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LOT A1 - IVANHOE ESTATE

BASIX SUMMARY REPORT

OCTOBER 2019

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LOT A1 - IVANHOE ESTATE

BASIX SUMMARY REPORT

FRASERS PROPERTY

WSP
LEVEL 27, 680 GEORGE STREET
SYDNEY NSW 2000
GPO BOX 5394
SYDNEY NSW 2001

TEL: +61 2 9272 5100
FAX: +61 2 9272 5101
WSP.COM

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

	NAME	DATE	SIGNATURE
Prepared by:	Chris Mann	22/10/2019	
Reviewed by:	Miranda Snowdon	22/10/2019	
Approved by:	Chris Mann	22/10/2019	

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EXECUTIVE SUMMARY

An ESD strategy has been developed for the proposed development at Lot A1 - Ivanhoe Estate in Macquarie Park.

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 target of 25% energy consumption reduction compared to the NSW average

The proposed development achieves a BASIX Water score of 41.

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

- Water efficient fittings
- 2kL rainwater tank used for irrigation

The proposed development achieves a BASIX Energy score of 30.

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 indoor and sheltered
- Solar PV panels installed on both towers, totaling 67kW

1 INTRODUCTION

An ESD strategy has been developed for the proposed development at Lot A1 - 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 Bates Smart

Drawing	Date	Revision
DA00 Cover Sheet & Drawing schedule		
DA01.A1.001 Site Plan	04.06.18	D
DA03.A1.B4 Basement 4	04.06.18	C
DA03.A1.B3 Basement 3	04.06.18	C
DA03.A1.B2 Basement 2	04.06.18	C

Drawing	Date	Revision
DA03.A1.B1 Basement 1	04.06.18	C
DA03.A1.000L Lower Ground Floor Plan	27.08.19	D
DA03.A1.000U Upper Ground Floor Plan	04.06.18	D
DA03.A1.001 Level 1 Plan	04.06.18	D
DA03.A1.002 Level 2 Plan	04.06.18	D
DA03.A1.003 Level 3, 5, 7 Plan	04.06.18	D
DA03.A1.004 Level 4, 6 Plan	04.06.18	D
DA03.A1.008 Level 8, 10, 12, 14 Plan	04.06.18	D
DA03.A1.009 Level 9, 11, 13, 15 Plan	04.06.18	D
DA03.A1.016 Level 16, 18, 20 Plan	04.06.18	D
DA03.A1.017 Level 17, 19, 21 Plan	04.06.18	D
DA03.A1.022 Level 22 Plan	26.09.19	F
DA03.A1.023 Level 23 Plan	26.09.19	F
DA03.A1.024 Roof Plan	04.06.18	D

→ Architectural elevation and section drawings from Bates Smart

Drawing	Date	Revision
DA07.A1.001 North Elevation	12.02.18	-
DA07.A1.002 East Elevation	12.02.18	-
DA07.A1.003 South Elevation	04.06.18	A
DA07.A1.004 West Elevation	04.06.18	A
DA08.A1.001 Section AA	04.06.18	C
DA08.A1.002 Section BB	04.06.18	D

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

→ BASIX Thermal Comfort Protocol 01 July 2017

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 5.2.10(3.13) 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% energy consumption reduction compared to the NSW average.

The BASIX certificate 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	3.5 Star	<1L/place setting
Washing machines	Not specified	-

- Rainwater harvesting and reuse. A 2kL rainwater tank is included in the building which will collect water from 950m² of roof area. The water will be used to irrigate 450m² 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 A1 - Ivanhoe Estate	**30.1 MJ / m²**	**15.0 MJ / m²**

2.2.1 MODELLING INPUTS

This section identifies the inputs for windows, shading and constructions used for the 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
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04) All penthouse façade glazing on Level 22 and all glazing on Level 23	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
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

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 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

2.3 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 2.5.

Table 2.5 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 — light emitting diode; Daylight sensor and motion sensors Hallways— light emitting diode; 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 — no mechanical ventilation Hallways— no 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:

- Efficient 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 2.6).

Table 2.6 Energy strategies for the dwellings

ENERGY ITEM	BUILDING A1
Central DHW heating system	Air sourced electric heat pump
Lift motors	Gearless traction with VVVF motors
Appliances	→ Cooktop - Induction → Oven – Electric → Refrigerator – not specified → Dishwashers – 3.5 star → Washing Machines – not specified → Clothes dryers – 2 star
Heating and cooling	Air conditioning plant with an EER >3.5
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 B

NATHER CERTIFICATES

Nationwide House Energy Rating Scheme* — Class 2 summary

Certificate Number: **LLB3Y296S3** Date of Certificate: **27 Sep 2019** ★ Average star rating: **6.5**

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 A1 - Ivanhoe Estate**
Suburb:	**Macquarie Park**
State:	**NSW**
Postcode:	**2113**

6.5

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**
WWYEP0CPM6	1.01	17.9	20.4	38.3	7.1
91EBHZAH8M	1.02	29.6	20.4	50	6.1
YCPXYVZ3ZE	1.03	38.2	24.2	62.4	5.2
TZE5JUXGM2	1.05	40	13.8	53.8	5.8
OQQV1F4VE3	1.06	29.2	15.5	44.7	6.5
YPWH9XXYPS	1.07	16.8	16.7	33.5	7.4
JXZM94TH7A	1.08	31.5	26.5	58	5.4
47Q1JSVKFB	1.09	25.6	28.4	54	5.8
LTXSNWFR2J	1.10	12.4	21.9	34.3	7.3
M2ITR00DV7	1.11	15.8	21.1	36.9	7.1
2UUC8I6VYG	10.01	20.7	13.4	34.1	7.4
7K1GIQXTB8	10.02	25.3	15.7	41	6.8
3HTAP3GXWW	10.03	29.4	12.1	41.5	6.8
MF3G6CC8IG	10.04	45.1	18.2	63.3	5.2
2K4OUVHWGF	10.05	39.9	11.5	51.4	5.9
HSFCIVBUXF	10.06	33.9	12.1	46	6.4

continued

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

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
BI8B31QUJF	10.07	21.9	14.2	36.1	7.2
NZK4FSMFQ3	10.08	35.3	12.5	47.8	6.3
H83GUJE955	10.09	32.3	14.9	47.2	6.3
EY0PXZ0DSK	10.10	31.4	18.8	50.2	6.1
29CISOM4IY	10.11	11.8	12	23.8	8.2
XXAHOZ5SUR	10.12	15.4	14.6	30	7.7
583OV5BGBB	10.13	24.5	15.6	40.1	6.9
26HVAOBO56	11.01	22.7	12.6	35.3	7.3
E9UKUZLPGU	11.02	27.6	15.4	43	6.7
LK0ZMB6N6A	11.03	29.8	12.2	42	6.8
P5XD3JL9XJ	11.04	44.7	18.1	62.8	5.2
72V32WFTYM	11.05	40	11.5	51.5	5.9
3AL9KSFSI9	11.06	34.6	10.7	45.3	6.4
SXS5QIMQRK	11.07	27.7	13.9	41.6	6.8
ASLDETM3U2	11.08	37.7	12.7	50.4	6
FXNA1SHK60	11.09	34.6	12.1	46.7	6.4
I6D3TS1QW9	11.10	34.6	17.5	52.1	5.9
10V8E4NH0V	11.11	13.3	11	24.3	8.1
FSUYX8GQ06	11.12	17.1	13.3	30.4	7.6
WZ3ICEPRUW	11.13	26.6	14.2	40.8	6.9
3JVTCF88YB	12.01	20.7	13.4	34.1	7.4
YYWHHVVDGM	12.02	25.3	15.7	41	6.8
J9TNPGLLV0	12.03	29.4	12.1	41.5	6.8
GFLCQ3IHVU	12.04	44.8	18	62.8	5.2
LLBM4WC4GM	12.05	40.6	11.4	52	5.9
5FIAR40HD6	12.06	33.9	12.1	46	6.4
4XM84TNU0N	12.07	21.9	14.2	36.1	7.2
NNRVB88HT2	12.08	35.3	12.5	47.8	6.3
EQEJ4B7KVW	12.09	32.3	14.9	47.2	6.3
OM16WTY67Z	12.10	31.4	18.8	50.2	6.1
6NZTHPUX3K	12.11	11.8	12	23.8	8.2

