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FRASERS PROPERTY

LOT C1 - IVANHOE ESTATE

BASIX SUMMARY REPORT

DECEMBER 2020

CONFIDENTIAL

LOT C1 - IVANHOE ESTATE

BASIX SUMMARY REPORT

FRASERS PROPERTY

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REV	DATE	DETAILS
0	23/02/2018	Draft Issue
1	14/03/2018	Amended Draft Report
2	27/03/2018	Amended rainwater capacity
3	08/05/2018	Updated apartment appliances and fixtures
4	27/09/2019	Report for DA Submission
5	22/10/2019	Updated shower WELS Rating
6	16/12/2020	Updated for C1 Affordable Modification

	NAME	DATE	SIGNATURE
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Reviewed by:	Katie Fallowfield	16/12/2020	
Approved by:	Katie Fallowfield	16/12/2020	

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OUR REF: PS107138-191022-CM-C1 BASIX REPORT_REV6
DECEMBER 2020

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EXECUTIVE SUMMARY

An ESD strategy has been developed for the proposed development at Lot C1 - Ivanhoe Estate in Macquarie Park. Building C1 consists of two towers, each with a social housing and market component and ground floor town houses, resulting in the following break up for the apartments

BUILDING	APARTMENT USE	NAME
Tower 1	Social	C1.1
	Affordable	C1.2
Tower 2 +	Social	C1.3
	Market	C1.4
Town Houses	Market	C1.5

This report demonstrates how the development meets the statutory requirements for single occupancy dwellings under Section J and BASIX.

BASIX requires the following benchmarks to be met:

- Water—Minimum target of 40% potable water use reduction compared to the NSW average
- Thermal comfort—Meeting a set of NatHERS modelled maximum heating and cooling loads determined by the BASIX tool according to the development type and climate zone. For this development, the thresholds are as follows:
    - Heating maximum 40 MJ/m² average across all units, maximum 45.4 MJ/m² for any individual unit
    - Cooling maximum 26 MJ/m² average across all units, maximum 29.5 MJ/m² for any individual unit
- Energy—Minimum energy consumption reduction, compared to the NSW average, of:
    - 25% for buildings C1.1, C1.2, C1.3 and C1.4
    - 45% for building C1.5

The proposed development achieves a BASIX Water score of 42 for C1.1, C1.2, C1.3 and C1.4 and 40 for C1.5

Water efficiency in the building has been achieved through the following:

- Water efficient fittings
- 30kL rainwater tank used for irrigation

The proposed development achieves a BASIX Energy score of 26 for C1.1, C1.2, C1.3 and C1.4 and 46 for C1.5

The energy requirements set out under BASIX are different for buildings of different heights. As such buildings C1.1, C1.2, C1.3 and C1.4 which are 12 and 19 storey buildings have been calculated on a separate BASIX certificate to C1.5, a 3-storey building.

Energy consumption in multi-unit residential buildings is heavily influenced by the utilisation and servicing of the common areas. HVAC and artificial lighting systems in the basement and lobbies has been carefully designed to reduce energy demands.

Simple energy efficiency measures, such as the provision of efficient fittings and fixtures will deliver energy consumption reductions in the dwellings. These include:

- Efficient central DHW heating systems
- Lighting will consist of dedicated low energy light fittings with efficient controls to limit unnecessary usage
- Clothes drying lines will be installed in each apartment
- Solar PV panels installed on both towers, totaling 115kW

1 INTRODUCTION

An ESD strategy has been developed for the proposed development at Lot C1 - Ivanhoe Estate in Macquarie Park. This report demonstrates how the development meets the statutory requirements for single occupancy dwellings under Section J and BASIX.

1.1 BASIX

BASIX is an online tool that is used to rate the energy and water efficiency and thermal comfort performance of residential dwellings in NSW. The tool sets minimum energy and water reduction targets which must be met through the design of the building and the selection of fixtures and fittings.

BASIX applies to all new dwellings including single dwellings, townhouses and low-rise, mid-rise and high-rise developments in NSW.

Design inputs including location, size, construction and glazing materials, water sources, equipment and fittings are used to determine the potential energy and water consumption of a new home or dwelling.

BASIX assesses three main categories:

1. Water;
2. Thermal Comfort;
3. Energy.

Thermal comfort is assessed by simulation in accordance with the Nationwide House Energy Rating Scheme (NatHERS) modelling protocol. This requires the modelling of each assessable dwelling by an accredited assessor, working with NatHERS accredited software.

NatHERS modelling assesses the potential of the dwelling to provide thermal comfort passively, thereby reducing energy requirements for heating and cooling. The annual heating and cooling loads calculated are entered into the BASIX tool to determine if the dwelling satisfies the maximum heating and cooling loads set for the dwelling in its climate zone.

The heating and cooling loads also effect the 'Energy' score, with more efficient dwellings contributing to an improved score in the 'Energy' section. The 'Energy' score is also effected by other inputs such as efficiency of appliances, heating and cooling system selection, hot water systems and factors such as use of renewable energy systems.

1.1.1 SOURCES OF INFORMATION

This BASIX assessment has relied on the following documentation for inputs and methodology

→ Architectural plan drawings from Candalepas Associates

Drawing	Date	Revision
S4.55 – 1102 Basement 3 floor plan	December 2020	B
S4.55 – 1103 Basement 2 floor plan	December 2020	B
S4.55 – 1104 Basement 1 floor plan	December 2020	B
S4.55 – 1105 Lower Ground Floor Plan	December 2020	B
S4.55 – 1106 Upper Ground Floor Plan	December 2020	B

Drawing	Date	Revision
S4.55 – 1107 Level 1 Floor Plan	December 2020	B
S4.55 – 1108 Level 2 Floor Plan	December 2020	B
S4.55 – 1109 Level 3 – 4 Floor Plan	December 2020	B
S4.55 – 1110 Level 5 – 12 Floor Plan	December 2020	B
S4.55 – 1111 Level 13 Floor Plan	December 2020	B
S4.55 – 1112 Level 14 – 19 Floor Plan	December 2020	B
S4.55 – 1113 Roof Plan	December 2020	B

→ Architectural elevation and section drawings from Candalepas Associates

Drawing	Date	Revision
S4.55 – 1200 North East Elevation	December 2020	B
S4.55 – 1200 North West Elevation	December 2020	B
S4.55 – 1200 North West Internal Elevation	December 2020	B
S4.55 – 1200 South East Elevation	December 2020	B
S4.55 – 1200 South East Internal Elevation	December 2020	B
S4.55 – 1200` South West Elevation	December 2020	B

→ NatHERS Technical Note – Nationwide House Energy Rating Scheme (NatHERS), Requirements for NatHERS assessments – version June 2019

→ BASIX Thermal Comfort Protocol 27 November 2020

1.1.2 ACCREDITED NATHERS SIMULATION SOFTWARE

FirstRate5 is provided by Sustainability Victoria and is accredited for simulating the thermal performance of dwellings in Australian climates under the NatHERS software accreditation protocol.

FirstRate5 version 5.3.0a(3.21) has been used in the assessment of this project, in accordance with the NatHERS Technical Note and the BASIX Thermal Comfort Protocol.

Inputs including dwelling geometry, space uses, orientation, climate zone, building materials and shading from adjacencies and obstructions are used to calculate heating and cooling loads for the dwelling. Resulting loads that are within the heating and cooling thresholds set under the BASIX protocol will satisfy the thermal comfort targets of BASIX.

1.2 LIMITATIONS

The results from the NatHERS modelling shown within this report are limited in accuracy by factors including the following:

→ Actual energy consumption will be affected by variations in the climate, installed equipment, occupants and their behaviour which modelling does not account for;

→ Construction details being consistent with the design documentation provided;

→ Orientation and apartment layout being as shown on the drawings.

They should not be interpreted for any purpose other than for assessing the thermal comfort section of BASIX.

2 BASIX

The purpose of the BASIX analysis is to benchmark the proposed development against average NSW residential performance parameters, including:

- Water
- Thermal comfort
- Energy

BASIX requires the following benchmarks to be met:

- Water—Minimum target of 40% potable water use reduction compared to the NSW average
- Thermal comfort—Meeting a set of NatHERS modelled maximum heating and cooling loads determined by the BASIX tool. For this development, they are as follows:
    - Heating maximum 40 MJ/m² average across all units, maximum 45.4 MJ/m2 for any individual unit
    - Cooling maximum 26 MJ/m² average across all units, maximum 29.5 MJ/m2 for any individual unit
- Energy—Minimum required target of 20% and 45% energy consumption reduction compared to the NSW average, according to building type and number of storeys

The BASIX certificate(s) for the development are included in Appendix A.

2.1 WATER

Water efficiency in the building has been achieved through the following:

- Water efficient fittings as shown in Table 2.1 below

Table 2.1 Water Fixtures Performance

Fitting	WELS rating	Flow rate
Toilet	4 Star	3.2/4L dual flush
Bathroom taps	5 Star	6L/min
Kitchen taps	5 Star	6L/min
Showers	4 Star	>6 but <= 7.5L/min
Dishwashers (Buildings C1.2, C1.4, C1.5)	3.5 Star	<1L/place setting
Washing machines (Building C1.2)	3.5 Star	-

- Rainwater harvesting and reuse. A 30kL rainwater tank is included in the building which will collect water from 2500m² of roof area. The water will be used to irrigate 1300m² of landscaped area.

2.2 THERMAL COMFORT

Thermal comfort (NatHERS) modelling is employed in accordance with the BASIX protocol, to determine heating and cooling loads attributed to achieving acceptable thermal comfort in each dwelling. The results of NatHERS modelling demonstrate that the architectural design can manage thermal loads within the apartments to meet and exceed the minimum benchmark for this location.

The maximum allowable thermal loads for a development in this location are shown in Table 2.2. The predicted average thermal loads achieved in this development are shown in the same table for comparison.

Table 2.2 NatHERS Thermal Comfort Performance

	Heating	Cooling
Maximum individual dwelling load (set by BASIX)	45.4 MJ / m²	29.5 MJ / m²
Average maximum load across project (set by BASIX)	40 MJ / m²	26 MJ / m²
Average load achieved in Lot C1 - Ivanhoe Estate	**29.8 MJ / m²**	**16.7 MJ / m²**

2.2.1 MODELLING INPUTS

This section identifies inputs for windows, shading and constructions used in NatHERS modelling on all the dwellings.

GLAZING

Table 2.3 identifies the glazing properties (window total values only) used in the NatHERS models.

Table 2.3 Glazing properties

Location	Window type	Type	Glass	Frame	U-value	SHGC
All south facing apartments in C1.2 and C1.4 **All C1.5 town houses**	Sliding window/doors and fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
All other apartments	Sliding window/doors and fixed windows	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58
	Awning windows	Single glazed aluminium frame	Clear low-e	Aluminium	5.4	0.49

SHADING

Shading of the external building fabric alters the impact of solar loads on the internal conditions of each dwelling. NatHERS modelling accounts for sources of fixed shading that can impact each dwelling.

Note that models have accounted for the following:

- The overhang of any balconies above each dwelling;
- Overshadowing from adjacent buildings; and
- Projecting balcony separator walls and other 'wing-wall'-type geometry between dwellings.

Holland blinds have been modelled as required by the NatHERS protocol, but are not required to be installed as part of the development.

CONSTRUCTIONS

Table 2.4 identifies the wall, floor, ceiling and roof construction properties used as part of the NatHERS models.

Table 2.4 Construction Properties

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2.5 bulk added insulation

	Construction	Insulation
Party walls (between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R4.0 added insulation
Ceilings	Plasterboard lined	No added insulation
Floors (between apartments)	Concrete slab	No added insulation
Suspended floors (above carparks or outside air)	Suspended concrete slab	R2.0 added insulation

2.2.2 MODELLING RESULTS

This section describes the results from NatHERS modeling. In summary, the dwelling design identified in the stamped drawings can achieve the minimum thermal comfort requirements of BASIX without amendments.

Area adjusted heating and cooling loads and preliminary star ratings for the development are identified in Table 2.5.

Table 2.5 Area adjusted heating and cooling average loads for the development

Building / Block	Heating Load (MJ/m²)	Cooling Load (MJ/m²)	Total Load (MJ/m²)	Star Rating
C1	30.9	18.0	48.9	6.2
C2	24.5	16.9	41.3	6.8
C3	32.3	17.8	50.1	6.1
C4	32.3	13.4	45.7	6.4
C5	18.8	24.2	43.0	6.7
Total	**29.8**	**16.7**	**46.5**	**6.4**

For individual apartment loads refer to Appendix B.

2.2.3 MODELLING CONCLUSION

The results of NatHERS modelling demonstrate the apartments can meet the minimum requirements of the Thermal Comfort section of BASIX.

The NatHERS group Universal Certificate(s) are included in Appendix B.

Stamped plans for submission in conjunction with the BASIX certificate are included in Appendix C.

2.3 ENERGY

2.3.1 COMMON AREAS

Energy consumption in multi-unit residential buildings is heavily influenced by the utilisation and servicing of the common areas. HVAC and artificial lighting systems in car parks, and lobbies need to be carefully designed to reduce energy demands.

The common areas will use:

- Efficient mechanical ventilation systems with appropriate controls to avoid overuse
- Natural ventilation where possible
- High efficacy light fittings
- Lighting control systems in all spaces such as motion sensors where appropriate, or timeclock and BMS control
- Car park mechanical ventilation controlled by carbon monoxide sensors and VSD fans

Further details of the proposed energy strategy for the common areas of the residential portion of the building are summarised in Table 2.6.

Table 2.6 Energy strategies for the common areas

Energy Item	Strategy
Lift motors	Gearless traction with VVVF motors
Lighting	Basement carpark — fluorescent; Zoned switching with motion sensor Lifts — light emitting diode; Connected to lift call button Garbage rooms — fluorescent; Motion sensors Plant areas and switch rooms — fluorescent; Manual on/manual off Bike storage — fluorescent; Motion sensors Ground floor lobby — fluorescent; Daylight sensor and motion sensors Hallways—compact fluorescent; Zoned switching with motion sensor
Ventilation	Basement carpark —ventilation (exhaust only); carbon monoxide monitor + VSD fan Garbage rooms—ventilation exhaust only Plant areas and switch rooms—ventilation exhaust only; thermostatically controlled Bike storage — ventilation exhaust only Ground floor lobby — Air conditioning Hallways— tempered mechanical ventilation

2.3.2 DWELLINGS

Domestic hot water (DHW), space heating and comfort cooling account for up to 60% of the energy use of an average residential dwelling. Targeting these systems as a priority will support the greatest energy consumption reductions.

Simple energy efficiency measures, such as the provision of efficient fittings and fixtures can deliver energy consumption reductions.

The dwellings will include the following initiatives:

- Heat pump DHW heating systems
- Lighting will consist of dedicated low energy light fittings with efficient controls to limit unnecessary usage
- Clothes drying lines will be installed in each apartment
- High Energy Star-rated appliances will be installed in each apartment (see Table 2.7).

Table 2.7 Energy strategies for the dwellings

ENERGY ITEM	SOCIAL (C1.1 AND C1.3)	AFFORDABLE (C1.2)	MARKET (C1.4, C1.5)
Central DHW heating system	Air sourced electric heat pump		
Lift motors	Gearless traction with VVVF motors		
Appliances	→ Cooktop - Electric → Oven – Electric → Refrigerator – not specified → Dishwashers - not specified → Clothes dryers - not specified → Washing Machines – not specified	→ Cooktop - Induction → Oven – Electric → Refrigerator – not specified → Dishwashers – 3.5-4 star → Clothes dryers – 2.5 star → Washing Machines – 3.5-4 star	→ Cooktop - Induction → Oven – Electric → Refrigerator – 3.5-4 star → Dishwashers – 3.5-4 star → Clothes dryers – 2.5 star → Washing Machines – not specified
Heating and cooling	Ceiling fans for cooling (living and bed) Radiators connected to a central heat pump for the living rooms	Ceiling fans for cooling (bed only) A/C with an EER of 2.5-3 for heating and cooling (living room only)	A/C with an EER of 2.5-3.0 (living and bed)
Lighting	Dedicated low energy light fittings to limit unnecessary usage		
Ventilation	→ Bathroom ventilation – ducted to façade or roof → Laundry ventilation - ducted to façade or roof → Kitchen ventilation - ducted to façade or roof		

APPENDIX A

BASIX CERTIFICATES

APPENDIX A-1
C1.1-C1.4 BASIX CERTIFICATE

BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 919971M_03

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 10/09/2020 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 919971M_02 lodged with the consent authority or certifier on 19 November 2019 with application SSD-8903.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Secretary
Date of issue: Thursday, 17 December 2020
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT | Planning, Industry & Environment

Project summary	
Project name	Ivanhoe Estate C1.1-C1.4_03
Street address	Herring Road Macquarie Park 2113
Local Government Area	Ryde City Council
Plan type and plan number	deposited 1
Lot no.	1
Section no.	-
No. of residential flat buildings	4
No. of units in residential flat buildings	493
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 42	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 26	Target 25

Certificate Prepared by
Name / Company Name: WSP Australia Pty Ltd
ABN (if applicable): 80078004798

Description of project

Project address	
Project name	Ivanhoe Estate C1.1-C1.4_03
Street address	Herring Road Macquarie Park 2113
Local Government Area	Ryde City Council
Plan type and plan number	deposited 1
Lot no.	1
Section no.	-
Project type	
No. of residential flat buildings	4
No. of units in residential flat buildings	493
No. of multi-dwelling houses	0
No. of single dwelling houses	0
Site details	
Site area (m²)	6000
Roof area (m²)	2500
Non-residential floor area (m²)	0.0
Residential car spaces	310
Non-residential car spaces	20

Common area landscape		
Common area lawn (m²)	900.0	
Common area garden (m²)	400.0	
Area of indigenous or low water use species (m²)	0.0	
Assessor details		
Assessor number	20/1972	
Certificate number	J8P5NXS8A2	
Climate zone	56	
Ceiling fan in at least one bedroom	No	
Ceiling fan in at least one living room or other conditioned area	No	
Project score		
Water	✔ 42	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 26	Target 25

