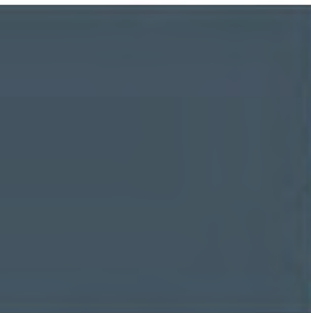




SELICK CONSULTANTS PTY LTD Waste Management Plan



Job Title: **Dickson Village**
Job Location: **Block 21 Section 30 Dickson**
Client: **BLOC ACT Pty Ltd**
Reference #: **181174**



sellick
consultants

Est. 1965

canberra | sydney | brisbane

Project Details

For the Attention of:

David Murphy

BLOC ACT Pty Ltd
PO Box 4769
Kingston ACT 2604

24 lonsdale street,
suite 122 mode 3,
braddon act 2612
po box 5005
braddon act 2612
p (02) 6201 0200
f (02) 6247 2203

Project No:

181127

Sellick Consultants Reference:

Block 21 Section 30 Dickson – Dickson Village

Sellick Consultants Contact Details

Canberra Office:

Unit 122, Level 1, Mode 3
24 Lonsdale Street
BRADDON ACT 2612
P: 02 6201 0200
F: 02 6247 2203
E: sellick@sellickconsultants.com.au

Sydney Office:

Tenancy 3,
117 Willoughby Road
CROWS NEST NSW 2065
PH: 02 6201 0200
E: sellick@sellickconsultants.com.au

Brisbane Office:

Level 15,
111 Eagle Street
BRISBANE QLD 4000
PH: 02 6201 0200
E: sellick@sellickconsultants.com.au

Revision	Issue	Prepared By	Approved By	Date
A	DA	Ross Costello	Bernie Cusack	12/11/2018
B	EDP	Ross Costello	Bernie Cusack	14/11/2018
C	EDP	Ross Costello	Bernie Cusack	29/11/2018
D	DA	Ross Costello	Bernie Cusack	14/12/2018
E	DA	Ross Costello	Bernie Cusack	20/12/2018

structural civil hydraulic engineers



CONTENTS

1.0	INTRODUCTION.....	1
1.1	PROPOSED DEVELOPMENT.....	1
1.1.1	RESIDENTIAL LAND USES.....	2
1.1.2	COMMERCIAL LAND USES.....	2
2.0	WASTE AND RECYCLING GENERATION RATES.....	3
3.0	WASTE AND RECYCLING COLLECTION OPERATIONS.....	4
3.1	RESIDENTIAL WASTE AND RECYCLING TRANSFERRAL METHOD.....	4
3.1.1	RESIDENTIAL COLLECTION ROOMS.....	4
3.1.2	TRANSFER OF HOPPERS BETWEEN ENCLOSURES.....	4
3.2	COMMERCIAL WASTE AND RECYCLING TRANSFERRAL METHOD.....	5
3.3	COLLECTION VEHICLE OPERATIONS.....	6
4.0	CONCLUSION.....	6

APPENDICES

Appendix A: ACT No Waste Proforma (excluding Coles, refer to Appendix D)

Appendix B: Sellick Consultants Waste Management Plans

Appendix C: Waste and Recycling Vehicle Swept Paths (Northrops Consulting Engineers)

Appendix D: Coles Waste Management Plan



1.0 INTRODUCTION

Sellick Consultants Pty Ltd on behalf of BLOC ACT Pty Ltd has prepared this Waste Management Report for the proposed mixed-use development on Block 21 Section 30 Dickson.

This report considers the following:

- The proposed developments residential waste and recycling generation;
- The proposed developments commercial waste and recycling generation; and
- Waste and recycling operation procedures that will be adopted to service the development.

1.1 REFERENCE CODE

Coles has been working on development plans for a mixed use development at Dickson since 2014. Assessment of the Reconsideration Application by ACTPLA, resulted in development consent in June 2016 (**Original DA**), however, an application for review by ACAT and lengthy ACAT proceedings resulted in a refusal of the application in March 2018.

In April 2018 Coles lodged an appeal to the Supreme Court regarding the refusal, on the grounds of errors of law, which resulted in mediation between the parties. As part of the mediation process Coles prepared a new concept development plan seeking to address the key concerns raised by the community during the ACAT proceedings and through the mediation process. The mediation between the parties resulted in Coles reaching agreement with the community that key design principles shown in the new concept development plans represented an acceptable form of development and that Coles would lodge a new development application reflecting the new concept development plans.

On 8 October 2018 Coles requested the Supreme Court to adjourn the proceedings to allow a new development application to be lodged. The Supreme Court adjourned the proceedings conditional on Coles lodging a new development application and notification of that application before 8 February 2019.

The applicable waste management code at the time of the Original DA was *The Waste and Recycle Management Code for the ACT Version 2 Revision 1 2016 (2016 Code)*. In undertaking the amended EDP and DA process for this development in 2018, it is acknowledged that a revised waste management code is proposed for release in 2019 – *Development Control Code for Best Practice Waste Management in the ACT 2019 (Draft Code)*. Whilst the Draft Code is currently only in draft form, the development proposal has attempted to incorporate, where possible, aspects of the Draft Code to provide an enhanced waste management outcome for the residents and waste collection contractor. It is noted that the prevailing code remains the 2016 Code, however, we understand that TCCS is willing to consider incorporation of elements of the Draft Code for this development application.

Key elements of the Draft Code included in this proposal are:

1. Increasing truck manoeuvring clearance at pinch points to 1.0m
2. Incorporation of contemporised waste and recycling generation rates
3. Twice weekly servicing for waste and recycling
4. Hopper clearance requirements within waste enclosure



A design aspect of the Draft Code which has not been able to be incorporated due to planning and architectural design restrictions is the provision of waste and recycling chutes. The option was investigated but caused detrimental impact on the cores and residential unit layouts.

1.2 PROPOSED DEVELOPMENT

The proposed development will be comprised of commercial, retail and residential land uses. A single loading dock will be used for all waste and servicing requirements to the development.

1.2.1 RESIDENTIAL LAND USES

Based on the yield schedule the proposed development will consist of the following:

Table 1 – Proposed Development Residential Yield

APARTMENT TYPE	QUANTITY
1 BEDROOM	63
1 BEDROOM + STUDY	7
2 BEDROOMS	55
3 BEDROOMS	15
4 BEDROOMS	0
SUBTOTAL	140

1.2.2 COMMERCIAL LAND USES

The proposed development is expected to contain the following commercial/retail tenancies.

Table 2 – Proposed Developments Commercial/retail Schedule

TENANCY	AREA (m ²)	USE
1	156	Restaurant
2	98.5	Restaurant
3	59	Restaurant
4	120.5	Restaurant
5	164	Retail
6	114	Retail
7	188	Retail
8	186	Retail
Coles	3833	Supermarket

Note: Refer to Appendix D for Coles Waste Management Plan

2.0 WASTE AND RECYCLING GENERATION RATES

The Draft Development Control Code for Best Practice Waste Management in the ACT (the Draft Code) provides residential and commercial waste and recycling generation rates. These rates have been applied to the proposed development and are indicated in Table 3 below.

Table 3 – Residences' Waste and Recycling Generation Rates

APARTMENT	WASTE GENERATION RATE PER WEEK	RECYCLING GENERATION RATE PER WEEK
1 BEDROOM	80 L	70 L
1 BEDROOM + STUDY	90 L	80 L
2 BEDROOMS	100 L	90 L
3 BEDROOMS	120 L	110 L
4 BEDROOMS	140 L	120 L

In summary the total waste generation for the development is:

SUMMARY OF WASTE & RECYCLING GENERATION & COLLECTION		
RESIDENTIAL WASTE	12.97m ³ per week	4 x 2m ³ Hoppers collected twice weekly
RESIDENTIAL RECYCLING	11.57m ³ per week	6 x 1.1m ³ Hoppers collected twice weekly
COMMERCIAL WASTE	22.33m ³ per week	2 x 3m ³ Hoppers collected four times a week
COMMERCIAL RECYCLING	5.24m ³ per week	4 x 1.1m ³ Hoppers collected twice weekly
COLES WASTE	Refer to Coles Waste Management Plan (Appendix D)	3 x 1.1m ³ Hopper collected five times weekly.
COLES CARDBOARD RECYCLNG	Refer to Coles Waste Management Plan (Appendix D)	19m cardboard compactor collected twice weekly.
COLES PLASTIC RECYCLING	Refer to Coles Waste Management Plan (Appendix D)	1 x bag collected twice weekly



3.0 WASTE AND RECYCLING COLLECTION OPERATIONS

The operation for collecting waste and recycling from the residents and commercial land uses is considered in this section.

3.1 RESIDENTIAL WASTE AND RECYCLING TRANSFERRAL METHOD

Residential waste collection for the development is proposed to be in two shared waste rooms on level 1, the residential parking floor. Hoppers from the collection rooms will be transferred to a waste storage room on the ground floor by building management, where collection will occur by the government contractor. An extra two of both the 2000L waste and 1100L recycling hoppers will be floated to maintain hoppers for residential use during collection and reduce demand on building management.

*It is noted that hoppers will be provided by the body corporate for the development, not the ACT Government, as per Part 3.2.2 of the Draft Code.

3.1.1 RESIDENTIAL COLLECTION ROOMS

The original development application was submitted prior to the Draft Code and waste and recycling chutes are not able to be retroactively fitted to the architectural design and as such cannot comply with Control 14.a of the Draft Code. Therefore, a performance solution based off Control 13 has been adopted, with waste and recycling conveniently located for all residents. Waste collection points are located on the first floor, the same floor as residential parking, next to the lift cores servicing the residential floors.

Each of the proposed residential waste rooms will house a 1100L recycling hopper and a 2000L waste hopper, which will be transferred by the building manager to the waste enclosure for collection.

3.1.2 TRANSFER OF HOPPERS BETWEEN ENCLOSURES

The waste storage area is located in the loading dock on the ground floor in the north eastern corner of the development. Transfer of the hoppers from the collection rooms on the first floor to the waste storage area on the ground floor will be undertaken by the residential owners corporation/building manager via the use of an automated pallet jack (or equivalent). The hoist, located in the north eastern lift core of the development, will facilitate travel between floors.

The 2016 Code and Draft Code are silent on methods of transferring hoppers within a building. It does state the owners are to provide the hoppers and that the owners corporation is responsible for equipment/manual handling methods. The proposed owners corporation will be privately supplied with all equipment (including hoppers) to enable the waste and recycling transfer operations.



Figure 1 – Typical Pallet Truck for Transferring Hoppers (Source – Crown Equipment Pty Ltd)



3.2 COMMERCIAL WASTE AND RECYCLING TRANSFERRAL METHOD

The Draft Code's objective for mixed used developments is to provide separate waste/recycling management systems for residential and non-residential components of the development. Consequently, it is proposed that separate commercial waste and recycling enclosures will house the respective hoppers for commercial tenants, with Coles having their own waste and recycling storage separate from this.

Commercial tenancies will be required to transfer their waste and recycling to the commercial waste enclosure in the loading dock. Tenants will have internal access to the waste enclosure. Waste and recycling hoppers for tenants will be combined and managed by the commercial building manager.



3.3 COLLECTION VEHICLE OPERATIONS

Collection vehicle operations are as per the Draft Code. Forward entry and forward exit is provided for all vehicles. Roller doors at both ends of the waste enclosure allow for front lift collection of 2000L waste hoppers and rear lift collection of 1100L recycling hoppers. The slab overhead has a recess above the collection point to provide the necessary 6.8m head clearance for front load collection. Line marking will be provided at ground level to ensure the truck can accurately align itself for collection.

The proposed residential waste and recycling collection frequency is twice weekly for both. This falls within the permissible collection frequencies in Table A4.4 and A4.5 of the Draft Code.

Commercial waste is proposed to be collected daily, whilst recycling is proposed to be collected twice weekly. Daily collection of waste is proposed to reduce the number of bins as well as reduce the odour associated with the waste of the development.

4.0 CONCLUSION

The proposed developments waste management process has been designed in accordance with the 2016 Code and where possible, has attempted to incorporate aspects of the Draft Code to provide an enhanced outcome for all parties. Commercial and residential waste/recycling streams have been separated and utilise separate enclosures. Additionally, both waste and recycling collection operations have been accommodated for both commercial and residential land uses.

The waste management process for the proposed development is recommended.



sellick
consultants

Est. 1965

canberra | sydney | brisbane

APPENDIX A

Page 1 of 4

structural civil hydraulic engineers

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**



PROJECT APPLICATION DETAILS

THIS SECTION OF THE WASTE AND RECYCLING MANAGEMENT PLAN MUST BE COMPLETED BY ALL APPLICANTS. PLEASE PROVIDE AN OVERVIEW OF THE PROJECT AND APPLICANT DETAILS

SITE DETAILS

Street address (incl. unit #)	
Suburb	Dickson
Section:	30
Block	21

APPLICANT DETAILS

Company:	Sellick Consultants
Contact Person:	Bernie Cusack
Phone:	6201 0200
Email:	bernie@sellickconsultants.com.au

PROJECT DETAILS

Single dwelling & dual occupancy dwellings	NO	▼
Multi-unit residential development (complete Section 2.1)	NO	▼
Commercial, public & industrial development (complete Section 2.2)	NO	▼
Mixed use development (complete Sections 2.1 and 2,2)	YES	▼

BRIEF PROJECT DESCRIPTION

Proposed mixed use development consisting of a new supermarket, five floors of residential units, eight ground floor commercial tenancies and three floors of associated parking.

