Waste:** Arrangements for separate collection of food organics can be made with the waste management contractor. Food waste can be stored in 240L sealed bins or refrigerated waste storage prior to collection.
- **Secure Documents:** Separate bins for secure document waste may be retained in office spaces, to be serviced by a specialist secure document destruction contractor.
- **E-waste:** E-waste generated from the data centre buildings and inventory stores will be managed through the contractor managing the data hall infrastructure.
- **Plastic packaging waste:** Soft plastics and expanded polystyrene (EPS) can be consolidated and sent to specialist soft plastic and EPS recyclers.
- **Wooden packaging waste:** Bulky packaging waste such as wooden pallets and timber crates shall be managed through either internal reuse, return to supplier or sent to pallet recovery companies.
- **Other (Problem) Waste:** The disposal of hard, bulky, liquid or potentially hazardous wastes shall be organised by the site user as necessary.

7.2 Food waste

The Food Organics Garden Organics (FOGO) Recycling Bill 2025 (the bill) has been passed by both parliaments on 19th February 2025. The bill states that all NSW businesses with a weekly residual waste capacity of >3,840L, 6 x 660L bins or 16 x 240L bins are required to have a Food Organics collection service in place by the 1st July 2025. Collections for these businesses need to occur weekly to avoid odour and hygiene complications associated with food waste. Food waste is not to be mixed with non-organic material upon collection according to the bill.

As stated in Section 6.3.1, the proposed campus office is expected to generate 3,206L of FOGO waste per week. 5 x 240L bins collected twice a week has been recommended to accommodate for this waste generation. As such, the proposed commercial use fits the bill's NSW business criteria and will subsequently need to adhere to the FOGO recycling requirements by the specified due date of 1st July 2026. Details as to how FOGO waste will be managed at the site are covered in Section 7.1. See Appendix B for additional information about the bill.

7.3 Waste Management and Recycling Method

The flow of **waste and recycling** goes from generation to collection through several steps:

1. Waste is temporarily stored at its point of generation in an appropriately sized receptacle, clearly marked for type of waste;
2. Site cleaners and staff are to transfer waste to the respective waste storage room for appropriate disposal into the respective bin.

3. Cleaning staff and site management are responsible for maintenance of bins and the waste storage rooms, ensuring bins are clean and in working order. Cleaning staff and site management are also responsible for switching out full bins and monitoring bin fullness;
4. Site management is to ensure contracts with a private waste contractor, who also ensure appropriate collection scheduling and access is organised to minimise noise, odour, vermin, and visual amenity impacts to staff, visitors and the public.

7.4 Management System and Responsibilities

The site manager will be responsible for the management of waste at the site. Should there be any issues that impact on the operational efficiency, safety and suitability of waste management, management will be responsible for making any necessary changes, responsibilities include:

- Using this WRRMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information on sorting methods for recycled waste, awareness of waste management procedures for waste minimisation and resource recovery;
- Maintaining a valid and current contract with a licensed waste service provider for waste and recycling collection and disposal;
- Making information available to residents and visitors about waste management procedures;
- Organising, maintaining and cleaning bins as part of a regular maintenance schedule;
- Manoeuvring bins to specified onsite collection point prior to and following scheduled collection of waste bins;
- Organising bulky and e-waste waste collections as required;
- Ensuring bin allocation and waste/recycling collection frequency is adequate. Requesting additional infrastructure or services where necessary; and
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry.

7.5 Collection Method and Loading Areas

A suitable private contractor will be arranged as the site Waste Service Provider (WSP). Collection will occur from the ground-level loading docks for the campus office and technical offices (see Appendix A) by Heavy Rigid Vehicles (HRV). The expected vehicle type to collect the proposed bulk bins and MGBs is a rear-loading vehicle.

