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Site Waste Minimisation and Management Plan

ASTRA Aerolab Commercial Building One

Astra Aerolab – Lot 106

PREPARED FOR
Cox Architecture
70 George Street
The Rocks NSW 2000

Ref: NL213640_EC01
Rev: B
Date: 23.09.2022

Site Waste Minimisation and Management Plan

Revision Schedule

Date	Revision	Issue	Prepared By	Approved By
15.09.2022	A	Preliminary	NG	MP
23.09.2022	B	Development Application	NG	MP

Northrop Consulting Engineers Pty Ltd

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Table of Contents

1. Introduction

1.1 General

Northrop Consulting Engineers (Northrop) has been engaged by Cox Architecture as the waste consultant for the development to prepare a Site Waste Minimisation and Management Plan (SWMMP).

This SWMMP outlines the construction and operational waste management and operational waste generation.

1.2 Applicant Details

Detail	Response
Application No.	1
Name	Nicholas Grinter
Address	Level 1, 215 Pacific Highway Charlestown NSW 2290
Phone Number	02 4943 1777
Email	ngrinter@northrop.com.au

1.3 Project Details and Description

Detail	Response
Address of Development	Astra Aerolab – Lot 106
Existing waste generation buildings and other structures currently on the site	Not Applicable – no existing buildings or other waste generating development on the site
Description of proposed development	Proposed building with a ground floor and 6 floors above. Ground floor to contain a café and 2 other commercial tenancies. First floor contains car parking and general storage. Floors 2 – 6 contain office space.

Figure 1 shows the general locality of the site based on Metromap aerial imagery and Figure 2 shows the general locality of the site based on drawing A-DA-1002 Rev A by Cox Architecture. The site is bound by Jeffries Circuit, Aerospace Avenue, Lot 105 and Lot 107.