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
D30Y0JJZNT	12.12	15.4	14.6	30	7.7
KZBN7RIOM0	12.13	24.5	15.6	40.1	6.9
QWV3X1CJMN	13.01	22.7	12.6	35.3	7.3
E36ODWPFY9	13.02	27.6	15.4	43	6.7
09MZABPCEK	13.03	29.8	12.2	42	6.8
CZ1E7Q18AL	13.04	44.7	17.7	62.4	5.2
NLOGU6BWY0	13.05	40	11.5	51.5	5.9
LAECKOB2RW	13.06	34.6	10.7	45.3	6.4
5RFNVOUGEE	13.07	27.7	13.9	41.6	6.8
92NO1GHSPP	13.08	37.7	12.7	50.4	6
I60USA4P1G	13.09	34.6	12.1	46.7	6.4
AH32PK06OZ	13.10	34.6	17.5	52.1	5.9
9R3RIE6ASN	13.11	13.3	11	24.3	8.1
CN1XDQU1TZ	13.12	17.1	13.3	30.4	7.6
Z8B1N8BGIO	13.13	26.6	14.2	40.8	6.9
2SYZARMPD3	14.01	20.7	13.4	34.1	7.4
NJ93VQLRD6	14.02	25.3	15.7	41	6.8
VZWM71847L	14.03	29.4	12.1	41.5	6.8
UG5QEMVQTG	14.04	45	17.7	62.7	5.2
0JEZ6Y7GLB	14.05	40.9	11.6	52.5	5.9
PXRCND6M1J	14.06	33.9	12.1	46	6.4
SSR1IHOSZI	14.07	21.9	14.2	36.1	7.2
4476FMU6PJ	14.08	35.3	12.5	47.8	6.3
QD4FSEDP1Q	14.09	32.3	14.9	47.2	6.3
0RC19K6EW4	14.10	31.4	18.8	50.2	6.1
Z90PCZ13P7	14.11	11.8	12	23.8	8.2
5KFUXDYHSK	14.12	15.4	14.6	30	7.7
77A6R0EU89	14.13	24.5	15.6	40.1	6.9
HD6DRQMG47	15.01	25.4	15.5	40.9	6.8
IFRGHZ92LV	15.02	29	18	47	6.3

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
OCN8OKUGTB	15.03	31.8	12.9	44.7	6.5
QU5TCOXMHL	15.04	45.3	17.4	62.7	5.2
I92JZP1ITK	15.05	44.7	11.4	56.1	5.6
ORDE7FZ8YH	15.06	38.8	12.3	51.1	5.9
5GW3RXJ7D2	15.07	28.3	15.6	43.9	6.6
31S667Y3DA	15.08	40.4	13.9	54.3	5.8
QJYKYI1MRZ	15.09	42.8	15.5	58.3	5.4
JPRDGUZV6A	15.10	36.1	19.9	56	5.6
S96SP0AV5K	15.11	17.3	11.6	28.9	7.8
SUPY1VFXH7	15.12	19.5	15.4	34.9	7.3
VIP09OKPZM	15.13	29.2	17.2	46.4	6.4
GSMGDL9VUM	16.01	22.1	13	35.1	7.3
CLMG2ZG6A4	16.02	26.8	15.5	42.3	6.7
BNBCBD98L5	16.03	37.6	14.2	51.8	5.9
R80H6XR8X7	16.04	41.4	11.8	53.2	5.8
2KTOQUIU69	16.05	37.6	11.1	48.7	6.2
NXNMS2RJFA	16.06	29.2	13.4	42.6	6.7
BXV9NOJEI8	16.07	39.3	12.3	51.6	5.9
SLWJW8R1V7	16.08	43	15.2	58.2	5.4
YZY9PBM81C	16.09	30.5	16.9	47.4	6.3
G3F0J16D0S	16.10	14	10.3	24.3	8.1
5V0ZYUUNHT	16.11	24	13.9	37.9	7.1
0AEIR0EJTL	17.01	22.9	14.7	37.6	7.1
OKE8FMTFRW	17.02	25.5	17	42.5	6.7
2AVR53YE31	17.03	41	15.6	56.6	5.6
1228A7ZPFO	17.04	44.9	11.4	56.3	5.6
MAKZ5DUEJE	17.05	39.1	12.2	51.3	5.9
HHJCC04XVR	17.06	32.1	15.4	47.5	6.3
4PBLR3VOZD	17.07	40.8	13.5	54.3	5.8
GH3WU1A3SN	17.08	43.2	15.1	58.3	5.4

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
9DK11FOKJ1	17.09	43	19.3	62.3	5.2
84YXF799IB	17.10	17.5	11.5	29	7.7
RGPG8AOWSL	17.11	25.8	15.6	41.4	6.8
9V1WYTASZC	18.01	23	14.7	37.7	7.1
37K495XJH7	18.02	25.6	16.8	42.4	6.7
JU57F1JOUR	18.03	37.6	14	51.6	5.9
49GLADE7FP	18.04	45	11.4	56.4	5.6
QIF5T0PXMY	18.05	39.3	12.2	51.5	5.9
CAQ1TWSG7H	18.06	32.3	15.6	47.9	6.3
WD9C4CUY4Y	18.07	41	13.5	54.5	5.8
1HDHKSW6OK	18.08	43.3	15.1	58.4	5.4
SCDRM1JXNA	18.09	42.3	21	63.3	5.2
CMQ7591RSS	18.10	17.6	11.6	29.2	7.7
F13Y647JRB	18.11	26.2	15.3	41.5	6.8
MKPIF03F13	19.01	22.9	14.7	37.6	7.1
RRE2JRUJ9K	19.02	25.5	17	42.5	6.7
I4SUV95N7B	19.03	41.4	15.6	57	5.6
5EPJTRK5V3	19.04	44.9	11.4	56.3	5.6
YBERP4F8K2	19.05	39.1	12.2	51.3	5.9
VYWJLS15XG	19.06	32.1	15.4	47.5	6.3
M1N9XIQ8YA	19.07	40.8	13.5	54.3	5.8
HYBU2P03R6	19.08	43.3	15.1	58.4	5.4
KV7HH30846	19.09	43	19.3	62.3	5.2
10D1USG6K7	19.10	17.5	11.5	29	7.7
LK0TKG8WTU	19.11	25.8	15.6	41.4	6.8
CE747JQ4QK	2.01	18.1	14.4	32.5	7.4
WXWM5R3442	2.02	22.7	16	38.7	7
ARFC9AN3YS	2.03	31.8	19.1	50.9	6
9BIUA3VW8E	2.04	38.2	23.8	62	5.3
LUJW1Z4TDX	2.04	45.1	23.5	68.6	4.9

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
MUUDU5H1NF	2.05	33.1	11.4	44.5	6.5
RFBS3V9547	2.06	30.7	11.9	42.6	6.7
0TFJIUGAP3	2.07	18.7	13.7	32.4	7.4
AJ0IUPSSJS	2.08	33.4	21.9	55.3	5.7
4QDL287TOD	2.09	27.2	23.8	51	5.9
8SQ6O2OANH	2.10	15.2	17	32.2	7.4
S3DJWK96K3	2.11	19.3	15.9	35.2	7.3
ZOHP8I4PSC	20.01	23.3	14.6	37.9	7.1
2K0SV6ARXD	20.02	25.9	16.8	42.7	6.7
2016M8MCJ1	20.03	37.9	14.1	52	5.9
666GC1RJHM	20.04	44.2	11.6	55.8	5.7
NJSB8SGUTT	20.05	39.6	12	51.6	5.9
G9R4J9XKC9	20.06	32.6	15.6	48.2	6.2
61G1F5OUQ3	20.07	41.3	13.4	54.7	5.7
P0JL0SHZ84	20.08	43.7	15.2	58.9	5.4
5PHZ8NC5I1	20.09	42.7	20.9	63.6	5.2
GZYFVHZBE0	20.10	17.9	11.5	29.4	7.7
37DFQGRF8B	20.11	26.5	15.1	41.6	6.8
PQ34ZFY4VE	21.01	24	14.8	38.8	7
FJ7GKG49AL	21.02	25.9	16.8	42.7	6.7
NWUWY29Z95	21.03	41.5	15.5	57	5.6
6ZL8KLESSC	21.04	44.3	11.6	55.9	5.6
QO5CDGOQDT	21.05	39.6	12	51.6	5.9
OUAS135HG7	21.06	32.6	15.5	48.1	6.2
F840IQ7968	21.07	41.3	13.4	54.7	5.7
EGHIQVD15D	21.08	43.7	15.2	58.9	5.4
EWDZEQ0GD0	21.09	42.8	20.5	63.3	5.2
27MHHEIQGJ	21.10	21.2	12.1	33.3	7.4
PMXOZITB4F	21.11	27.2	15.3	42.5	6.7
6Z8PZZSGTO	22.01	41.1	24.1	65.2	5.1