Table 17: Collection points and loading areas requirements and specification

Component	Requirement	Specification
Collection point	Allow safe waste collection and loading operations	- Adequate clearance and manoeuvring space; - Sufficient clearance for the safe handling of materials and equipment; and - Sectioned loading bay does not impede upon traffic and pedestrian safety.
Vehicle manoeuvring and loading space	Truck space for adequate lift clearance, manoeuvring and operation for a contractor collection vehicle	- Collection from each building's loading dock by a rear lift collection vehicle; - Adequate loading bay dimensions to not impede lift clearance; - Operational clearance to allow the collection vehicle to enter in a reverse direction and exit in a forward direction; and - The provision of space clear of vehicle parking spaces (level and free of obstructions).

Component	Requirement	Specification
Operating times	Appropriate collection times to limit noise and traffic disturbance	- Collection times will be arranged during off-peak times to ensure minimal disturbance to staff and visitors.

7.6 Waste and Recycling Storage Areas

The waste areas will provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. In accordance with the DCP, it is recommended the bin storage areas be designed with the following considerations:

- Storage areas reflect the equipment, infrastructure, manoeuvring space and potential future needs of the development;
- Be located in a position that is convenient for users and waste collection staff, located away from habitable rooms;
- Waste handling, storage and collection systems for residential and non-residential waste to be separate and self-contained;
- All waste and recycling storage areas and access paths to be kept clean and free of obstructions;
- The floor being graded and drained to an approved drainage outlet connected to the sewer and having a smooth, even surface, coved at all intersections with walls;
- The walls being cement rendered to a smooth, even surface and coved at all intersections; and
- The room shall be adequately ventilated (either natural or mechanical) in accordance with the Building Code of Australia.

7.7 Signage

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia, 1994).

Signage will be designed to consider language and non-English speaking backgrounds, vision impairment and accessibility. Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in the waste room indicating:

- Details regarding acceptable recyclables;
- Recyclables are to be decanted loose (not bagged);
- *No standing* and *danger* warnings apply to the area surrounding the waste storage area;
- Contact details for arranging the disposal of bulky items; and
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix C).

7.8 Prevention of Pollution and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), building management and the site cleaning staff will also be responsible for:

- Maintenance of open and common site areas;
- Ensuring waste areas are well maintained and kept clean;
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);