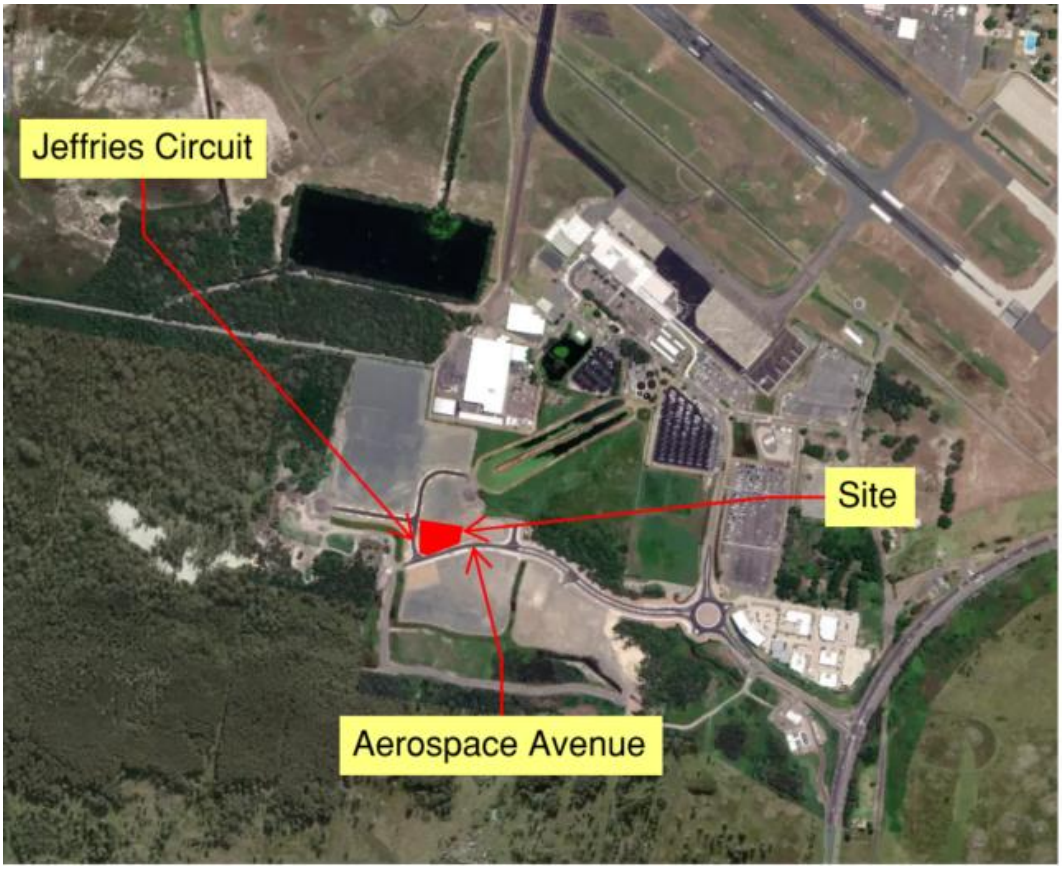


Figure 1 Site Aerial Image

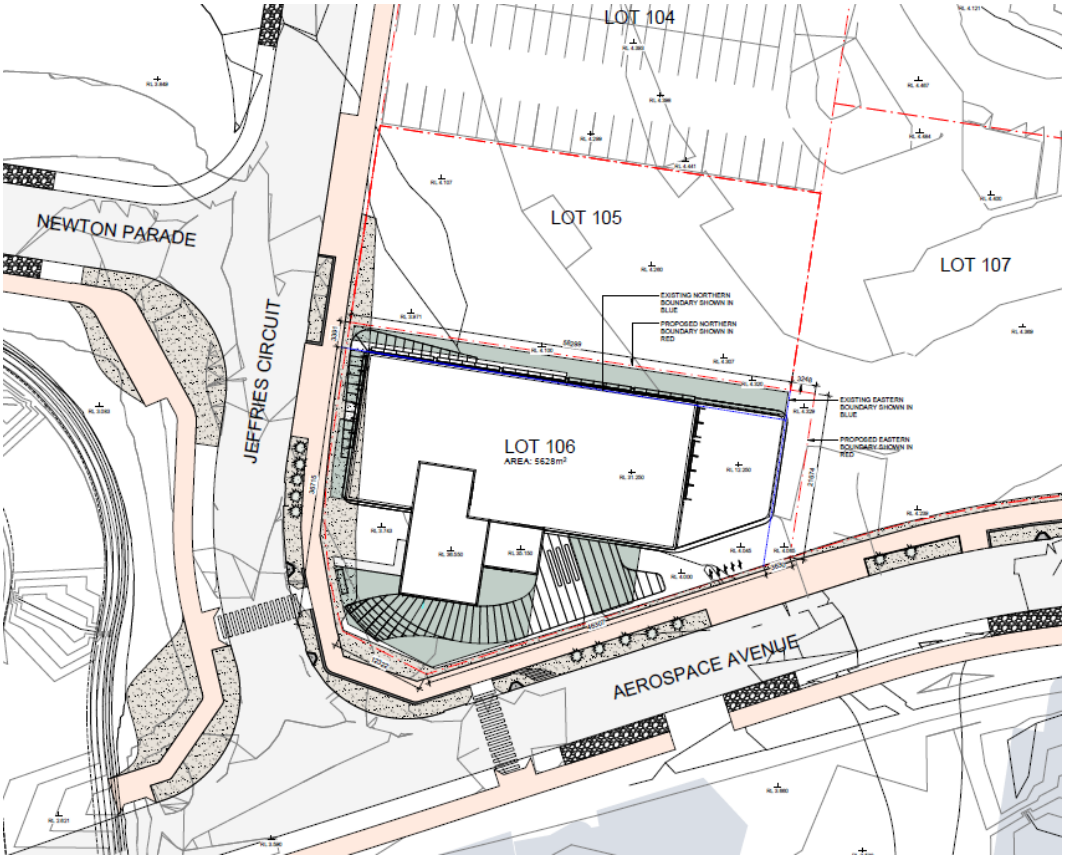


Figure 2 Site Drawing Image

The development is proposed to contain:

- 2 commercial tenancies on the ground floor;
- 3 retail tenancies on the ground floor;
- 1 café/restaurant on the ground floor;
- Bicycle parking and end of trip facilities located across both the ground and first floors;
- A waste storage area/loading dock on the ground floor;
- Carparking on the first floor;
- Storage rooms on the first floor;
- Commercial tenancies on the second to the sixth floor; and
- Associated amenities through the building.

Northrop have taken the conservative approach and assumed that waste for the development will be generated through the following development breakdown shown in Table 1.

Table 1 Development Breakdown

Level	Retail[1]	Restaurant	Office
Ground	353m^2	170m^2	-
1	-	-	-
2	-	-	794m^2
3	-	-	795m^2
4	-	-	795m^2
5	-	-	795m^2
6	-	-	795m^2
Total	353m^2	170m^2	3,974m^2

1. For the purpose of this Site Waste Minimisation and Management Plan, the retail space has been assumed to be similar to a convenience store.

1.4 Referenced Documents

Document Name	Revision	Date Issued
Department of Environment and Climate Change NSW – Model "Waste Not" DCP Chapter 2008 – A Site Waste Minimisation and Management Chapter for Consolidated Development Control Plans	-	July 2008
City of Sydney Guidelines for Waste Management in New Developments	-	Accessed 13/09/2022

1.5 Limitations of Investigation

This report is based on the accuracy and completeness of the information provided at the time of the report. Northrop takes no responsibility for any misrepresentation, incompleteness, or inaccuracies provided within that information. Should any other information become available this report must be reviewed accordingly.

This report has been complete upon a desktop study and information provided by the client. This report has been completed using sketches, photography by others and aerial images.

This report has been complete prior to the commencement of construction. The contractor engaged for the works are to complete a waste management plan for the construction phases of the works. Estimates of waste generation are to be complete by the construction phases of the works if requested from authorities.

Storage and disposal of liquid waste, such as oils and chemicals, are not covered by this Site Waste Minimisation and Management.

This site waste management plan has assumed waste generation based on the City of Sydney Guidelines for Waste Management in New Developments. Cox Architecture are to monitor the Operational Waste procedures and make adjustments as required.

2. Construction

2.1 General

Attention to design, estimating of materials and waste sensitive construction techniques and management practices can achieve significant rewards in managing waste.

2.2 Aim

The principal aim of Section 2 of this SWMMP is to identify how to achieve maximum resource recovery and minimise residual waste from construction activities.

2.3 Objectives

- Maximise reuse and recycling of materials.
- Minimise waste generation.
- Ensure appropriate storage and collection of waste.
- Minimise the environmental impacts associated with waste management.
- Avoid illegal dumping.
- Promote improved project management.

2.4 Controls/Requirements

- The contractor is to estimate volumes of materials to be used and incorporate these volumes into a purchasing policy so that the correct quantities are purchased.
- The contractor is to identify potential reuse/recycling opportunities of excess construction materials.
- The contractor is to incorporate the use of prefabricated components and recycled materials.
- The contractor is to arrange for the delivery of materials so that materials are delivered 'as needed' to prevent the degradation of materials through weathering and moisture damage.
- The contractor is to consider organising to return excess materials to the supplier or manufacturer.
- The contractor is to allocate an area for the storage of materials for use, recycling and disposal (considering slope, drainage, location of waterways, stormwater outlets and vegetation).
- The contractor is to arrange contractors for the transport, processing and disposal of waste and recycling. The contractor is to ensure that all contractors are aware of the legal requirements for disposing of waste.
- The contractor is to promote separate collection bins or areas for the storage of residual waste.
- The contractor is to clearly 'signpost' the purpose and content of the bins and storage areas.
- The contractor is to implement measures to prevent damage by the elements, odour and health risks, and windborne litter.
- The contractor is to minimise site disturbance and limit unnecessary excavation.
- The contractor is to ensure that all waste is transported to a place that can lawfully be used as a waste facility.
- The contractor is to retain all records demonstrating lawful disposal of waste and keep them readily accessible for inspection by regulatory authorities such as council, DECC or WorkCover NSW.

- Prior to commencement of construction, the contractor is to outline how measures for waste avoidance have been incorporated into the design, material purchasing and construction techniques of the development.