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

**SECTION 2 - DESIGN AND OPERATION OF WASTE AND RECYCLING SECTION 2.1(A)
MULTI UNIT RESIDENTIAL DEVELOPMENT (SERVICED BY INDIVIDUAL MGBS COLLECTED AT KERBSIDE)**

Controls for these developments are included in Section 2.3 of The Code. Submission requirements are stated in Section 2.4.
Where appropriate, please provide plans showing details to support the application

THIS SECTION APPLIES TO THE FOLLOWING

- Development Applications for new multi-unit residential developments;
- Development Applications for alterations/additions to existing multi-unit residential developments if there is an effect on the provision of waste and recycling services;
- Development Applications for new mixed use developments that include multi-unit residential developments.

STORAGE FACILITIES

CONTROL C1 - INTERNAL WASTE AND RECYCLING SPACE

Location and dimensions of internal waste and recycling storage space for each dwelling type (Please provide calculations to demonstrate adequacy of space)

Description

N/A

Drawing
Reference
numbers

Development Satisfies Control C1 (Section 2.3) of The Code



Please provide details if Code requirements are not satisfied and proposed alternatives

CONTROL C2 - EXTERNAL WASTE AND RECYCLING STORAGE AREA

Location and dimensions of external individual or communal waste and recycling storage area (Please provide calculations to demonstrate adequacy of space)

Description

N/A

Drawing
Reference
numbers

Development Satisfies Control C1 (Section 2.3) of The Code



Satisfies Appendix 3 of The Code



Please provide details if Code requirements are not satisfied and proposed alternatives

PATH OF TRAVEL

CONTROL C3 - CLEAR PATH OF TRAVEL

Path of travel for moving Bins from storage area to collection point (Please provide details of travelling distance and clearance)

Description

N/A

Drawing
Reference
numbers

Development Satisfies Control C3 (Section 2.3) of The Code



Please provide details if Code requirements are not satisfied and proposed alternatives

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

COLLECTION POINT	
CONTROL C4 - C5 KERBSIDE COLLECTION POINT	
Location of designated kerbside collection point, including dimensions of available kerb frontage and indicative presentation layout of MGBs on kerbside	
Description	
N/A	
Drawing Reference numbers	
Development Satisfies Control C4 and C5 (Section 2.3) of The Code <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
Please provide details if Code requirements are not satisfied and proposed alternatives	
COMPLETE IF DEVELOPMENT IS PART OF A MIXED USE DEVELOPMENT ONLY	
CONTROL C3 (SECTION 4.3) - SEPARATION OF RESIDENTIAL AND NON RESIDENTIAL WASTE	
Identify how residential and non residential waste and recycling will be kept separate and methods that minimise the potential for commercial tenants to use residential waste and recycling Bins	
Description	
N/A	
Drawing Reference numbers	
Development Satisfies Control C3 (section 4.3) of the Code <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
Please provide details if Code requirements are not satisfied and proposed alternatives	

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

Section 2 - Design and Operation of Waste and Recycling		(Served Hoppers
Section 2.1(b) - Multi Unit Residential Development by Waste Hoppers & Shared Recycling MGBs or Waste and Recycling Collected within the Property Boundary)		
THIS SECTION APPLIES TO THE FOLLOWING		
<ul style="list-style-type: none"> - Development Applications for new multi-unit residential developments; - Development Applications for alterations/additions to existing multi-unit residential developments if there is an effect on the provision of waste and recycling management; and - Development Applications for new mixed use developments involving multi-unit residential developments. 		
Controls for these developments are included in Section 2.5 of The Code. Submission requirements are stated in Section 2.6. Where appropriate, please provide details on plans to support your application.		
STORAGE FACILITIES		
CONTROL C6 - INTERNAL WASTE AND RECYCLING STORAGE		
Location and dimensions of internal waste and recycling storage space for each dwelling type (Please provide calculations to demonstrate adequacy of space)		
Description		
Each residential dwelling will have room allocated in the kitchen for waste storage. Refer to Architectural drawings for details.		
Drawing Reference numbers		
Development Satisfies Control C6 (Section 2.5) of The Code		YES <input type="checkbox"/> ▼
Please provide details if Code requirements are not satisfied and proposed alternatives		
CONTROL C7 - EXTERNAL WASTE AND RECYCLING STORAGE FACILITY		
Location and dimensions of external waste and recycling storage area for each dwelling or a communal waste and recycling facility (Please provide calculations to demonstrate adequacy of space)		
Description		
The development has two waste collection areas (30m ² and 42m ²) on the first floor for use by residents, each housing a 2000L waste hopper and a 1100L recycling hopper. Provision exists in the room for 2x240L green waste MGB's. A waste enclosure for contractor collection, housing four 2000L waste hoppers and six 1100L recycling hoppers, is proposed onsite on the ground floor of a space of 45m ² .		
Drawing Reference numbers		
Development Satisfies Control C7 (Section 2.5) of The Code		YES <input type="checkbox"/> ▼
Development Satisfies Appendix 7 of The Code		YES <input type="checkbox"/> ▼
Please provide details if Code requirements are not satisfied and proposed alternatives		
How will waste and recycling be transferred from each dwelling to external storage area?		
Description		
Waste will be transferred to the collection room located at the lift cores by residents. Hoppers in the collection areas on the first floor will be transferred to the waste enclosure on the ground floor by building management using an automated pallet jack and hoist.		
Drawing Reference numbers	181174-drg-civ-wm-1101, 181174-drg-civ-wm-1102	

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

PATH OF TRAVEL	
CONTROL C8 - PATH OF TRAVEL	
Path of travel for moving Bins from dwelling to storage area and to collection point (Please provide plan of travel/ing distance, clearance and gradients)	
Description	
The maximum path of travel required by residents to the elevators is 48m, with another 10m travel once out of the elevators to reach the waste enclosure for a maximum distance of 58m.	
Drawing Reference numbers	Refer architectural plans
Development Satisfies Control C8 (Section 2.5) of The Code <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Please provide details if Code requirements are not satisfied and proposed alternatives	
MULTI-UNIT RESIDENTIAL DEVELOPMENTS- GARBAGE CHUTES, SERVICE LIFTS, COMPACTION EQUIPMENT ETC	
This section applies to residential apartment buildings above three (3) storeys	
CONTROL C9 - CONVENIENT ACCESS TO WASTE AND RECYCLING SERVICES FOR ALL RESIDENTS	
Location and details of any waste and recycling service lifts and associated waste service compartments (Please provide calculations to demonstrate adequacy of equipment)	
Description	
A secure hoist is provided for use of the building manager to transport hoppers from Level 1 directly into the waste enclosure within the loading dock.	
Drawing Reference numbers	181174-drg-civ-wm-1101, 181174-drg-civ-wm-1102
Location and details of any garbage chutes (Please provide calculations to demonstrate adequacy of equipment)	
Description	
N/A	
Drawing Reference numbers	
Development Satisfies Appendix 8 of The Code <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Please provide details if Code requirements are not satisfied and proposed alternatives	

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

COLLECTION POINT	
CONTROL C10 - COLLECTION POINT	
Location of designated collection point and/or hopper pad/s	
Description	
<p>The designated collection point is located in the loading dock on the ground floor. A recess in the overhead slab allows for sufficient had clearance for front loading collection inside the development.</p>	
<p>Drawing Reference numbers</p>	<p>181174-drg-civ-wm-1111</p>
<p>Development Satisfies Control C10 (Section 2.5) of The Code <input type="checkbox"/> YES <input checked="" type="checkbox"/> </p>	
<p>Please provide details if Code requirements are not satisfied and proposed alternatives</p>	
Empty space for providing details if requirements are not satisfied	

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

**Section 2 - Design and Operation of Waste and Recycling
Section 2.1(b) - Multi-Unit Residential Development
(Serviced by Waste Hoppers & Shared Recycling MGBs or Waste and Recycling
Hoppers Collected within the Property Boundary)**

VEHICULAR ACCESS

CONTROL C11 - COLLECTION POINT

**Path of travel for collection vehicles (if collection occurs on-site)
(Please provide details of travelling distance, clearance in all directions, loading heights and widths, turning and manoeuvring paths, ramp access, clearances and gradients and pavement details including certification of compliance with AS 2890.1-2004)**

Description

Vehicle access to the development is provided forward in, forward out. Reversing only occurs on the development and is only needed to access the waste collection area and is approximately twice the length of the vehicle. Refer to Northrop drawings

Drawing Reference numbers	CR181746-sk114-2 (for EDP only)
---------------------------	---------------------------------

Development Satisfies Appendix 6 of The Code	YES	▼
--	-----	---

Please provide details if Code requirements are not satisfied and proposed alternatives

Amended documentation to be prepared as part of the development application to meet requirements of the draft code.

COMPLETE IF DEVELOPMENT IS PART OF A MIXED USE DEVELOPMENTS ONLY

CONTROL C1 (SECTION 4.3) - SEPARATION OF RESIDENTIAL AND NON RESIDENTIAL WASTE

Identify how residential and non residential waste and recycling will be kept separate and methods that minimise the potential for commercial tenants to use residential waste and recycling Bins

Description

Residents, commercial tenancies and Coles will all have waste enclosures in separate locations, with separate access points. (See architectural groundfloor plan)

Drawing Reference numbers	18047-DA-110-009
---------------------------	------------------

Development Satisfies Control C1 (Section 4.3) of The Code	YES	▼
--	-----	---

Please provide details if Code requirements are not satisfied and proposed alternatives

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

**Section 2 - Design and Operation of Waste and Recycling
Section 2.2 - Commercial, Public and Industrial Developments**

- Development Applications for new commercial, public or industrial development;
- Development Applications for alterations/additions to existing commercial, public or industrial development if there is an effect on the provision of waste and recycling management; and
- Development Applications for new mixed use developments involving commercial, public or, industrial development.

Controls for these developments are included in Section 3.3 of The Code. Submission requirements are stated in Section 3.4. Where appropriate, please provide details on plans to support your application.

WASTE AND RECYCLING GENERATION

CONTROL C1 - WASTE AND RECYCLING GENERATION

Waste and recycling generated by each proposed activity within the development, including quantities, bin types and storage requirements

Description						
Premises Type	Floor Area (m2)	Generation Rate		Waste (L/week)	Recycling (L/week)	Number of Bins
		Recycling	Waste			
Restaurant	434	135	660	20060	4100	
Retail	652	25	50	2280	1150	
					Total	6
Coles						4

In completing this table reference is made to Appendix 4- Waste and Recycling Generation Rates for Commercial, Public and Industrial Developments

Development Satisfies Appendix 3 if includes Residential component YES

Please provide details if Code requirements are not satisfied and proposed alternatives

Note: Refer to Appendix D of the Waste Management Plan for Coles specific waste management.

STORAGE FACILITIES

CONTROL C1 - C2 - WASTE AND RECYCLING STORAGE FACILITIES

Location of individual waste and recycling storage facilities including any communal storage facilities and refrigerated waste storage for the entire development
(Please provide calculations to demonstrate adequacy of space)

Description

Coles will have a separate waste and recycling storage enclosure to that of the other commercial tenancies. All other commercial tenancies on the development will have a shared waste enclosure and shared recycling enclosure, located adjacent to the loading dock. Each of the storage facilities are sized to house the number of bins required.

Drawing Reference numbers	181174-drg-civ-wm-1102
---------------------------	------------------------

Development Satisfies Appendix 4 of The Code YES

Development Satisfies Controls C1 and C2 (Section 3.3) of The Code YES

Development Satisfies Appendix 7 of The Code YES

Please provide details if Code requirements are not satisfied and proposed alternatives

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

Section 2 - Design and Operation of Waste and Recycling Section 2.2 - Commercial, Public and Industrial Developments	
PATH OF TRAVEL	
CONTROL C3 - PATH OF TRAVEL	
Path of travel of waste and recycling to be transferred from point of origin to waste and recycling storage facilities (Please provide details of clearances, gradients and any mitigation of odour and noise impacts)	
Description	
Commercial tenancies will be required to transfer their own waste to the communal waste enclosures in the loading docks. The maximum path of travel for any given tenancy is 145m. No paths of travel for any of the tenancies has to negotiate steps or a change in floor.	
Drawing Reference numbers	
Development Satisfies Control C3 (Section 3.3) of The Code	YES ▼
Please provide details if Code requirements are not satisfied and proposed alternatives	
COLLECTION POINT	
CONTROL C4 - COLLECTION POINT	
Location of designated collection point and/or hopper pad/s	
Description	
The designated collection point for commercial waste, as well as that for Coles waste, is in the loading dock. Commercial collection will share the same collection space as that of the residential space. As rear collection is proposed for both waste and recycling for Coles, no recess in the slab is proposed for these collection points. (Refer to the architectural groundfloor plan)	
Drawing Reference numbers	18047-DA-110-009
Please provide details if Code requirements are not satisfied and proposed alternatives	
Path of travel for moving Bins from storage facility to designated collection point (Please provide plan of travelling distance, clearance and gradients)	
Description	
Commercial hoppers will be required to be transported no more than 15m over flat internal concrete surfaces from their enclosure to the designated collection point.	
Drawing Reference numbers	181174-drg-civ-wm-1102
Path of travel for collection vehicles (if collection occurs on-site) (Please provide details of travelling distance, clearance, turning and manoeuvring paths, ramp access and pavement details to demonstrate compliance with AS 2890.2-2002.)	
Description	
Collection vehicles will access the site forward in, forward out. No more than one reversing manoeuvre will be required once onsite and will be less than 33m. (Refer Northrop turning demonstrations)	
Drawing Reference numbers	CR181746-sk114-2 (for EDP only)
Development Satisfies Appendix 6 of The Code	YES ▼
Development Satisfies Control C4 (Section 3.3) of The Code	YES ▼
Please provide details if Code requirements are not satisfied and proposed alternatives	