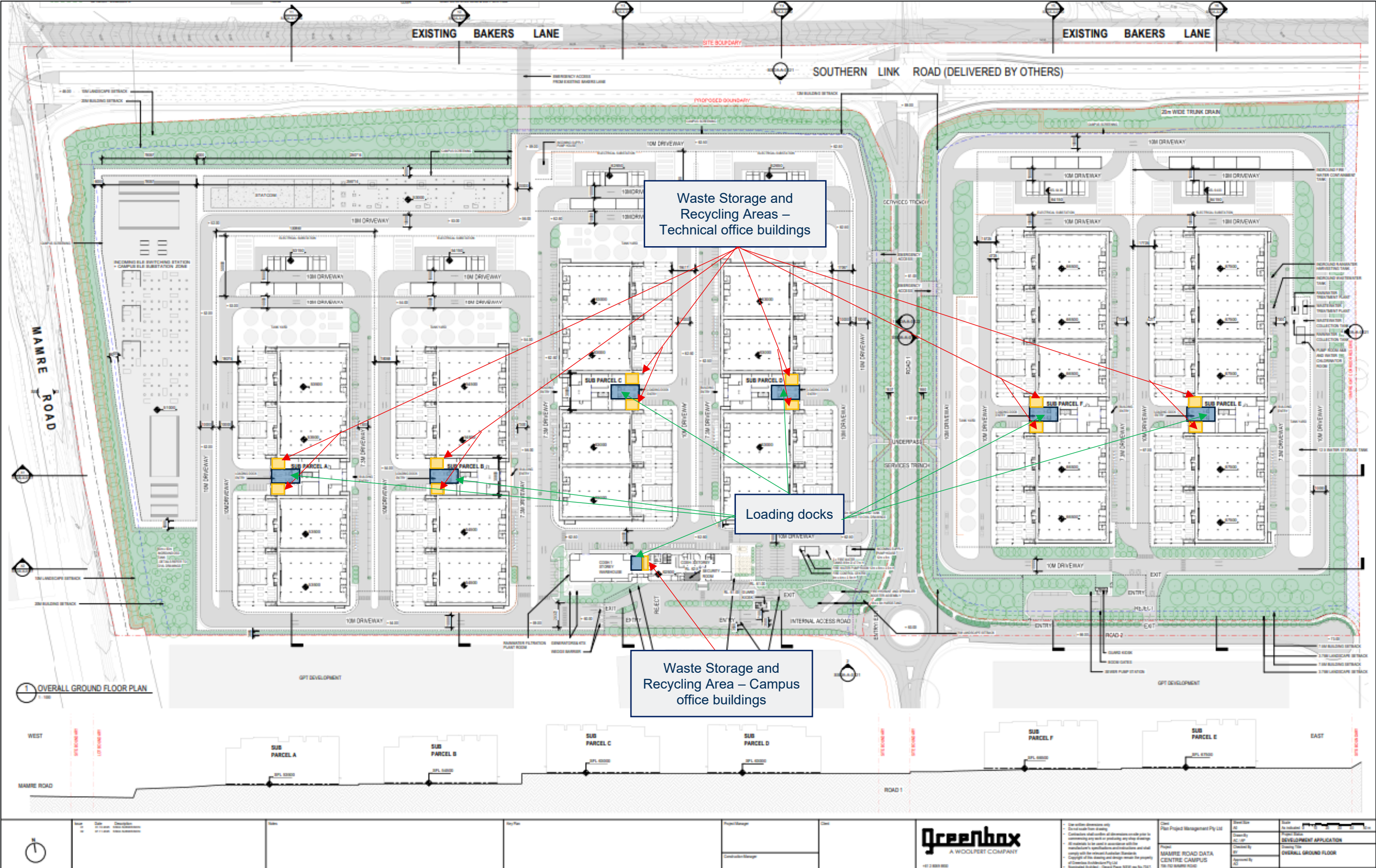
- Taking action to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

8 References

- Australian Department of Sustainability, Environment Water, Population and Communities (2011) Construction and Demolition Waste Guide - Recycling and Re-use Across the Supply Chain.
- Australian Standards 4123.7 Mobile Waste Containers.
- Mamre Road Development Control Plan 2021
- Penrith City Council (2014) Industrial, Commercial And Mixed-Use Waste Management Guidelines.
- NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities.
- NSW EPA (2019) Better Practice Guide for Resource Recovery in Residential Developments
- NSW EPA (2021) NSW Waste and Sustainable Materials Strategy 2041. Stage 1: 2021 - 2027
- NSW EPA (2014) Waste Classification Guidelines.
- NSW EPA (2016) Recycling Signs, Posters and Symbols. Available at: <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.
- NSW Government (1979) Environmental Planning and Assessment Act.
- NSW Government (1997) Protection of the Environment Operations Act.
- NSW Government (2000) Environmental Planning and Assessment Regulation.
- NSW Government (2001) The Waste Avoidance and Resource Recovery Act
- Penrith Local Environmental Plan 2010