As part of this SWMMP, sketch SK1000 has been attached which shows:

- The potential bin/stockpile configuration.
- The potential location of the bins/stockpiles.
- The potential bin servicing arrangements including directional flow of waste collection vehicles onto and off site and traffic management requirements for the access at Aerospace Avenue.

Table 2 identifies possible disposal arrangements for waste streams which may arise from the construction work should the contractor not be able to reuse or recycle the materials.

Table 2 Construction Waste

Type of Waste Generated	Proposed Disposal Facility
Excavation material (assumed VENM)	Boral Recycling - Kooragang
Timber	Bingo Recycling - Tomago
Concrete	Boral Recycling - Kooragang
Asphalt	Boral Recycling - Kooragang
Bricks/pavers	Boral Recycling Kooragang
Tiles	Bingo Recycling - Tomago
Metals	Bingo Recycling - Tomago
Glass	Bingo Recycling - Tomago
Furniture	Bingo Recycling - Tomago
Fixtures and Fittings	Summerhill Waste Management Centre
Packaging (used pallets, pallet wrap)	Bingo Recycling - Tomago
Garden organics	Summerhill Waste Management Centre
Containers (cans, plastic, glass)	Summerhill Waste Management Centre
Paper/cardboard	Summerhill Waste Management Centre
Residual Waste	Summerhill Waste Management Centre

The construction contractor is to assess the listed controls and requirements for the works listed and make an assessment if more are to be added. Through the implementation of a Waste Management

Plan for the construction works, the construction contractor will be able to manage the waste generated from the works at ASTRA Aeroloab Commercial Building One.

3. Ongoing Operation

3.1 General

Commercial Developments present an array of unique waste minimisation opportunities and management requirements.

3.2 Aim

To ensure the new development is designed to maximise resource recovery (through waste avoidance, source separation and recycling); and to ensure appropriate well-designed storage and collection facilities are accessible for ASTRA Aeroloab Commercial Building One and service providers.

3.3 Objectives

- Ensure appropriate waste storage and collection facilities.
- Maximise source separation and recovery of recyclables.
- Ensure waste management systems are as intuitive for occupants as possible and readily accessible to occupants and service providers.
- Ensure appropriate resourcing of waste management systems, including servicing.
- Minimise risk to health and safety associated with handling and disposal of waste and recycled material and ensure optimum hygiene.
- Minimise adverse environmental impacts associated with waste management.
- Discourage illegal dumping by providing on site storage, and removal services.

3.4 Controls/Requirements

- Drawing NL213640_CW50 and Sketchs SK1001 – SK1004 submitted with the SWMMP show:
  - The location of the designated waste and recycling area, sized to meet the waste and recycling needs of all users.
  - The location of temporary waste and recycling storage areas. These are to be of sufficient size to store a minimum of one day's worth of waste.
  - An identified collection point for the collection and emptying of waste and recycling waste bins.
  - The path of travel for moving bins from the storage area to the identified collection point (if collection is to occur away from the storage area).
  - The on-site path of travel for collection vehicles.
- There is step-free access between the point at which bins are collected/emptied and the waste/recycling storage area.
- There are bins in each tenancy. Waste from these bins is then transferred to the bins in the waste/recycling storage area.
- An agreement between the management of the ASTRA Aeroloab Commercial Building One and a commercial waste collector will need to be obtained.
- Between collection periods, all waste/recyclable materials generated on site must be kept in enclosed bins with securely fitting lids so the contents are not able to leak or overflow. Bins must be stored in the designated waste/recycling storage area.
- Arrangements must be in all parts of the development for the separation of recyclable materials from general waste. Arrangements must be in all parts of the development for the movement of recyclable materials and general waste to the main waste/recycling storage area.

- The waste/recycling storage area accommodates bins that are of sufficient volume to contain the quantity of waste generated between collections.
- The waste/recycling storage area must provide separate containers for the separation of recyclable materials from general waste.
- The type and volume of containers used to hold waste and recyclable materials must be compatible with the collection practices of the nominated waste contractor.
- The waste storage area is enclosed and in a maintained area to prevent polluted wastewater runoff from entering the stormwater system.
- Entry to the loading dock is from the local road to the block. Consideration should be given to the time of day at which containers are collected so as to minimise adverse impacts upon pedestrian movements and vehicle movements. Refer to the latest revision of Drawing No. 2262_01 by JMT Consulting showing the swept path of the service vehicle entering the block.
- The size and layout of the waste/recycling storage area is capable of accommodating reasonable future changes in use of the development.
- A waste/recycling area is assumed to be provided for each and every kitchen area in a development. Each waste/recycling area must be of sufficient size to hold a minimum of a single day's waste and to hold separate containers for general waste and recyclable materials.
- Arrangements must be in place regarding the regular maintenance and cleaning of waste management facilities. It would be assumed that ASTRA Aeroloab Commercial Building One will have arrangements in place.

3.5 Generation Rates

To determine the Operational Waste for ASTRA Aeroloab Commercial Building One, the City of Sydney Guidelines for Waste Management in New Developments has been referred to in addition to meetings with the developer and architect for the project.

3.5.1 Documentation of Waste Generation Rates

Investigation into waste generation rates have been undertaken by Northrop. The City of Sydney Guidelines for Waste Management in New Developments lists the generation rates for the anticipated waste streams to be collected at the ASTRA Aerolab Commercial Building One as detailed in Table 3.

Table 3 Waste Generation Rates in expected Litres per 100m2 per Day

Type	Waste[2]	Recycling	
		Paper/Cardboard[1]	Comingled[1]
Commercial Office	20	20	5
Restaurant/ Eating	200	100	400
Convenience Store	60	175	75

1. Recycling has been separated into paper/cardboard and comingled based on relevant experience.
2. Although separate as referenced in the City of Sydney Guidelines for Waste Management in New Developments, food waste has been added to general waste for the purpose of the waste storage room calculations.
3. No rates have been provided for e-waste due to the typical generation and collection frequency anticipated for the waste stream.

3.5.2 Ongoing Operation Waste

Table 4 summarises the ongoing operation waste for the proposed development based on the generation rates from Table 3.