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

**Section 2 - Design and Operation of Waste and Recycling Section
2.2- Commercial, Public and Industrial Developments**

GARBAGE CHUTES, SERVICE LIFTS, COMPACTION EQUIPMENT ETC

CONTROL C3 - GARBAGE CHUTES, SERVICE LIFTS, COMPACTION EQUIPMENT ETC

Location an details of any garbage chutes

(Please provide calculations to demonstrate adequacy of equipment)

Description

N/A

Drawing
Reference
numbers

Location an details of any waste and recycling service lifts

(Please provide calculations to demonstrate adequacy of equipment)

Description

N/A

Drawing
Reference
numbers

Location an details of any waste compaction equipment

(Please provide calculations to demonstrate adequacy of equipment)

Description

N/A

Drawing
Reference
numbers

Development Satisfies Appendix 8 of The Code



Please provide details if Code requirements are not satisfied and proposed alternatives

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

SECTION 3 - DEMOLITION EXCAVATION AND CONSTRUCTION

THIS SECTION APPLIES TO THE FOLLOWING	
<ul style="list-style-type: none"> - Demolition - All Development Applications involving demolition where the quantity of demolition material will be greater than 20m³ for the whole development - Excavation - All Development Applications involving excavation where the quantity of excavated material will be greater than 20m³ for the whole development; and - Construction - Development Applications multi-unit residential developments with 11 dwellings or more and any commercial, public and industrial developments and mixed use developments 	
<p>Controls for these developments are included in Section 1.2 of Part C of The Code. Submission requirements are stated in Section 1.3 of Part C of The Code. Where appropriate, please provide details on plans to support your application.</p> <p>NOTE: No WRMP is required unless any proposed demolition or excavation activities generate more than 20m³ of waste for the whole development.</p>	
WASTE TYPES AND QUANTITIES	
CONTROL C1 - DEMOLITION, EXCAVATION AND CONSTRUCTION WASTE TYPES AND QUANTITIES	
Specify demolition, excavation and construction waste materials by type and volume and/or tonnage	
Description	
(Note this information can be shown on Table 3.1 (Demolition Waste) and/or Table 3.2 (Construction Waste))	
Demolition materials to be stockpiled on site and removed prior to bulk excavation. Demolition materials to be separated in the following stockpiles prior to removal from site: Asphalt, gravel, concrete, trees, exhumed services. Excavated material to be progressively removed throughout bulk excavation.	
ON-SITE MANAGEMENT OF DEMOLITION, EXCAVATION AND CONSTRUCTION WASTE	
Control C2 - On-site Management of Waste	
Nominate on-site sorting and storage areas for demolition, excavation and construction waste materials. This is to be shown on a draft site plan	
Description	
To be confirmed by builder prior to construction	
Drawing Reference numbers	
Describe the work method practices and specific procedures to be adopted to maximise the reuse and recycling of waste materials	
Description	
Separation of materials on site prior to collection.	
Identify access for demolition and construction waste collection vehicles	
Description	
From Badham Street	
Drawing Reference numbers	
Details of waste/recycling storage containers/skips to be stored outside leased boundaries (Separate approval is required from 'Public Land Use, City Services (via Access Canberra Phone 132 881))	
Description	
N/A	
Drawing Reference numbers	
Development Satisfies Control C2 of Part C of The Code <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
Please provide details if Code requirements are not satisfied and proposed alternatives	

**Waste and Recycle Management Code for the ACT
WASTE RECYCLING MANAGEMENT PLAN**

REUSE AND RECYCLING OF DEMOLITION, EXCAVATION AND CONSTRUCTION WASTE	
CONTROL C2 - DEMOLITION, EXCAVATION AND CONSTRUCTION WASTE REUSE AND RECYCLING POTENTIAL	
Details of reuse and recycling potential (either on-site and/or off-site) for demolition, excavation and construction waste	
Description Note this information can be shown on Table 3.1 (Demolition Waste) and/or Table 3.2 (Construction Waste)	
All demolition and excavation materials suitable for recycling.	
Drawing Reference numbers	
Name and location of approved licensed sites for recycling/reprocessing and/or landfill disposal of demolition, excavation and construction waste materials	
Description Note this information can be shown on Table 3.1 (Demolition Waste) and/or Table 3.2 (Construction Waste)	
To be confirmed by builder prior to construction	
Development Satisfies Control C2 of Part C of The Code	YES <input type="checkbox"/>
Please provide details if Code requirements are not satisfied and proposed alternatives	



sellick
consultants

Est. 1965

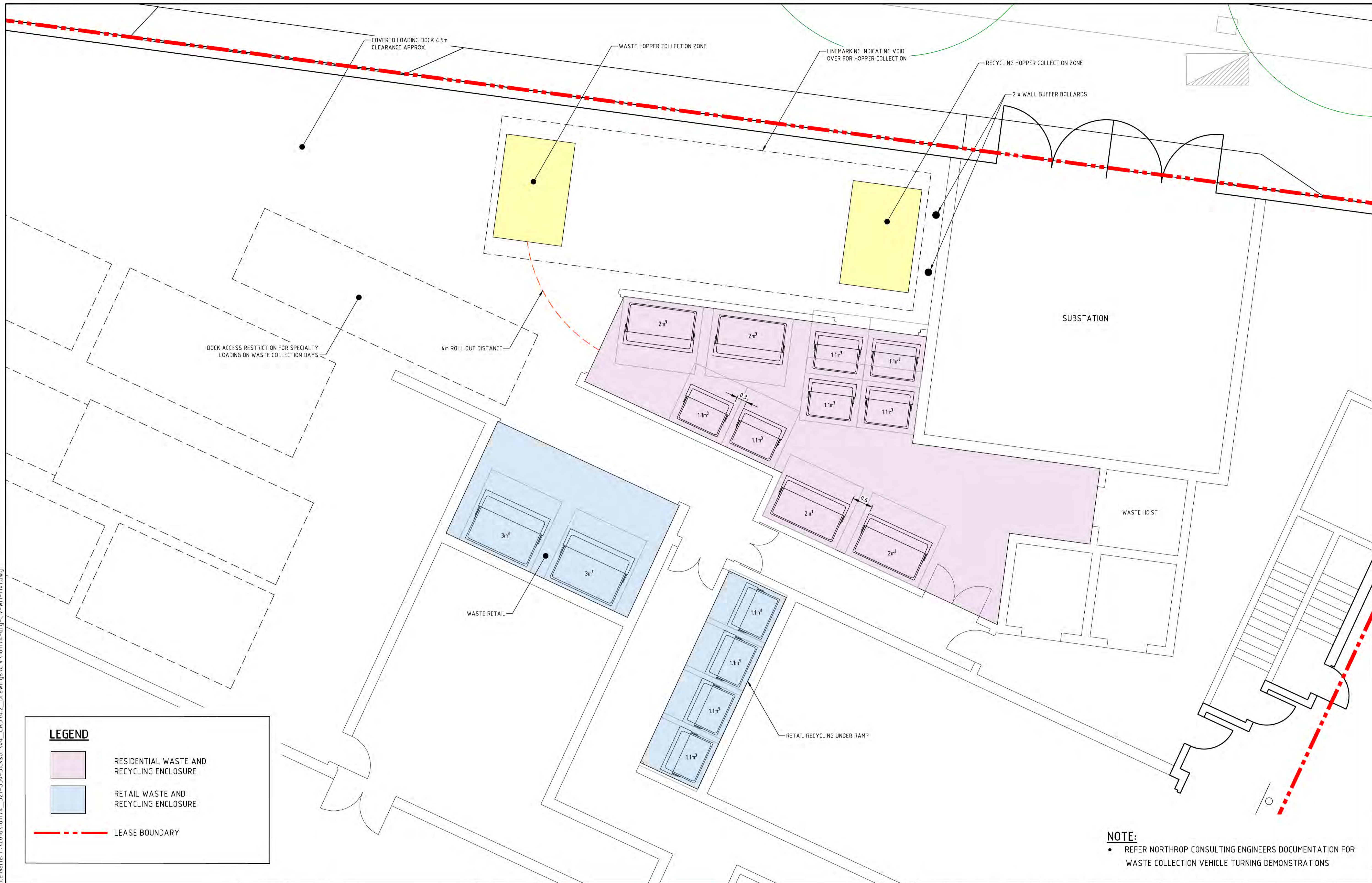
canberra | sydney | brisbane

APPENDIX B

Page 2 of 4

structural civil hydraulic engineers

File Name: P:\2018\18174_B21-S30-Dickson04_CAD\4_2_Drawings\CIV\18174-drg-civ-wm-1101.dwg



LEGEND

- RESIDENTIAL WASTE AND RECYCLING ENCLOSURE
- RETAIL WASTE AND RECYCLING ENCLOSURE
- LEASE BOUNDARY

NOTE:
 • REFER NORTHROP CONSULTING ENGINEERS DOCUMENTATION FOR WASTE COLLECTION VEHICLE TURNING DEMONSTRATIONS

Rev	Description	Date	Drawn By
A	ESTATE DEVELOPMENT PLANS	9.11.2018	DA
B	EDP UPDATE	12.11.2018	DA
C	EDP UPDATE	14.11.2018	DA
D	DEVELOPMENT APPLICATION	14.12.2018	DA
E	REVISED DEVELOPMENT APPLICATION	20.12.2018	DA

Scales

0 1 1.5 2 2.5m

1:50 @ A1

North

DO NOT SCALE OFF DRAWINGS. VERIFY ALL DIMENSIONS ON SITE PRIOR TO WORK.
 COPYRIGHT: The contents and information contained in this document are copyright of Sellick Consultants, Use or copy of this document in whole or part without written permission constitutes an infringement of copyright.

sellick consultants
 Est. 1965

www.sellickconsultants.com.au

Client Logo

ces GROUP PROPERTY DEVELOPMENTS

NOT FOR CONSTRUCTION			
Original Size	A1	Drawn By	DA
Date Plotted	20-Dec-18	Designed By	AE
Coordinate System	STROMLO GRID	Approved	BC
Height Datum	AHD	Approved Date	9.11.2018
		Approved Signature	

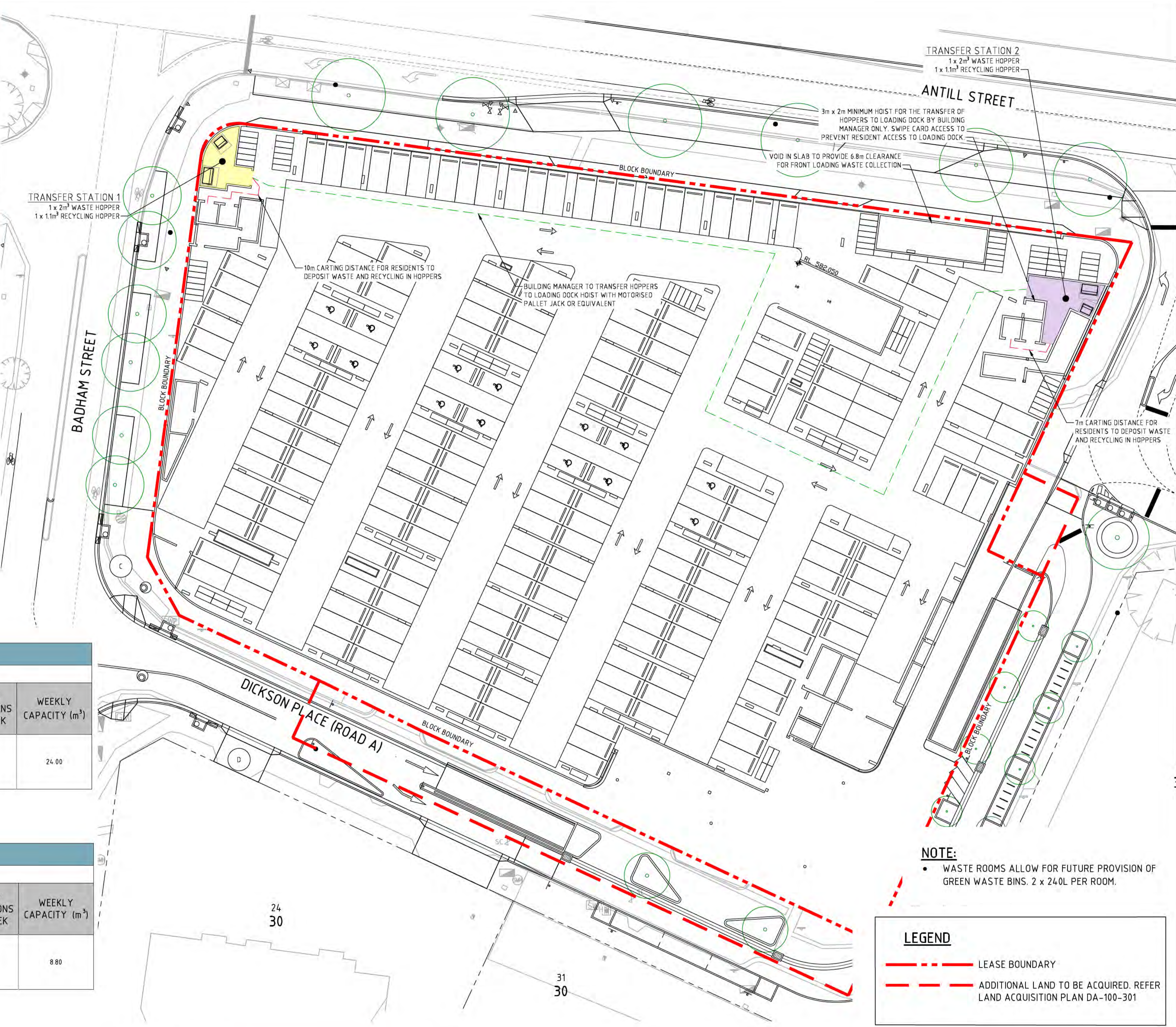
Project Name and Location						
DICKSON MIXED USE PROJECT						
BLOCK 21 SECTION 30 DICKSON ACT						
Drawing Title						
WASTE MANAGEMENT PLAN						
Project Number	Type	Discipline	Sub-Discipline	Drg No.	Rev	
181174	DRG	CIV	WM	1101	E	