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
LIGGYSO6AZ	22.02	30.1	18	48.1	6.2
CS5YHUJXVB	22.03	44.9	20.3	65.2	5
TUKN8W702O	22.04	44	16.4	60.4	5.3
4YUDUTWRVF	22.05	43.1	12.5	55.6	5.7
ESW4ARKJM2	22.06	33	16.3	49.3	6.1
LMK8IK3RVQ	22.07	41.2	25	66.2	4.9
E3LE1HE44F	22.08	43.4	26.1	69.5	4.8
CBUOK3WMGG	22.09	32.5	26.4	58.9	5.4
IETHNROV5K	22.10	20.5	12.1	32.6	7.4
HIZBR3T4NT	22.11	40	23.4	63.4	5.2
TAYK9SZM4W	22.12	37.8	19	56.8	5.6
UXYO16LB87	3.01	20.4	13.6	34	7.4
U11MO34UDD	3.02	25.1	15.5	40.6	6.9
5Q4LLOY6CP	3.03	34.2	16.8	51	6
EBNF5786DL	3.04	39	23.4	62.4	5.2
3N5TGJS5D3	3.05	32.8	10.4	43.2	6.6
3VAG5D3MDN	3.06	31.8	12.1	43.9	6.6
HP9S2SOVRQ	3.07	21.2	14.3	35.5	7.3
3VPSB4901P	3.08	34.5	12.6	47.1	6.3
401BI0OX29	3.09	34	14.3	48.3	6.2
RFPLJKKMBM	3.10	25.6	19.8	45.4	6.4
Y7O0DKGW6Q	3.11	15	12	27	7.9
VXK5IFP3R0	3.12	14.9	14.7	29.6	7.7
BJIRXYGEJ0	3.13	24.7	13.5	38.2	7.1
RHMYLIEZX4	4.01	20.1	13.7	33.8	7.4
DJTRH8NFJZ	4.02	24.8	15.5	40.3	6.9
N1K6KWO2IZ	4.03	33.9	17	50.9	6
2XQRGWU0M1	4.04	41	22.9	63.9	5.1
2PVCJI9Z4T	4.05	34.1	10.2	44.3	6.6
AQRH6Z7PNY	4.06	31.1	13	44.1	6.6

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
3LR7CQ2CKU	4.07	25.4	12.8	38.2	7.1
NX3S77GIWC	4.08	34.2	12.4	46.6	6.4
XY8ZYMGJUR	4.09	34.7	14.8	49.5	6.1
523IVSAGJ2	4.10	25.3	18	43.3	6.6
EW30EOOM1X	4.11	10.8	12	22.8	8.3
46OX96FJ6N	4.12	14.6	15.1	29.7	7.7
RSHBROW06K	4.13	21.1	15.8	36.9	7.1
CPO29BR8YK	5.01	20.4	13.6	34	7.4
5ZI89CU655	5.02	25.1	15.5	40.6	6.9
6JV2O3E8J0	5.03	34.2	16.8	51	6
MXJWIK3GV6	5.04	40.4	23.2	63.6	5.1
RNMK6N7PJR	5.05	33.7	10.2	43.9	6.6
LR0TA34VOG	5.06	31.8	12.1	43.9	6.6
ZFMX7Q8X93	5.07	21.2	14.3	35.5	7.3
P6PJFNW9J9	5.08	34.5	12.6	47.1	6.3
TZ2LBFN2JZ	5.09	34	14.3	48.3	6.2
JTS35IKGUQ	5.10	25.6	17.8	43.4	6.6
9SI3W0JYTK	5.11	10.9	11.7	22.6	8.3
0H9V89MBV1	5.12	14.9	14.7	29.6	7.7
CGOJT5OVO6	5.13	24.7	13.5	38.2	7.1
XEUDT6TPF1	6.01	20.1	13.7	33.8	7.4
E15HMGLNLI	6.02	24.8	15.5	40.3	6.9
ML30YNVPI0	6.03	33.9	17	50.9	6
J0NBQGG62M	6.04	41	22.9	63.9	5.1
RG0HKCX058	6.05	34.1	10.2	44.3	6.6
IV2KELL3PF	6.06	31.1	13	44.1	6.6
LDGOSNN30G	6.07	25.4	12.8	38.2	7.1
5YY2P47ZVP	6.08	34.2	12.4	46.6	6.4
QI2P98YOMX	6.09	34.7	14.8	49.5	6.1
6LZUJ7G2FS	6.10	25.3	18	43.3	6.6

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
5TYNKI46TE	6.11	10.8	12	22.8	8.3
L0ALJAV58O	6.12	14.6	15.1	29.7	7.7
4S8IEU9DTR	6.13	21.1	15.8	36.9	7.1
PK6VLX796N	7.01	20.4	13.6	34	7.4
GK7S6644LX	7.02	25.1	15.5	40.6	6.9
YET8OG8XGV	7.03	34.2	16.8	51	6
3CN5RO7ONK	7.04	41.7	22	63.7	5.1
597F2Q057T	7.05	34.9	10.3	45.2	6.4
VZVJFL18GE	7.06	31.8	12.1	43.9	6.6
ZK3LUE6CAR	7.07	21.2	14.3	35.5	7.3
8QQA2YHNG8	7.08	34.5	12.6	47.1	6.3
AOV81GVWPV	7.09	34	14.3	48.3	6.2
Z4TJRX8D7F	7.10	25.6	17.8	43.4	6.6
5MRWBN9LZ7	7.11	10.9	11.7	22.6	8.3
Z39Z8393T8	7.12	14.9	14.7	29.6	7.7
0YN4PQU774	7.13	24.7	13.5	38.2	7.1
NMFSX1EE1T	8.01	20.7	13.4	34.1	7.4
2IWQHTLZRX	8.02	25.3	15.7	41	6.8
RHXQ510NKT	8.03	29.4	12.1	41.5	6.8
Z8HXVX30QJ	8.04	42.8	20.9	63.7	5.1
XGJC3ZPYCO	8.05	40.9	11.1	52	5.9
X9HJVVGVVX	8.06	33.9	12.1	46	6.4
TY4QUFJURQ	8.07	21.9	14.2	36.1	7.2
EN1HYWVHMR	8.08	35.3	12.5	47.8	6.3
X1N349IHPH	8.09	32.3	14.9	47.2	6.3
SV2SP1IJB3	8.10	31.4	18.8	50.2	6.1
36XICKHAU8	8.11	11.8	12	23.8	8.2
98JDA1KAVV	8.12	15.4	14.6	30	7.7
7CFK8SUJ26	8.13	24.5	15.6	40.1	6.9
IX8CH5CYBL	9.01	22.7	12.6	35.3	7.3

continued

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	**Unit number**	**Heating load**	**Cooling load**	**Total load**	**Star rating**
OPHJL1YL8B	9.02	27.6	15.4	43	6.7
G8T8HL1N7W	9.03	29.8	12.2	42	6.8
XZZE1A8YJZ	9.04	44.2	18.4	62.6	5.2
T2WY0SYDM0	9.05	40	11.5	51.5	5.9
A13H34A95T	9.06	34.6	10.7	45.3	6.4
0UIIAK8VXG	9.07	27.7	13.9	41.6	6.8
MCK6M4GCHO	9.08	37.7	12.7	50.4	6
8EEUI5MCI8	9.09	34.6	12.1	46.7	6.4
YQ2SYWWSEF	9.10	34.6	17.5	52.1	5.9
HDBPS7R749	9.11	13.3	11	24.3	8.1
X71QUWQY9F	9.12	17.1	13.3	30.4	7.6
76MYR6K1I0	9.13	26.6	14.2	40.8	6.9