Table 4 Ongoing Operational Waste

	Waste	Paper/ Cardboard	Comingled	E-waste
Amount generated (L per day)	1,347	1,583	1,143	N/A
Amount generated (L per week)	9,427	11,078	8,005	N/A
Any reduction due to compacting equipment	Nil	Nil	Nil	N/A
Frequency of collections (per week)	2	2	2	N/A
Number and size of storage bins required	5x1,100L Hopper	6x1,100L Hopper	5x1,100L Hopper	N/A
Floor area required for storage bins (m2)	Refer Sketch NL213640_CW50	Refer Sketch NL213640_CW50	Refer Sketch NL213640_CW50	Not Applicable
Floor area required for manoeuvrability (m2)	Refer Sketch NL213640_CW50	Refer Sketch NL213640_CW50	Refer Sketch NL213640_CW50	Not Applicable
Height required for manoeuvrability (m)	3.5m	3.5m	3.5m	N/A

Northrop acknowledges that there may be secure waste disposal from the site. The building manager will need to monitor the amount of secure paper waste being disposed of which may alter the total amount of paper/cardboard waste as described in Table 4.

The building manager for ASTRA Aeroloab Commercial Building One will need to monitor the waste and recycling collection frequencies and make adjustments as necessary to ensure that bins are not overflowing prior to collection of the waste and recycling from the school's operation.

The building manager for ASTRA Aeroloab Commercial Building One is to assess the listed controls and requirements for the works listed and make an assessment if more controls and requirements are

to be added. Through the implementation of a Waste Management Plan for the operation of the building, the building manager will be able to manage the operational waste generated.

4. Conclusion

Northrop has been engaged by Cox Architecture as the waste consultant for the development to prepare a SWMMP.

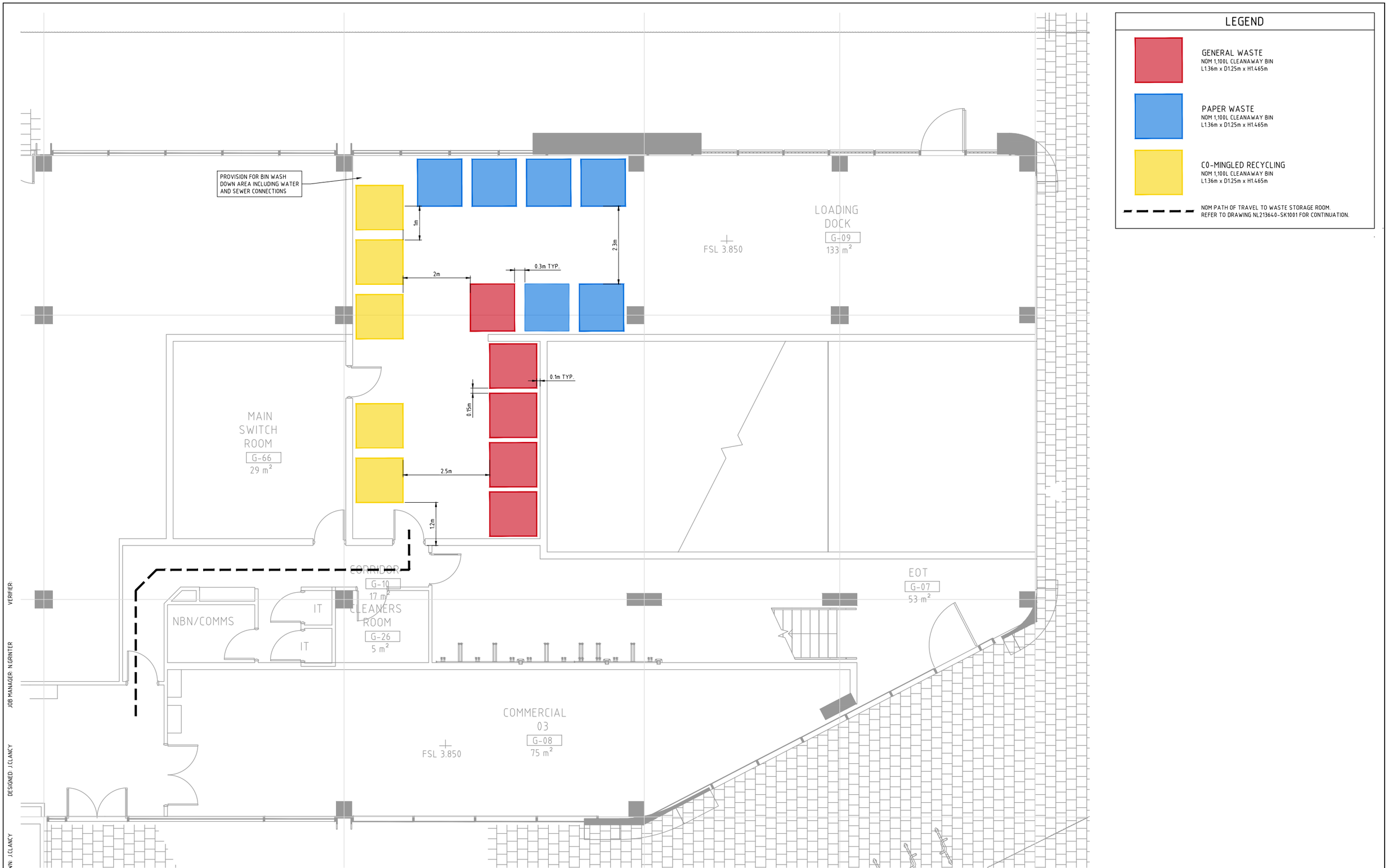
This SWMMP has outlined the construction and operational waste management and operational waste generation.

The construction contractor is to assess the listed controls and requirements for the works listed and make an assessment if more are to be added. Through the implementation of a Waste Management Plan for the construction works, the construction contractor will be able to manage the waste generated from the works at ASTRA Aerolab Commercial Building One.

The building manager for ASTRA Aerolab Commercial Building One will need to monitor the waste and recycling collection frequencies and make adjustments as necessary to ensure that bins are not overflowing prior to collection of the waste and recycling from the school's operation.