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - C1.1, 130 dwellings, 14 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.01	2	69.9	0.0	0.0	0.0
1.05	2	73.8	0.0	0.0	0.0
1.09	1	50.5	0.0	0.0	0.0
2.04	2	72.8	0.0	0.0	0.0
2.08	1	49.8	0.0	0.0	0.0
3.03	2	70.5	0.0	0.0	0.0
3.07	1	35.0	0.0	0.0	0.0
4.02	2	70.1	0.0	0.0	0.0
4.06	2	56.7	0.0	0.0	0.0
5.01	1	52.7	0.0	0.0	0.0
5.05	2	72.8	0.0	0.0	0.0
5.09	1	49.6	0.0	0.0	0.0
6.03	1	51.7	0.0	0.0	0.0
6.07	1	56.7	0.0	0.0	0.0
7.01	1	52.7	0.0	0.0	0.0
7.05	2	72.8	0.0	0.0	0.0
7.09	1	49.6	0.0	0.0	0.0
8.03	1	51.7	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.02	2	70.1	0.0	0.0	0.0
1.06	1	56.7	0.0	0.0	0.0
2.01	2	69.9	0.0	0.0	0.0
2.05	2	73.8	0.0	0.0	0.0
2.09	2	50.5	0.0	0.0	0.0
3.04	2	72.8	0.0	0.0	0.0
3.08	1	49.8	0.0	0.0	0.0
4.03	2	70.5	0.0	0.0	0.0
4.07	1	35.0	0.0	0.0	0.0
5.02	1	35.2	0.0	0.0	0.0
5.06	2	73.8	0.0	0.0	0.0
5.10	1	50.4	0.0	0.0	0.0
6.04	2	70.5	0.0	0.0	0.0
6.08	1	35.0	0.0	0.0	0.0
7.02	1	35.2	0.0	0.0	0.0
7.06	2	73.8	0.0	0.0	0.0
7.10	1	50.4	0.0	0.0	0.0
8.04	2	70.5	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.03	2	70.5	0.0	0.0	0.0
1.07	1	35.0	0.0	0.0	0.0
2.02	2	70.1	0.0	0.0	0.0
2.06	1	56.7	0.0	0.0	0.0
3.01	2	69.9	0.0	0.0	0.0
3.05	2	73.8	0.0	0.0	0.0
3.09	1	50.5	0.0	0.0	0.0
4.04	2	72.8	0.0	0.0	0.0
4.08	1	49.8	0.0	0.0	0.0
5.03	2	51.7	0.0	0.0	0.0
5.07	1	56.7	0.0	0.0	0.0
6.01	1	52.7	0.0	0.0	0.0
6.05	2	72.8	0.0	0.0	0.0
6.09	1	49.6	0.0	0.0	0.0
7.03	1	51.7	0.0	0.0	0.0
7.07	1	56.7	0.0	0.0	0.0
8.01	1	52.7	0.0	0.0	0.0
8.05	2	72.8	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.04	2	72.8	0.0	0.0	0.0
1.08	1	49.8	0.0	0.0	0.0
2.03	2	70.5	0.0	0.0	0.0
2.07	1	35.0	0.0	0.0	0.0
3.02	2	70.1	0.0	0.0	0.0
3.06	1	56.7	0.0	0.0	0.0
4.01	2	69.9	0.0	0.0	0.0
4.05	2	73.8	0.0	0.0	0.0
4.09	1	50.5	0.0	0.0	0.0
5.04	2	70.5	0.0	0.0	0.0
5.08	1	35.0	0.0	0.0	0.0
6.02	1	35.2	0.0	0.0	0.0
6.06	2	73.8	0.0	0.0	0.0
6.10	1	50.4	0.0	0.0	0.0
7.04	2	70.5	0.0	0.0	0.0
7.08	1	35.0	0.0	0.0	0.0
8.02	1	35.2	0.0	0.0	0.0
8.06	2	73.8	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
8.07	1	56.7	0.0	0.0	0.0
9.01	1	52.7	0.0	0.0	0.0
9.05	2	72.8	0.0	0.0	0.0
9.09	1	49.6	0.0	0.0	0.0
10.03	1	51.7	0.0	0.0	0.0
10.07	1	56.7	0.0	0.0	0.0
11.01	1	52.7	0.0	0.0	0.0
11.05	2	72.8	0.0	0.0	0.0
11.09	2	70.5	0.0	0.0	0.0
12.03	1	51.7	0.0	0.0	0.0
12.07	1	56.7	0.0	0.0	0.0
B1.01	1	55.5	0.0	0.0	0.0
LG.03	2	74.1	0.0	0.0	0.0
UG.02	1	54.9	0.0	0.0	0.0
UG.06	2	79.9	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
8.08	1	35.0	0.0	0.0	0.0
9.02	1	35.2	0.0	0.0	0.0
9.06	2	73.8	0.0	0.0	0.0
9.10	1	50.4	0.0	0.0	0.0
10.04	2	70.5	0.0	0.0	0.0
10.08	1	35.0	0.0	0.0	0.0
11.02	1	35.2	0.0	0.0	0.0
11.06	2	73.8	0.0	0.0	0.0
11.10	1	50.4	0.0	0.0	0.0
12.04	2	70.5	0.0	0.0	0.0
12.08	1	35.0	0.0	0.0	0.0
B1.02	1	47.8	0.0	0.0	0.0
LG.04	1	50.3	0.0	0.0	0.0
UG.03	2	74.5	0.0	0.0	0.0
UG.07	1	52.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
8.09	1	49.6	0.0	0.0	0.0
9.03	1	51.7	0.0	0.0	0.0
9.07	1	56.7	0.0	0.0	0.0
10.01	1	52.7	0.0	0.0	0.0
10.05	2	72.8	0.0	0.0	0.0
10.09	1	49.6	0.0	0.0	0.0
11.03	1	51.7	0.0	0.0	0.0
11.07	2	56.7	0.0	0.0	0.0
12.01	1	52.7	0.0	0.0	0.0
12.05	2	72.8	0.0	0.0	0.0
12.09	1	49.6	0.0	0.0	0.0
LG.01	2	81.2	0.0	0.0	0.0
LG.05	2	79.9	0.0	0.0	0.0
UG.04	2	72.8	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
8.10	1	50.4	0.0	0.0	0.0
9.04	2	70.5	0.0	0.0	0.0
9.08	1	35.0	0.0	0.0	0.0
10.02	1	35.2	0.0	0.0	0.0
10.06	2	73.8	0.0	0.0	0.0
10.10	1	50.4	0.0	0.0	0.0
11.04	2	70.5	0.0	0.0	0.0
11.08	1	35.0	0.0	0.0	0.0
12.02	1	35.2	0.0	0.0	0.0
12.06	2	73.8	0.0	0.0	0.0
12.10	1	50.4	0.0	0.0	0.0
LG.02	1	41.0	0.0	0.0	0.0
UG.01	1	62.3	0.0	0.0	0.0
UG.05	2	73.8	0.0	0.0	0.0

Residential flat buildings - C1.3, 129 dwellings, 14 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.01	2	69.9	0.0	0.0	0.0
1.05	2	71.6	0.0	0.0	0.0
1.09	1	51.4	0.0	0.0	0.0
2.04	2	70.3	0.0	0.0	0.0
2.08	1	50.6	0.0	0.0	0.0
3.03	2	69.8	0.0	0.0	0.0
3.07	1	35.1	0.0	0.0	0.0
4.02	2	70.1	0.0	0.0	0.0
4.06	1	59.6	0.0	0.0	0.0
5.01	1	52.7	0.0	0.0	0.0
5.05	2	69.3	0.0	0.0	0.0
5.09	1	50.6	0.0	0.0	0.0
6.03	1	51.7	0.0	0.0	0.0
6.07	1	59.6	0.0	0.0	0.0
7.01	1	52.7	0.0	0.0	0.0
7.05	2	69.3	0.0	0.0	0.0
7.09	1	50.6	0.0	0.0	0.0
8.03	1	51.7	0.0	0.0	0.0
8.07	1	59.6	0.0	0.0	0.0
9.01	1	52.7	0.0	0.0	0.0
9.05	2	69.3	0.0	0.0	0.0
9.09	1	50.6	0.0	0.0	0.0
10.03	1	51.7	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.02	2	70.1	0.0	0.0	0.0
1.06	1	59.6	0.0	0.0	0.0
2.01	2	69.9	0.0	0.0	0.0
2.05	2	71.6	0.0	0.0	0.0
2.09	1	51.4	0.0	0.0	0.0
3.04	2	70.3	0.0	0.0	0.0
3.08	1	50.6	0.0	0.0	0.0
4.03	2	69.8	0.0	0.0	0.0
4.07	1	35.1	0.0	0.0	0.0
5.02	1	35.2	0.0	0.0	0.0
5.06	2	73.4	0.0	0.0	0.0
5.10	1	51.4	0.0	0.0	0.0
6.04	2	69.3	0.0	0.0	0.0
6.08	1	35.1	0.0	0.0	0.0
7.02	1	35.2	0.0	0.0	0.0
7.06	2	73.4	0.0	0.0	0.0
7.10	1	51.4	0.0	0.0	0.0
8.04	2	69.3	0.0	0.0	0.0
8.08	1	35.1	0.0	0.0	0.0
9.02	1	35.2	0.0	0.0	0.0
9.06	2	73.4	0.0	0.0	0.0
9.10	1	51.4	0.0	0.0	0.0
10.04	2	69.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.03	2	69.8	0.0	0.0	0.0
1.07	1	35.1	0.0	0.0	0.0
2.02	2	70.1	0.0	0.0	0.0
2.06	1	59.6	0.0	0.0	0.0
3.01	2	69.9	0.0	0.0	0.0
3.05	2	71.6	0.0	0.0	0.0
3.09	1	51.4	0.0	0.0	0.0
4.04	2	70.3	0.0	0.0	0.0
4.08	1	50.6	0.0	0.0	0.0
5.03	1	51.7	0.0	0.0	0.0
5.07	1	59.6	0.0	0.0	0.0
6.01	1	52.7	0.0	0.0	0.0
6.05	2	69.3	0.0	0.0	0.0
6.09	1	50.6	0.0	0.0	0.0
7.03	1	51.7	0.0	0.0	0.0
7.07	1	59.6	0.0	0.0	0.0
8.01	1	52.7	0.0	0.0	0.0
8.05	2	69.3	0.0	0.0	0.0
8.09	1	50.6	0.0	0.0	0.0
9.03	1	51.7	0.0	0.0	0.0
9.07	1	59.6	0.0	0.0	0.0
10.01	1	52.7	0.0	0.0	0.0
10.05	2	69.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.04	2	70.3	0.0	0.0	0.0
1.08	1	50.6	0.0	0.0	0.0
2.03	2	69.8	0.0	0.0	0.0
2.07	1	35.1	0.0	0.0	0.0
3.02	2	70.1	0.0	0.0	0.0
3.06	1	59.6	0.0	0.0	0.0
4.01	2	69.9	0.0	0.0	0.0
4.05	2	71.6	0.0	0.0	0.0
4.09	1	51.4	0.0	0.0	0.0
5.04	2	69.3	0.0	0.0	0.0
5.08	1	35.1	0.0	0.0	0.0
6.02	1	35.2	0.0	0.0	0.0
6.06	2	73.4	0.0	0.0	0.0
6.10	1	51.4	0.0	0.0	0.0
7.04	2	69.3	0.0	0.0	0.0
7.08	1	35.1	0.0	0.0	0.0
8.02	1	35.2	0.0	0.0	0.0
8.06	2	73.4	0.0	0.0	0.0
8.10	1	51.4	0.0	0.0	0.0
9.04	2	69.3	0.0	0.0	0.0
9.08	1	35.1	0.0	0.0	0.0
10.02	1	35.2	0.0	0.0	0.0
10.06	2	73.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
10.07	1	59.6	0.0	0.0	0.0
11.01	1	52.7	0.0	0.0	0.0
11.05	2	69.3	0.0	0.0	0.0
11.09	1	50.6	0.0	0.0	0.0
12.03	1	51.7	0.0	0.0	0.0
12.07	1	59.6	0.0	0.0	0.0
LG.01	1	51.4	0.0	0.0	0.0
UG.01	1	54.6	0.0	0.0	0.0
UG.05	2	72.3	0.0	0.0	0.0
UG.09	1	51.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
10.08	1	35.1	0.0	0.0	0.0
11.02	1	35.2	0.0	0.0	0.0
11.06	2	73.4	0.0	0.0	0.0
11.10	1	51.4	0.0	0.0	0.0
12.04	2	69.3	0.0	0.0	0.0
12.08	1	35.1	0.0	0.0	0.0
LG.02	1	50.6	0.0	0.0	0.0
UG.02	1	54.9	0.0	0.0	0.0
UG.06	1	59.6	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
10.09	1	50.6	0.0	0.0	0.0
11.03	1	51.7	0.0	0.0	0.0
11.07	1	59.6	0.0	0.0	0.0
12.01	1	52.7	0.0	0.0	0.0
12.05	2	69.3	0.0	0.0	0.0
12.09	1	50.6	0.0	0.0	0.0
LG.03	1	35.0	0.0	0.0	0.0
UG.03	2	70.7	0.0	0.0	0.0
UG.07	1	35.1	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
10.10	1	51.4	0.0	0.0	0.0
11.04	2	69.3	0.0	0.0	0.0
11.08	1	35.1	0.0	0.0	0.0
12.02	1	35.2	0.0	0.0	0.0
12.06	2	73.4	0.0	0.0	0.0
12.10	1	51.4	0.0	0.0	0.0
LG.04	1	57.2	0.0	0.0	0.0
UG.04	2	73.3	0.0	0.0	0.0
UG.08	1	50.6	0.0	0.0	0.0

Residential flat buildings - C1.4, 104 dwellings, 20 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.01	2	80.3	0.0	0.0	0.0
2.01	1	57.2	0.0	0.0	0.0
2.05	1	52.6	0.0	0.0	0.0
3.04	2	70.8	0.0	0.0	0.0
4.03	2	74.9	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.02	2	79.3	0.0	0.0	0.0
2.02	2	76.6	0.0	0.0	0.0
3.01	1	57.2	0.0	0.0	0.0
3.05	1	52.6	0.0	0.0	0.0
4.04	2	70.8	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.03	1	71.3	0.0	0.0	0.0
2.03	2	74.9	0.0	0.0	0.0
3.02	2	76.6	0.0	0.0	0.0
4.01	1	57.2	0.0	0.0	0.0
4.05	1	52.6	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.04	3	95.3	0.0	0.0	0.0
2.04	2	70.8	0.0	0.0	0.0
3.03	2	74.9	0.0	0.0	0.0
4.02	2	76.6	0.0	0.0	0.0
5.01	1	57.2	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
5.02	2	75.8	0.0	0.0	0.0
6.01	1	57.2	0.0	0.0	0.0
6.05	1	52.6	0.0	0.0	0.0
7.04	2	70.8	0.0	0.0	0.0
8.03	2	74.0	0.0	0.0	0.0
9.02	2	75.8	0.0	0.0	0.0
10.01	1	57.2	0.0	0.0	0.0
10.05	1	52.6	0.0	0.0	0.0
11.04	2	70.8	0.0	0.0	0.0
12.03	2	74.0	0.0	0.0	0.0
13.02	1	44.2	0.0	0.0	0.0
13.06	1	52.6	0.0	0.0	0.0
14.04	2	74.8	0.0	0.0	0.0
15.02	1	40.0	0.0	0.0	0.0
15.06	1	52.6	0.0	0.0	0.0
16.04	2	74.8	0.0	0.0	0.0
17.02	1	40.0	0.0	0.0	0.0
17.06	1	52.6	0.0	0.0	0.0
18.04	2	74.8	0.0	0.0	0.0
19.02	1	40.0	0.0	0.0	0.0
19.06	1	52.6	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
5.03	2	74.0	0.0	0.0	0.0
6.02	2	75.8	0.0	0.0	0.0
7.01	1	57.2	0.0	0.0	0.0
7.05	1	52.6	0.0	0.0	0.0
8.04	2	70.8	0.0	0.0	0.0
9.03	2	74.0	0.0	0.0	0.0
10.02	2	75.8	0.0	0.0	0.0
11.01	1	57.2	0.0	0.0	0.0
11.05	1	52.6	0.0	0.0	0.0
12.04	2	70.8	0.0	0.0	0.0
13.03	3	101.4	0.0	0.0	0.0
14.01	2	72.2	0.0	0.0	0.0
14.05	2	70.5	0.0	0.0	0.0
15.03	3	91.2	0.0	0.0	0.0
16.01	2	72.2	0.0	0.0	0.0
16.05	2	70.5	0.0	0.0	0.0
17.03	3	91.2	0.0	0.0	0.0
18.01	2	72.2	0.0	0.0	0.0
18.05	2	70.5	0.0	0.0	0.0
19.03	3	91.2	0.0	0.0	0.0
UG.01	2	80.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
5.04	2	70.8	0.0	0.0	0.0
6.03	2	74.0	0.0	0.0	0.0
7.02	2	75.8	0.0	0.0	0.0
8.01	1	57.2	0.0	0.0	0.0
8.05	1	52.6	0.0	0.0	0.0
9.04	2	70.8	0.0	0.0	0.0
10.03	2	74.0	0.0	0.0	0.0
11.02	2	75.8	0.0	0.0	0.0
12.01	1	57.2	0.0	0.0	0.0
12.05	1	52.6	0.0	0.0	0.0
13.04	2	74.8	0.0	0.0	0.0
14.02	1	40.0	0.0	0.0	0.0
14.06	1	52.6	0.0	0.0	0.0
15.04	2	74.8	0.0	0.0	0.0
16.02	1	40.0	0.0	0.0	0.0
16.06	1	52.6	0.0	0.0	0.0
17.04	2	74.8	0.0	0.0	0.0
18.02	1	40.0	0.0	0.0	0.0
18.06	1	52.6	0.0	0.0	0.0
19.04	2	74.8	0.0	0.0	0.0
UG.02	2	69.8	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
5.05	1	52.6	0.0	0.0	0.0
6.04	2	70.8	0.0	0.0	0.0
7.03	2	74.0	0.0	0.0	0.0
8.02	2	75.8	0.0	0.0	0.0
9.01	1	57.2	0.0	0.0	0.0
9.05	1	52.6	0.0	0.0	0.0
10.04	2	70.8	0.0	0.0	0.0
11.03	2	74.0	0.0	0.0	0.0
12.02	2	75.8	0.0	0.0	0.0
13.01	2	72.2	0.0	0.0	0.0
13.05	2	70.5	0.0	0.0	0.0
14.03	3	91.2	0.0	0.0	0.0
15.01	2	72.2	0.0	0.0	0.0
15.05	2	70.5	0.0	0.0	0.0
16.03	3	91.2	0.0	0.0	0.0
17.01	2	72.2	0.0	0.0	0.0
17.05	2	70.5	0.0	0.0	0.0
18.03	3	91.2	0.0	0.0	0.0
19.01	2	72.2	0.0	0.0	0.0
19.05	2	70.5	0.0	0.0	0.0
UG.03	1	106.5	0.0	0.0	0.0