This building achieves an average star rating of: **6.5**

APPENDIX C

STAMPED PLANS

IVANHOE STAGE 1 - LOT A1 DEVELOPMENT APPLICATION

DRAWING SCHEDULE

Drawing No.	Drawing Title	Scale
DA00	Cover Sheet & Drawing Schedule	NTS
DA01 - Site Plans		
DA01.A1.001	Site Plan	1:200@A1 / 1:400@A3
DA03 - Floor Plans		
DA03.A1.B4	Basement 04	1:200@A1 / 1:400@A3
DA03.A1.B3	Basement 03	1:200@A1 / 1:400@A3
DA03.A1.B2	Basement 02	1:200@A1 / 1:400@A3
DA03.A1.B1	Basement 01	1:200@A1 / 1:400@A3
DA03.A1.000L	Lower Ground Floor Plan	1:200@A1 / 1:400@A3
DA03.A1.000U	Upper Ground Floor Plan	1:200@A1 / 1:400@A3
DA03.A1.001	Level 01 Plan	1:100@A1 / 1:200@A3
DA03.A.003	Level 03, 05, 07 Plan	1:100@A1 / 1:200@A3
DA03.A.004	Level 04, 06 Plan	1:100@A1 / 1:200@A3
DA03.A.008	Level 08, 10, 12, 14 Plan	1:100@A1 / 1:200@A3
DA03.A.009	Level 09, 11,13, 15 Plan	1:100@A1 / 1:200@A3
DA03.A1.016	Level 16, 18, 20 Plan	1:100@A1 / 1:200@A3
DA03.A1.017	Level 17, 19, 21 Plan	1:100@A1 / 1:200@A3
DA03.A1.022	Level 22 Plan	1:100@A1 / 1:200@A3
DA03.A1.023	Level 23 Plan	1:100@A1 / 1:200@A3
DA03.A1.024	Roof Level Plan	1:100@A1 / 1:200@A3
DA07 - Elevations		
DA07.A1.001	North Elevation	1:200@A1 / 1:400@A3
DA07.A1.002	East Elevation	1:200@A1 / 1:400@A3
DA07.A1.003	South Elevation	1:200@A1 / 1:400@A3
DA07.A1.004	West Elevation	1:200@A1 / 1:400@A3
DA08 - Sections		
DA08.A1.001	Section AA	1:200@A1 / 1:400@A3
DA08.A1.002	Section BB	1:200@A1 / 1:400@A3
DA12 - Adaptable Apartments		
DA12.A1.001	Adaptable Apartment - 1B	1 :50@A1 / 1 :100@A3
DA12.A1.002	Adaptable Apartment - 2B	1 :50@A1 / 1 :100@A3
DA12.A1.003	Adaptable Apartment - 3B	1:50@A1 / 1:100@A3
DA 50 - Area Schedule		
DA50.A1.001	Area Schedule GFA	1:750@A1 / 1:1500@A3

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment **(1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)** **All penthouse façade glazing on Level 22 and all glazing on Level 23**	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
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

6.5
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

www.nathers.gov.au

https://www.fr5.com.au/QRCodeLanding?PublicId=LLB3Y296S3&GrpCert=1

ABSA
Australian Building Sustainability Association
HERS Assessments completed within the accreditation period are part of the ABSA quality audit system
Accreditation Period 01/04/19-31/03/2020
Assessor Name Christopher Mann
Assessor Number 101142
Assessor Signature
This Accredited Assessor is qualified to use NatHERS Accredited Software and has agreed to follow the ABSA Code of Practice

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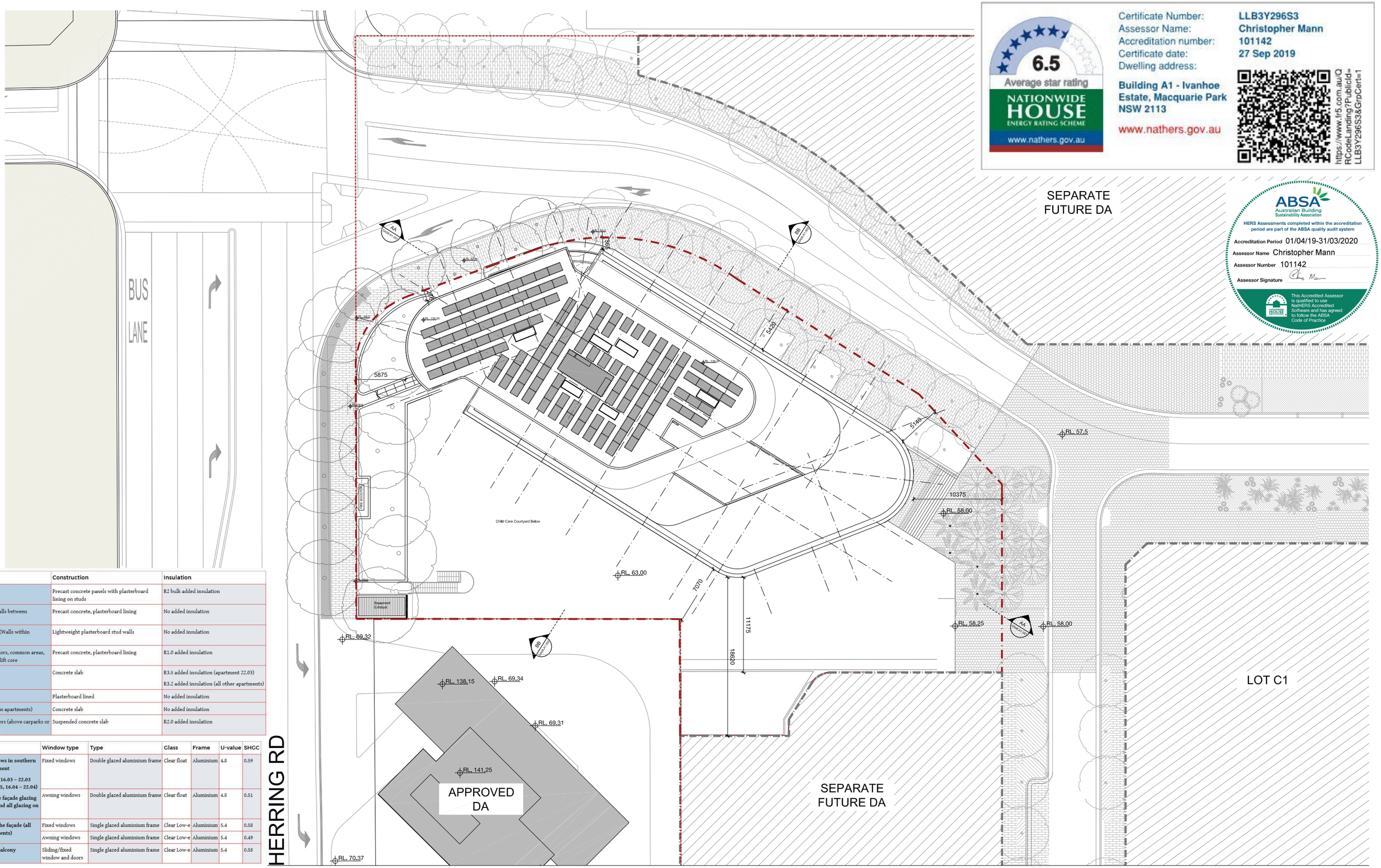
S12067.A FPA - IVANHOE ESTATE BUILDING A1



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

Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

www.nathers.gov.au

https://www.hfs.com.au/QRCodeLanding?PublicId=LLB3Y296S3&GrpCert=1

ABSA
Australian Building Sustainability Association
HERS Assessments completed within the accreditation period are part of the ABSA quality audit system
Accreditation Period 01/04/19-31/03/2020
Assessor Name Christopher Mann
Assessor Number 101142
Assessor Signature
This Accredited Assessor is qualified to use NatHERS Accredited Software and has agreed to follow the ABSA Code of Practice

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04) All penthouse façade glazing on Level 22 and all glazing on Level 23	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
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	Awning windows	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.49
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Site Plan

0 1 2 5 10 15 m

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.
All drawings to be read in conjunction with all architectural documents and all other consultants documents.
Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.
All drawings may not be reproduced or distributed without prior permission from the architect.