The building manager for ASTRA Aerolab Commercial Building One is to assess the listed controls and requirements for the works listed and make an assessment if more controls and requirements are to be added. Through the implementation of a Waste Management Plan for the operation of the building, the building manager will be able to manage the operational waste generated.

Based on the generation rates obtained from the City of Sydney Guidelines for Waste Management in New Developments, facilities proposed and management techniques proposed, the building manager for ASTRA Aerolab Commercial Building One, the construction contractor and the demolition contractor will be able to manage waste and recycling up to and including the operation of the building.



VERIFIER:
JOB MANAGER: N.GRINTER
DESIGNED: J.CLANCY
DRAWN: J.CLANCY

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	FOR INFORMATION	JC		NG	15.09.22
2	FOR INFORMATION	NG		JC	23.09.22

CLIENT:
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Newcastle Airport

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PLAN
SCALE 1:50 @ A1

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PROJECT
ASTRA AEROLAB
COMMERCIAL BUILDING ONE

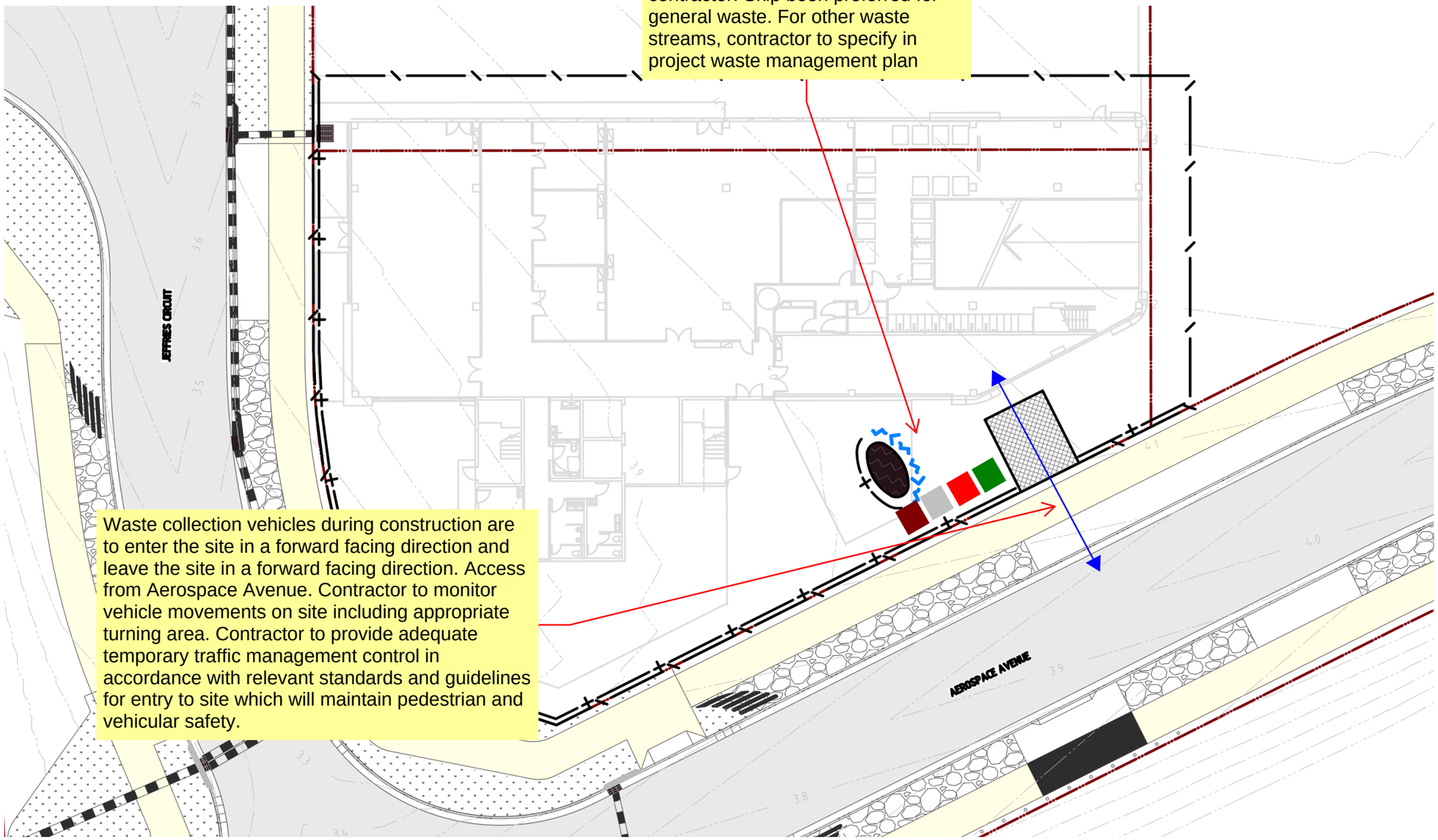
DRAWING TITLE
WASTE CONSULTANCY PACKAGE
CONCEPT HOPPER
STORAGE AREA PLAN

JOB NUMBER
NL213640

DRAWING NUMBER
CW050

REVISION
2

DRAWING SHEET SIZE = A1



1. Image extracted from Northrop Drawing NL213640 DA-01-C02.01 Rev 1 dated 15/09/2022.
2. Demolition and construction contractor/s to ensure a waste management plan is in place for demolition and construction works.
3. Demolition and construction contractor/s to allow for sufficient room on site to ensure waste vehicle enters and exits the site front first.
4. Demolition and construction contractor/s to ensure adequate temporary roadways are built to access nominal waste collection areas and reinstatement of the area to existing condition or better is complete once the works are complete.