Residential flat buildings - C1.2, 130 dwellings, 20 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.01	2	72.9	0.0	0.0	0.0
2.01	1	77.1	0.0	0.0	0.0
2.05	1	33.2	0.0	0.0	0.0
3.03	2	48.6	7.6	0.0	0.0
4.01	1	76.6	0.0	0.0	0.0
4.05	1	33.1	0.0	0.0	0.0
5.03	2	48.6	7.6	0.0	0.0
6.01	1	76.6	0.0	0.0	0.0
6.05	1	33.1	0.0	0.0	0.0
7.03	2	48.6	7.6	0.0	0.0
8.01	1	76.6	0.0	0.0	0.0
8.05	1	33.1	0.0	0.0	0.0
9.03	2	48.6	7.6	0.0	0.0
10.01	1	76.6	0.0	0.0	0.0
10.05	1	33.1	0.0	0.0	0.0
11.03	2	48.6	7.6	0.0	0.0
12.01	1	76.6	0.0	0.0	0.0
12.05	1	33.1	0.0	0.0	0.0
13.03	3	54.4	0.0	0.0	0.0
13.07	1	33.1	0.0	0.0	0.0
14.03	3	35.9	0.0	0.0	0.0
14.07	2	67.7	0.0	0.0	0.0
15.03	3	35.9	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.02	2	73.8	0.0	0.0	0.0
2.02	2	43.5	0.0	0.0	0.0
2.06	1	32.7	0.0	0.0	0.0
3.04	2	68.3	0.0	0.0	0.0
4.02	2	43.2	0.0	0.0	0.0
4.06	1	33.0	0.0	0.0	0.0
5.04	2	68.3	0.0	0.0	0.0
6.02	2	43.2	0.0	0.0	0.0
6.06	1	33.0	0.0	0.0	0.0
7.04	2	68.3	0.0	0.0	0.0
8.02	2	43.2	0.0	0.0	0.0
8.06	1	33.0	0.0	0.0	0.0
9.04	2	68.3	0.0	0.0	0.0
10.02	2	43.2	0.0	0.0	0.0
10.06	1	33.0	0.0	0.0	0.0
11.04	2	68.3	0.0	0.0	0.0
12.02	2	43.2	0.0	0.0	0.0
12.06	1	33.0	0.0	0.0	0.0
13.04	2	49.4	0.0	0.0	0.0
13.08	1	33.0	0.0	0.0	0.0
14.04	2	48.8	0.0	0.0	0.0
14.08	1	33.1	0.0	0.0	0.0
15.04	2	48.8	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.03	1	72.4	0.0	0.0	0.0
2.03	2	48.6	7.6	0.0	0.0
3.01	1	76.6	0.0	0.0	0.0
3.05	1	33.1	0.0	0.0	0.0
4.03	2	48.6	7.6	0.0	0.0
5.01	1	76.6	0.0	0.0	0.0
5.05	1	33.1	0.0	0.0	0.0
6.03	2	48.6	7.6	0.0	0.0
7.01	1	76.6	0.0	0.0	0.0
7.05	1	33.1	0.0	0.0	0.0
8.03	2	48.6	7.6	0.0	0.0
9.01	1	76.6	0.0	0.0	0.0
9.05	1	33.1	0.0	0.0	0.0
10.03	2	48.6	7.6	0.0	0.0
11.01	1	76.6	0.0	0.0	0.0
11.05	1	33.1	0.0	0.0	0.0
12.03	2	48.6	7.6	0.0	0.0
13.01	2	55.1	0.0	0.0	0.0
13.05	2	48.6	7.6	0.0	0.0
14.01	2	33.0	0.0	0.0	0.0
14.05	2	49.7	0.0	0.0	0.0
15.01	2	33.0	0.0	0.0	0.0
15.05	2	49.7	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1.04	2	81.2	0.0	0.0	0.0
2.04	2	68.2	0.0	0.0	0.0
3.02	2	43.2	0.0	0.0	0.0
3.06	1	33.0	0.0	0.0	0.0
4.04	2	68.3	0.0	0.0	0.0
5.02	2	43.2	0.0	0.0	0.0
5.06	1	33.0	0.0	0.0	0.0
6.04	2	68.3	0.0	0.0	0.0
7.02	2	43.2	0.0	0.0	0.0
7.06	1	33.0	0.0	0.0	0.0
8.04	2	68.3	0.0	0.0	0.0
9.02	2	43.2	0.0	0.0	0.0
9.06	1	33.0	0.0	0.0	0.0
10.04	2	68.3	0.0	0.0	0.0
11.02	2	43.2	0.0	0.0	0.0
11.06	1	33.0	0.0	0.0	0.0
12.04	2	68.3	0.0	0.0	0.0
13.02	1	41.4	0.0	0.0	0.0
13.06	1	67.7	0.0	0.0	0.0
14.02	1	51.4	0.0	0.0	0.0
14.06	1	48.6	7.6	0.0	0.0
15.02	1	51.4	0.0	0.0	0.0
15.06	1	48.6	7.6	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
15.07	2	67.7	0.0	0.0	0.0
16.03	3	35.9	0.0	0.0	0.0
16.07	2	67.7	0.0	0.0	0.0
17.03	3	35.9	0.0	0.0	0.0
17.07	2	67.7	0.0	0.0	0.0
18.03	3	35.9	0.0	0.0	0.0
18.07	2	67.7	0.0	0.0	0.0
19.03	3	35.9	0.0	0.0	0.0
19.07	2	67.7	0.0	0.0	0.0
UG.03	1	68.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
15.08	1	33.1	0.0	0.0	0.0
16.04	2	48.8	0.0	0.0	0.0
16.08	1	33.1	0.0	0.0	0.0
17.04	2	48.8	0.0	0.0	0.0
17.08	1	33.1	0.0	0.0	0.0
18.04	2	48.8	0.0	0.0	0.0
18.08	1	33.1	0.0	0.0	0.0
19.04	2	48.8	0.0	0.0	0.0
19.08	1	33.1	0.0	0.0	0.0
UG.04	1	91.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
16.01	2	33.0	0.0	0.0	0.0
16.05	2	49.7	0.0	0.0	0.0
17.01	2	33.0	0.0	0.0	0.0
17.05	2	49.7	0.0	0.0	0.0
18.01	2	33.0	0.0	0.0	0.0
18.05	2	49.7	0.0	0.0	0.0
19.01	2	33.0	0.0	0.0	0.0
19.05	2	49.7	0.0	0.0	0.0
UG.01	2	82.5	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
16.02	1	51.4	0.0	0.0	0.0
16.06	1	48.6	7.6	0.0	0.0
17.02	1	51.4	0.0	0.0	0.0
17.06	1	48.6	7.6	0.0	0.0
18.02	1	51.4	0.0	0.0	0.0
18.06	1	48.6	7.6	0.0	0.0
19.02	1	51.4	0.0	0.0	0.0
19.06	1	48.6	7.6	0.0	0.0
UG.02	2	73.8	0.0	0.0	0.0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - C1.1

Common area	Floor area (m²)
Lift car (No.1)	-
Hallway/lobby type C1.1	520.0

Common area	Floor area (m²)
Lift car (No.2)	-

Common area	Floor area (m²)
Switch room (No. 1)	15.0

Common areas of unit building - C1.3

Common area	Floor area (m²)
Lift car (No.5)	-
Hallway/lobby type C1.3	530.0

Common area	Floor area (m²)
Lift car (No.6)	-

Common area	Floor area (m²)
Plant or service room (No. 2)	20.0

Common areas of unit building - C1.4

Common area	Floor area (m²)
Lift car (No.7)	-

Common area	Floor area (m²)
Lift car (No.8)	-

Common area	Floor area (m²)
Hallway/lobby type C1.4	440.0

Common areas of unit building - C1.2

Common area	Floor area (m²)
Lift car (No.3)	-
Hallway/lobby type C1.2	430.0

Common area	Floor area (m²)
Lift car (No.4)	-

Common area	Floor area (m²)
Plant or service room (No. 1)	20.0

Common areas of the development (non-building specific)

Common area	Floor area (m²)
Car park area (No. 1)	14000.0

Common area	Floor area (m²)
Garbage room (No. 1)	30.0

Common area	Floor area (m²)
Bike store	45.0

Common area	Floor area (m²)
Ground floor lobby type (No. 1)	200.0

Common area	Floor area (m²)
Hallway/lobby type (No. 5)	400.0

Common area	Floor area (m²)

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - C1.1
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

2. Commitments for Residential flat buildings - C1.3
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

3. Commitments for Residential flat buildings - C1.4
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

4. Commitments for Residential flat buildings - C1.2
    - (a) Dwellings

(i) Water
(ii) Energy
(iii) Thermal Comfort

(b) Common areas and central systems/facilities
(i) Water
(ii) Energy

5. Commitments for multi-dwelling houses

6. Commitments for single dwelling houses

7. Commitments for common areas and central systems/facilities for the development (non-building specific)
(i) Water
(ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - C1.1

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	-	-	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitche
All dwellings	ceiling fans	ceiling fans	central heating system 1 (zoned)	central heating system 1 (zoned)	2	1 (dedicated)	yes	yes	yes	yes	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	electric cooktop & electric oven	-	yes	-	-	-	yes	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
1.06	36.6	22.4
1.07	9.3	29.1
1.08	17.1	17.4
1.09	33.6	19.4
2.06	32.3	27.6
2.07	9.7	28.8
2.08	22.0	21.2
2.09	34.1	19.0
3.01	9.1	23.2
3.02	9.9	22.1
3.04	37.3	11.4
3.05	39.5	10.8
3.06	38.2	10.3
3.07	10.0	28.5

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
3.08	21.7	14.8
3.09	34.4	19.0
4.01	12.0	20.5
4.02	12.8	19.7
4.03	35.2	19.3
4.04	42.2	10.0
4.05	32.3	10.7
4.06	28.8	16.5
4.07	13.2	24.3
4.08	24.0	14.9
4.09	38.9	16.2
5.01	34.8	18.5
5.02	26.1	28.0
5.03	35.0	17.1
5.04	35.2	19.4
5.05	42.7	9.9
5.06	40.5	10.9
5.07	31.8	15.1
5.08	13.5	24.7
5.09	22.4	14.8
5.10	44.3	20.4
6.01	34.8	18.6
6.02	26.5	27.4
6.03	34.3	16.6
6.04	36.2	18.8
6.05	41.9	10.1
6.06	33.1	10.4

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
6.07	32.4	14.9
6.08	13.9	24.5
6.09	24.9	15.3
6.10	35.8	17.1
7.01	35.2	17.3
7.02	26.9	28.4
7.03	39.0	17.7
7.04	34.8	19.3
7.05	43.0	10.4
7.06	33.2	10.5
7.07	32.7	14.6
7.08	14.1	25.0
7.09	24.9	15.0
7.10	36.3	17.3
8.01	35.5	17.3
8.02	27.2	27.7
8.03	39.5	18.1
8.05	42.2	10.3
8.06	33.4	10.7
8.07	33.2	14.3
8.08	14.4	24.6
8.09	25.3	14.9
8.10	35.8	16.7
9.01	38.2	16.9
9.02	28.3	25.6
9.03	42.5	17.5
9.04	36.3	19.1

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
9.05	44.3	10.0
9.07	35.4	14.1
9.08	16.0	23.1
9.09	27.1	14.4
9.10	39.0	18.0
10.01	38.3	16.9
10.02	28.7	25.4
10.03	42.6	16.7
10.04	34.4	19.3
10.05	36.4	9.0
10.07	35.7	13.7
10.08	16.2	22.8
10.09	27.4	14.5
10.10	39.6	17.8
11.01	38.6	17.1
11.02	28.8	26.2
11.03	32.4	21.2
11.04	33.3	20.6
11.05	43.6	9.7
11.06	44.5	11.2
11.07	43.8	15.1
11.08	16.3	22.0
11.09	27.5	14.2
11.10	33.2	17.3
12.01	45.0	18.3
12.02	35.9	25.6
12.03	38.7	26.2

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
12.04	35.9	28.0
12.05	42.0	13.2
12.06	44.2	11.3
12.07	44.1	15.5
12.08	23.5	22.7
12.09	36.7	15.4
12.10	44.3	18.7
B1.01	27.7	17.9
B1.02	29.6	23.4
LG.01	29.6	15.5
LG.02	35.2	13.2
LG.03	26.9	14.9
LG.04	14.0	11.8
LG.05	19.4	19.4
UG.01	30.1	23.6
UG.02	41.8	17.2
UG.03	29.0	24.6
UG.04	34.4	12.0
UG.05	45.1	10.0
UG.06	28.4	13.3
UG.07	29.9	26.1
1.01, 2.01	10.1	23.4
1.02, 2.02	11.2	22.3
1.03, 2.03	30.9	23.6
1.04, 2.04	35.6	11.5
1.05, 2.05	35.5	12.0
3.03, 8.04	34.8	19.4

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
All other dwellings	35.1	11.3

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	Yes
Switch room (No. 1)	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	Yes
Hallway/lobby type C1.1	ventilation (supply + exhaust)	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	electric heat pump - air sourced	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Central heating system (No. 1)	radiators + heated water	Energy source: electric boiler
Lift (No. 1)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 16
Lift (No. 2)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 16

2. Commitments for Residential flat buildings - C1.3

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	-	-	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitche
All dwellings	ceiling fans	ceiling fans	central heating system 2 (zoned)	central heating system 2 (zoned)	2	1 (dedicated)	yes	yes	yes	yes	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	electric cooktop & electric oven	-	yes	-	-	-	yes	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
1.01	11.9	22.4
1.02	11.7	22.1
1.03	22.2	28.8
1.04	32.7	11.9
1.05	31.0	13.9
1.06	26.8	14.7
1.07	28.5	26.1
1.08	38.8	18.5
1.09	30.6	19.6
2.01	10.7	21.9
2.02	10.2	22.0
2.03	24.8	23.6
2.04	36.5	13.5
2.05	32.5	13.8

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
2.06	27.8	14.5
2.07	29.2	26.2
2.08	28.2	17.0
2.09	31.6	18.8
3.01	13.4	19.3
3.02	13.0	19.5
3.03	26.7	23.3
3.04	33.7	12.2
3.05	36.0	14.1
3.06	31.9	11.8
3.07	33.1	22.6
3.08	37.5	14.1
3.09	35.9	16.6
4.01	13.6	19.6
4.02	10.4	18.6
4.03	26.0	22.7
4.04	34.4	12.0
4.05	34.2	14.0
4.06	32.6	11.4
4.07	33.2	22.5
4.08	37.9	13.5
4.09	35.9	16.9
5.01	38.1	18.2
5.02	19.3	21.3
5.03	25.2	25.3
5.04	27.6	22.5
5.05	34.6	12.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
5.06	37.0	11.9
5.07	32.6	11.2
5.08	32.9	22.0
5.09	36.2	16.9
5.10	40.5	17.3
6.01	38.2	17.8
6.02	26.2	25.1
6.03	34.0	18.8
6.04	27.1	22.9
6.05	35.2	12.3
6.06	35.3	13.4
6.07	31.5	11.2
6.08	31.8	22.3
6.09	36.4	16.7
6.10	39.0	16.6
7.01	38.4	17.1
7.02	26.5	24.7
7.03	34.5	19.3
7.04	27.4	22.8
7.05	35.6	12.1
7.06	35.5	13.6
7.07	28.6	11.0
7.08	29.7	22.4
7.09	36.3	17.1
7.10	41.0	19.4
8.01	38.5	16.9
8.02	26.9	24.6

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
8.03	34.9	19.7
8.04	27.7	22.6
8.05	35.9	11.9
8.06	35.8	13.4
8.07	24.6	11.3
8.08	27.6	22.4
8.09	35.1	13.6
8.10	41.3	19.9
9.01	40.7	16.4
9.02	28.4	22.7
9.03	37.5	18.2
9.04	29.9	20.7
9.05	38.2	10.8
9.06	38.1	13.2
9.07	24.6	11.2
9.08	27.3	23.0
9.09	34.8	12.6
9.10	41.9	19.3
10.01	40.7	16.2
10.02	28.7	22.7
10.03	37.8	18.0
10.04	29.1	20.0
10.05	38.5	10.7
10.06	38.4	12.6
10.07	23.9	11.3
10.08	25.0	22.9
10.09	32.6	12.7

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
10.10	39.4	19.2
11.01	40.3	15.9
11.02	28.9	22.5
11.03	38.1	18.4
11.04	29.2	19.8
11.05	42.7	11.7
11.06	44.4	13.4
11.07	23.8	11.6
11.08	23.5	22.9
11.09	31.1	12.7
11.10	37.8	18.7
12.01	40.1	17.3
12.02	36.0	23.7
12.03	43.5	18.8
12.04	33.8	24.2
12.05	44.3	16.8
12.06	44.8	13.3
12.07	31.8	11.7
12.08	24.1	21.5
12.09	40.4	14.5
12.10	42.9	19.2
LG.01	39.4	22.0
LG.02	37.3	19.4
LG.03	40.6	24.1
LG.04	40.2	25.2
UG.01	37.5	12.0
UG.02	37.1	11.9

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
UG.03	20.0	29.3
UG.04	32.9	13.6
UG.05	35.8	13.5
UG.06	26.0	16.9
UG.07	45.1	22.7
UG.08	26.1	17.8
All other dwellings	44.8	20.5

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Lift car (No.5)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No.6)	-	-	light-emitting diode	connected to lift call button	Yes
Plant or service room (No. 2)	ventilation exhaust only	thermostatically controlled	light-emitting diode	manual on / manual off	Yes
Hallway/lobby type C1.3	ventilation (supply + exhaust)	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	Yes

Central energy systems	Type	Specification
Central hot water system (No. 3)	electric heat pump - air sourced	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Central heating system (No. 2)	radiators + heated water	Energy source: electric boiler
Lift (No. 5)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 23
Lift (No. 6)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 23

3. Commitments for Residential flat buildings - C1.4

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	-	3.5 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitche
1.03, 2.01, 2.05, 3.01	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1	1 (dedicated)	yes	yes	yes	yes	0	no
All other dwellings	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	2	1 (dedicated)	yes	yes	yes	yes	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	induction cooktop & electric oven	4 star	yes	3.5 star	-	2 star	yes	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
1.01	24.1	20.3
1.02	28.9	12.3
1.03	43.9	22.5
1.04	37.3	17.1
2.01	30.4	15.6
2.02	29.1	11.5
2.03	34.7	12.9
2.04	34.5	15.5
2.05	31.8	17.2

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
3.01	32.7	11.6
3.02	32.6	9.5
3.03	38.0	10.9
3.04	33.8	12.4
3.05	34.5	13.7
4.01	33.0	11.9
4.02	33.3	9.4
4.03	38.6	10.3
4.04	34.3	12.2
4.05	34.8	13.5
5.01	31.3	12.0
5.02	32.9	9.3
5.03	37.4	11.4
5.04	33.9	10.9
5.05	27.5	14.1
6.01	32.1	12.2
6.02	33.4	9.2
6.03	40.7	10.2
6.04	37.4	10.5
6.05	27.8	14.2
7.01	34.5	11.9
7.02	33.7	9.3
7.03	41.1	10.3
7.04	37.7	10.5
7.05	28.0	13.9
8.01	30.8	11.6
8.02	34.0	9.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
8.03	41.4	10.3
8.04	38.0	10.4
8.05	28.3	14.0
9.01	31.4	11.1
9.02	36.1	8.9
9.03	43.5	9.6
9.05	30.5	13.6
10.01	31.2	11.2
10.02	36.4	8.8
10.03	43.8	9.8
10.04	40.8	9.7
10.05	30.7	13.6
11.01	31.0	11.5
11.02	36.6	8.7
11.03	44.0	9.5
11.04	40.5	9.7
11.05	30.7	13.7
12.01	30.9	11.6
12.02	36.8	8.7
12.03	43.6	9.6
12.04	40.2	9.7
12.05	31.1	14.0
13.01	18.4	23.3
13.02	25.3	27.4
13.03	26.1	26.3
13.04	28.3	8.2
13.05	37.7	9.2

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
13.06	29.8	11.1
14.01	30.2	13.0
14.02	26.5	27.1
14.03	23.0	18.6
14.04	28.7	7.4
14.05	28.4	9.8
14.06	34.6	14.9
15.01	29.6	13.1
15.02	26.3	26.8
15.03	22.9	18.5
15.04	28.6	7.3
15.05	37.2	9.7
15.06	33.6	14.9
16.01	28.4	13.0
16.02	26.1	26.5
16.03	23.0	18.5
16.04	28.5	7.6
16.05	35.8	9.5
16.06	32.2	14.9
17.01	27.0	13.0
17.02	26.2	26.4
17.03	23.2	18.2
17.04	28.4	7.5
17.05	34.4	9.6
17.06	31.0	14.9
18.01	26.2	13.1
18.02	26.3	26.5

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
18.03	13.3	18.4
18.04	28.2	7.3
18.05	33.9	9.7
18.06	30.3	15.0
19.01	36.5	15.0
19.02	32.1	27.8
19.03	30.4	18.5
19.04	35.2	8.7
19.06	37.7	15.7
UG.01	25.5	11.7
UG.02	37.6	15.3
UG.03	9.3	22.6
All other dwellings	40.6	9.8