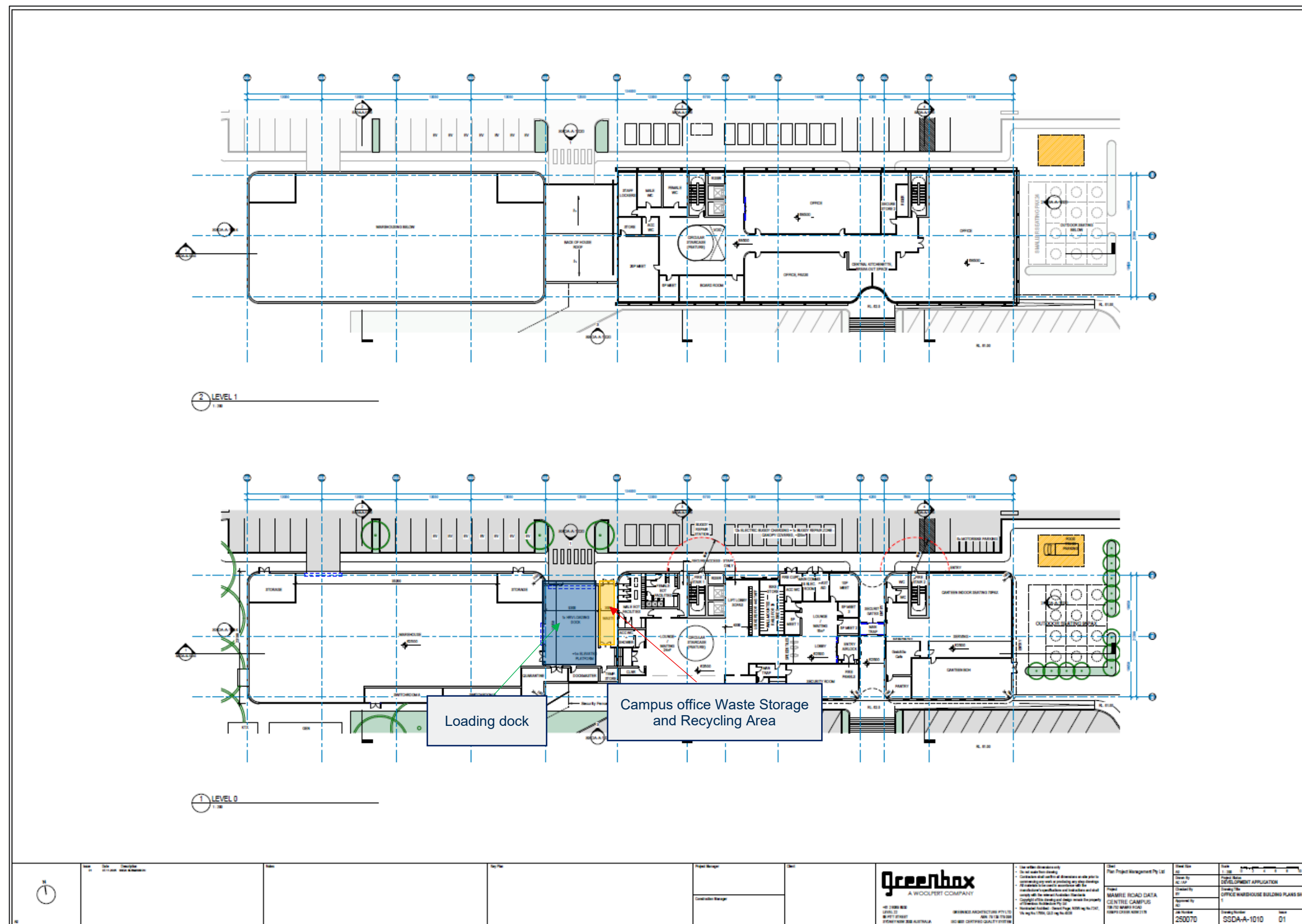
Appendix A Proposed Site Plans

Figure 3: Overall site plan



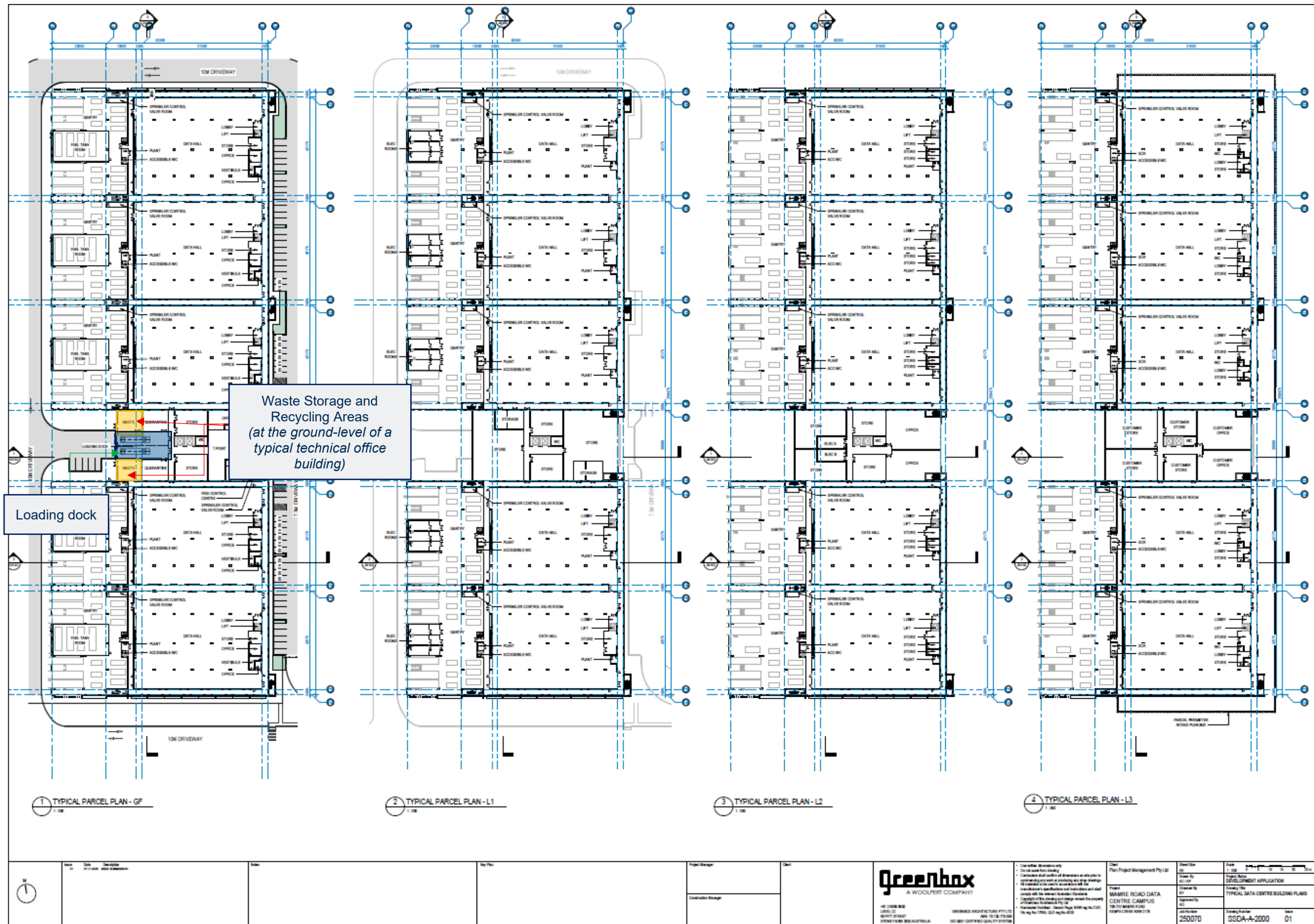
Source: Greenbox, November 2025.

Figure 4: Campus office building plan - Level 0 and Level 1



Source: Greenbox, November 2025.

Figure 5: Typical sub-parcel plan - Ground-level to Level 3



Source: Greenbox, November 2025.