Scale 1:200@A1 / 1:400@A3
Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 4/6/2018 8:21:34 PM
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Drawing No. DA01.A1.001[D]
[Revision]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
email syd@batessmart.com.au
http://www.batessmart.com.au

Bates Smart Architects Pty Ltd ABN 68 094 740 986

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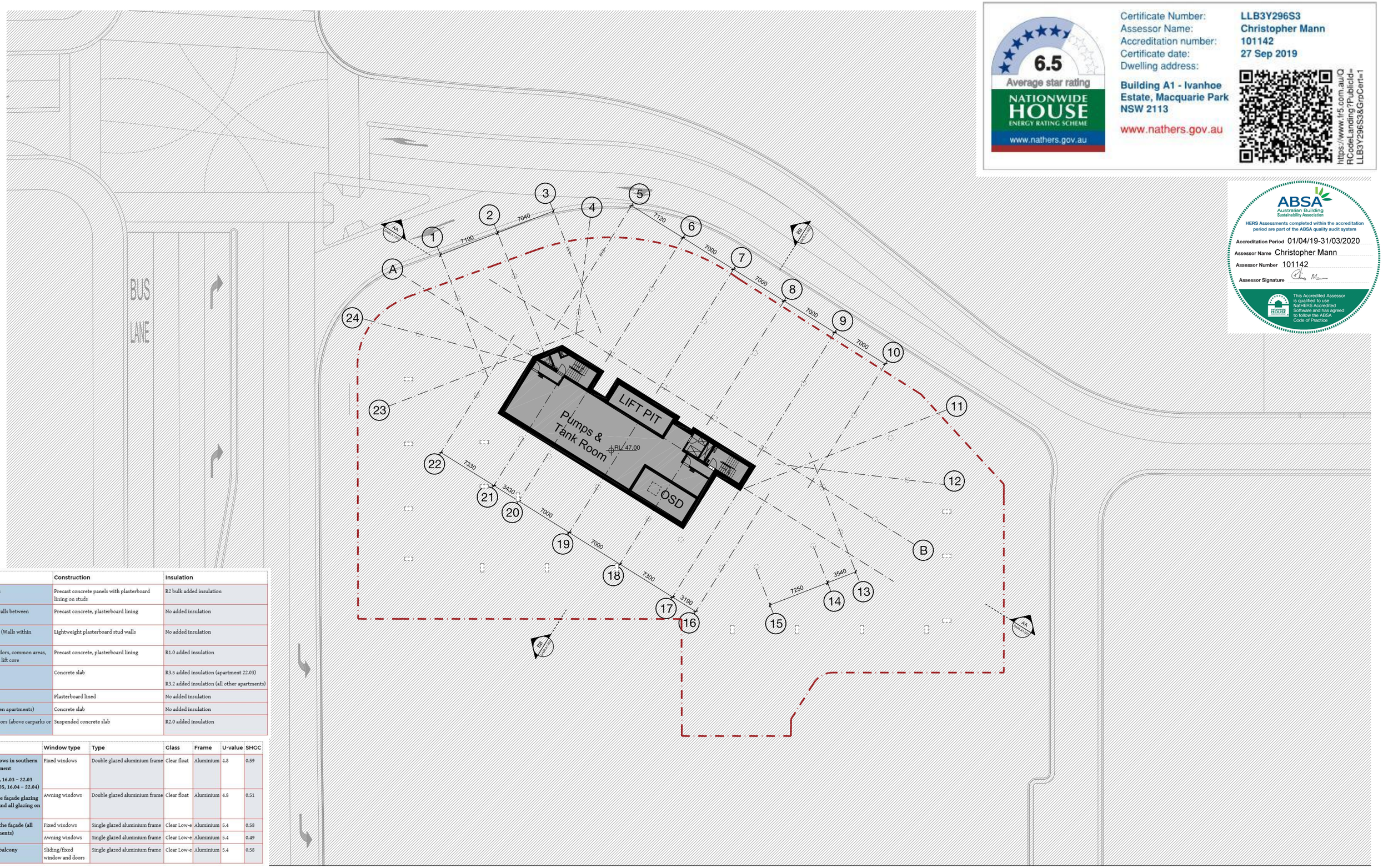

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
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Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

6.5
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

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https://www.hfs.com.au/QRcodeLanding?PublicId=LLB3Y296S3&GrpCert=1

ABSA
Australian Building Sustainability Association
HERS Assessments completed within the accreditation period are part of the ABSA quality audit system
Accreditation Period 01/04/19-31/03/2020
Assessor Name Christopher Mann
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This Accredited Assessor is qualified to use NatHERS Accredited Software and has agreed to follow the ABSA Code of Practice

Revision	Date	Description	Initial	Checked
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Basement 04- Carpark

0 1 2 5 10 15 m

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Scale 1:200@A1 / 1:400@A3
Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 4/6/2018 5:32:03 PM
Plot File S:\12000-12099\S12067.A_frasers_ivanhoe\70_CAD\Plots\DA\D... ... A03.A1.B4[C].dwg
Drawing No. [Revision]
DA03.A1.B4[C]

Melbourne 1 Nicholson Street
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T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

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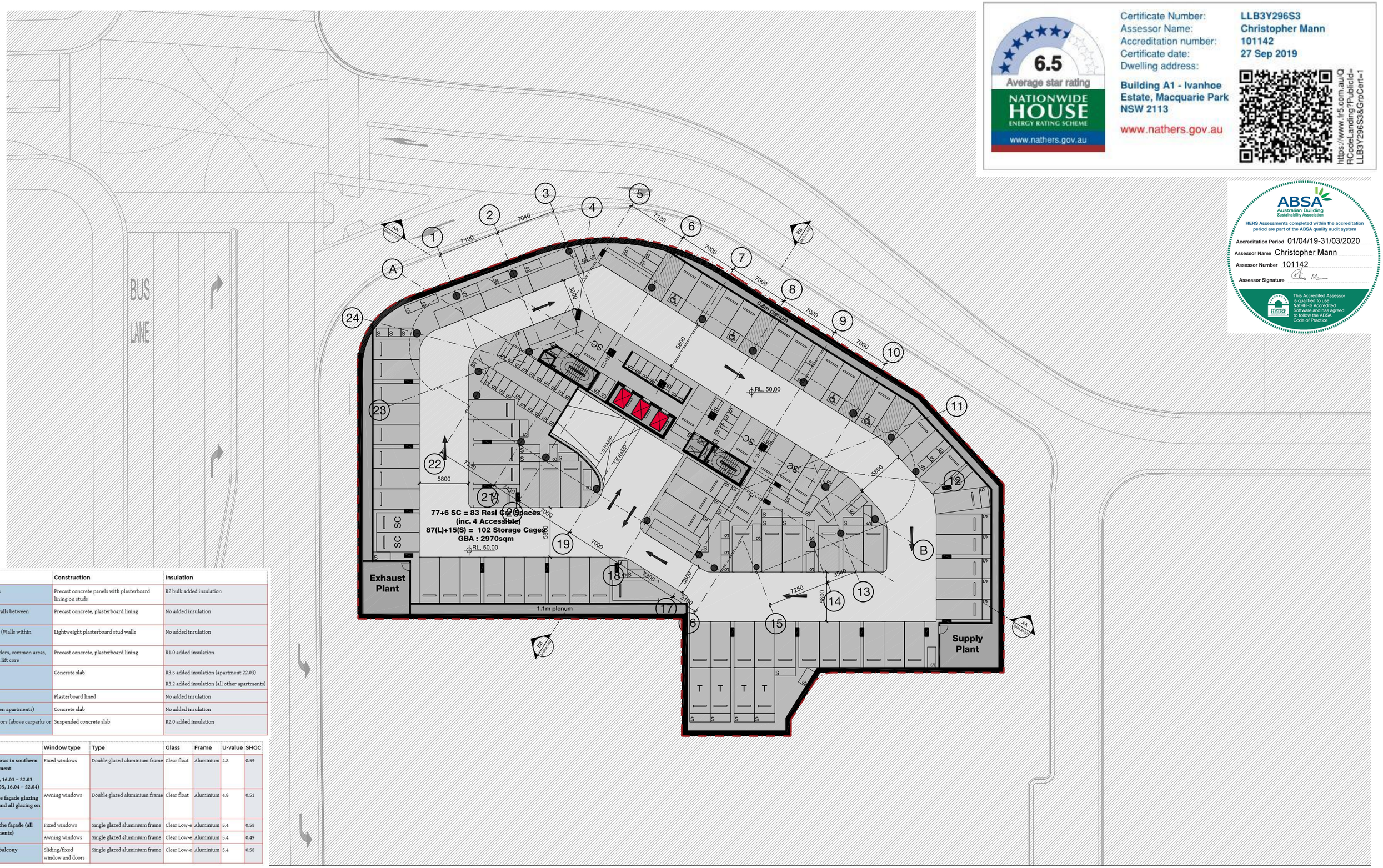

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04) All penthouse façade glazing on Level 22 and all glazing on Level 23	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
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

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6.5 Average star rating
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Building A1
Ivanhoe Estate, Macquarie Park
Basement 03- Carpark