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Lift car (No.7)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No.8)	-	-	light-emitting diode	connected to lift call button	Yes
Hallway/lobby type C1.4	air conditioning system	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	Yes

Central energy systems	Type	Specification
Central hot water system (No. 4)	electric heat pump - air sourced	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 7)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 23
Lift (No. 8)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 23

4. Commitments for Residential flat buildings - C1.2

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	4 star	3.5 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 2	individual fan, ducted to façade or roof	manual on / timer off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitche
1.02, 1.03, 1.04	1-phase airconditioning EER 3.0 - 3.5	ceiling fans	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
14.07, 15.07, 16.07, 17.07, 18.07	1-phase airconditioning EER 3.0 - 3.5	ceiling fans	1-phase airconditioning EER 3.5 - 4.0	-	2	1	yes	yes	yes	yes	0	no
2.06, 3.06, 4.06, 5.05, 6.05, 7.05, 8.05, 9.05, 10.05, 11.05, 12.05, 13.07, 13.08, 14.08, 15.08, 16.08, 17.08, 18.08	1-phase airconditioning EER 3.0 - 3.5	ceiling fans	1-phase airconditioning EER 3.5 - 4.0	-	1	1	yes	yes	yes	yes	0	no
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	ceiling fans	1-phase airconditioning EER 3.5 - 4.0	-	2	1 (dedicated)	yes	yes	yes	yes	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	electric cooktop & electric oven	-	yes	3.5 star	4 star	2 star	yes	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
1.01	14.6	12.1
1.02	30.1	11.9
1.03	26.1	16.4
1.04	28.5	16.5
2.01	21.9	8.8
2.02	12.8	12.3
2.03	31.7	13.8
2.04	17.2	14.8
2.05	14.5	26.7
2.06	16.3	29.4
3.01	23.5	7.7
3.02	13.9	9.6
3.03	34.2	12.0
3.04	18.8	11.2
3.05	17.7	23.1
3.06	19.0	27.4
4.01	23.8	8.0
4.02	14.3	9.5
4.03	34.8	11.9
4.04	19.4	11.1
4.05	18.3	23.4
4.06	19.4	26.5
5.01	23.9	7.8
5.02	14.6	9.6
5.03	35.2	11.1
5.04	19.7	11.3
5.05	18.7	23.2

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
5.06	19.9	25.8
6.01	24.3	8.0
6.02	14.7	10.4
6.03	35.6	11.3
6.04	20.1	11.0
6.05	19.1	23.3
6.06	20.3	25.9
7.01	24.4	8.4
7.02	14.8	10.2
7.03	35.7	11.1
7.04	20.3	11.0
7.05	19.4	22.9
7.06	20.8	24.6
8.01	24.5	8.3
8.02	14.9	10.2
8.03	36.0	11.5
8.04	20.6	10.8
8.05	19.7	23.0
8.06	21.0	25.3
9.01	25.7	8.0
9.02	15.9	9.4
9.03	38.0	11.6
9.04	22.2	9.5
9.05	21.6	20.8
9.06	22.6	24.5
10.01	25.9	8.2
10.02	15.9	9.6

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
10.04	22.4	9.4
10.05	21.9	20.4
10.06	23.0	24.2
11.01	25.7	8.1
11.02	15.7	9.8
11.03	38.2	11.7
11.04	22.5	9.3
11.05	22.0	20.9
11.06	22.9	23.7
12.01	25.8	7.9
12.02	15.9	9.9
12.03	38.1	11.7
12.04	22.6	9.3
12.05	22.1	20.9
12.06	23.1	23.5
13.01	20.2	22.4
13.02	19.5	27.6
13.03	21.2	26.8
13.04	43.6	11.0
13.06	28.3	14.3
13.07	22.4	20.2
13.08	21.1	23.9
14.01	21.2	23.4
14.02	9.9	20.8
14.03	23.4	29.1
14.05	42.8	10.9
14.07	28.4	14.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
14.08	22.5	20.1
15.01	21.4	22.8
15.02	9.9	20.3
15.03	23.4	28.9
15.05	42.5	11.0
15.07	28.6	14.0
15.08	22.7	20.4
16.01	21.6	23.1
16.02	10.0	20.0
16.03	23.3	28.6
16.04	20.4	24.0
16.05	42.2	11.0
16.07	28.8	13.9
16.08	22.9	20.0
17.01	21.8	23.6
17.02	10.1	20.3
17.03	23.4	27.7
17.04	20.3	24.1
17.05	41.8	10.9
17.07	28.7	14.1
17.08	22.9	20.5
18.01	22.0	23.8
18.02	10.2	20.5
18.03	23.5	27.6
18.04	20.2	23.7
18.05	41.3	11.1
18.06	38.2	11.8

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
18.07	28.8	13.7
18.08	23.1	20.7
19.01	31.5	26.7
19.02	17.2	22.7
19.03	23.9	27.5
19.04	26.2	28.0
19.05	39.5	11.3
19.06	44.7	12.9
19.07	13.3	12.7
19.08	7.1	13.8
UG.01	4.0	16.5
UG.02	43.4	10.6
UG.03	22.0	19.3
UG.04	4.0	29.3
10.03, 14.06	38.2	11.9
13.05, 17.06	38.3	11.9
14.04, 15.04	20.5	24.1
All other dwellings	38.3	12.0

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Lift car (No.3)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No.4)	-	-	light-emitting diode	connected to lift call button	Yes
Plant or service room (No. 1)	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	Yes
Hallway/lobby type C1.2	ventilation (supply + exhaust)	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	Yes

Central energy systems	Type	Specification
Central hot water system (No. 2)	electric heat pump - air sourced	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 3)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 16
Lift (No. 4)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 16

7. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	20000.0	To collect run-off from at least: - 2000.0 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 1300.0 square metres of common landscaped area on the site - car washing in 2 car washing bays on the site

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Car park area (No. 1)	ventilation exhaust only	carbon monoxide monitor + VSD fan	light-emitting diode	zoned switching with motion sensor	Yes
Garbage room (No. 1)	ventilation exhaust only	-	light-emitting diode	manual on / manual off	Yes
Bike store	ventilation exhaust only	time clock or BMS controlled	light-emitting diode	motion sensors	Yes
Ground floor lobby type (No. 1)	air conditioning system	time clock or BMS controlled	light-emitting diode	daylight sensor and motion sensor	Yes
Hallway/lobby type (No. 5)	air conditioning system	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	Yes

Central energy systems	Type	Specification
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 115.0 peak kW
Other	Building management system installed?: yes Active power factor correction installed?: yes	-

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

APPENDIX A-2
C1.5 BASIX CERTIFICATE

BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 896458M_02

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Tuesday, 22 October 2019
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT | Planning & Environment

Project summary	
Project name	Ivanhoe Estate C1.5_02
Street address	Herring Road Macquarie Park 2113
Local Government Area	Ryde City Council
Plan type and plan number	deposited 1
Lot no.	1
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	4
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 46	Target 45

Certificate Prepared by
Name / Company Name: WSP Australia Pty Ltd
ABN (if applicable): 80078004798

Description of project

Project address	
Project name	Ivanhoe Estate C1.5_02
Street address	Herring Road Macquarie Park 2113
Local Government Area	Ryde City Council
Plan type and plan number	deposited 1
Lot no.	1
Section no.	-
Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	4
No. of multi-dwelling houses	0
No. of single dwelling houses	0
Site details	
Site area (m^2)	300
Roof area (m^2)	200
Non-residential floor area (m^2)	0.0
Residential car spaces	0
Non-residential car spaces	0

Common area landscape		
Common area lawn (m^2)	0.0	
Common area garden (m^2)	0.0	
Area of indigenous or low water use species (m^2)	0.0	
Assessor details		
Assessor number	101142	
Certificate number	X2VQQ188WY	
Climate zone	56	
Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 46	Target 45

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - C1.5, 4 dwellings, 3 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
1	4 or more bedrooms	123.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2	4 or more bedrooms	123.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
3	4 or more bedrooms	123.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
4	4 or more bedrooms	123.4	0.0	0.0	0.0

No common areas specified.

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - C1.5
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

2. Commitments for multi-dwelling houses

3. Commitments for single dwelling houses

4. Commitments for common areas and central systems/facilities for the development (non-building specific)
    - (i) Water
    - (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - C1.5

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	-	3.5 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, ducted to façade or roof	interlocked to light	individual fan, ducted to façade or roof	interlocked to light

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All dwellings	1-phase airconditioning EER 3.5 - 4.0	1-phase airconditioning EER 3.5 - 4.0	1-phase airconditioning EER 3.5 - 4.0	1-phase airconditioning EER 3.5 - 4.0	4	1 (dedicated)	yes	yes	yes	yes	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	induction cooktop & electric oven	-	yes	3.5 star	-	2 star	yes	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
1	24.8	24.3
2	13.3	24.7
3	13.6	24.1
All other dwellings	23.5	23.8

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

Central energy systems	Type	Specification
Central hot water system (No. 1)	electric heat pump - air sourced	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 2.0 peak kW

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✓" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✓" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✓" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

APPENDIX B

NATHERS CERTIFICATES

APPENDIX B-1
C1.1-C1.4 NATHERS CERTIFICATES

Nationwide House Energy Rating Scheme — Class 2 summary

Generated on 17 Dec 2020 using FirstRate5 v5.3.0a

Property

Address Herring Road, Macquarie Park, NSW, 2113

Lot/DP

NatHERS climate zone

Accredited assessor

Christopher Mann

WSP

chris.mann@wsp.com

0411644164

Accreditation No. DMN/20/1972

Assessor Accrediting Organisation DMN

6.8
Average Rating

NATIONWIDE HOUSE ENERGY RATING SCHEME®

The rating above is the average of all dwellings in this summary.

For more information on your dwelling's rating see:
www.nathers.gov.au

Verification

To verify this certificate, scan the QR code or visit
https://www.fr5.com.au/QRCodeLanding?PublicId=J8P5NXS8A2&GrpCert=1 When using either link, ensure you are visiting www.fr5.com.au.

Summary of all dwellings

Certificate number and link	Unit number	Heating load (MJ/m²/p.a.)	Cooling load (MJ/m²/p.a.)	Total load (MJ/m²/p.a.)	Star rating
0JMLW0VT7N		23.3	28.6	51.9	5.9
LMWLUWW7MS		10.2	20.5	30.7	7.6
PXAQZUGKZG		22.2	9.5	31.7	7.5
IDI0UEGPKT		26.1	16.4	42.5	6.7
9FF2A6UZZ3		42.5	11	53.5	5.8
41JKXPLSUK		4	29.3	33.3	7.4
BB8XY16UMD		23	24.2	47.2	6.3

Continued over

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

Summary of and links to all dwellings (continued)

Certificate number and link	Unit number	Heating load (MJ/m²/p.a.)	Cooling load (MJ/m²/p.a.)	Total load (MJ/m²/p.a.)	Star rating
O3DMUZCX6J		14.8	10.2	25	8.1
JOJ8QEGJ32		18.8	11.2	30	7.7
61QMOR6XO0		19.4	11.1	30.5	7.6
9N6OVBEA2F		16.3	29.4	45.7	6.4
PWTDDRPPQ9		24.5	8.3	32.8	7.4
PDQL9LF1I4		18.7	23.2	41.9	6.8
MOMNV8NFHK		25.9	8.2	34.1	7.4
VCSN3BHE4T		28.4	14	42.4	6.7
QA7798QU04		20.5	24.1	44.6	6.5
XTQTFXUXM4		26.2	28	54.2	5.8
HCM4W78Z2X		24.3	8	32.3	7.4
V01C0YOMSY		34.8	11.9	46.7	6.4
26FQ4J2GJH		20.3	11	31.3	7.6
UGQRXM4NJY		20.6	10.8	31.4	7.5
LGKKURT3Q4		37	15.3	52.3	5.9
9NRNGM6B2W		22.4	20.2	42.6	6.7
ASGYSVR0X4		14.9	10.2	25.1	8.1
8VF5RT0I6V		23.4	27.7	51.1	5.9
MQ8UL7BYCN		20.1	11	31.1	7.6
P28FU0EFTW		20.3	25.9	46.2	6.4
G7R06FD54M		17.7	23.1	40.8	6.9
KQT688KZ76		38.2	11.9	50.1	6.1
VL99GEOKOV		21.2	23.4	44.6	6.5
AW4QTK3KTR		22.9	20	42.9	6.7
IINPD228GD		13.9	9.6	23.5	8.2
BV5AUORTE6		21.6	20.8	42.4	6.7
7RV2WCFN3P		19.7	23	42.7	6.7
YRIJZFOB78		20.8	24.6	45.4	6.4
5NNL7AEJH2		15.7	9.8	25.5	8
433Z03PT5J		23.4	28.9	52.3	5.9
HV2ABXF2RV		42.8	10.9	53.7	5.8
QIDEWKO2XZ		23.9	27.5	51.4	5.9
5H0EMZYKSD		19	27.4	46.4	6.4
FVYQ6SK9OS		38.3	12	50.3	6.1
9P7GY6VNUN		23.8	8	31.8	7.5
D0534XHM4C		28.3	14.3	42.6	6.7
PRSPF06PIS		10.1	20.3	30.4	7.6

Continued over

Summary of and links to all dwellings (continued)

Certificate number and link	Unit number	Heating load (MJ/m²/p.a.)	Cooling load (MJ/m²/p.a.)	Total load (MJ/m²/p.a.)	Star rating
3NXR2VZVV5		19.4	22.9	42.3	6.7
8OWCEBK2E7		32.8	23.4	56.2	5.6
QO3OX2BDVR		22.6	9.3	31.9	7.5
Z002O869QB		23.1	20.7	43.8	6.6
C2QGLM0WZB		35.6	11.3	46.9	6.3
OPBYK087AI		31.5	26.7	58.2	5.4
ULCMBRCB5M		21.1	23.9	45	6.5
LPR2HT0L7R		14.5	26.7	41.2	6.8
Z9P6VHSEO2		20.3	24.1	44.4	6.5
5T9Y2T66GU		20.2	23.7	43.9	6.6
8KG4ZSYSE8		38.2	11.7	49.9	6.1
WJV3J0LD4O		25.8	7.9	33.7	7.4
AMNBXW0Q1M		21	25.3	46.3	6.4
45IE6LY60Z		22	19.3	41.3	6.8
TT3ZGPTWR5		27.6	12	39.6	6.9
VNW74B3SN1		15.9	9.4	25.3	8.1
SFBLKARE3W		15.9	9.9	25.8	8
HLJKXI5A1S		43.6	11	54.6	5.7
SI46QG7H9P		23.9	7.8	31.7	7.5
65OYQT070A		43.4	10.6	54	5.8
MWFI17EDT5		22.9	23.7	46.6	6.4
QUFHL08PJZ		28.5	16.5	45	6.4
OLKHC06LGT		38.2	11.9	50.1	6.1
ONCBTMSGFH		38.3	11.9	50.2	6.1
4U1FDBYSS4		28.8	13.9	42.7	6.7
YP6IGZJ77H		21.5	8.9	30.4	7.6
T4UTTCHCZZ		24.4	8.4	32.8	7.4
734C89M2I6		22.5	20.1	42.6	6.7
QI2VRIY5PA		19.4	26.5	45.9	6.4
2AHNIZDE9S		19.7	11.3	31	7.6
JZ3B8Y8K57		21.6	23.1	44.7	6.5
F4807XC7UB		22.9	20.5	43.4	6.6
VBIEMFYXIX		9.9	20.3	30.2	7.7
EOVRZ3HWFL		41.3	11.1	52.4	5.9
XGMP5QM44A		26.5	26.1	52.6	5.9
WDWI3XJROV		22.4	9.4	31.8	7.5

Continued over

Summary of and links to all dwellings (continued)

Certificate number and link	Unit number	Heating load (MJ/m²/p.a.)	Cooling load (MJ/m²/p.a.)	Total load (MJ/m²/p.a.)	Star rating
BFUBYTS7UT		38.2	11.8	50	6.1
NY0YKG7CXQ		22.6	24.5	47.1	6.3
Y26CM1XT2N		36	11.5	47.5	6.3
2GDUNPU03K		23.1	23.5	46.6	6.4
B9MWRTC877		17.2	22.7	39.9	6.9
88D4HV4YZ7		38.3	11.9	50.2	6.1
ML3E2UQYI5		22.1	20.9	43	6.7
J2ST1VPVTI		17.2	14.8	32	7.4
UOCE7SYXSK		4	16.5	20.5	8.4
PG5D8JKIBH		21.2	26.8	48	6.2
CVMWU1M8TA		28.8	13.7	42.5	6.7
SNSBXUWKY2		19.9	25.8	45.7	6.4
UZEEVUHIP4		19.9	16.6	36.5	7.2
TALLZ61U8A		28.7	14.1	42.8	6.7
1F8XU65D80		38.1	11.7	49.8	6.1
F00E1SR6ET		31.7	13.8	45.5	6.4
7XBW1LVC5K		21.8	23.6	45.4	6.4
HR6UTSZPF7		10	20	30	7.7
ORL7EYF7IV		30.1	11.9	42	6.7
ZLL5IUGSVO		22	20.9	42.9	6.7
W7JCPECPH9		23.4	29.1	52.5	5.9
88AQZMKQ18		18.3	23.4	41.7	6.8
KXEWJ335YZ		9.3	22.6	31.9	7.5
KZWMVA4N60		21.9	8.8	30.7	7.6
7OPSVUR3AU		35.7	11.1	46.8	6.3
4DQ2MKVSUO		20.2	22.4	42.6	6.7
8FDBNWZLNO		14.6	9.6	24.2	8.2
NSRG4VCGAL		23.5	27.6	51.1	5.9
7NTN652R1L		14.3	9.5	23.8	8.2
45XCP4BZBG		25.7	8	33.7	7.4
LZUUC40RH8		38.3	12	50.3	6.1
GZ2MZ8XO18		20.4	24	44.4	6.5
B9DOFF1M8Q		22	23.8	45.8	6.4
BW9D9YYX0X		22.5	9.3	31.8	7.5
NS57188DTH		20.5	24.1	44.6	6.5
67CTUFM6CA		44.7	12.9	57.6	5.5

Continued over

Summary of and links to all dwellings (continued)

Certificate number and link	Unit number	Heating load (MJ/m²/p.a.)	Cooling load (MJ/m²/p.a.)	Total load (MJ/m²/p.a.)	Star rating
15FUXCPS8Q		12.8	12.3	25.1	8.1
GVEAXZXAY4		22.7	20.4	43.1	6.7
SGWAXPSF0X		14.7	10.4	25.1	8.1
RLH6FYKU2X		25.5	11.7	37.2	7.1
XUG72CAL9A		21.4	22.8	44.2	6.6
5S3G0OULCK		15.9	9.6	25.5	8
DN02JBPMHG		19.1	23.3	42.4	6.7
2O8L9ZOEK5		39.5	11.3	50.8	6
IEDVKNPMF9		34.2	12	46.2	6.4
N7VUHY844F		35.2	11.1	46.3	6.4
LXVMTWEX0S		42.2	11	53.2	5.8
XRQ0WCFKMN		28.6	14	42.6	6.7
GZK8P26NFE		9.9	20.8	30.7	7.6
AQMXY65ODQ		38	11.6	49.6	6.1
7CDK82CT2F		14.6	12.1	26.7	7.9
PVXHOSDOK2		41.8	10.9	52.7	5.9
VV9NBBDFL5		21.9	20.4	42.3	6.7
FC7QJC9QFH		25.7	8.1	33.8	7.4
Average		24.3	16.9	41.2	6.8

Explanatory notes

About this report

This summary rating is the average rating of all NCC Class 2 dwellings in a development. The individual dwellings' ratings are a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate the energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances, or energy production of solar panels. For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

Accredited Assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO). AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content, input and creation of the NatHERS Certificate is by the assessor. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

APPENDIX B-2
C1.5 NATHERS CERTIFICATES

Nationwide House Energy Rating Scheme* — Class 2 summary

Certificate Number: **X2VQQ188WY** Date of Certificate: **27 Sep 2019** ★ Average star rating: **6.7**

Assessor details

Accreditation number:	**101142**
Name:	**Christopher Mann**
Organisation:	**WSP**
Email:	**chris.mann@wsp.com**
Phone:	**0411644164**
Declaration of interest:	**No potential conflicts of interest to declare**
Software:	**FirstRate5 v5.2.10b**
AAO:	**ABSA**

Dwelling details

Address:	**Building C1.5 - Ivanhoe Estate**
Suburb:	**Macquarie Park**
State:	**NSW**
Postcode:	**2113**

6.7

Average rating

NATIONWIDE HOUSE ENERGY RATING SCHEME

The rating listed above is the average of all units in this building.