Date:	15.09.2022	**Project No:**	NL213640
Project:	ASTRA Aerolab Commercial Building One SWMMP		
Title:	Demolition and Construction Stages		
Drawing No:	SK1000	**Revision:**	1
Drawn:	NG	**Scale:**	NTS

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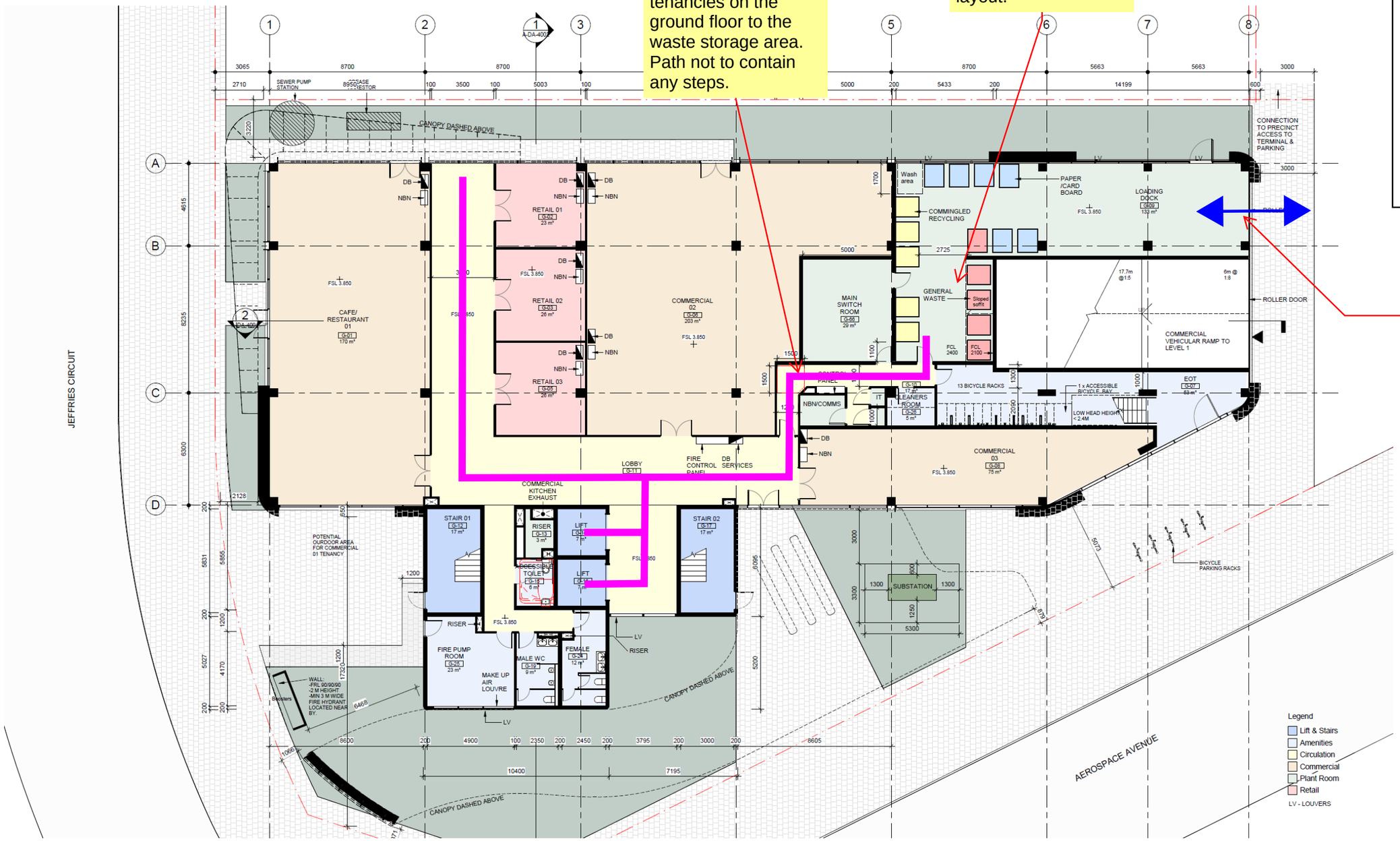
Possible path of travel from upper floors and commercial tenancies on the ground floor to the waste storage area. Path not to contain any steps.

Refer to drawing NL213650_CW050 Rev 2 for revised waste storage area and loading dock layout.

1. Image extracted from Cox Architects Drawing A-DA-2001 Revision A.
2. Path to waste collection area indicative only.
3. Path to waste collection area to have no steps.
4. Operational waste procedure to be monitored by management of the building during operation for safety and efficiency. Management of the building to manage adjustments as required.

Waste collection vehicle movements to be advised by traffic engineer.



Date:	23.09.2022	**Project No:**	NL213640
Project:	ASTRA Aerolab Commercial Building One SWMMP		
Title:	Operational Waste Ground Floor		
Drawing No:	SK1001	**Revision:**	2
Drawn:	NG	**Scale:**	NTS