WASTE REQUIREMENTS						
RESIDENTIAL						
NO. OF BEDS	NO. OF UNITS	WASTE/UNIT /WEEK (LITRES)	TOTAL WASTE (m ³)	BIN SIZE	NO. OF COLLECTIONS PER WEEK	WEEKLY CAPACITY (m ³)
4+	0	140	0.00	4 x 2m ³	2	16.00
3	15	120	1.80			
2	55	100	5.50			
1-S	7	90	0.63			
1	63	80	5.04			
TOTAL	140		12.97			

RECYCLING REQUIREMENTS						
RESIDENTIAL						
NO. OF BEDS	NO. OF UNITS	RECYCLING/UNIT /WEEK (LITRES)	TOTAL RECYCLING (m ³)	BIN SIZE	NO. OF COLLECTIONS PER WEEK	WEEKLY CAPACITY (m ³)
4+	0	120	0.00	6 x 1.1m ³	2	13.20
3	15	110	1.65			
2	55	90	4.95			
1-S	7	80	0.56			
1	63	70	4.41			
TOTAL	140		11.57			

WASTE REQUIREMENTS							
COMMERCIAL							
USAGE	AREA m ²	DAYS OF OPERATION	WASTE/100m ² /DAY (LITRES)	TOTAL WASTE/ WEEK (m ³)	BIN SIZE	NO. OF COLLECTIONS PER WEEK	WEEKLY CAPACITY (m ³)
RESTAURANT	434	7	660	20.051	2 x 3.0m ³	4	24.00
RETAIL	652	7	50	2.282			
TOTAL	1086			22.333			

RECYCLING REQUIREMENTS							
COMMERCIAL							
USAGE	AREA m ²	DAYS OF OPERATION	RECYCLING/100m ² /DAY (LITRES)	TOTAL RECYCLING/ WEEK (m ³)	BIN SIZE	NO. OF COLLECTIONS PER WEEK	WEEKLY CAPACITY (m ³)
RESTAURANT	434	7	135	4.101	4 x 1.1m ³	2	8.80
RETAIL	652	7	25	1.141			
TOTAL	1086			5.242			



File Name: P:\2018\181174_B21-S30-Dickson\04_CAD\4_2_Drawings\CIV\181174-drg-civ-wm-1102.dwg

Rev	Description	Date	Drawn By
F	REVISED DEVELOPMENT APPLICATION	20.12.2018	DA
E	NEW TREES REVISED ON ANTILL STREET	17.12.2018	DA
D	DEVELOPMENT APPLICATION	14.12.2018	DA
C	EDP UPDATE	14.11.2018	DA
B	EDP UPDATE	12.11.2018	DA
A	ESTATE DEVELOPMENT PLANS	9.11.2018	DA

Scales

0 5 7.5 10 12.5m

1:250 @ A1

North

DO NOT SCALE OFF DRAWINGS. VERIFY ALL DIMENSIONS ON SITE PRIOR TO WORK. COPYRIGHT: The contents and information contained in this document are copyright of Sellick Consultants, Use or copy of this document in whole or part without written permission constitutes an infringement of copyright.

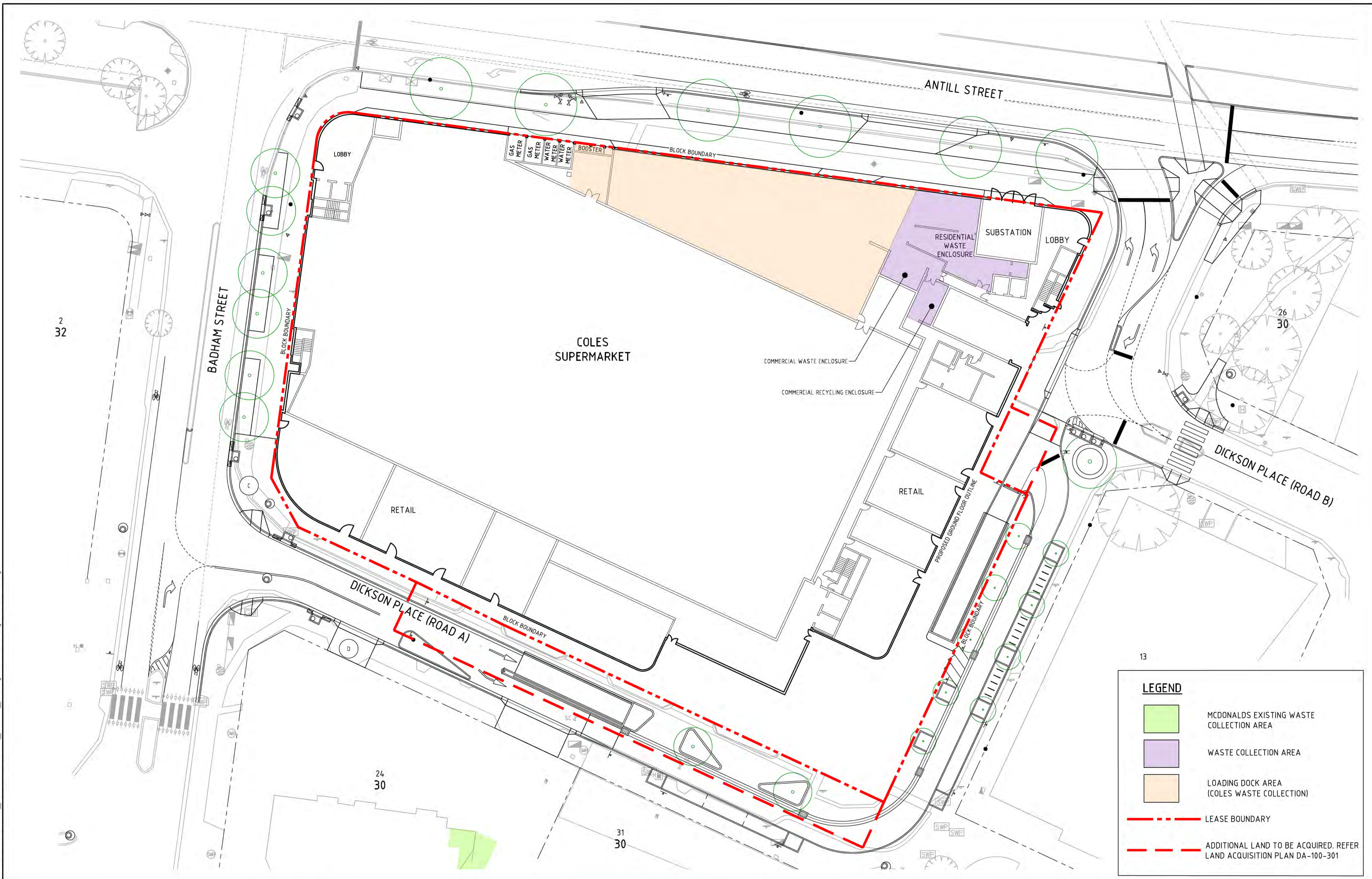
www.sellickconsultants.com.au

Client Logo

NOT FOR CONSTRUCTION			
Original Size	A1	Drawn By	DA
Date Plotted	20-Dec-18	Designed By	AE
Coordinate System	STROMLO GRID	Approved	BC
Height Datum	AHD	Approved Date	9.11.2018

Project Name and Location						
DICKSON MIXED USE PROJECT						
BLOCK 21 SECTION 30 DICKSON ACT						
Drawing Title						
WASTE MANAGEMENT PLAN LEVEL 1						
Project Number	Type	Discipline	Sub-Discipline	Drg No.	Rev	
181174	DRG	CIV	WM	1102	F	

File Name: P:\2018\181174_B21-S30-Dickson04_CAD\4_2_Drawings\CIV\181174-drg-civ-wm-1111.dwg



LEGEND

- MCDONALDS EXISTING WASTE COLLECTION AREA
- WASTE COLLECTION AREA
- LOADING DOCK AREA (COLES WASTE COLLECTION)
- LEASE BOUNDARY
- ADDITIONAL LAND TO BE ACQUIRED. REFER LAND ACQUISITION PLAN DA-100-301

F	REVISED DEVELOPMENT APPLICATION	20.12.2018	DA
E	NEW TREES REVISED ON ANTILL STREET	17.12.2018	DA
D	DEVELOPMENT APPLICATION	14.12.2018	DA
C	EDP UPDATE	14.11.2018	DA
B	EDP UPDATE	12.11.2018	DA
A	ESTATE DEVELOPMENT PLANS	9.11.2018	DA
Rev	Description	Date	Drawn By

Scales

0 5 7.5 10 12.5m

1:250 @ A1

North

DO NOT SCALE OFF DRAWINGS. VERIFY ALL DIMENSIONS ON SITE PRIOR TO WORK.
 COPYRIGHT: The contents and information contained in this document are copyright of Sellick Consultants, Use or copy of this document in whole or part without written permission constitutes an infringement of copyright.

sellick consultants
Est. 1965

www.sellickconsultants.com.au

Client Logo

ces GROUP PROPERTY DEVELOPMENTS

NOT FOR CONSTRUCTION

Original Size	A1	Drawn By	DA	Drafting Check	DCA
Date Plotted	20-Dec-18	Designed By	AE	Design Check	BC
Coordinate System	STROMLO GRID	Approved	BC	Approved Date	9.11.2018
Height Datum	AHD	Approved Signature			

Project Name and Location

DICKSON MIXED USE PROJECT
BLOCK 21 SECTION 30 DICKSON ACT

Drawing Title

WASTE COLLECTION PLAN

Project Number	Type	Discipline	Sub-Discipline	Drg No.	Rev
181174	DRG	CIV	WM	1111	F



sellick
consultants

Est. 1965

canberra | sydney | brisbane

APPENDIX C

Page 3 of 4

structural civil hydraulic engineers



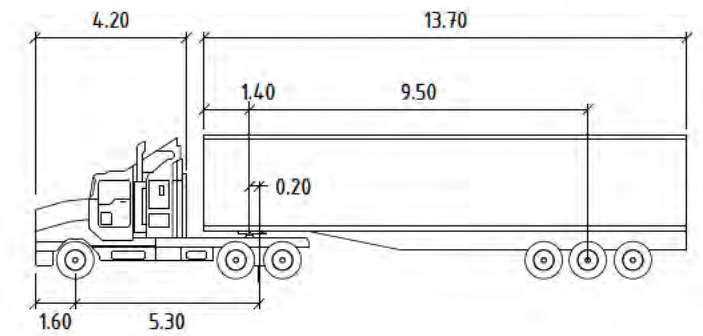
12.5m HRV COLLECTING WASTE



12.5m HRV COLLECTING WASTE WITH OTHER VEHICLES PRESENT

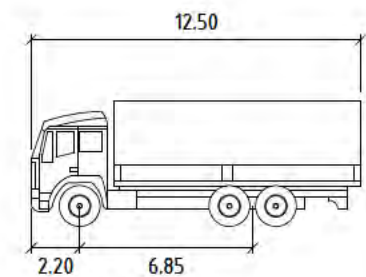
LEGEND

- DENOTES FRONT WHEEL PATH
- DENOTES REAR WHEEL PATH
- DENOTES VEHICLE BODY OVER HANG
- DENOTES 300mm VEHICLE BODY OFFSET



PM S 19M

	Tractor Width	: 2.50	Lock to Lock Time	: 6.0
	Trailer Width	: 2.50	Steering Angle	: 27.8
	Tractor Track	: 2.50	Articulating Angle	: 70.0
	Trailer Track	: 2.50		



SU TRUCK

	Width	: 2.50
	Track	: 2.50
	Lock to Lock Time	: 6.0
	Steering Angle	: 36.6

DRAWN: M. ASSANIELLI DESIGN: M. ASSANIELLI JME MANAGER: D. FIELD VERIFIED:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER	
1	FOR INFORMATION	WB			10.09.18	COLES GROUP PROPERTY DEVELOPMENT	TURNER	DICKSON MIXED USE SECTION 30 DICKSON	CIVIL WORKS VEHICLE TURNING TEMPLATES LOADING DOCK SHEET 5	CR181746	
2	FOR INFORMATION (v2)	JC			13.09.18						
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED						THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.		 NORTHROP Canberra Unit 2, 2-6 Shea Street, Phillip ACT 2608 Ph (02) 6285 1822 Fax (02) 6285 1863 Email carberra@northrop.com.au ABN 61 09 33 100		DRAWING NUMBER SK114	REVISION 2
										DRAWING SHEET SIZE = A1	



sellick
consultants

Est. 1965

canberra | sydney | brisbane

APPENDIX D

Page 4 of 4

structural civil hydraulic engineers



**Coles Dickson Village, ACT
Supermarket Operational Management Plan**

SUPERMARKET RETAILER – Coles

Introduction

Coles is proudly Australian with a heritage dating back to 1914 when George J. Coles opened the first Coles variety store in Collingwood, Victoria.