Appendix B FOGO Recycling Bill Summary 2025

FOGO Recycling Bill 2025

Information for Businesses



Key requirements

Relevant premises must:

- Have a food organics (FO) waste collection service in place by the relevant deadline
- Ensure collection of FO waste at least once weekly
- Ensure FO waste is not mixed with non-organic waste during collection and transportation

Relevant premises include:

- Supermarkets
- Shopping centre food courts
- Centre-based childcare facilities
- Correctional complexes (including correctional centres)
- Education establishments
- Food & drink premises
- Hospitals
- Registered clubs
- Premises used for a mobile catering business
- Seniors housing without a regular council waste collection service
- Residential accommodation that receives a regular waste collection service by someone *other than a council*



Timeline



Exemptions

The FOGO Recycling Bill does NOT apply to:

- Relevant premises with $< 720\text{L}$ of weekly residual waste capacity (1 x 660L or 3 x 240L bins)

Residential accommodations includes those with a regular **COMMERCIAL** residual waste collection service

Source: NSW Government, 2025

Appendix C Waste Management Equipment



movexx
smart electric tugs

MOVEXX T1000-D

BIN MOVER / BATTERY ELECTRIC

The Movex T10000 takes away the manual effort required to push / pull wheeled bins. It has both variable speed and an overriding dual speed button. A built-in smart control unit is programmable for speed, acceleration and braking, plus numerous other fine-tune adjustments. These units are fitted with an electromagnetic brake system for use on ramps and slopes.

A fast and easy-to-remove lithium battery system accepts opportunity charging additional batteries are available allowing for constant usage of the Moveox T100D in high demand applications

Additional batteries can be kept on an external charger, so they are ready for use once the battery indicator changes to red. Many other options are also available on request. Towing hitches are not included and can be ordered separately.



SPECIFICATION

MODEL	DIMENSIONS (MM)	OPTIONS	PULL - PUSH CAPACITY (KG)	BATTERY
T1000-D	445 (w) x 1176 (l)	* Centre mount 2x 240 ltr. wheeled bin attachment	1000	Quick Charge Lithium



*Optional centre mount 2x 240ltr. bin attachment.
Part number - 5371347.1

movexx
smart electric tugs

MOVEXX T2500 BIN MOVER / BATTERY ELECTRIC

Moveix T2500 Tow Tug is an extremely user friendly battery powered mobile towing unit that is ideal for applications where trolleys and rolling objects need to be moved from one place to another simply, efficiently and without physical effort. Some standard features included are: battery indicator, on board battery charger, battery, adjustable handle, dual speed and electric brake.

These units are fitted with an electromagnetic brake system for use on ramps and slopes

Features

- Electromagnetic brake for use on ramps and slopes
- Adjustable height handle



SPECIFICATION

MODEL	DIMENSIONS (MM)	OPTIONS	PULL - PUSH CAPACITY (KG)	BATTERY
T2500-D	511 (w) x 757 (h)	* Centre mount 2x 240 ltr. wheeled bin attachment	2500	AGM batteries 2x 95AH up to 8 hrs continuous operation



Appendix D Standard Signage

Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW EPA.

Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

Figure 6: Examples of standard signage for bin uses



Safety Signs

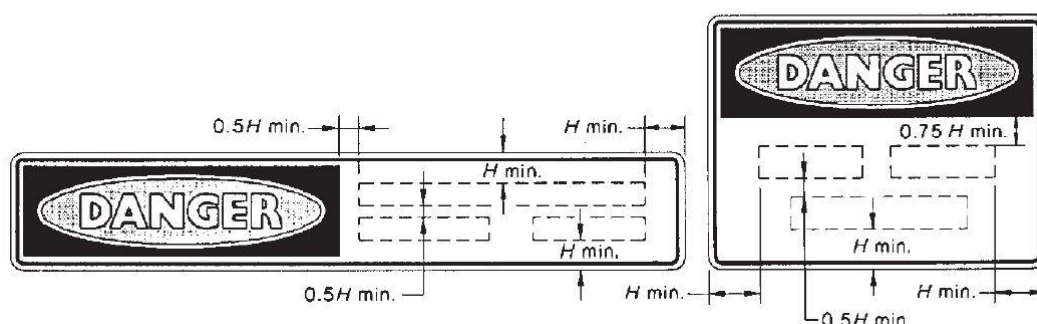
The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.

Figure 7: Example and layout of safety signage



(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



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