For more information on your dwelling's rating see:
www.nathers.gov.au

Summary of all dwellings

Certification details

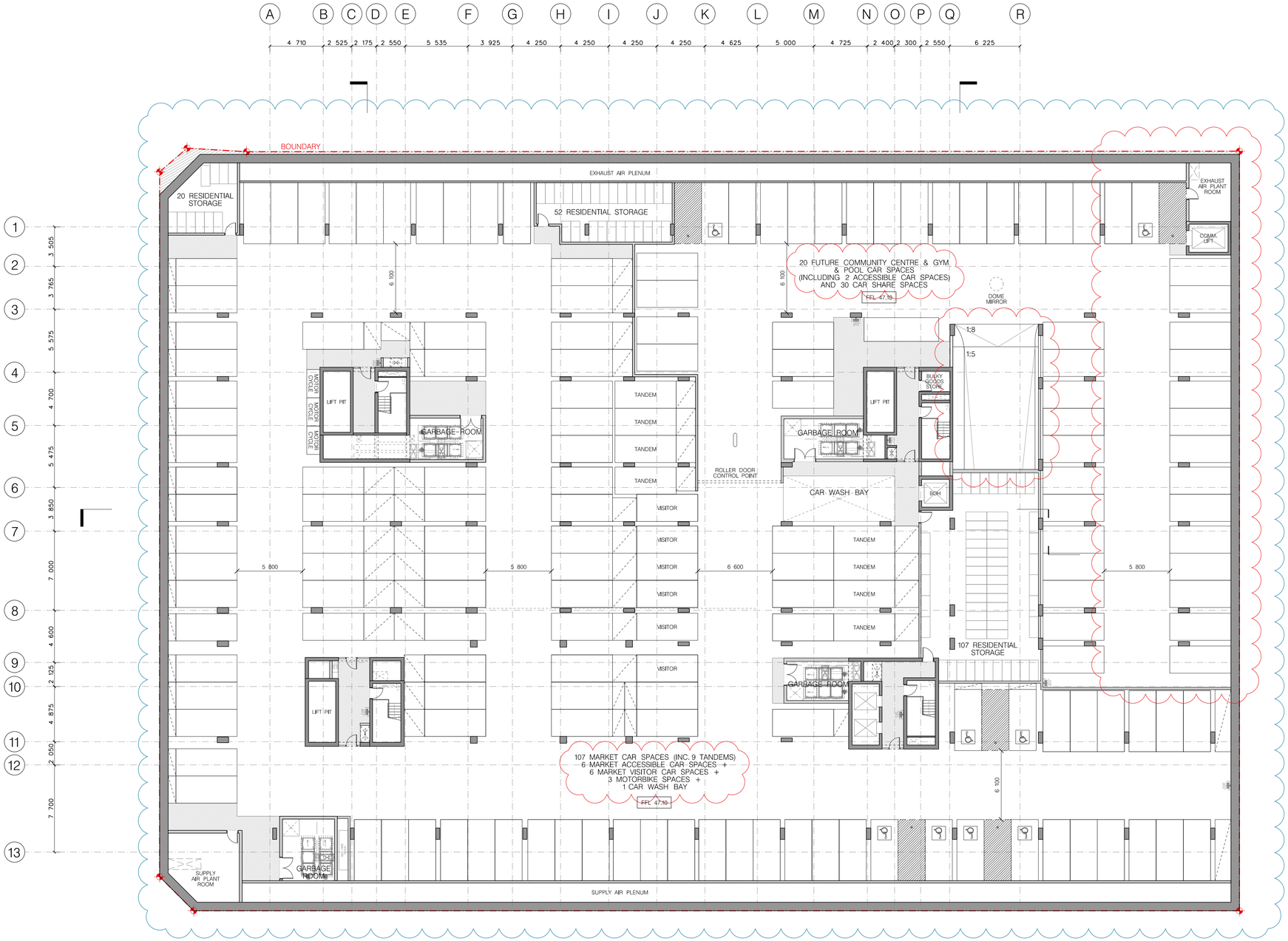
		Annual thermal performance loads (MJ/m2)			
Certificate number	**Unit number**	**Heating load**	**Cooling load**	**Total load**	**Star rating**
7N6O4O8G0C	C1.5-01	24.8	24.3	49.1	6.2
E2XKV1ELVM	C1.5-02	13.3	24.7	38	7.1
57M887AKVU	C1.5-03	13.6	24.1	37.7	7.1
TARW87PQ99	C1.5-04	23.5	23.8	47.3	6.3

This building achieves an average star rating of: **6.7**

* Nationwide House Energy Rating Scheme (NatHERS) is an initiative of the Australian, state and territory governments. For more details see www.nathers.gov.au

APPENDIX C

STAMPED DRAWINGS



01 – BASEMENT 3 FLOOR PLAN
1:200

Location	Window type	Type	Glass	Frame	U-value	SHGC
All south facing apartments in C1.2 and C1.4	Sliding window/doors and fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All C1.5 town houses	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
All other apartments	Sliding window/doors and fixed windows	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58
	Awning windows	Single glazed aluminium frame	Clear low-e	Aluminium	5.4	0.49

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2.5 bulk added insulation
Party walls (between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R4.0 added insulation
Ceilings	Plasterboard lined	No added insulation
Floors (between apartments)	Concrete slab	No added insulation
Suspended floors (above carparks or outside air)	Suspended concrete slab	R2.0 added insulation

MAJOR AMENDMENTS

MINOR AMENDMENTS

Issue	Date	Description	Drawing Original Size
B	09.12.20	FOR S4.55 TO CLIENT	A1
A	02.12.20	FOR S4.55 TO CLIENT	

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ARCHITECT:
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309 SUSSEX ST
SYDNEY NSW 2000
T: 02 9283 7755
F: 02 9283 7477
E: architects@candalepas.com.au
NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

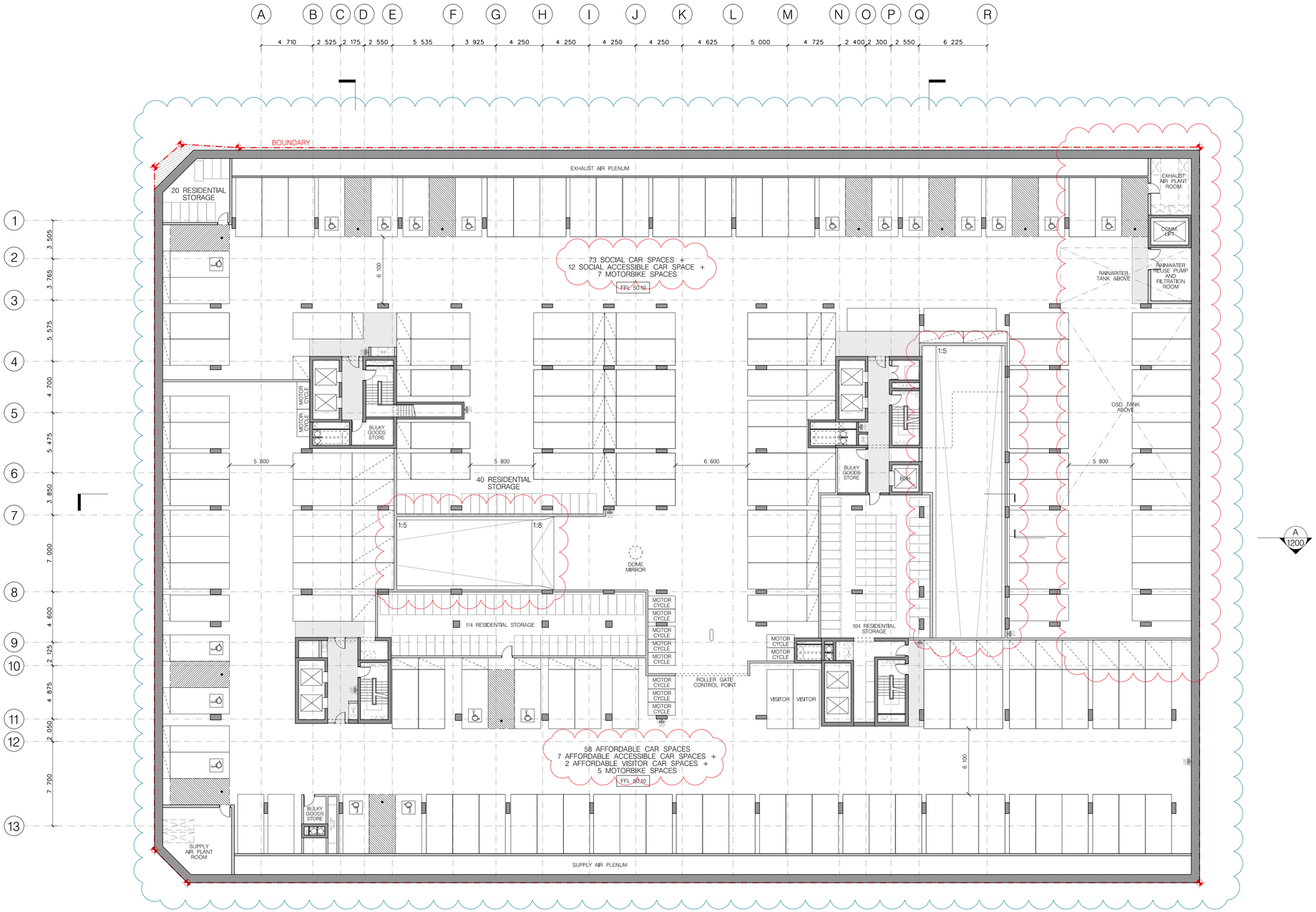
DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MK/FP

DRAWING:
BASEMENT 3 FLOOR PLAN

DRAWING No.
S4.55–1102

JOB No.
5800

ISSUE
B



01 — BASEMENT 2 FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020

6.8 Average star rating

NATIONWIDE HOUSE ENERGY RATING SCHEME www.nathers.gov.au

Assessor Christopher Mann

Accreditation No. DMN/20/1972

Address Herring Road, Macquarie Park, NSW, 2113

https://www.fr5.com.au/QRCodeLanding?PublicId=J8P5NXS8A2&GrpCert=1

Issue	Date	Description
B	08.12.20	FOR S4.55 TO CLIENT
A	02.12.20	FOR S4.55 TO CLIENT

Drawing Original Size A1

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E: architects@candalepas.com.au
NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

DATE: SEP 2020

CHECKED 1: MK

CHKD2/APPD: JW

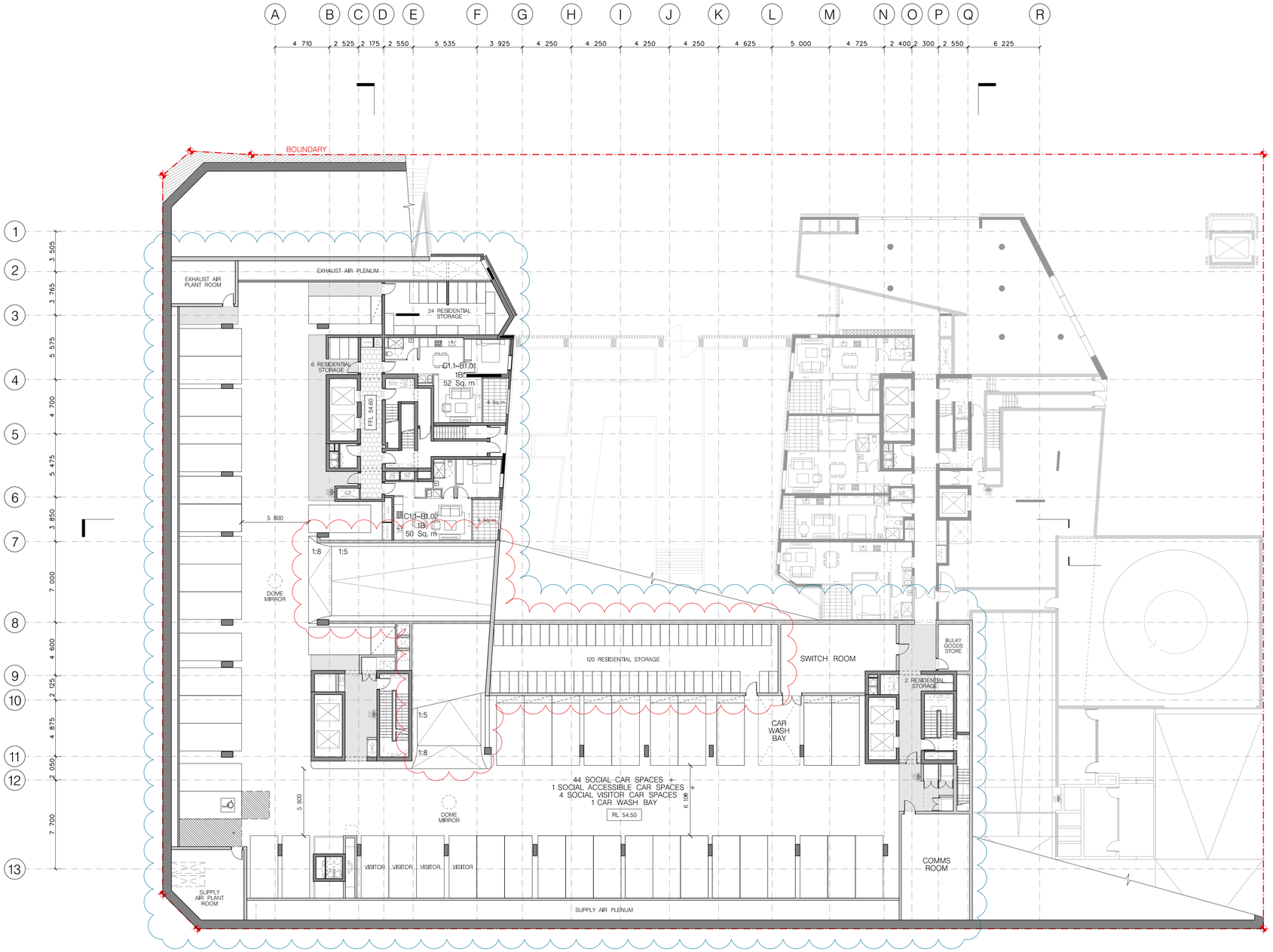
DRAWN BY: MK/FP

DRAWING:
BASEMENT 2 FLOOR PLAN

DRAWING No. S4.55–1103

JOB No. 5800

ISSUE B



01 BASEMENT 1 FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020

6.8 Average star rating

NATIONWIDE HOUSE ENERGY RATING SCHEME www.nathers.gov.au

Assessor: Christopher Mann

Accreditation No.: DMN/20/1972

Address: Herring Road, Macquarie Park, NSW, 2113

https://www.fr5.com.au/QRCodeLanding?PublicId=J8P5NXS8A2&GrpCert=1

Issue	Date	Description	Drawing Original Size
B	09.12.20	FOR S4.55 TO CLIENT	A1
A	02.12.20	FOR S4.55 TO CLIENT	

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E: architects@candalepas.com.au
NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

DATE: SEP 2020

CHECKED 1: MK

CHKD2/APPD: JW

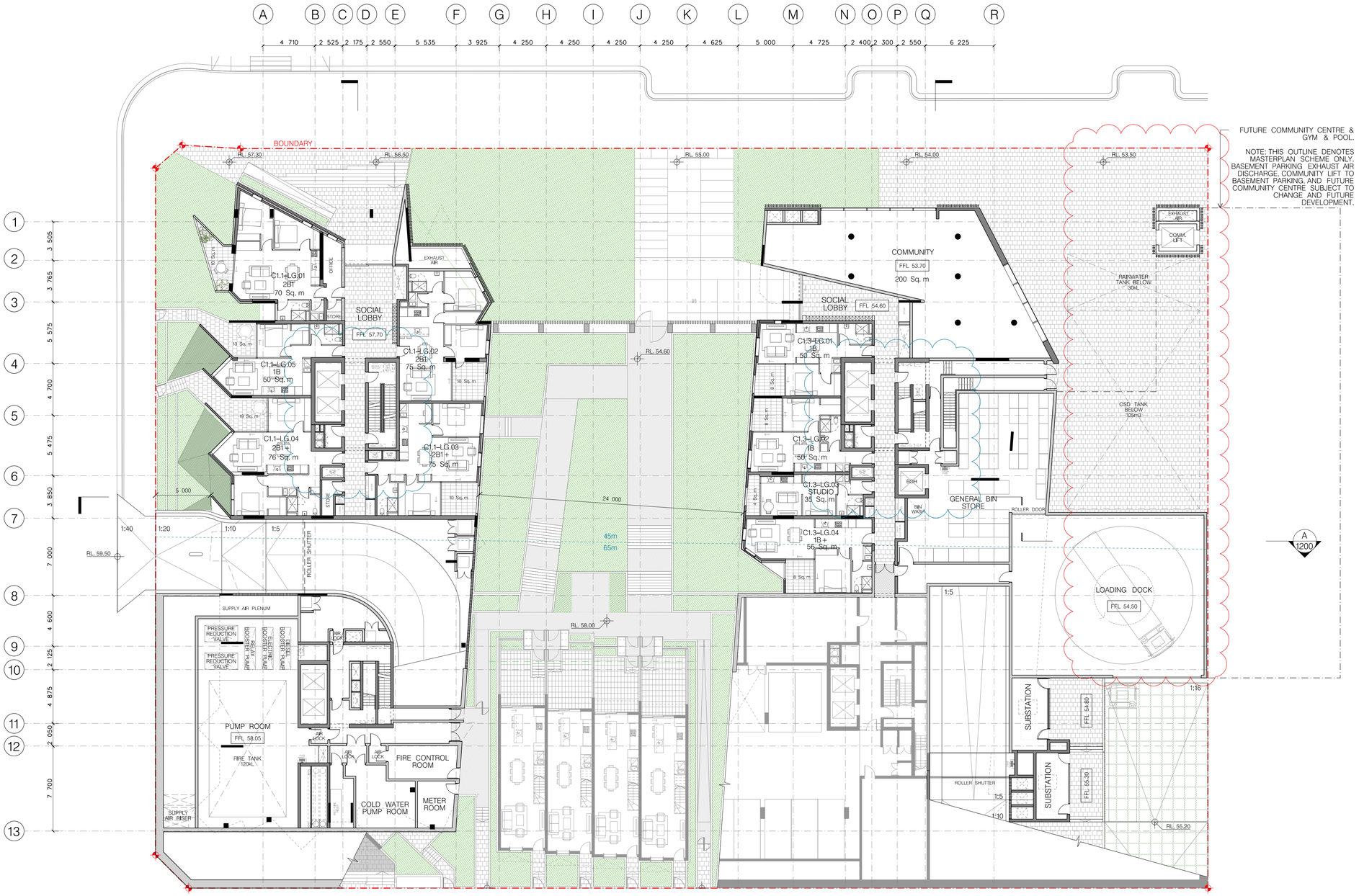
DRAWN BY: MKFP

DRAWING: BASEMENT 1 FLOOR PLAN

DRAWING No. S4.55–1104

JOB No. 5800

ISSUE B



01 — LOWER GROUND FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au
Assessor Christopher Mann
Accreditation No. DMN/20/1972
Address Herring Road, Macquarie Park, NSW, 2113
https://www.fr5.com.au/QRCodeLanding?PublicId=J8P5NXS8A2&GrpCert=1