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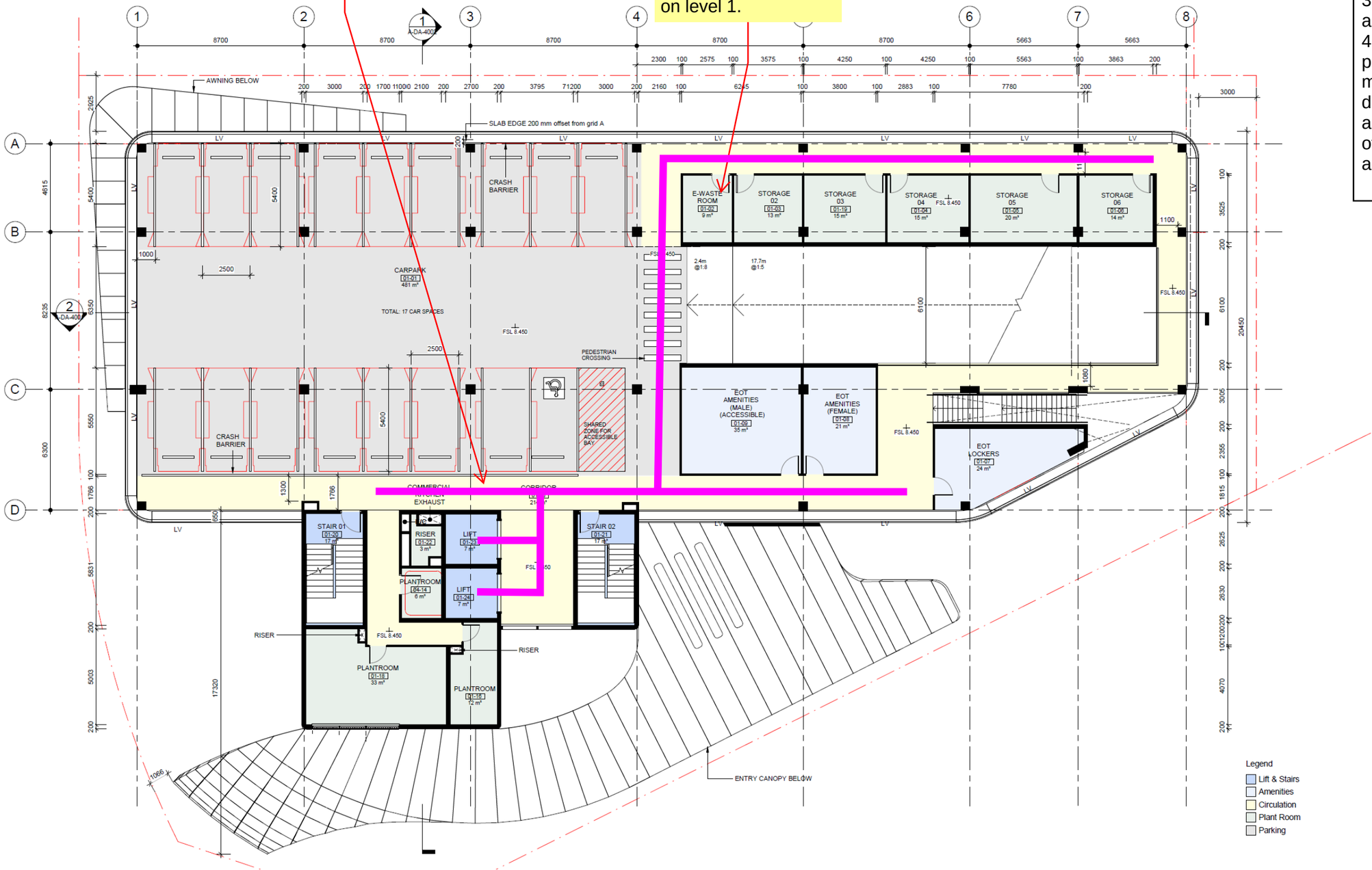
Possible path of travel from level 1 to ground floor. Path not to contain any steps.

Nominated area for E-waste storage for the building. E-waste to be collected as needed either from the loading dock of from a parking space on level 1.

1. Image extracted from Cox Architects Drawing A-DA-2002 Revision A.
2. Path to waste collection area indicative only.
3. Path to waste collection area to have no steps.
4. Operational waste procedure to be monitored by management of the building during operation for safety and efficiency. Management of the building to manage adjustments as required.



Date:	23.09.2022	**Project No:**	NL213640
Project:	ASTRA Aerolab Commercial Building One SWMMP		
Title:	Operational Waste Level 1		
Drawing No:	SK1002	**Revision:**	2
Drawn:	NG	**Scale:**	NTS

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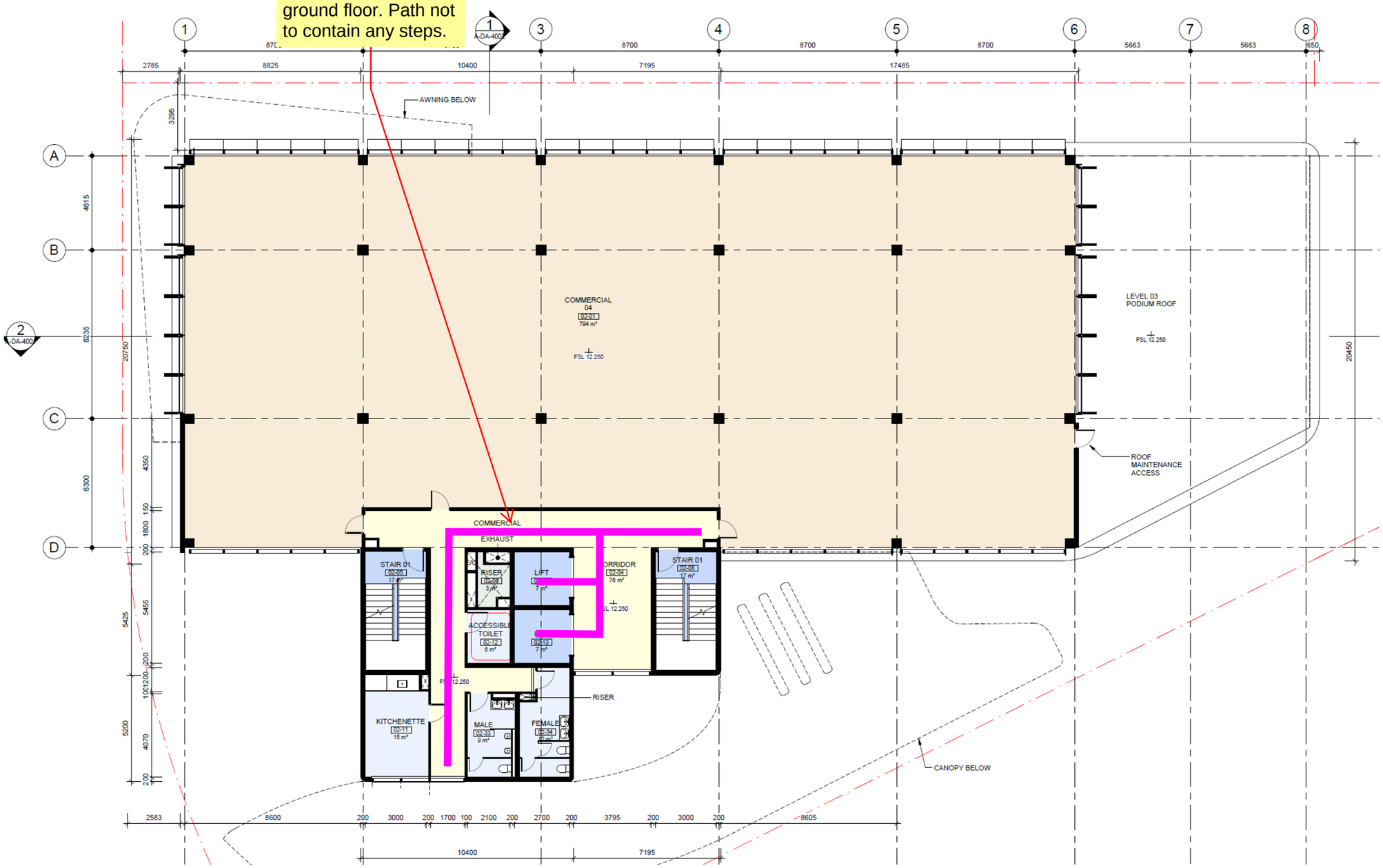
Possible path of travel from upper floors and commercial tenancies on the ground floor. Path not to contain any steps.