Coles has grown to be a leader in food retailing in Australia; an innovator in supermarket energy and waste efficiency management as well as a strong supporter of local communities through a range of community relations and sustainability programs.

Coles operates over 800 supermarkets and employs more than 82,000 team members nationally.

Coles' support and commitment to its customers, team members, suppliers and government or regulatory authorities has been its strength in the competitive retail environments that it operates within.

Coles also has a proud history of providing employment and career opportunities within local communities. It has an active indigenous employment program, retail leaders program and an accessibility action plan.

Coles looks forward to operating in and contributing to Dickson.

SUPERMARKET DELIVERIES

Supermarket retailing is driven by customer demand, with current trends strongly favouring fresh goods – goods ordered yesterday or today - for sale today or tomorrow - such as fruit and vegetables, bakery, delicatessen lines, meats, dairy and seafood. As such truck delivery (typically fresh produce) early each morning is vital to meet customer demand for the freshest food possible.

This process is supported by sophisticated stock ordering and logistics management technology and rostering teams. The rostering teams co-ordinate deliveries of meat, dairy, fresh produce, grocery and other lines from the distribution centre into all sites on a daily basis from thousands of suppliers which requires maximum flexibility to service stores efficiently across the fleet.

Proposed delivery times and frequency:

Trucks (19m Articulated):	7am to 10pm	Monday to Saturday	* Approx. 4-7 deliveries a day.
	8am to 10pm	Sunday and public holidays	* Approx. 3 deliveries.
Smaller vehicles (up to 10m):	7am to 10pm	Monday to Saturday	*Approx. 8- 10 deliveries a day.
	8am to 10pm	Sunday and public holidays	*Approx. 3 deliveries a day.

**Note: truck delivery frequencies may vary nominally during peak Christmas and Easter periods.*

STATE

In ACT Coles Supermarkets are serviced by the Distribution Centre located at Goulburn.

DC to Store Delivery Route

- All Coles delivery vehicles will enter the site off Antill Street.
- Delivery vehicles will enter & exit the site in a forward direction.
- All Coles loading and unloading will be restricted to the Coles loading dock area.

Role of Stockroom Manager

The Coles Stockroom Manager is responsible for:

- effective management of service delivery and operation of the loading dock and stockrooms;
- efficient unloading of deliveries, waste and recycling pickups;
- co-ordinating delivery times with Coles Distribution Centres (DCs) and direct suppliers; and
- advising delivery drivers and/or suppliers of any delivery instructions or curfews.

The Stockroom Manager will work closely with Coles DC Logistics to ensure trucks are rostered to allow sufficient time for arrival, unloading and exit. Delivery rosters will be adjusted periodically in line with business initiatives, customer demands and to implement efficiencies in delivery management.

Deliveries - Large Distribution Centre (DC) Trucks:

These are scheduled at two-hour delivery windows to allow time for traffic delays and unloading which may take up to 60 minutes per truck. Early deliveries where possible ensure less impact on morning peak hour traffic and allow fresh stock availability for that day's trading.

Depending on the trading pattern of the store, the number of DC loads is generally less on Sundays (*except where Christmas falls early in a week and customer demand is at its peak*).

In large trading supermarkets serviced by 19 metre trucks, delivery vehicle movements have been reduced significantly. Conversely deliveries restricted to smaller 12.5m trucks will result in additional and more frequent movements.

Transport movements are determined by the capacity of Coles DC trucks and any restrictions placed on the store. Loading docks restricted to rigid vehicles only or smaller trucks for example have fewer transport efficiencies and therefore a higher frequency of visits is required.

Transport efficiency benefits include:

- decreased road use by medium size vehicles
- reduced traffic conflicts near loading dock and local streets
- increased capacity on Coles DC loads for maximising logistics efficiencies
- noise reduction from less movements
- improved management of delivery windows by Coles DCs
- improved dock safety from less vehicles and
- More efficient unloading at supermarket dock.

Coles is committed to achieving further delivery and logistics efficiencies with the goal of greater product availability with minimal delivery movements.

Deliveries– Smaller trucks/vans/couriers:

Coles has achieved some significant reductions in delivery movements in the past five years. This has been achieved by 'cross docking' direct loads at a Coles DC and combining those goods with a Coles DC load. For example, milk, Arnotts Biscuits, The Snackfood Co, some meats, chicken and ingredients and other speciality suppliers previously delivered direct to stores several times a week are now consolidated with Coles grocery and chilled DC loads.

Direct suppliers include bread suppliers, chicken, newspapers, local produce/product suppliers, magazines, courier deliveries and Armguard.

Where required, delivery drivers and transport providers will be given a Delivery Sheet to highlight, where applicable, any conditions specific to the store including but not limited to dock hours, route and contacts for issues management. Internal dock signage will also confirm delivery hours.

ENVIRONMENT AND WASTE

ENVIRONMENT

Coles strives to be an environmentally responsible business through product innovation, energy conservation, packaging, recycling, waste management, water conservation and support of environmental community initiatives.

Coles helps raise community awareness about the importance of taking care of our environment through extensive support of the following current environmental programs. Our sustainability programs are subject to review and change and include for example Coles Community Food with Second Bite (which involves the donation of surplus healthy, fresh produce to charities around the country) and our REDCYCLE plastic recycling initiative.

WASTE

Coles takes its environmental responsibilities very seriously and continues to investigate trial & implement new concepts to further improve the company's environmental sustainability. These initiatives & programs are constantly reviewed & evolving to ensure best results against our environmental measures.

Coles' current programs range from food diversion to those in need via Second Bite; donations of waste to farmers, organics waste collection (diverted out of the waste stream), recycle of plastics and cardboard as well as use of technologies such as grease eradication systems.

Proposed waste removal times and frequency are:

Waste (landfill)

Time: within loading dock operating hours
Truck: 10.8m Rigid (Rear Lift)
Storage: 3 x 1.1m³ hoppers
Pick-ups: Approx. 4-5 per week

Recycling (cardboard & plastic)

Time: within loading dock operating hours
Truck: 11m Rigid (Hook Lift)
Storage: 1 x 19m³ compactor container
Pick-ups: Approx. 2 per week

**Note: truck delivery frequencies may vary nominally during peak Christmas and Easter periods.*

In addition, individual supermarkets can enter into an arrangement whereby local farmers and/or environmental or school groups can regularly collect food waste to feed stock and/or for compost and worm farming.

SECURITY

Security for both our team members and customers is of paramount importance. Coles security systems are regularly reviewed and may include close circuit televisions, alarm systems and electronic stock security systems as deemed appropriate. Team members are also trained in security issues.

LOCAL EMPLOYMENT

It is estimated that the store will employ around 130-150 people with the majority being permanent full-time and part-time. At peak trading times, it is estimated that up to 250 team members and customers combined would be on site at any one time.

CUSTOMER CARE

Our team is passionate about customer service and ready to answer any customer queries relating to our stores, operations, policies or specific products.

Coles Customer Care is manned six days a week

- Phone 1800 061 562
- Via the Internet www.coles.com.au *Contact Us*

In store:

- Store Customer Service Desk
- Tell Coles feedback forms

TROLLEYS

Coles takes its shopping trolley management responsibilities very seriously and is committed to taking action to reduce the level of trolley abandonment in Australia. Coles invests significant resources into developing effective shopping trolley management processes, procedures and systems and we will continue to do so in the future.

Coles trolley management strategy aims to:

- prevent customers from misappropriating removing shopping trolleys from supermarket premises and surrounding car parks;
- restrict the abandonment of trolleys in streets and public areas surrounding supermarket; and
- Arrange for timely retrieval of trolleys left in supermarket car parks, streets and surrounding areas.

In the event that a trolley management system is required, Coles believes trolley wheel lock systems are more effective than coin deposit systems in reducing the number of trolleys left abandoned in local neighbourhoods. These systems also improve the customer experience by ensuring that we have working, clean trolleys always available for use in store. Coles' preferred trolley management system is the Trolley Control Wheel Lock System.

Coles trolley management is supported by the Coles 1800TROLLEY initiative. The 1800TROLLEY initiative includes:

- a national telephone service operated 24/7 phone 1800TROLLEY – 1800 876 553
- trolley reporting via email at 1800TROLLEY@coles.com.au
- web reporting at www.coles.com.au/customer-service/abandoned-trolley
- via an Apple compatible app - 'Trolley Collect' (for iPhones)

The advantage of using the 'Trolley Collect' smartphone app is that it enables us to record the geographic location of every trolley reported, track contractor response times and confirm pick-ups. Additionally, we use this data to plan routes and trolley collection service frequencies across Australia to minimise the occurrence of abandoned trolleys.



DISCLAIMER

This plan may be updated by Coles without notice

This plan cannot be altered, reproduced or distributed without the express permission of Coles Supermarkets. For details contact Coles Supermarkets Australia Pty Ltd registered office.

DICKSON VILLAGE				
Waste/Recycle Streams	Materials	per Week	Proposed on-site storage & treatment facilities	Destination
Paper Cardboard	Cardboard Packaging (since 1988), Catalogues, Magazines, Newspaper, Stationary Supplies, Point of Sale Material All supermarkets & offices	Approx. 75m3 a week Recycling contractor collects material up to three times per week	On-site compactor machine for crushing paper & cardboard products. Contract collection to recycling facility.	Recycling contractor
Plastic	Plastic Film including Bags & Packaging Material (since early 1995) All supermarkets Customers can recycle plastic bags at specially marked bins in store	Around 10 bags a week Recycling contractor collects 1-2 times a week.	On-site collection facility at each store for collecting plastic films Specially marked recycle bins for customers for unwanted checkout bags	Recycling contractor
Organics				
Commingled Glass & Plastic	Commingles glass & plastic bottles collected from selected NSW each week	Small volume	Specially marked recycling bins	Recycled
Technology	Store use Computers, Ink Cartridges, Mobile Phones, Printers	Around <1%	Ink Cartridges returned to service provider for Re r use/recycling. All other items returned to head office & recycled.	Recycling contractors
Lighting	Store use globes and tubes.	Around <1%	Lighting replacement is managed by an external contractor who manages this waste stream.	
Food Waste	Food waste including fresh & packaged goods.	Second Bite	Charity collect	Charity
Donut oil & chicken fats (liquid)	Current project to recycle these from stores that produce these lines	Minimal		Recycle
General Waste		See deliveries for vehicle size and frequency	Waste Collection Bin	Landfill



**sellick
consultants**

Canberra Office:

Unit 122, Level 1, Mode 3
24 Lonsdale Street
BRADDON ACT 2612

P: 02 6201 0200
F: 02 6247 2203

Sydney Office:

Suite 1601, Level 16,
99 Mount Street,
North Sydney NSW 2060

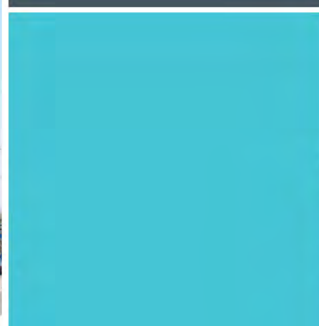
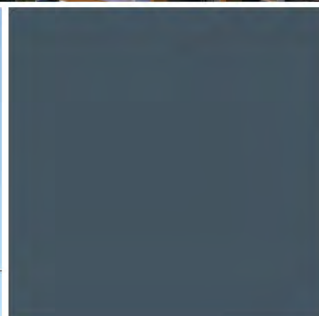
PH: 02 6201 0200

Brisbane Office:

Level 1
410 Queen Street
BRISBANE QLD 4000

PH: 07 3236 5138

E: sellick@sellickconsultants.com.au
www.sellickconsultants.com.au





Doc Ref: WC036-04F01(rev0) - WS Memo

Date: December 13, 2018

To: Bloc Pty Ltd

Address: Unit 9 Ground Floor, Hotel Realm, 18 National Circuit, Barton, ACT 2600

**RE: PEDESTRIAN WIND STATEMENT MEMO
BLOCK 21, SECTION 30, DICKSON**

This technical memo comments on the wind impact of the latest design changes to the subject development located at Block 21, Section 30 Dickson. A desktop pedestrian wind environment statement has been previously completed for the subject development (report ref: WC036-01F02 - WS Report, dated 7th May, 2014; attached within the appendix of this memo) commenting on the potential wind conditions on the critical outdoor trafficable areas within and around the subject development site. The outcome of pedestrian wind environment statement identified the wind conditions within the critical outdoor trafficable areas of the development and outlined treatment strategies that were expected to be effective in wind mitigation and enhancing the local wind conditions for its intended uses.

Since the time of the study, further architectural changes have been made to the design of the proposed development as indicated in the latest architectural drawings; prepared by the project architect Turner:

- DA-110-009(Rev G) Ground Level.
- DA-110-010(Rev G) Level 1.
- DA-110-011(Rev E) Level 2.
- DA-110-012(Rev E) Level 3-5.
- DA-110-013(Rev E) Level 6.
- DA-110-014(Rev E) Roof Level.

The primary architectural design changes are summarised as follows:

- Amendments to external built form of the Podium (Level 2).
- The inclusion of additional densely foliating trees along the various street frontages of the development site.
- The inclusion of additional awnings above the Ground Level along the various street frontages of the development site.
- Redesign of landscape area and plantrooms on the Podium (Level 2).