Issue	Date	Drawing	Description
B	09.12.20	A1	FOR S4.55 TO CLIENT
A	02.12.20		FOR S4.55 TO CLIENT

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NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MKFP

DRAWING:
LOWER GROUND FLOOR PLAN

DRAWING No. S4.55–1105

JOB No. 5800

ISSUE B

FUTURE COMMUNITY CENTRE. NOTE: THIS OUTLINE DENOTES MASTERPLAN SCHEME ONLY. IT IS SUBJECT TO CHANGE AND FUTURE DEVELOPMENT APPLICATIONS

01 — UPPER GROUND FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Issue	Date	Description	Drawing	Original Size
B	09.12.20	FOR S4.55 TO CLIENT		A1
A	02.12.20	FOR S4.55 TO CLIENT		

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PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

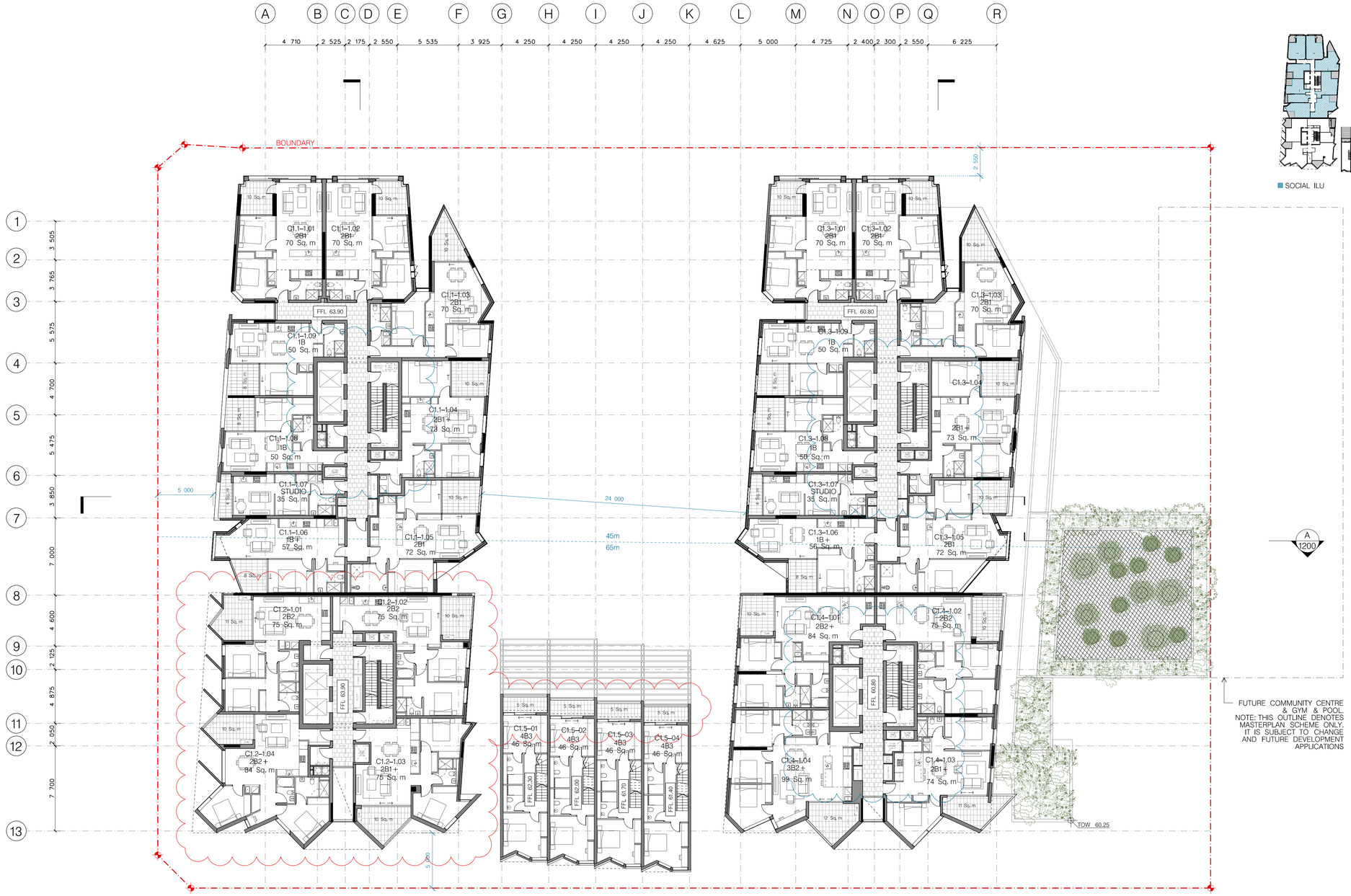
DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MK/FP

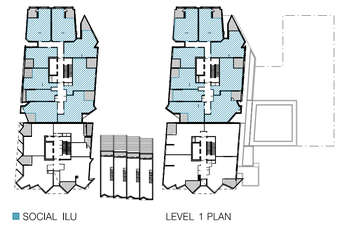
DRAWING:
UPPER GROUND FLOOR PLAN

DRAWING No. S4.55–1106

JOB No. 5800

ISSUE B





01 – LEVEL 1 FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME www.nathers.gov.au
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Issue	Date	Description
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PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

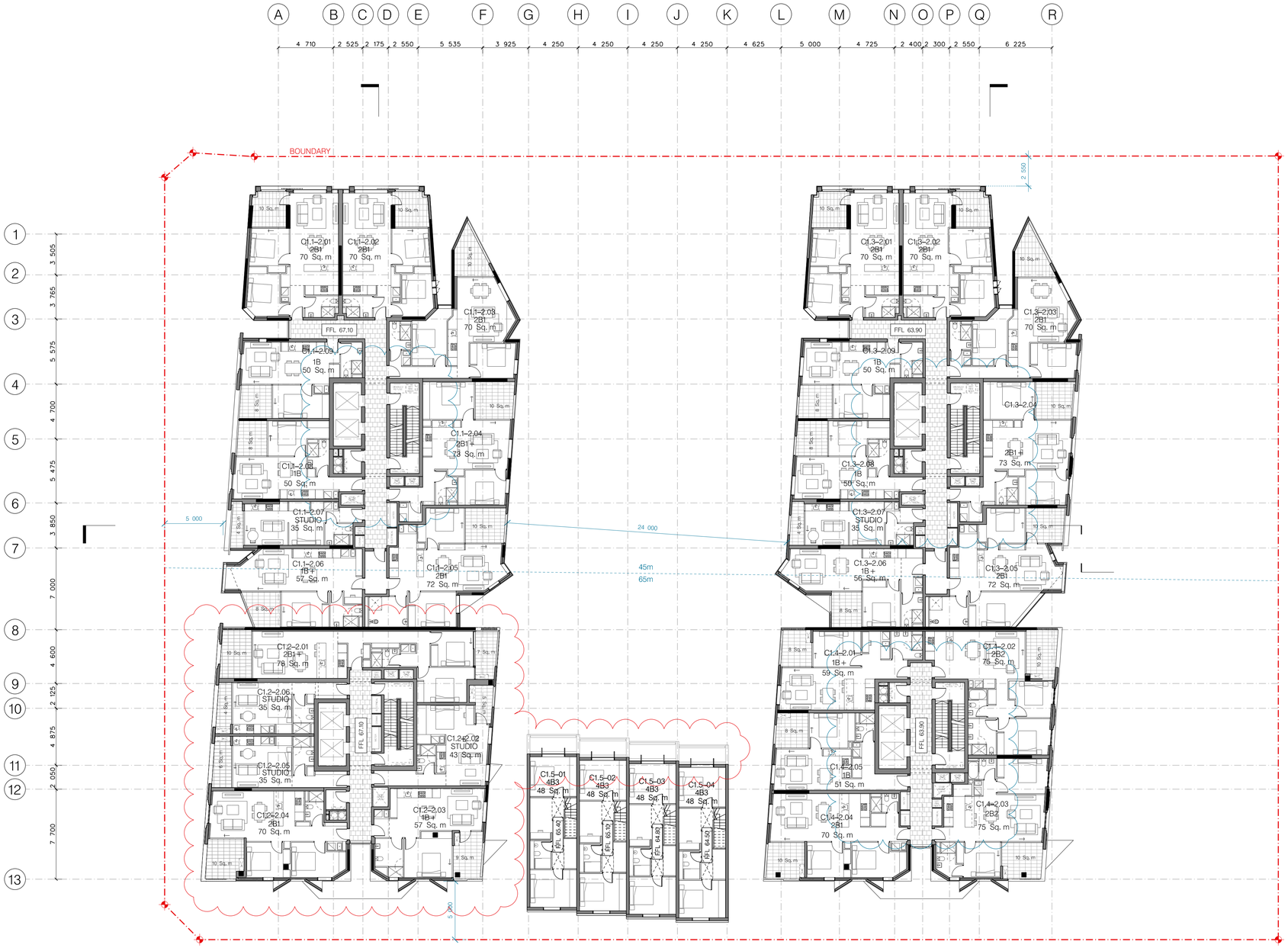
DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: EPP
DRAWN BY: MKFP

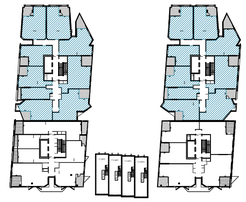
DRAWING: LEVEL 1 FLOOR PLAN

DRAWING No. S4.55–1107

JOB No. 5800

ISSUE B





A 1200

01 – LEVEL 2 FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020

6.8 Average star rating — NATIONWIDE HOUSE ENERGY RATING SCHEME — www.nathers.gov.au

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Issue	Date	Description	Drawing Original Size
B	09.12.20	FOR SALE TO CLIENT	A1
A	02.12.20	FOR SALE TO CLIENT	

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PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

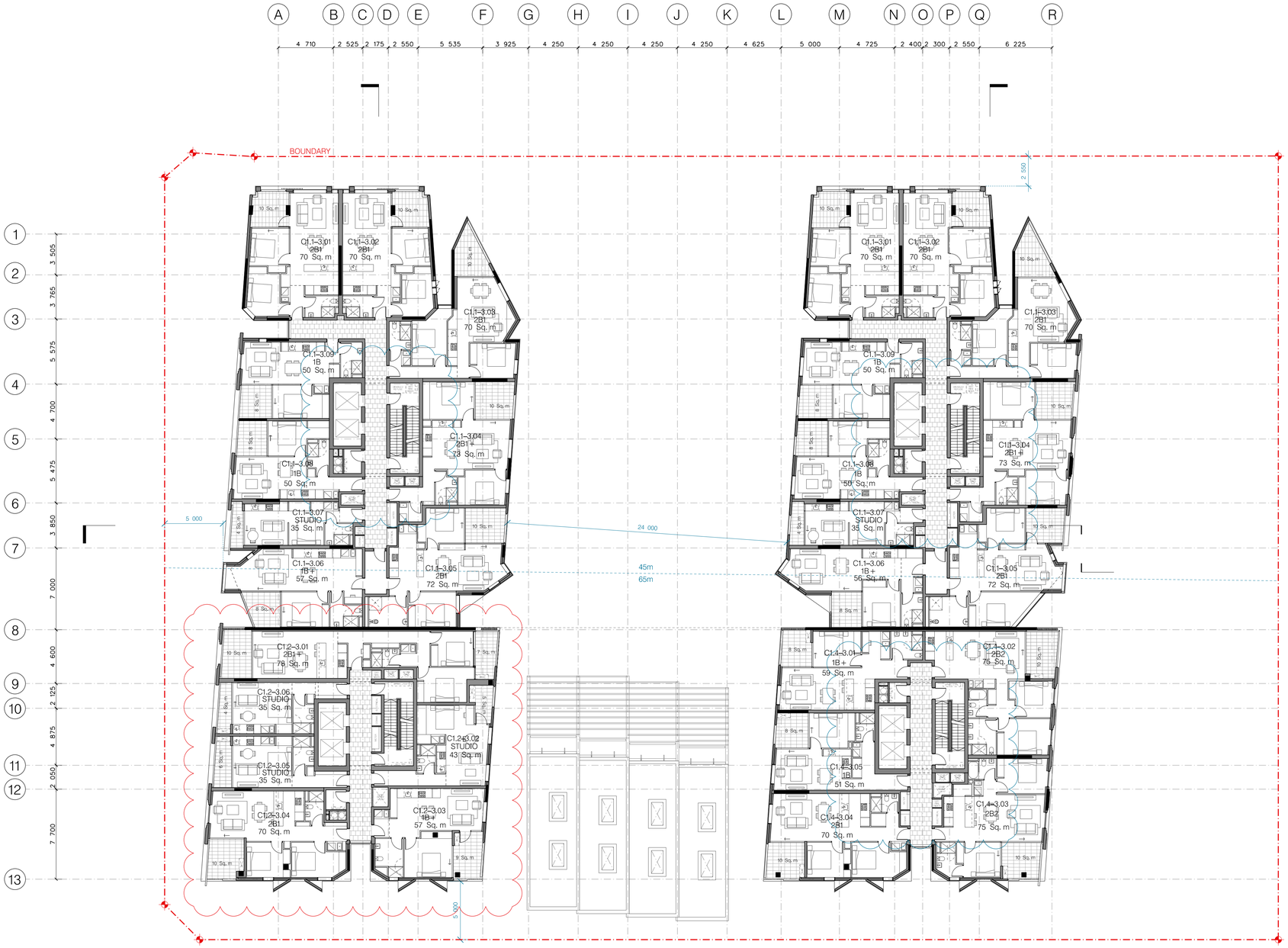
DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MK/FP

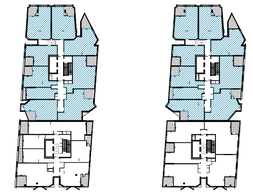
DRAWING: LEVEL 2 FLOOR PLAN

DRAWING No. S4.55–1108

ISSUE B

JOB No. 5800





A 1200

01 – LEVEL 3 – 4 FLOOR PLAN
1:200

J8P5NXS8A2 17/12/2020
6.8 Average star rating
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PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

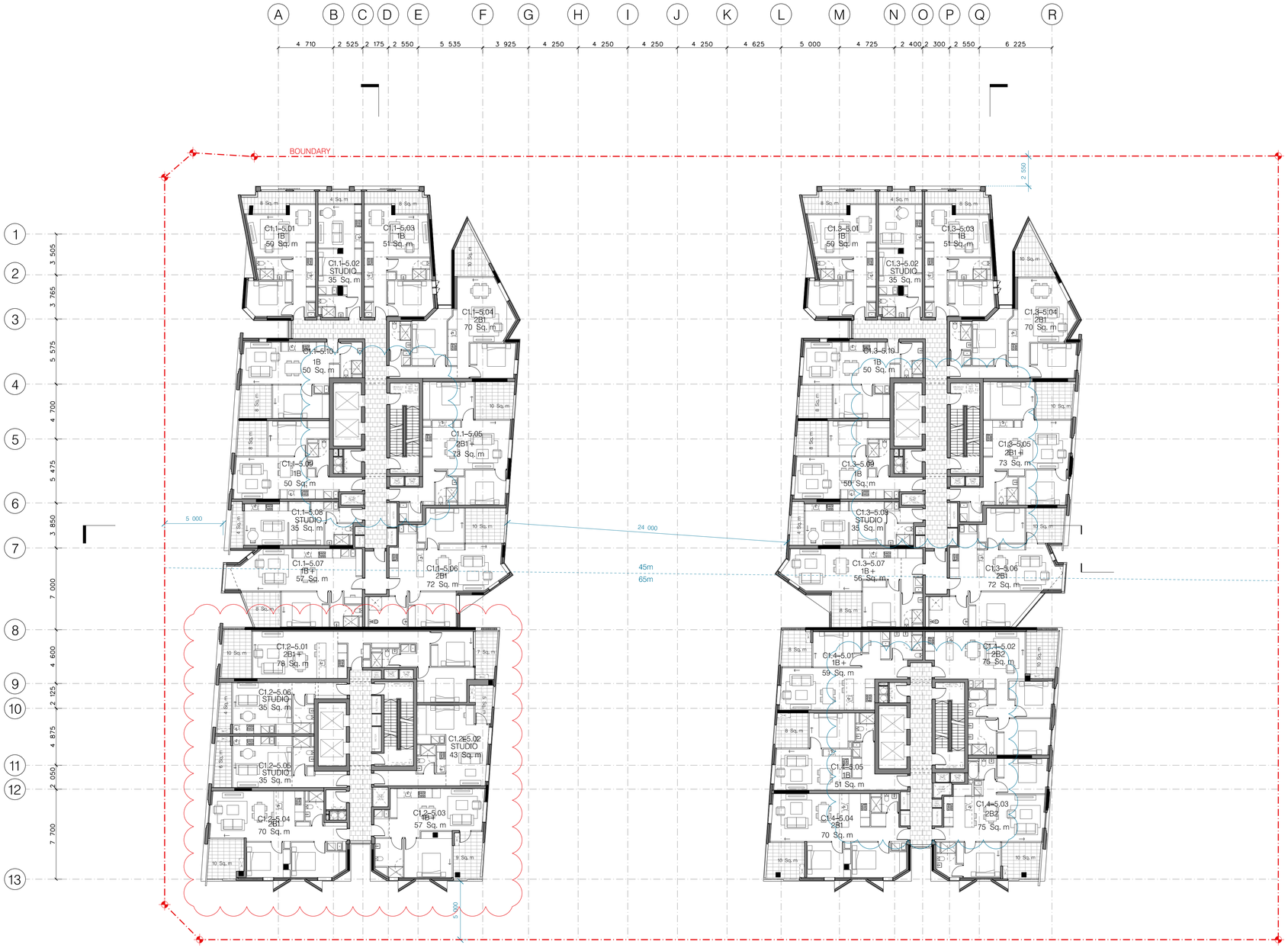
DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MKFP

DRAWING: LEVEL 3 – 4 FLOOR PLAN

DRAWING No. S4.55–1109

JOB No. 5800

ISSUE B



01 – LEVEL 5 – 12 FLOOR PLAN

1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

Issue	Date	Description
B	09.12.20	FOR S4.55 TO CLIENT
A	02.12.20	FOR S4.55 TO CLIENT