0 1 2 5 10 15 m

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email melb@batessmart.com.au
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Sydney 43 Brisbane Street
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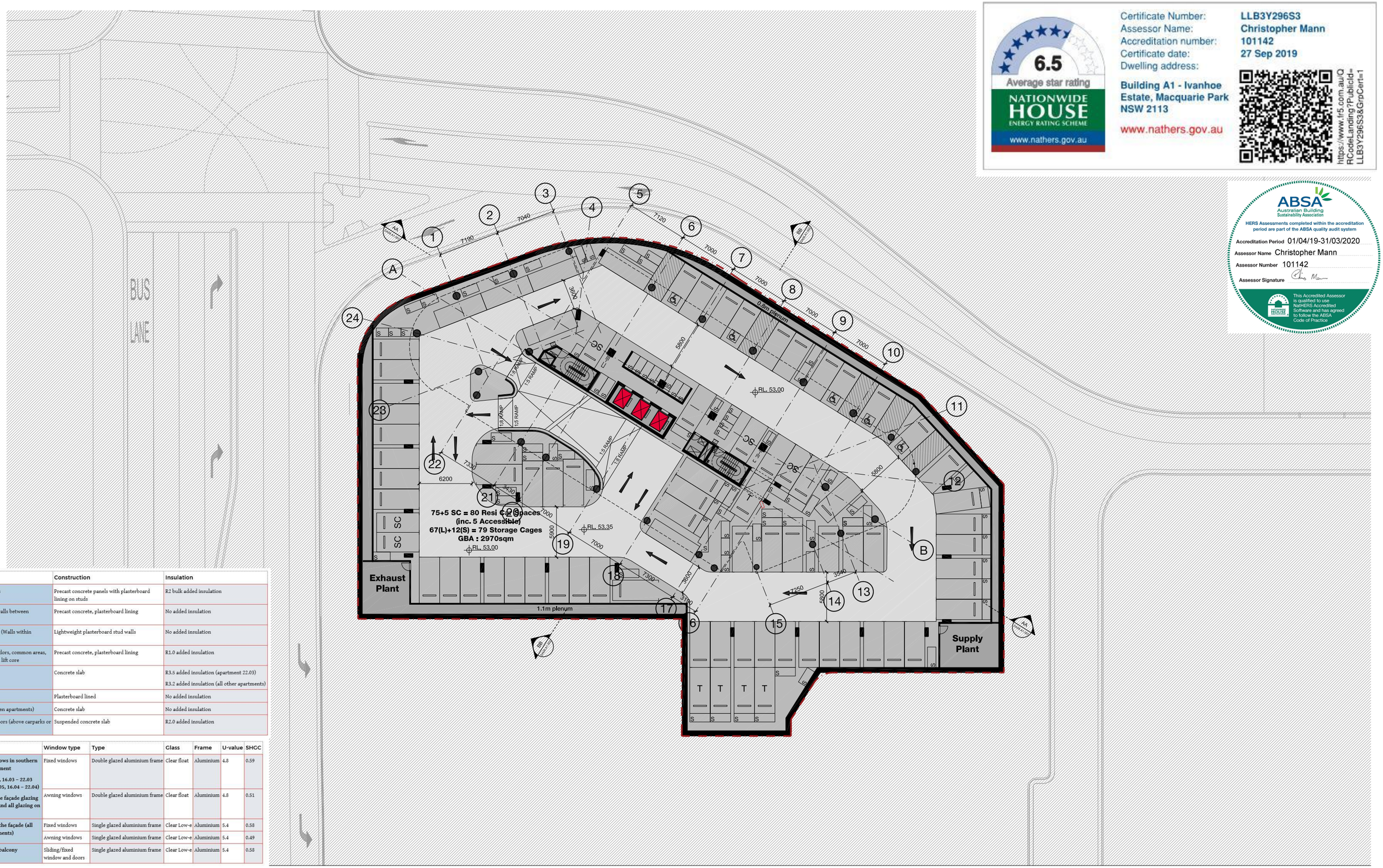

	Construction	Insulation
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Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
Ceilings	Plasterboard lined	No added insulation
Floors (between apartments)	Concrete slab	No added insulation
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Location	Window type	Type	Glass	Frame	U-value	SHGC
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Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

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Building A1
Ivanhoe Estate, Macquarie Park

Basement 02 - Typical Carpark

0 1 2 5 10 15 m

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Status	DA
Plot Date	4/6/2018 5:32:16 PM
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Drawing No.	[Revision]
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T 03 8664 6200 F 03 8664 6300
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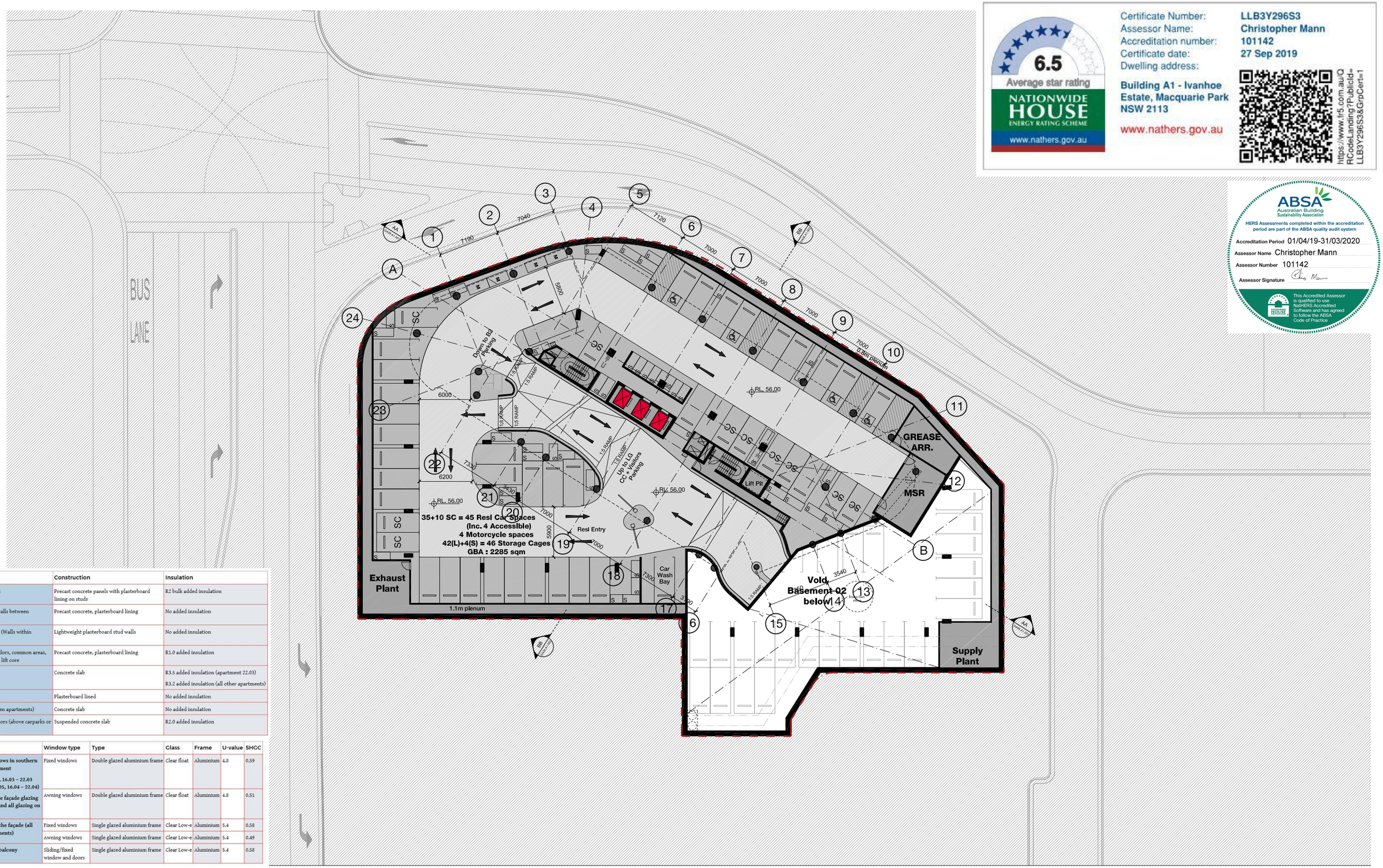

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Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
Ceilings	Plasterboard lined	No added insulation
Floors (between apartments)	Concrete slab	No added insulation
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Location	Window type	Type	Glass	Frame	U-value	SHGC
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Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

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Building A1
Ivanhoe Estate, Macquarie Park
Basement 01 : Loading Dock / Childcare parking

0 1 2 5 10 15 m

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Drawing No.	[Revision]

DA03.A1.B1[C]