- Amendments the residential apartment configuration layout on Levels 2 to 6; including the design of the private balcony.
- Inclusion of the new public Dickson Village Square

A desktop review of the latest design of the subject development has been undertaken and the wind conditions along the Ground Level, Podium and majority of the private balconies are expected to be similar to those identified within the initial desktop pedestrian wind environment (report ref: WC036-01F02 - WS Report, dated 7th May, 2014). The communal spaces on the Podium will benefit from the shielding provided by large plantrooms along the western boundary of the Podium. The initial desktop assessment identified the north-eastern private corner balconies on Levels 2 to 6 were potentially exposed to accelerating flows around the corner of the building due to the protruding corner edge design. The latest design of these private corner balconies indicate the protruding corner edge has been amended to a more recessed curved design which is expected to be effective in minimising the accelerating flows experienced by the occupants within these balconies. Hence with the inclusion of the proposed balustrade along the exposed perimeter edge, the wind conditions within these corner balconies are expected to be acceptable for its intended uses. A similar curved design is proposed on the remaining private north-western and south-western corner balconies of the subject development and with the inclusion of the proposed balustrade along the exposed perimeter edge the wind conditions within these corner balconies are also expected to be acceptable for its intended uses.

It is expected the suitable wind conditions within the various outdoor trafficable areas of the subject development can be achieved with the inclusion of the following treatment strategies into the final design of the development:

- The inclusion of the proposed awnings above the Ground Level along the various street frontages of the development site as indicated in the architectural drawings.
- The inclusion of the proposed densely foliageating trees and ground vegetation along the various street frontages of the development site as indicated in the landscape drawings.
- The inclusion of the proposed densely foliageating trees within and around the Podium as indicated in the landscape drawings.
- The planter boxes indicated along the perimeter edge of the Podium are recommended to be populated with densely foliageating shrubs or hedge planting capable of growing to a height of 1.5m. They are recommended to be of an evergreen species to ensure their effectiveness in wind mitigation throughout the year
- The retention of the proposed balustrades, full-height louver blade and party walls along the perimeter of the various private balconies and terraces as indicated in the architectural drawings.

With the inclusion of the abovementioned treatment strategies into the final design of the development, the wind conditions within the various outdoor trafficable areas are expected to be acceptable for its intended uses.

Note that a definitive assessment of the local wind conditions can be undertaken through quantitative measurements in the form of wind tunnel testing.

An additional assessment has been carried out with compliance of the subject development with the controls for Wind from C9, Section 3.6 of the ACTPLA Commercial Zones Development Code which stipulates a comparison against a similar building with a height of building of 19m. The subject development has an overall maximum height of 23.9m above ground resulting in a 4.9m height difference which is expected to have a minimal impact upon the wind patterns along the pedestrian footpaths around the site; that are more susceptible to ground level wind effects such as exposure to direct winds and side-stream effects along the building façade. The height difference is expected to have a positive impact on the wind conditions within the Podium communal areas by increasing the shielding provided to these areas from the prevailing upstream winds. Hence, it is our expert opinion that the subject development will comply with the wind comfort criterion as stipulated in Section 3.6, C9 of the Commercial Zones Development Code.

Regards,



Trong Thien Huynh
BE Aero (Hons)
Senior Engineer

DOCUMENT CONTROL

Date	Revision History	Issued Revision	Prepared By (initials)	Instructed By (initials)	Reviewed & Authorised by (initials)
December 13, 2018	Initial	0	TH	TH	TH/TR
December 18, 2018	Updated with comments	1	TH	TH	TH/TR

The work presented in this document was carried out in accordance with the Windtech Consultants Quality Assurance System, which is based on International Standard ISO 9001

This document is issued subject to review and authorisation by the Team Leader noted by the initials printed in the last column above. If no initials appear, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for our Client's particular requirements which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Windtech Consultants. The information herein should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

APPENDIX – INITIAL DESKTOP PEDESTRIAN WIND ENVIRONMENT STATEMENT



PEDESTRIAN WIND ENVIRONMENT STATEMENT
DICKSON MIXED-USE PROJECT,
BLOCK 21 SECTION 30, DICKSON ACT

WC036-01F02- WS REPORT
7 MAY 2014

Prepared for:

Bloc Pty Ltd

Unit 5/2 Trevillian Quay,

Kingston, ACT 2064

Attention: Mr David Murphy

DOCUMENT CONTROL

Date	Revision History	Non-Issued Revision	Issued Revision	Prepared By (initials)	Instructed By (initials)	Reviewed & Authorised by (initials)
07/05/2013	Initial	-	0	TH	TR	TR

The work presented in this document was carried out in accordance with the Windtech Consultants Quality Assurance System, which is based on International Standard ISO 9001

This document is issued subject to review and authorisation by the Team Leader noted by the initials printed in the last column above. If no initials appear, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for our Client's particular requirements which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Windtech Consultants Pty Ltd. This report should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

EXECUTIVE SUMMARY

This report is in relation to the proposed development located at Block 21, Section 30, Dickson, and presents an opinion on the likely impact of the proposed design on the local wind environment to the critical outdoor areas within and around the subject development. The effect of wind activity is examined for the three predominant wind directions for the Canberra region; namely northerly, north-westerly and westerly winds. The analysis of the wind effects relating to the proposal was carried out in the context of the local wind climate, building morphology and land topography.

The conclusions of this report are drawn from our extensive experience in this field and are based on an examination of the architectural drawings which have been prepared by the project architect Cox Architecture, dated May 5th, 2014. No wind tunnel tests have been undertaken for the subject development, and hence this report addresses only the general wind effects and any localised effects that are identifiable by visual inspection. Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects. This study also assesses compliance with the requirements of the as set out in the ACT Planning & Land Authority (ACTPLA) Commercial Zones Development Code for Wind impact.

The results of this assessment indicate that tolerable wind conditions are expected to be achieved for the majority of the outdoor trafficable areas within and around the subject development site with the inclusion of the proposed developments. These include the pedestrian footpaths along the new Dickson Lane, the Level 2 communal open space and the various private balconies along the northern and southern aspect which benefits from the shield provided by the subject development and the effective use of wind mitigating devices in the design of the development such as recessing the private balcony areas into the building form and the inclusion of full-height privacy screens and blade walls along the various private balconies and terraces. The proposed loading dock along the Antill Street frontage is expected to enhance the wind conditions along the adjacent pedestrian footpath by capturing the adverse winds into the loading dock and mitigating the side-streaming effect along the podium façade.

There are however outdoor trafficable areas within and around the subject development site that are exposed to potentially adverse wind conditions. The pedestrian footpaths along the Badham Street and Antill Street frontages are exposed to the direct winds due to the alignment of the streets and side-stream effects along the podium façade. The north-eastern private corner balconies on Levels 2 to 6 are exposed to accelerating flows around the corner of the development and direct winds due to the lack of shielding from the upstream low-rise residential developments.

To ensure tolerable wind conditions are achieved for all trafficable outdoor areas within and around the site, the following set of treatments have been recommended to be incorporated into the final design and are summarised as follows:

- The inclusion of the proposed densely foliating street trees along the Antill Street, Badham Street and new Dickson Lane frontages of the site indicated in the architectural drawings.
- The retention of the proposed impermeable awning above the new Dickson Lane frontage of the site.
- The inclusion of the proposed densely foliating street trees within the Level 2 communal open space as indicated in the architectural drawings; particularly along the western perimeter of the open space.
- The inclusion of a full-height impermeable screen along the eastern balcony perimeter of the north-eastern private corner balconies on Levels 2 to 6.
- Retention of the proposed balustrades, full-height privacy screens and blade walls along the perimeter of the various private balconies and terraces.

Hence, with the inclusion of the abovementioned recommendations within the final design of the development, it is expected the wind conditions for all outdoor trafficable within and around the development will be acceptable for its intended uses.

Note that the densely foliating trees should be capable of growing to a height of 4m with a 4m wide canopy and should be of an evergreen species to ensure their effectiveness in wind mitigation throughout the year. Furthermore all trees planted need to be protected by means of effective screening (e.g. hessian on four sides) for the first couple of years until the branch structures have developed and are able to connect with the adjacent tree and the tree has reached substantial maturity in terms of height and density of foliage.

An additional assessment has been carried out with compliance of the subject development with the controls for Wind from C9, Section 3.6 of the ACTPLA Commercial Zones Development Code which stipulates a comparison against a similar building with a height of building of 19m. The subject development has an overall maximum height of 23.6m above ground resulting in a 4.6m height difference which is expected to have a minimal impact upon the wind patterns along the pedestrian footpaths around the site that are more susceptible to ground level wind effects such as exposure to direct winds, and side-stream effects along the building façade. The height difference is expected to have a positive impact on the wind conditions within the Level 2 communal open space by increasing the shielding provided to these areas from the prevailing upstream winds. Hence, it is our expert opinion that the subject development will comply with the wind comfort criterion as stipulated in Section 3.6, C9 of the Commercial Zones Development Code.

1 DESCRIPTION OF THE DEVELOPMENT AND SURROUNDINGS

The development site is located on an existing open car-parking lot along the northern boundary of the Dickson CBD. The site is bounded by Antill Street to the north, Badham Street to the west and the new Dickson Lane (Road A) along the southern and eastern boundaries. Surrounding the site are primarily low-rise residential developments to the north, Dickson Library to the east, and low-rise commercial developments on the remaining boundaries including a Shell Petrol Station, McDonalds and Woolworths centre. Further away towards the south are the Dickson CBD comprised primarily low-rise retail developments varying between 1 to 2 storeys high with private residential developments further along the remaining boundaries. A survey of the local land topography indicates a general rise towards the east of the site. An aerial image of the site and the surroundings is shown in Figure 1.

The proposed development consists of a seven storey high mixed-use development; including a two storey podium comprised of a Coles and Aldi shopping centre on the ground floor, and car-parking and commercial tenancies on the first floor. Private residential tenancies on the remaining floors within a rectangular shaped building atop of the podium along the northern boundary of the site. Car-parking is accommodated within the aforementioned first floor and within two common basement floors with vehicular access provided off New Dickson Lane.

The critical trafficable outdoor areas associated with the proposed development, which are the focus for pedestrian wind effects in this assessment, are detailed as follows:

- The pedestrian footpaths along Antill Street, Badham Street and New Dickson Lane.
- The communal open space on the Level 2 Podium.
- The various private terraces and balcony areas associated with the residential apartments on all aspects of the development.



Figure 1: Aerial Image of the Site Location

2 WIND CLIMATE OF THE CANBERRA REGION

The Canberra region is governed by three principle wind directions, and these can potentially affect the subject development. These winds prevail from the north, north-west and west. A summary of the principal time of occurrence of these winds throughout the year is presented in Table 1 below. This summary is based on an analysis of wind rose data obtained by the Bureau of Meteorology from Canberra Airport between 1939 and 2010. The wind roses are attached in the appendix of this report.

A directional plot of the annual and weekly recurrence winds for the Canberra region is shown in Figure 2. The frequency of occurrence of these winds is also shown in Figure 2. This plot has been produced based on an analysis of recorded wind speed data obtained from Canberra Airport from 1939 to 2002.

As shown in Figure 2 of this report, the north-westerly winds are by far the most frequent wind for the Canberra region, and are also the strongest. The north-westerly and westerly winds occur most frequently during the winter season for the Canberra region, and are usually a cold wind since hence can be a cause for discomfort for outdoor areas. Northerly winds occur most frequently during the winter and spring months of the year for the Canberra region, are typically not as strong as the north-westerly or westerly winds.

Table 1: Principle Time of Occurrence of Winds for Canberra

Month	Wind Direction		
	Northerly	North-Westerly	Westerly
Summer		X	X
Autumn		X	
Winter		X	X
Spring	X	X	X

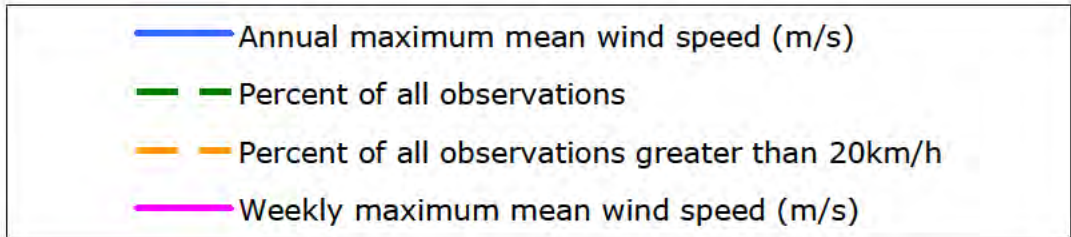
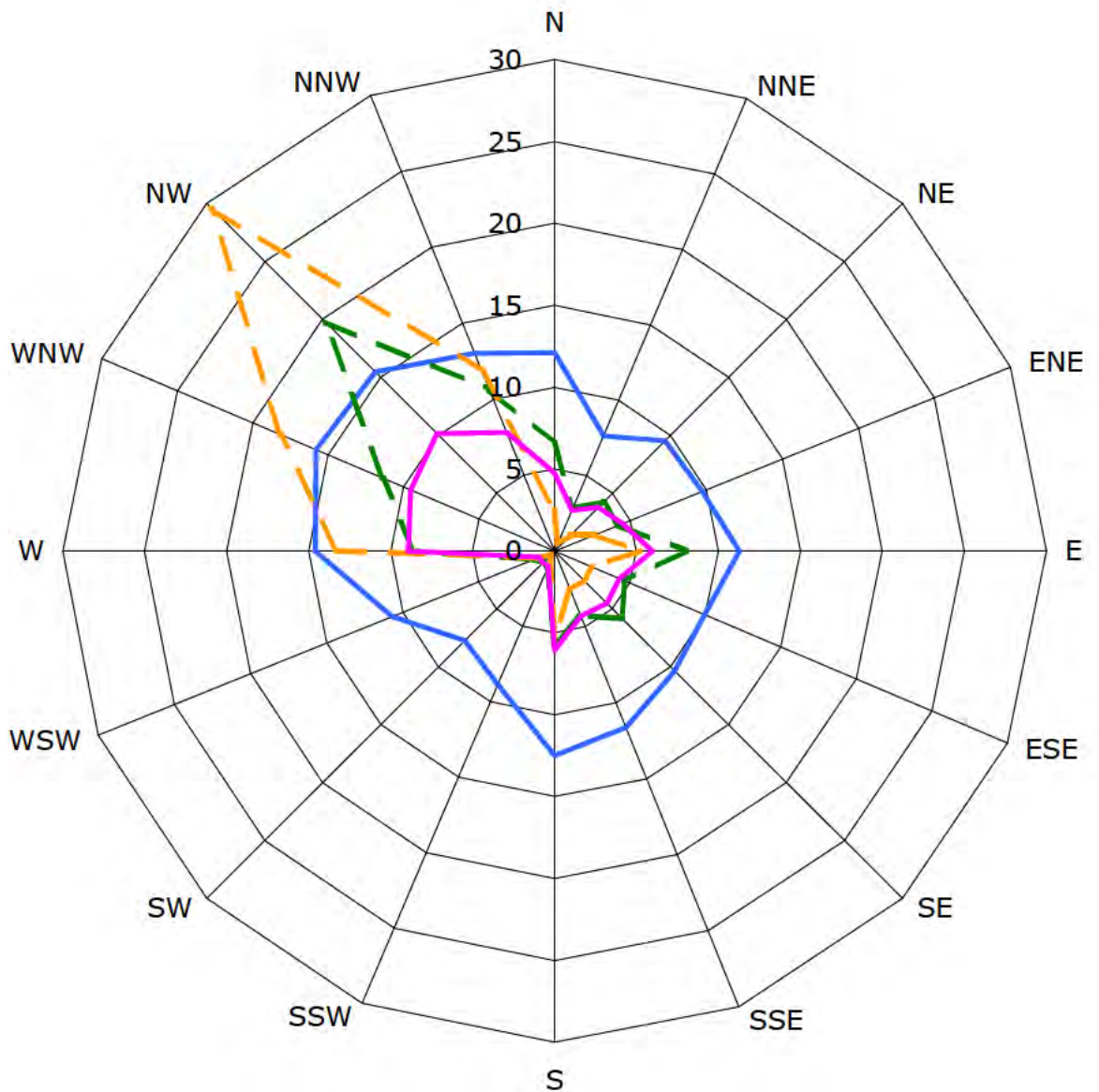