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PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

DATE: SEP 2020

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CHKD2/APPD: JW

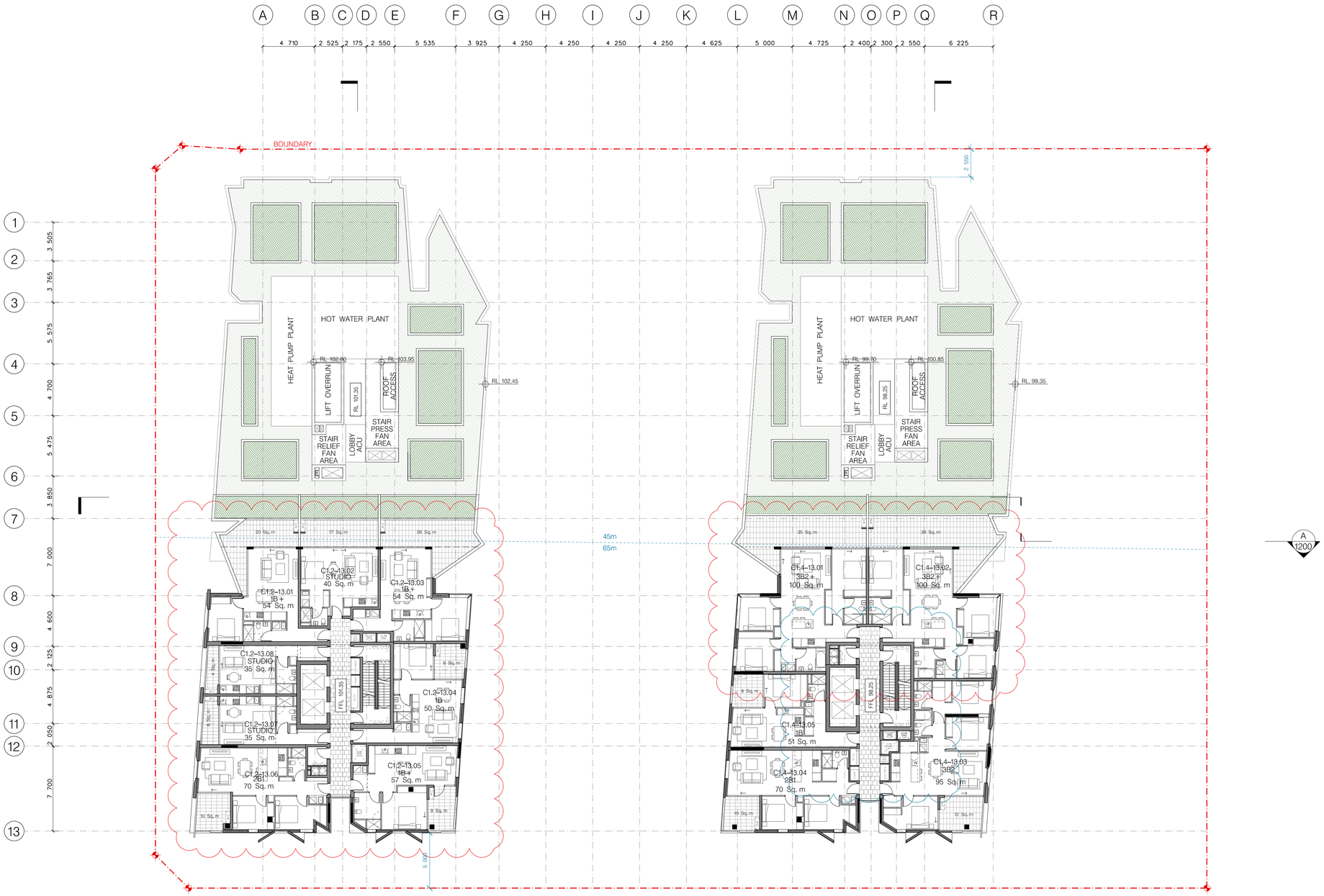
DRAWN BY: MK/FP

DRAWING: LEVEL 5 – 12 FLOOR PLAN

DRAWING No. S4.55–1110

JOB No. 5800

ISSUE B



01 — LEVEL 13 FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
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PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK
CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

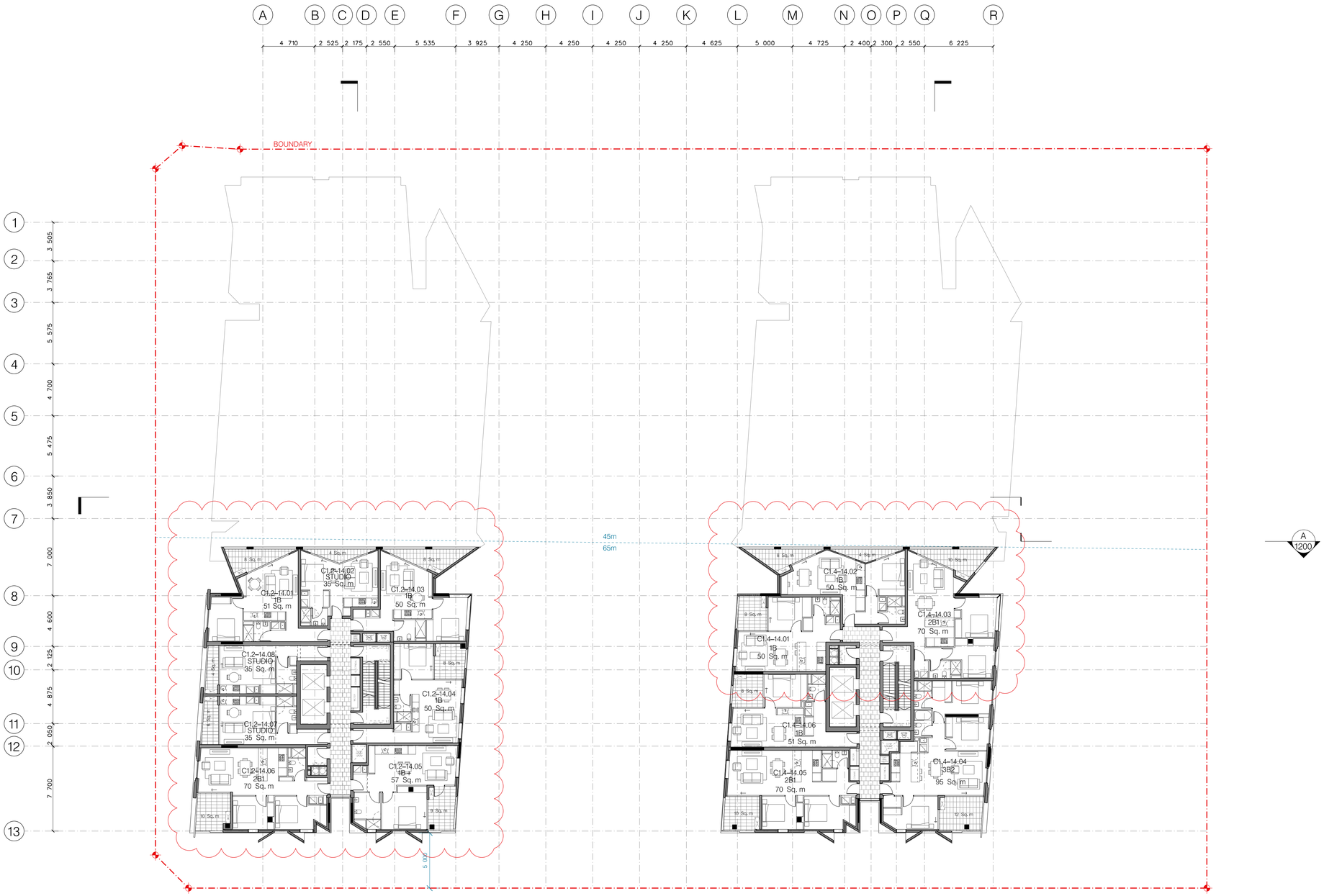
DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MK/FP

DRAWING:
LEVEL 13 FLOOR PLAN

DRAWING No.
S4.55–1111

JOB No. 5800

ISSUE B



01 – LEVEL 14 – 19 FLOOR PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

Issue	Date	Description	
B	09.12.20	FOR S4.55 TO CLIENT	
A	02.12.20	FOR S4.55 TO CLIENT	

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NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

DATE: SEP 2020

CHECKED 1: MK

CHKD2/APPD: JW

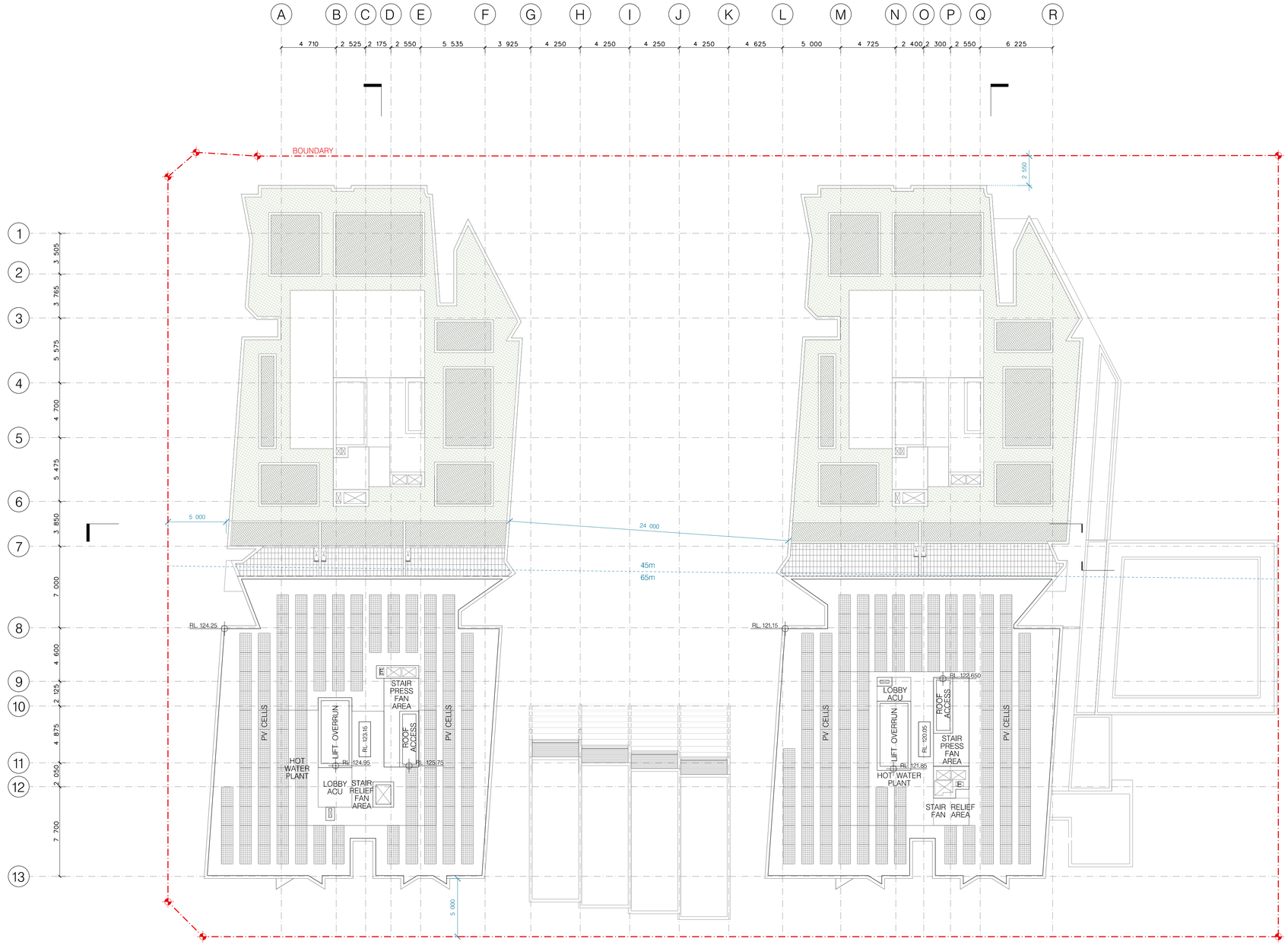
DRAWN BY: MK/FP

DRAWING: LEVEL 14 – 19 FLOOR PLAN

DRAWING No. S4.55–1112

JOB No. 5800

ISSUE B



A 1200

B 1201

C 1202

01 – ROOF PLAN
1:200

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020

6.8 Average star rating

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Issue	Drawing	Description
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PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

NORTH

DATE: SEP 2020

CHECKED 1: MK

CHKD2/APPD: JW

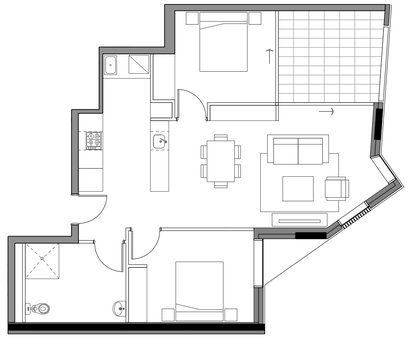
DRAWN BY: MKFP

DRAWING: ROOF PLAN

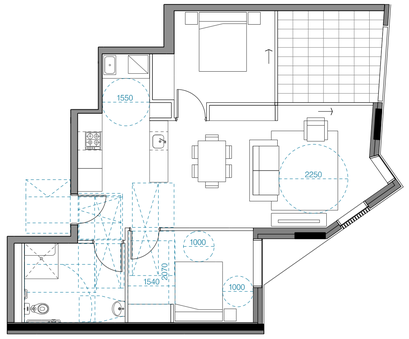
DRAWING No. S4.55–1113

JOB No. 5800

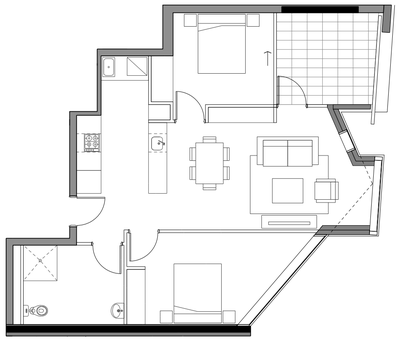
ISSUE B



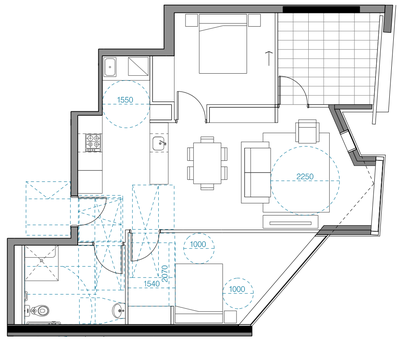
01 — 2–BED UNIT PRE ADAPTATION
1:100 6x SOCIAL UNITS LEVELS UG–5



02 — 2–BED UNIT POST ADAPTATION
1:100

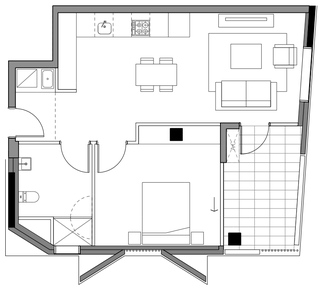


03 — 2–BED UNIT PRE ADAPTATION
1:100 7x SOCIAL UNITS LEVELS UG–6

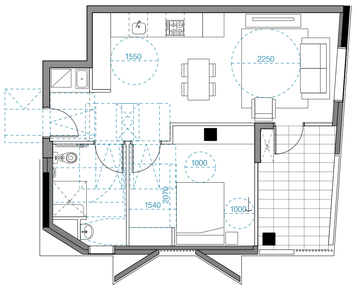


04 — 2–BED UNIT POST ADAPTATION
1:100

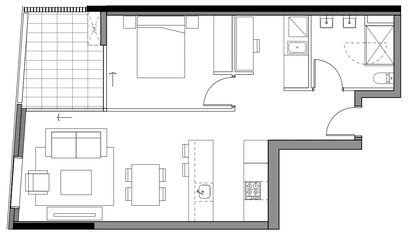
09 — TYPICAL FLOOR KEY PLAN
1:750



05 — 1–BED UNIT PRE ADAPTATION
1:100 7x AFFORDABLE UNITS LEVELS 2–8

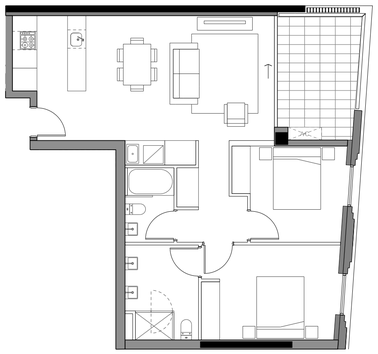


06 — 1–BED UNIT POST ADAPTATION
1:100

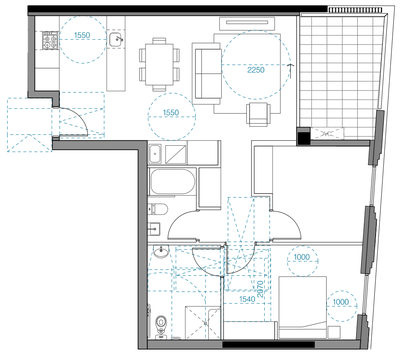


07 — 1–BED UNIT PRE ADAPTATION
1:100 3x MARKET UNITS LEVELS 2–4

08 — 1–BED UNIT POST ADAPTATION
1:100



ADAPTATION
KET UNITS LEVELS 1–3



10 — 2–BED UNIT POST ADAPTATION
1:100

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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https://www.fr5.com.au/QRCodeLanding?PublicId=J8P5NXS8A2&GrpCert=1

Issue	Date	Description
B	08.12.20	FOR SALE TO CLIENT
A	02.12.20	FOR SALE TO CLIENT

Drawing Original Size A1

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309 SUSSEX ST
SYDNEY NSW 2000
T: 02 9283 7755
F: 02 9283 7477
E: architects@candalepas.com.au
NSW ARCHITECTS REG No. – 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:100@A1 / 1:200@A3

0 0.5m 1m 2m 4m

NORTH

DATE: SEP 2020

CHECKED 1: MK

CHKD2/APPD: JW

DRAWN BY: MKFP

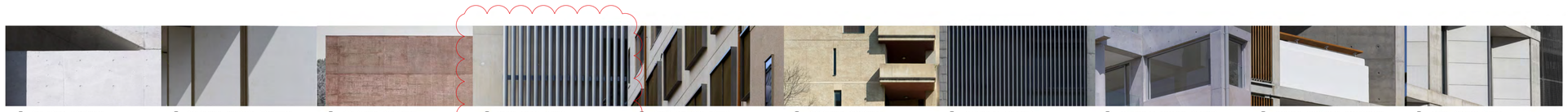
DRAWING: ADAPTABLE UNIT FLOOR PLANS

DRAWING No. S4.55–1150

JOB No. 5800

ISSUE B

01 NORTH EAST ELEVATION
1:200



Ⓐ OFF-FORM CONCRETE
ALL SAINTS PRIMARY SCHOOL
– CANDALEPAS ASSOCIATES

Ⓑ COLOURED PRECAST CONCRETE
PELICAN STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓒ COLOURED CONCRETE
WEST TYROL FIRE STATION
– PEDEVILLA ARCHITECTS