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Melbourne VIC 3000 Australia
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http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
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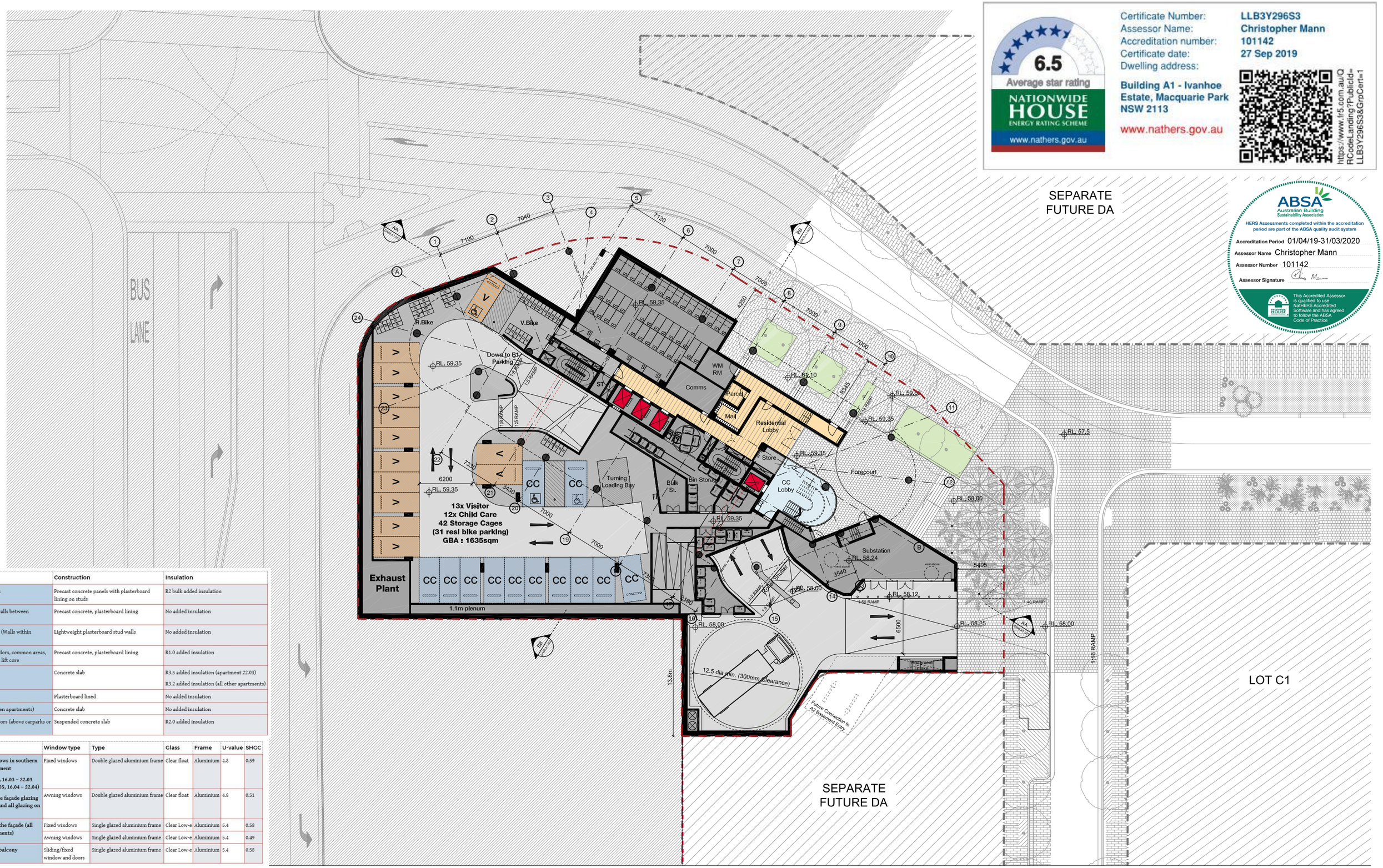

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Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
Ceilings	Plasterboard lined	No added insulation
Floors (between apartments)	Concrete slab	No added insulation
Suspended floors (above carparks or outside air)	Suspended concrete slab	R2.0 added insulation

Location	Window type	Type	Glass	Frame	U-value	SHGC
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Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

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Building A1
Ivanhoe Estate, Macquarie Park

Lower Ground Plan

0 1 2 5 10 15 m

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Location	Window type	Type	Glass	Frame	U-value	SHGC
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Building A1
Ivanhoe Estate, Macquarie Park
Upper Ground Plan

0 1 2 5 10 15 m

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Building A1
Ivanhoe Estate, Macquarie Park

Level 01 Plan

0 1 2 5 7.5 m

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Drawing No.	[Revision]

DA03.A1.001[D]

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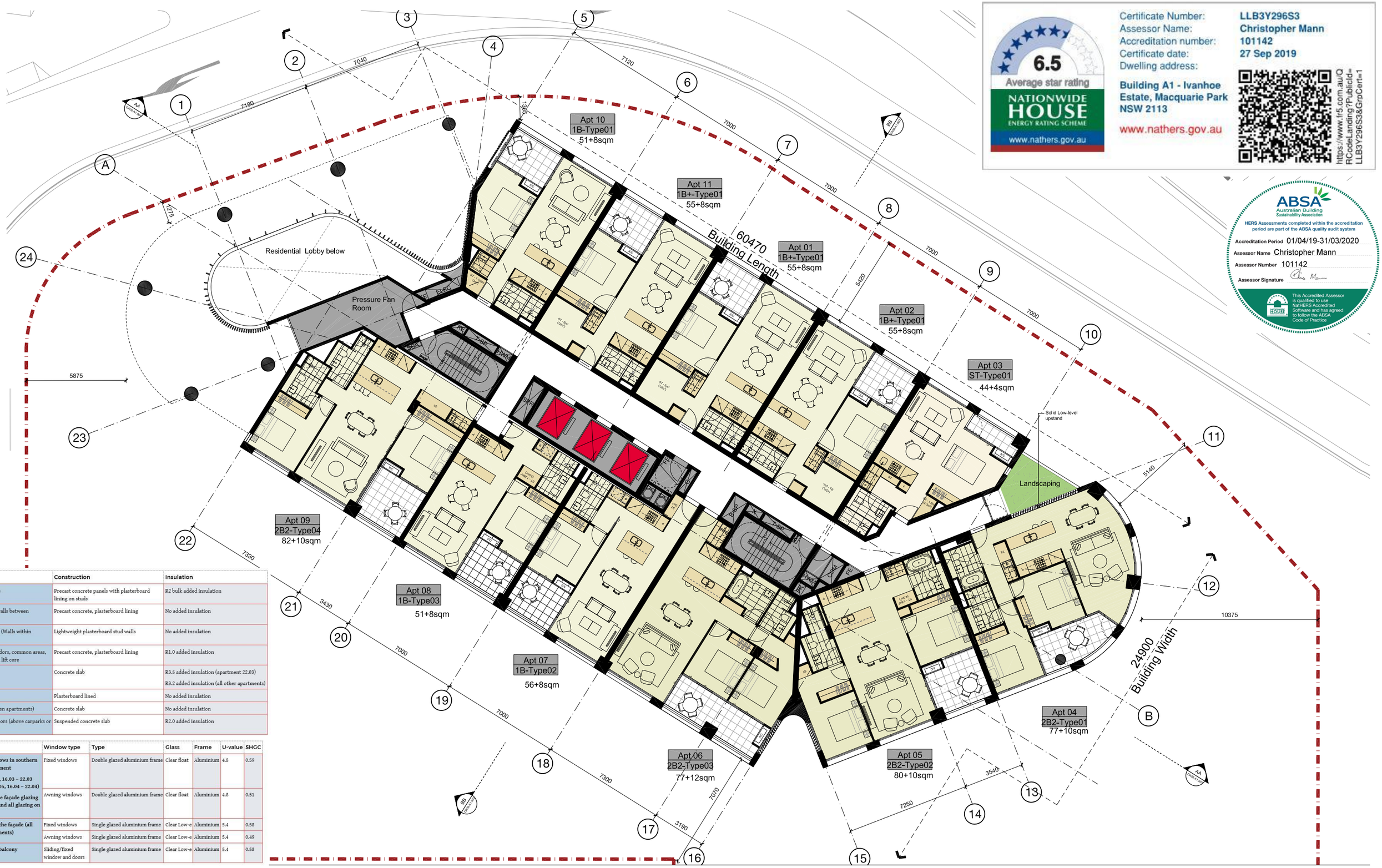

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Windows to the façade (all other apartments)	Fixed windows	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58
	Awning windows	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.49
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

6.5 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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ABSA Australian Building Sustainability Association
HERS Assessments completed within the accreditation period are part of the ABSA quality audit system
Accreditation Period 01/04/19-31/03/2020
Assessor Name Christopher Mann
Assessor Number 101142
Assessor Signature
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Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 02 Plan