Figure 2: Annual and Weekly Recurrence Mean Wind Speeds, and Frequencies of Occurrence, for the Canberra Region (based on 10-minute mean observations from Canberra Airport from 1939 to 2002, corrected to open terrain at 10m)

3 WIND EFFECTS ON PEOPLE

The acceptability of wind in any area is dependent upon its use. For example, people walking or window-shopping will tolerate higher wind speeds than those seated at an outdoor restaurant. Various other researchers, such as Davenport, Lawson, Melbourne, Penwarden, etc, have published criteria for pedestrian comfort for pedestrians in outdoor spaces for various types of activities. Some Councils and Local Government Authorities have adopted elements of some of these into their planning control requirements in Australia. The following table is an example, which was developed by Penwarden in 1975, and describes the effects of various wind intensities on people. Note that the applicability column relates to the indicated wind conditions occurring frequently (exceeded approximately once per week on average). Higher ranges of wind speeds can be tolerated for rarer events.

Table 2: Summary of Wind Effects on People (Penwarden, 1975)

Type of Winds	Gust Speed (m/s)	Effects	Applicability
Calm, light air	0 - 1.5	Calm, no noticeable wind.	Generally acceptable for Stationary, long exposure activities such as in outdoor restaurants, landscaped gardens and open air theatres.
Light breeze	1.6 - 3.3	Wind felt on face.	
Gentle breeze	3.4 - 5.4	Hair is disturbed, Clothing flaps.	
Moderate breeze	5.5 - 7.9	Raises dust, dry soil and loose paper. Hair disarranged.	Generally acceptable for walking & stationary, short exposure activities such as window shopping, standing or sitting in plazas.
Fresh breeze	8.0 - 10.7	Force of wind felt on body.	Acceptable as a main pedestrian thoroughfare
Strong breeze	10.8 - 13.8	Umbrellas used with difficulty, Hair blown straight, Difficult to walk steadily, Wind noise on ears unpleasant.	Acceptable for areas where there is little pedestrian activity or for fast walking.
Near gale	13.9 - 17.1	Inconvenience felt when walking.	
Gale	17.2 - 20.7	Generally impedes progress, Great difficulty with balance.	Unacceptable as a public accessway.
Strong gale	20.8 - 24.4	People blown over by gusts.	Completely unacceptable.

It should be noted that wind speeds can only be accurately quantified with a wind tunnel study. This assessment addresses only the general wind effects and any localised effects that are identifiable by visual inspection and the acceptability of the conditions for outdoor areas are determined based on their intended use (rather than referencing specific wind speeds). Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects.

4 ACT PLANNING & LAND AUTHORITY WIND CRITERION

In addition to assessing the wind impact of the proposed design on the local wind environment to the critical outdoor areas, the subject development will also be assessed against the applicable criteria as set out in the ACT Planning & Land Authority (ACTPLA) Commercial Zones Development Code. The applicable criterion is based on the overall maximum height of the subject development and outlined in Section 3.6 and is summarised as follows:

C9:

This criterion applies to buildings with a height of building greater than 19m but less than 28m.

The wind patterns associated with the proposed building will not unreasonably reduce the safety and comfort of people in the public realm or other open spaces associated with the development, compared with a similar building on the site with a height of building of 19m.

R10:

This rule applies to buildings with a height of building greater than 28m.

As a consequence of the proposed development, wind speeds do not exceed the following:

- a) Adjacent main pedestrian areas and routes (as defined in the relevant precinct code) – 10m/s.*
- b) All other adjacent streets and public places – 16m/s*

The subject development has an overall maximum height of 23.6m above ground; therefore compliance with criterion C9 is applicable and will be addressed within this report.

5 RESULTS AND DISCUSSION

The expected wind conditions are discussed in the following sub-sections of this report for the various outdoor areas within and around the subject development for each of the three predominant wind directions for the Canberra region. The interaction between the wind and the building morphology in the area was considered, and important features taken into account include the distances between the proposed building form, their overall heights and bulk, as well as the landform. Note that only the potentially critical wind effects are discussed in this report.

5.1 Outdoor Ground Level Areas

The wind conditions on the pedestrian footpaths along the new Dickson Lane (Road A) frontage of the site are expected to be acceptable for its intended uses due to the shielding provided by the subject development to the prevailing winds. The proposed awning above the pedestrian footpath is an effective wind mitigating device and is recommended to be retained to further enhance the wind conditions along the footpath.

The pedestrian footpath along Antill Street and Badham Street are potentially exposed to adverse wind conditions due to the side-stream effects along the podium façade, the alignment of the streets in the prevailing wind directions and the lack of shielding provided by the neighbouring low-rise residential developments. The proposed loading dock along the Antill Street frontage is expected to enhance the wind conditions along the adjacent pedestrian footpath by capturing the adverse winds into the loading dock. It is recommended the proposed densely foliating trees as indicated in the architectural drawings along Antill Street and Badham Street; particularly at the north-eastern corner intersection, is retained in the final design of the development to mitigate the potential adverse wind effects.

Hence with the inclusion of the abovementioned recommendations, the wind conditions within and around the trafficable ground level areas of the site are expected to be acceptable for its intended uses. The wind conditions can be further enhanced along new Dickson Lane with the inclusion of the proposed densely foliating trees along the street frontage as indicated in the architectural drawings.

Note that the proposed densely foliating trees within and around the ground level of the subject development site should be capable of growing to a height of 4m with a 4m wide canopy, and are of an evergreen species to ensure their effectiveness in wind mitigation throughout the year.

5.2 Level 2 Communal Open Space

The wind conditions within the Level 2 communal open space of the site are expected to be acceptable for its intended uses due to the shielding provided by the subject development from the prevailing winds. The inclusion of the proposed densely foliating vegetation within and around the communal areas, as indicated in the architectural drawings is expected to further enhance the wind conditions within these areas and is recommended to be retained in the final design of the development; particularly around the western perimeter.

5.3 Private Balcony and Terrace Areas


Wind conditions for the majority private balconies and terraces of the proposed development are expected to be tolerable for their intended use due to the shielding provided by the subject development and the effective use of wind mitigating devices into the design of the development such as recessing the private balcony areas into the building form and the inclusion of full-height privacy screens and blade walls along the various private balconies and terraces. The inclusion of the proposed balustrades along the perimeter of the balconies and terraces is expected to further enhance the wind conditions. Hence these features are recommended to be retained in the final design of the development.

The north-eastern private corner balconies on Levels 2 to 6 however are potentially exposed to the direct northerly to north-westerly winds accelerating corner of the development. It is expected the inclusion of a full-height impermeable screen is included along the northern perimeter of the balcony as indicated in Figure 3 to ameliorate these adverse wind effects.

Hence with the inclusion of the abovementioned treatments into the final design of the development, the wind conditions within the various private balconies and terraces are expected to be tolerable for its intended uses.

5.4 Compliance with ACT Planning & Land Authority Wind Criterion

The subject development has been assessed against compliance with the controls for Wind from C9, Section 3.6 of the ACTPLA Commercial Zones Development Code. The subject development has an overall maximum height of 23.6m above ground; therefore 4.6m height difference compared against a similar building with a height of building of 19m. The height difference is expected to have a minimal impact upon the wind patterns along the pedestrian footpaths around the site. These areas are more susceptible to direct winds travelling over the neighbouring low-rise developments and ground level side-stream effects along the building façade. The increase in height of the subject development is expected to have a positive wind impact upon the Level 2 communal open space southern boundary of the development, by increasing the shielding provided to the northerly to north-westerly winds, which are the prevailing wind directions for the Canberra region. Hence, it is our expert opinion that the subject development will comply with the wind comfort criterion as stipulated in Section 3.6, C9 of the Commercial Zones Development Code.

 Recommended full-height impermeable screen to be included in the final design of the development.

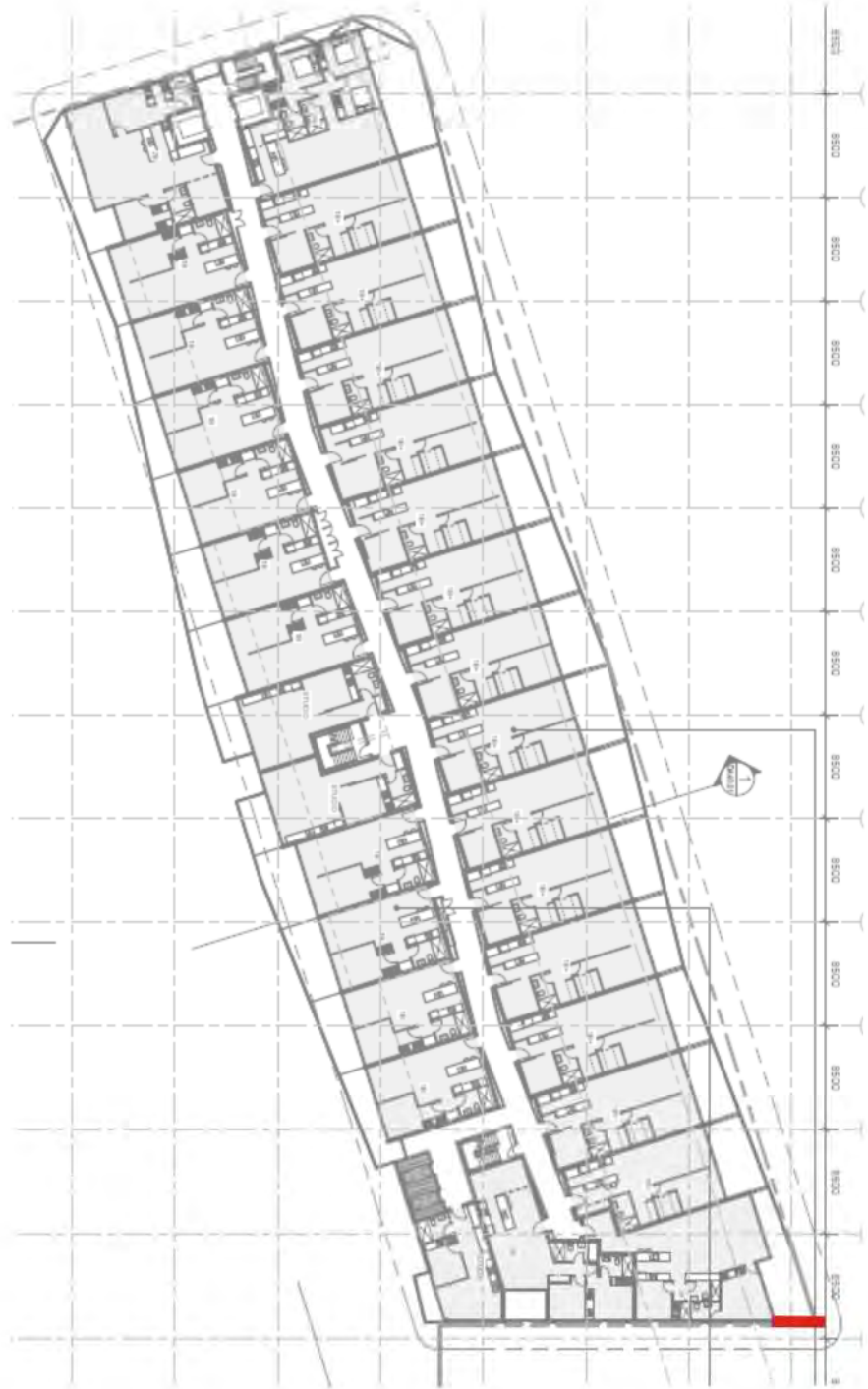


Figure 3: Recommended Treatments –Levels 2 to 6

6 CONCLUSION

An analysis of the wind environment impact with respect to the three principal wind directions for the Canberra region has been completed for the proposed development located at Block 21, Section 30, Dickson. The conclusions of this report are drawn from our extensive experience in this field and are based on an examination of the architectural drawings which have been prepared by the project architect Cox Architecture, dated May 5th, 2014. No wind tunnel tests have been undertaken for the subject development, and hence this report addresses only the general wind effects and any localised effects that are identifiable by visual inspection. Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects. This study also assesses compliance with the requirements of the as set out in the ACT Planning & Land Authority (ACTPLA) Commercial Zones Development Code for Wind impact.