Ⓓ WHITE METAL TUBES
PUNCHBOWL MOSQUE (SIMILAR)
– CANDALEPAS ASSOCIATES

Ⓔ STEEL WINDOW BOXES
QT MELBOURNE
– CANDALEPAS ASSOCIATES

Ⓕ COLOURED CONCRETE
THE POINT APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓖ ALUMINIUM LOUVRES
REVOLUTION APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓗ ALUMINIUM FRAMED GLAZING
FRANCIS STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓘ PAINTED CONCRETE BALUSTRADE
PRESIDENT AVENUE APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓙ FIBRE CEMENT SHEET
QT PERTH
– CANDALEPAS ASSOCIATES

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Assessor Christopher Mann
Accreditation No. DMN/20/1972
Address Herring Road, Macquarie Park, NSW, 2113
https://www.fr5.com.au/QRCodeLanding?PublicId=J8P5NXS8A2&GrpCert=1

Issue	Date	Description
B	09.12.20	FOR S4.55 TO CLIENT
A	02.12.20	FOR S4.55 TO CLIENT

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E: architects@candalepas.com.au
NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

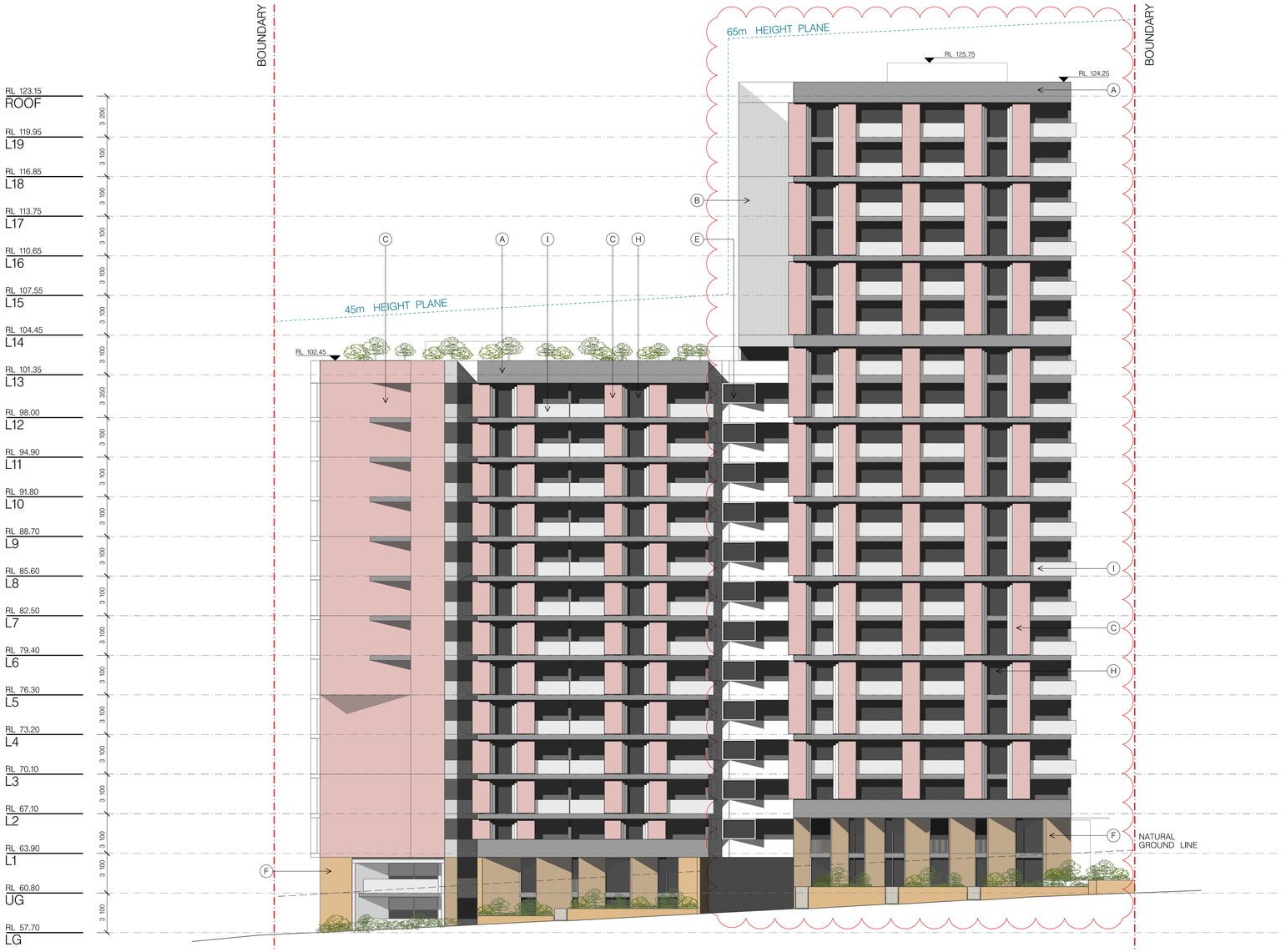
DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MK/FP

DRAWING: NORTH EAST ELEVATION

DRAWING No. S4.55–1300

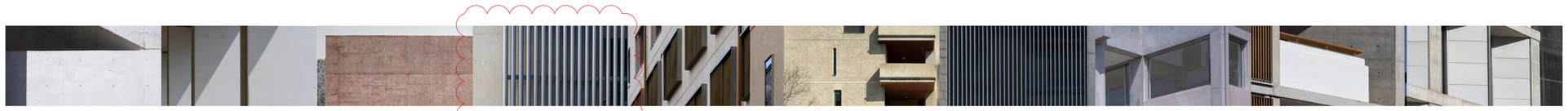
JOB No. 5800

ISSUE B



01 — NORTH WEST ELEVATION

1:200



Ⓐ OFF-FORM CONCRETE
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– CANDALEPAS ASSOCIATES

Ⓑ COLOURED PRECAST CONCRETE
PELICAN STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓒ COLOURED CONCRETE
WEST TYROL FIRE STATION
– PEDEVILLA ARCHITECTS

Ⓓ WHITE METAL TUBES
PUNCHBOWL MOSQUE (SIMILAR)
– CANDALEPAS ASSOCIATES

Ⓔ STEEL WINDOW BOXES
QT MELBOURNE
– CANDALEPAS ASSOCIATES

Ⓕ COLOURED CONCRETE
THE POINT APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓖ ALUMINIUM LOUVRES
REVOLUTION APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓗ ALUMINIUM FRAMED GLAZING
FRANCIS STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓘ PAINTED CONCRETE BALUSTRADE
PRESIDENT AVENUE APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓙ FIBRE CEMENT SHEET
QT PERTH
– CANDALEPAS ASSOCIATES

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020

6.8 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Issue	Date	Description
B	08.12.20	FOR SALES TO CLIENT
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E: architects@candalepas.com.au
NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MKFP

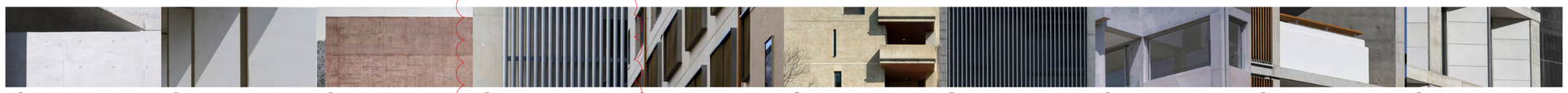
DRAWING: NORTH WEST ELEVATION

DRAWING No. S4.55–1301

JOB No. 5800

ISSUE B

01 — NORTH WEST INTERNAL ELEVATION
1:200



Ⓐ OFF-FORM CONCRETE
ALL SAINTS PRIMARY SCHOOL
– CANDALEPAS ASSOCIATES

Ⓑ COLOURED PRECAST CONCRETE
PELICAN STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓒ COLOURED CONCRETE
WEST TYROL FIRE STATION
– PEDEVILLA ARCHITECTS

Ⓓ WHITE METAL TUBES
PUNCHBOWL MOSQUE (SIMILAR)
– CANDALEPAS ASSOCIATES

Ⓔ STEEL WINDOW BOXES
QT MELBOURNE
– CANDALEPAS ASSOCIATES

Ⓕ COLOURED CONCRETE
THE POINT APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓖ ALUMINIUM LOUVRES
REVOLUTION APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓗ ALUMINIUM FRAMED GLAZING
FRANCIS STREET APARTMENTS
– CANDALEPAS ASSOCIATES

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PRESIDENT AVENUE APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓙ FIBRE CEMENT SHEET
QT PERTH
– CANDALEPAS ASSOCIATES

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Assessor Christopher Mann
Accreditation No. DMN/20/1972
Address Herring Road, Macquarie Park, NSW, 2113
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Issue	Date	Description	
B	08.12.20	FOR S4.55 TO CLIENT	A1
A	02.12.20	FOR S4.55 TO CLIENT	

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E: architects@candalepas.com.au
NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

DATE: SEP 2020
CHECKED 1: MK
CHKD2'APPD: JW
DRAWN BY: MKFP

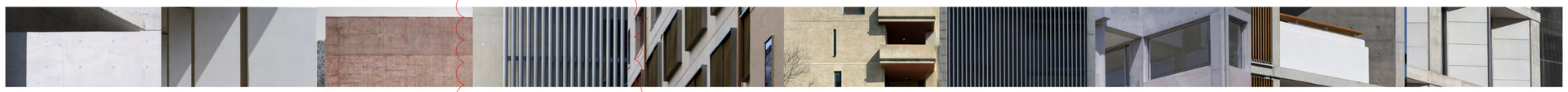
DRAWING:
NORTH WEST INTERNAL ELEVATION

DRAWING No.
S4.55–1302

JOB No.
5800

ISSUE
B

01 — SOUTH EAST ELEVATION
1:200



Ⓐ OFF-FORM CONCRETE
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– CANDALEPAS ASSOCIATES

Ⓑ COLOURED PRECAST CONCRETE
PELICAN STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓒ COLOURED CONCRETE
WEST TYROL FIRE STATION
– PEDEVILLA ARCHITECTS

Ⓓ WHITE METAL TUBES
PUNCHBOWL MOSQUE (SIMILAR)
– CANDALEPAS ASSOCIATES

Ⓔ STEEL WINDOW BOXES
QT MELBOURNE
– CANDALEPAS ASSOCIATES

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THE POINT APARTMENTS
– CANDALEPAS ASSOCIATES

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REVOLUTION APARTMENTS
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– CANDALEPAS ASSOCIATES

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– CANDALEPAS ASSOCIATES

Ⓙ FIBRE CEMENT SHEET
QT PERTH
– CANDALEPAS ASSOCIATES

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
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Issue	Date	Description
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NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHEAD ESTATE
EPPING ROAD, MACQUARIE PARK

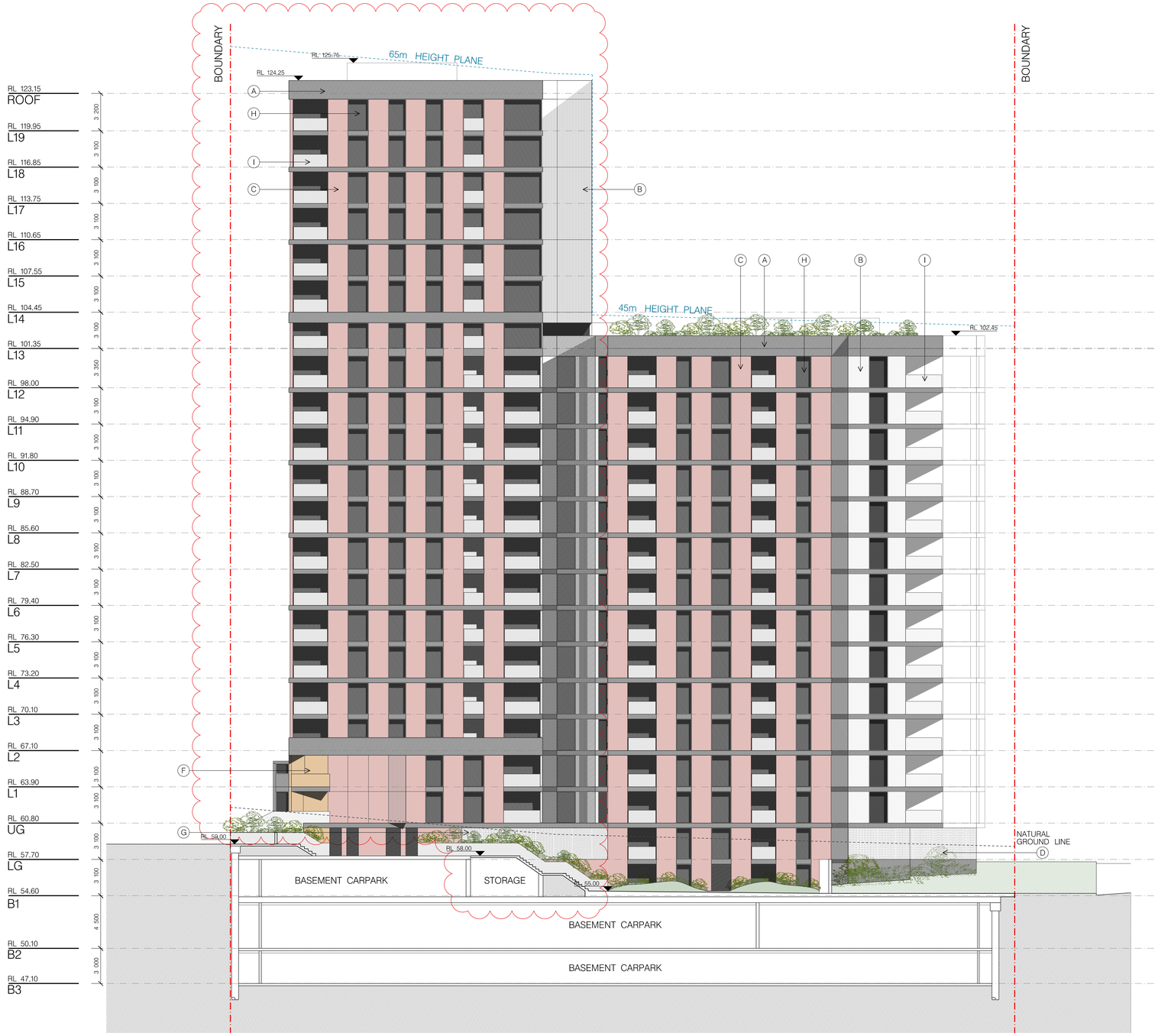
CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MKFP

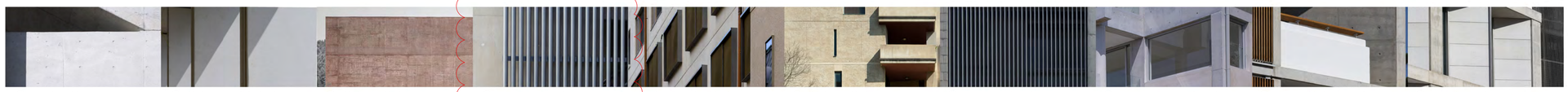
DRAWING: SOUTH EAST ELEVATION
DRAWING No. S4.55–1303

JOB No. 5800
ISSUE B



01 — SOUTH EAST INTERNAL ELEVATION

1:200



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– CANDALEPAS ASSOCIATES

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PELICAN STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓒ COLOURED CONCRETE
WEST TYROL FIRE STATION
– PEDEVILLA ARCHITECTS

Ⓓ WHITE METAL TUBES
PUNCHBOWL MOSQUE (SIMILAR)
– CANDALEPAS ASSOCIATES

Ⓔ STEEL WINDOW BOXES
QT MELBOURNE
– CANDALEPAS ASSOCIATES

Ⓕ COLOURED CONCRETE
THE POINT APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓖ ALUMINIUM LOUVRES
REVOLUTION APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓗ ALUMINIUM FRAMED GLAZING
FRANCIS STREET APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓘ PAINTED CONCRETE BALUSTRADE
PRESIDENT AVENUE APARTMENTS
– CANDALEPAS ASSOCIATES

Ⓙ FIBRE CEMENT SHEET
QT PERTH
– CANDALEPAS ASSOCIATES

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
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Assessor Christopher Mann
Accreditation No. DMN/20/1972
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Issue	Date	Description	Drawing Original Size
B	08.12.20	FOR SALES TO CLIENT	A1
A	02.12.20	FOR SALES TO CLIENT	

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E: architects@candalepas.com.au
NSW ARCHITECTS REG No. – 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

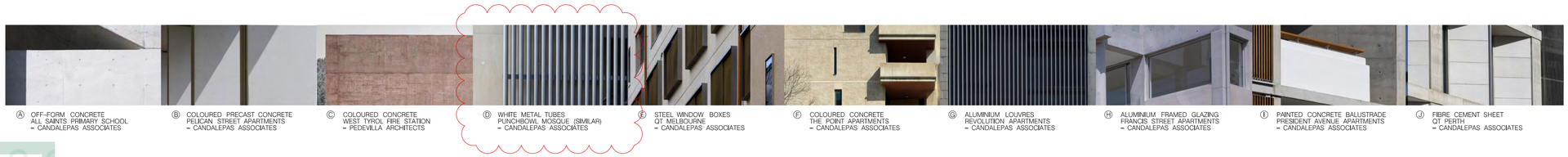
SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MKFP

DRAWING: SOUTH EAST INTERNAL ELEVATION
DRAWING No. S4.55–1304

JOB No. 5800
ISSUE B

01 — SOUTH WEST ELEVATION
1:200



Ⓐ OFF-FORM CONCRETE ALL SAINTS PRIMARY SCHOOL – CANDALEPAS ASSOCIATES

Ⓑ COLOURED PRECAST CONCRETE PELICAN STREET APARTMENTS – CANDALEPAS ASSOCIATES

Ⓒ COLOURED CONCRETE WEST TYROL FIRE STATION – PEDEVILLA ARCHITECTS

Ⓓ WHITE METAL TUBES PUNCHBOWL MOSQUE (SIMILAR) – CANDALEPAS ASSOCIATES

Ⓔ STEEL WINDOW BOXES QT MELBOURNE – CANDALEPAS ASSOCIATES

Ⓕ COLOURED CONCRETE THE POINT APARTMENTS – CANDALEPAS ASSOCIATES

Ⓖ ALUMINIUM LOUVRES REVOLUTION APARTMENTS – CANDALEPAS ASSOCIATES

Ⓗ ALUMINIUM FRAMED GLAZING FRANCIS STREET APARTMENTS – CANDALEPAS ASSOCIATES

Ⓘ PAINTED CONCRETE BALUSTRADE PRESIDENT AVENUE APARTMENTS – CANDALEPAS ASSOCIATES

Ⓙ FIBRE CEMENT SHEET QT PERTH – CANDALEPAS ASSOCIATES

MAJOR AMENDMENTS

MINOR AMENDMENTS

J8P5NXS8A2 17/12/2020
6.8 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME www.nathers.gov.au
Assessor Christopher Mann
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Issue	Date	Description
B	08.12.20	FOR S4.55 TO CLIENT
A	02.12.20	FOR S4.55 TO CLIENT

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NSW ARCHITECTS REG No.– 5773

PROJECT:
IVANHOE ESTATE
EPPING ROAD, MACQUARIE PARK

CLIENT:
FRASERS PROPERTY IVANHOE

SCALE: 1:200@A1 / 1:400@A3
0 5m 10m

DATE: SEP 2020
CHECKED 1: MK
CHKD2/APPD: JW
DRAWN BY: MK/FP

DRAWING: SOUTH WEST ELEVATION

DRAWING No. S4.55–1305

JOB No. 5800

ISSUE B