1. Image extracted from Cox Architects Drawing A-DA-2003 Revision A.
2. Path to waste collection area indicative only.
3. Path to waste collection area to have no steps.
4. Operational waste procedure to be monitored by management of the building during operation for safety and efficiency. Management of the building to manage adjustments as required.

Date:	23.09.2022	**Project No:**	NL213640
Project:	ASTRA Aerolab Commercial Building One SWMMP		
Title:	Operational Waste Level 2		
Drawing No:	SK1003	**Revision:**	2
Drawn:	NG	**Scale:**	NTS

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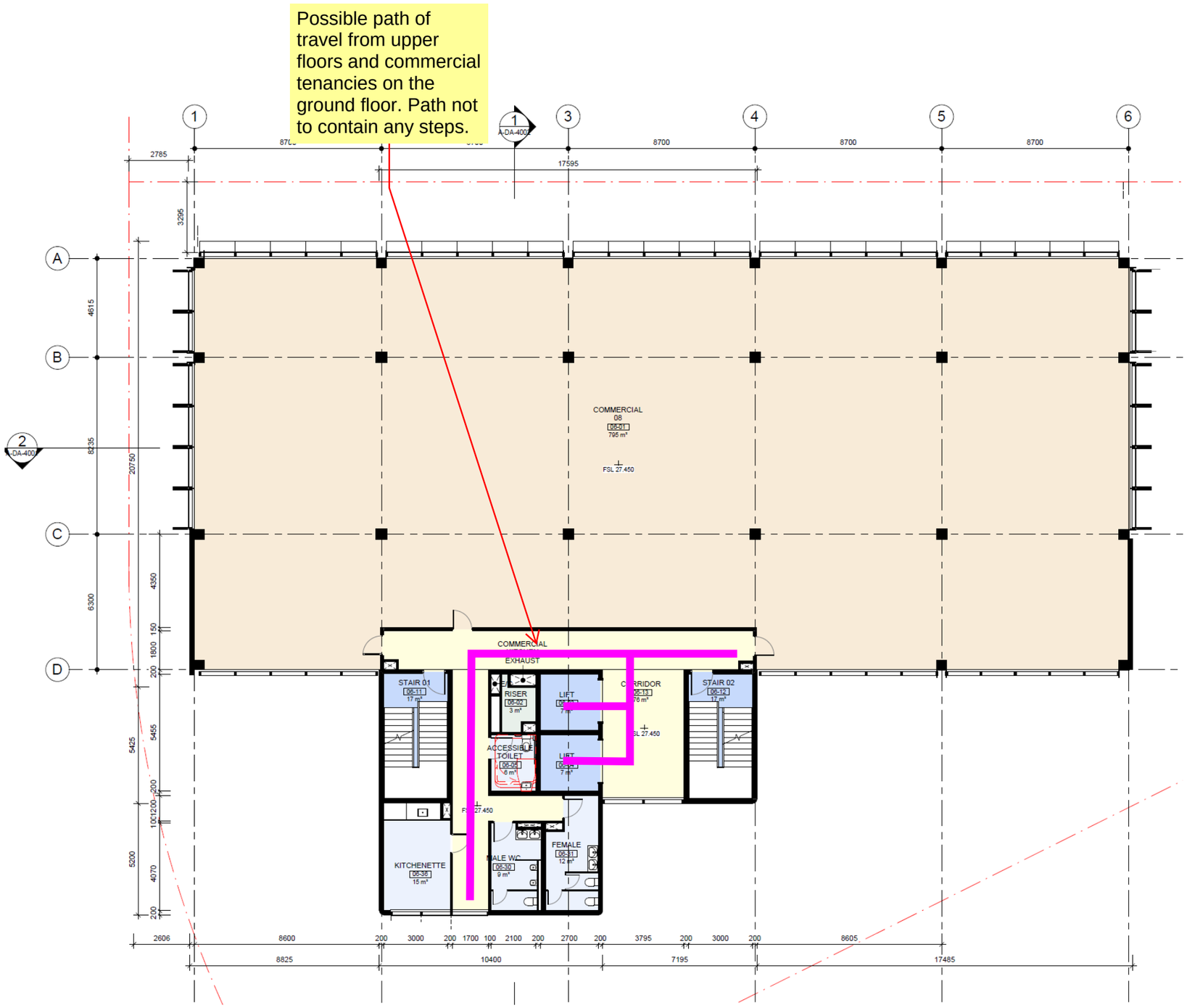

1. Image extracted from Cox Architects Drawing A-DA-2004 revision A.
2. Path to waste collection area indicative only.
3. Path to waste collection area to have no steps.
4. Operational waste procedure to be monitored by management of the building during operation for safety and efficiency. Management of the building to manage adjustments as required.

Date:	23.09.2022	**Project No:**	NL213640
Project:	ASTRA Aerolab Commercial Building One SWMMP		
Title:	Operational Waste Levels 3 – 6		
Drawing No:	SK1004	**Revision:**	2
Drawn:	NG	**Scale:**	NTS

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