The results of this assessment indicate that tolerable wind conditions are expected to be achieved for the majority of the outdoor trafficable areas within and around the subject development site with the inclusion of the proposed developments. These include the pedestrian footpaths along the new Dickson Lane, the Level 2 communal open space and the various private balconies along the northern and southern aspect which benefits from the shield provided by the subject development and the effective use of wind mitigating devices in the design of the development such as recessing the private balcony areas into the building form and the inclusion of full-height privacy screens and blade walls along the various private balconies and terraces. The proposed loading dock along the Antill Street frontage is expected to enhance the wind conditions along the adjacent pedestrian footpath by capturing the adverse winds into the loading dock and mitigating the side-streaming effect along the podium façade.

There are however outdoor trafficable areas within and around the subject development site that are exposed to potentially adverse wind conditions. The pedestrian footpaths along the Badham Street and Antill Street frontages are exposed to the direct winds due to the alignment of the streets and side-stream effects along the podium façade. The north-eastern private corner balconies on Levels 2 to 6 are exposed to accelerating flows around the corner of the development and direct winds due to the lack of shielding from the upstream low-rise residential developments.

To ensure tolerable wind conditions are achieved for all trafficable outdoor areas within and around the site, the following set of treatments have been recommended to be incorporated into the final design and are summarised as follows:

- The inclusion of the proposed densely foliating street trees along the Antill Street, Badham Street and new Dickson Lane frontages of the site indicated in the architectural drawings.

- The retention of the proposed impermeable awning above the new Dickson Lane frontage of the site.
- The inclusion of the proposed densely foliating street trees within the Level 2 communal open space as indicated in the architectural drawings; particularly along the western perimeter of the open space.
- The inclusion of a full-height impermeable screen along the eastern balcony perimeter of the north-eastern private corner balconies on Levels 2 to 6.
- Retention of the proposed balustrades, full-height privacy screens and blade walls along the perimeter of the various private balconies and terraces.

Hence, with the inclusion of the abovementioned recommendations within the final design of the development, it is expected the wind conditions for all outdoor trafficable within and around the development will be acceptable for its intended uses.

Note that the densely foliating trees should be capable of growing to a height of 4m with a 4m wide canopy and should be of an evergreen species to ensure their effectiveness in wind mitigation throughout the year. Furthermore all trees planted need to be protected by means of effective screening (e.g. hessian on four sides) for the first couple of years until the branch structures have developed and are able to connect with the adjacent tree and the tree has reached substantial maturity in terms of height and density of foliage.

An additional assessment has been carried out with compliance of the subject development with the controls for Wind from C9, Section 3.6 of the ACTPLA Commercial Zones Development Code which stipulates a comparison against a similar building with a height of building of 19m. The subject development has an overall maximum height of 23.6m above ground resulting in a 4.6m height difference which is expected to have a minimal impact upon the wind patterns along the pedestrian footpaths around the site that are more susceptible to ground level wind effects such as exposure to direct winds, and side-stream effects along the building façade. The height difference is expected to have a positive impact on the wind conditions within the Level 2 communal open space by increasing the shielding provided to these areas from the prevailing upstream winds. Hence, it is our expert opinion that the subject development will comply with the wind comfort criterion as stipulated in Section 3.6, C9 of the Commercial Zones Development Code.

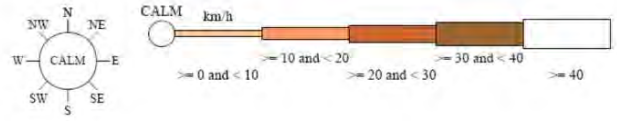
7 APPENDIX – CANBERRA WIND ROSES

Rose of Wind direction versus Wind speed in km/h (01 Mar 1939 to 28 Feb 2010)

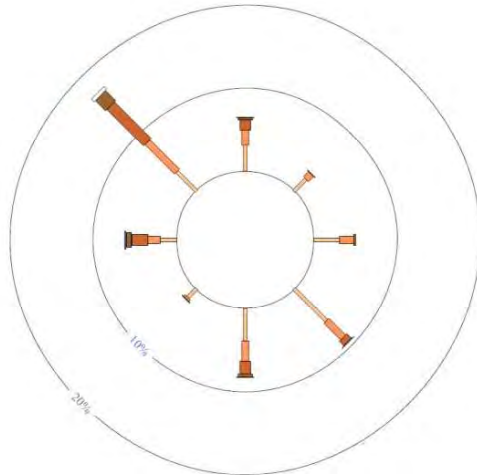
Custom times selected, refer to attached note for details

CANBERRA AIRPORT COMPARISON

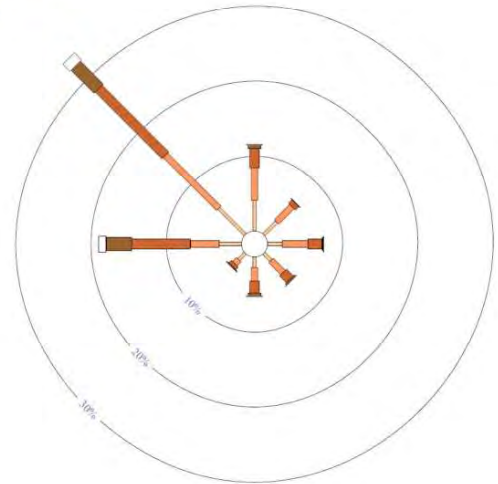
Site No. 070014 • Opened Jan 1939 • Still Open • Latitude: -35.3049° • Longitude: 149.2014° • Elevation 578 m



9 am
25498 Total Observations
Calm 42%



3 pm
25580 Total Observations
Calm 9%



Copyright © Commonwealth of Australia 2010 . Prepared on 18 Mar 2010
Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on webclim@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

**Figure A1: Annual Observation Wind Roses
Canberra Airport (1939 to 2010)**

Rose of Wind direction versus Wind speed in km/h (01 Mar 1939 to 28 Feb 2010)

Custom times selected, refer to attached note for details

CANBERRA AIRPORT COMPARISON

Site No: 070014 • Opened Jan 1939 • Still Open • Latitude: -35.3048° • Longitude: 149.2014° • Elevation 578 m



Copyright © Commonwealth of Australia 2010. Prepared on 18 Mar 2010
 Prepared by National Climate Centre of the Bureau of Meteorology.
 Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on webclim@bom.gov.au
 We have taken all due care but cannot provide any warranty nor accept any liability for this information.

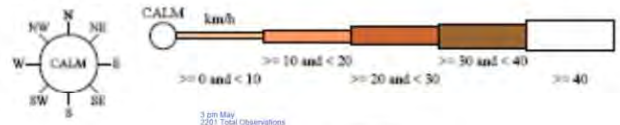
**Figure A2: Wind Rose Observation – January to April
 Canberra Airport (1939 to 2010)**

Rose of Wind direction versus Wind speed in km/h (01 Mar 1939 to 28 Feb 2010)

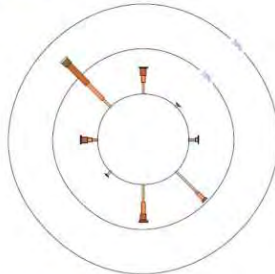
Custom times selected, refer to attached note for details

CANBERRA AIRPORT COMPARISON

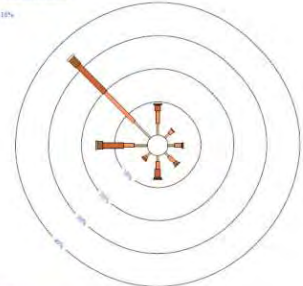
Site No: 070014 • Opened Jan 1939 • Still Open • Latitude: -35.3048° • Longitude: 149.2014° • Elevation 578 m



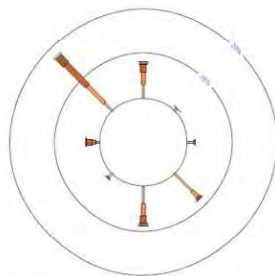
9 am May
2160 Total Observations
Calm 10%



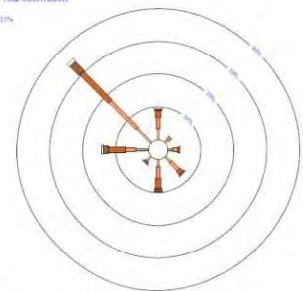
3 pm May
220 Total Observations
Calm 15%



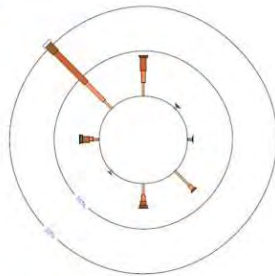
9 am Jun
2169 Total Observations
Calm 9%



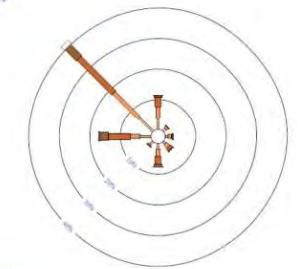
3 pm Jun
228 Total Observations
Calm 17%



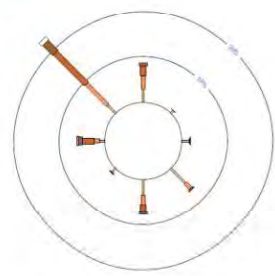
9 am Jul
2174 Total Observations
Calm 10%



3 pm Jul
2199 Total Observations
Calm 17%



9 am Aug
2187 Total Observations
Calm 10%



3 pm Aug
2199 Total Observations
Calm 9%



Copyright © Commonwealth of Australia 2010. Prepared on 18 Mar 2010
Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on webclim@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

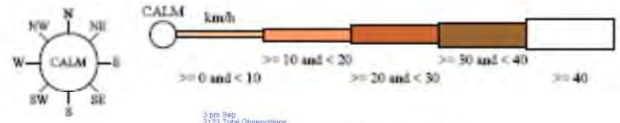
**Figure A3: Wind Rose Observation – May to August
Canberra Airport (1939 to 2010)**

Rose of Wind direction versus Wind speed in km/h (01 Mar 1939 to 28 Feb 2010)

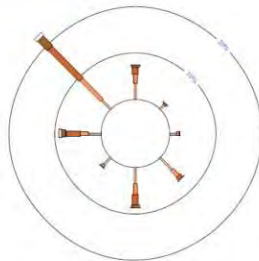
Custom times selected, refer to attached note for details

CANBERRA AIRPORT COMPARISON

Site No: 070014 • Opened Jan 1939 • Still Open • Latitude: -35.3048° • Longitude: 149.2014° • Elevation 578 m



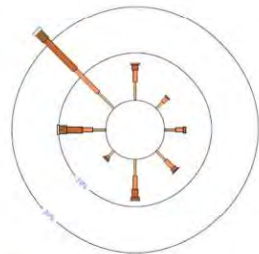
9 am Sep
2120 Total Observations
Calm 35%



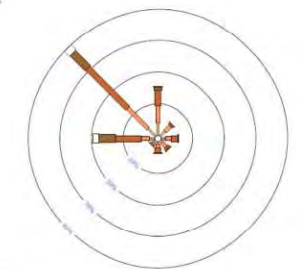
3 pm Sep
2133 Total Observations
Calm 6%



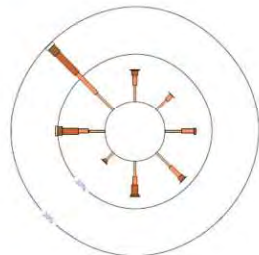
9 am Oct
2198 Total Observations
Calm 31%



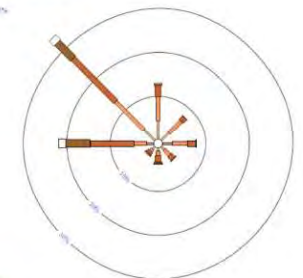
3 pm Oct
2153 Total Observations
Calm 1%



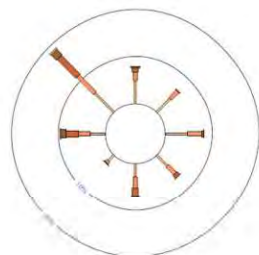
9 am Nov
2057 Total Observations
Calm 31%



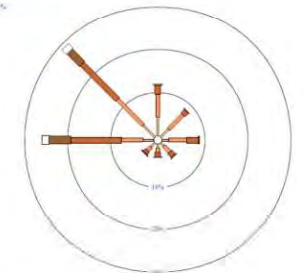
3 pm Nov
2067 Total Observations
Calm 1%



9 am Dec
2127 Total Observations
Calm 32%



3 pm Dec
2136 Total Observations
Calm 1%



Copyright © Commonwealth of Australia 2010. Prepared on 18 Mar 2010
Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on webclim@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

**Figure A4: Wind Rose Observation – September to December
Canberra Airport (1939 to 2010)**