0 1 2 5 7.5 m

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Scale 1:100@A1 / 1:200@A3
Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 4/6/2018 5:33:00 PM
Plot File S:\12000-12099\S12067.A_frasers_ivanhoe\70_CAD\Plots\DA\D ... -- A03 A1.002[D].dwg
Drawing No. DA03.A1.002[D]
[Revision]

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Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
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http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
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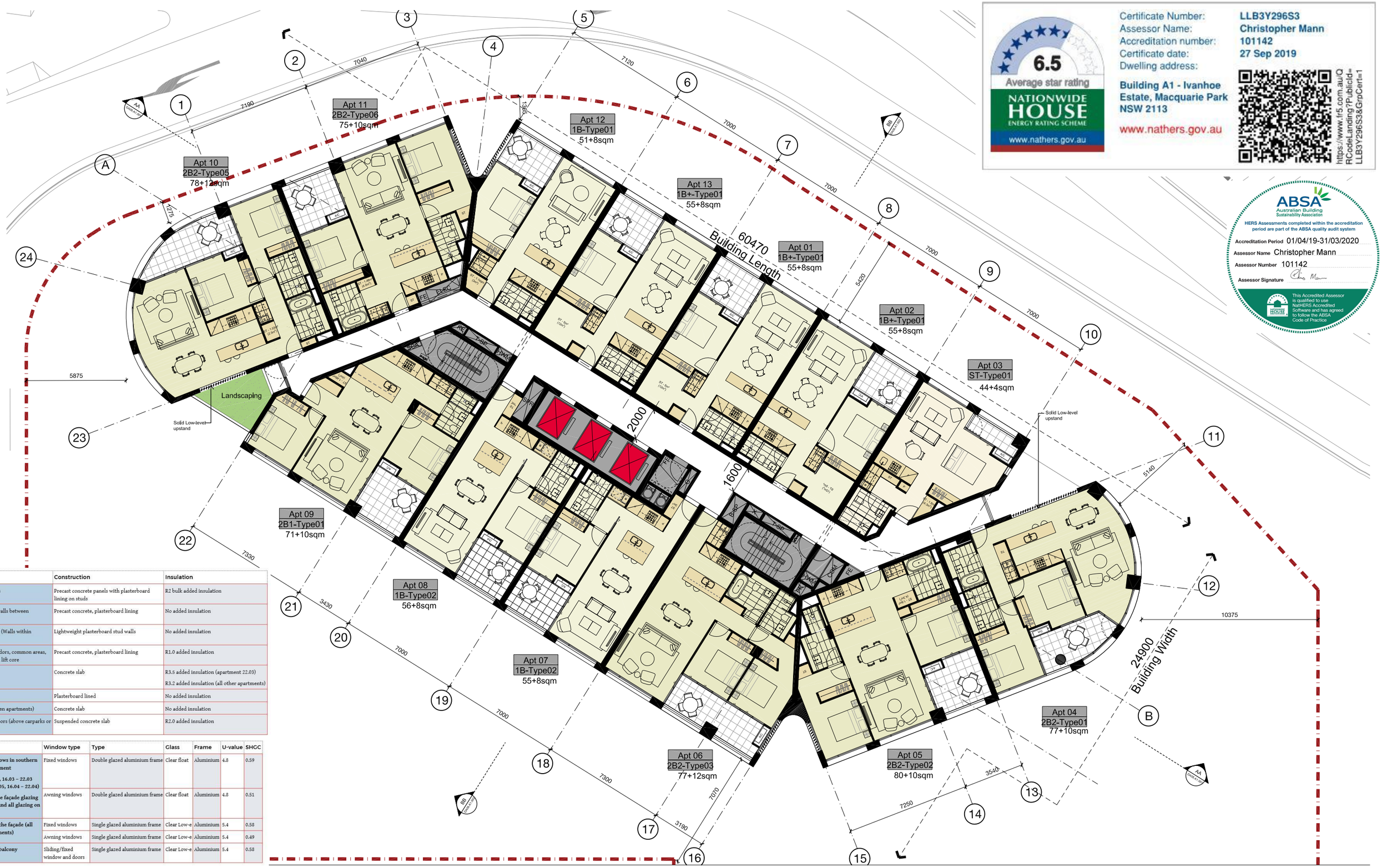

6.5
Average star rating
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Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

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	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Revision	Date	Description	Initial	Checked
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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 03, 05 & 07 Plan

0 1 2 5 7.5 m

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Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 4/6/2018 5:33:07 PM
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[Revision]

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http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
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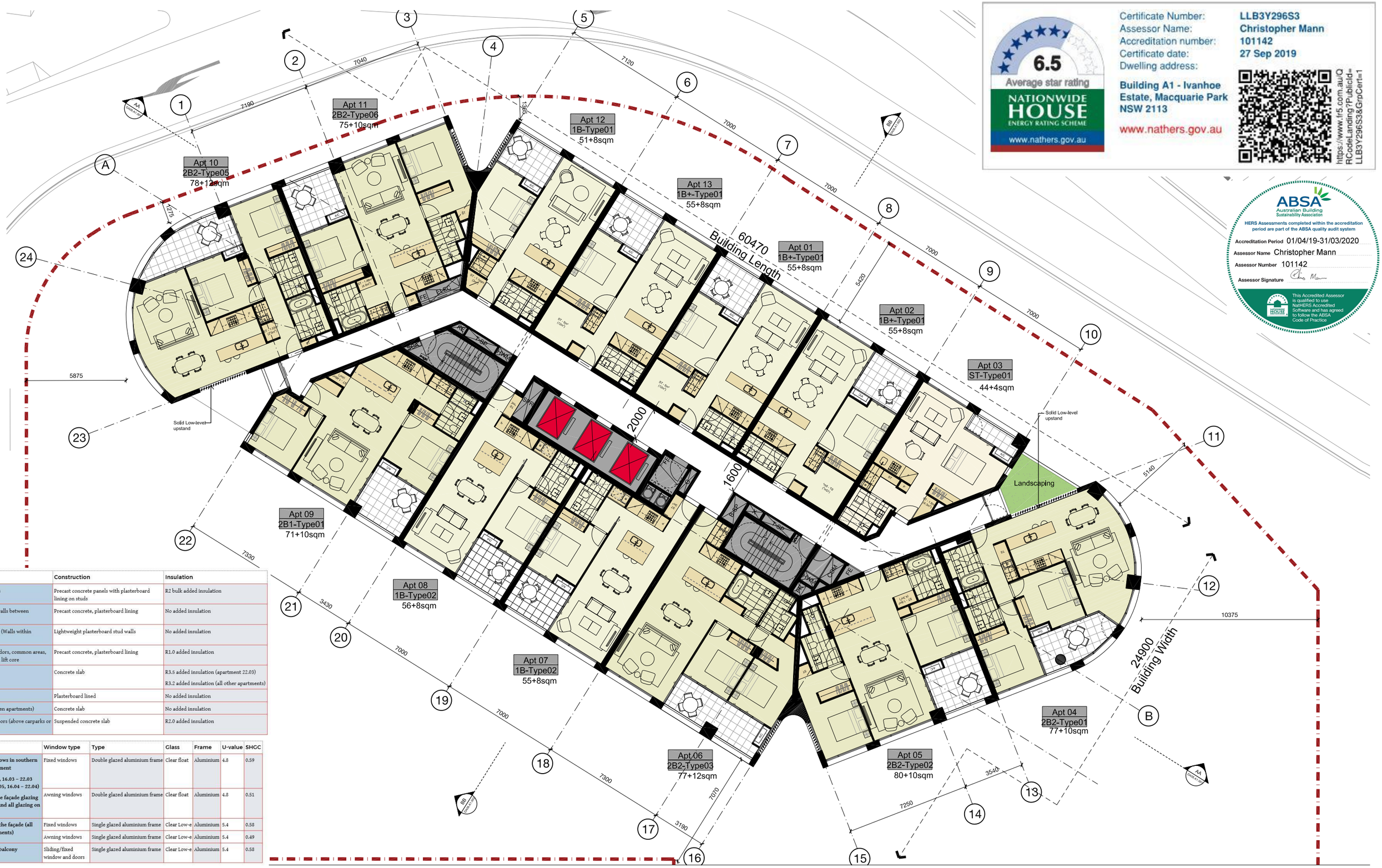

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
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Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

6.5 Average star rating
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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 04 & 06 Plan

0 1 2 5 7.5 m

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Scale 1:100@A1 / 1:200@A3
Drawn
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Project No. s12067.A
Status DA
Plot Date 4/6/2018 5:33:13 PM
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Drawing No. DA03.A1.004[D]
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Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
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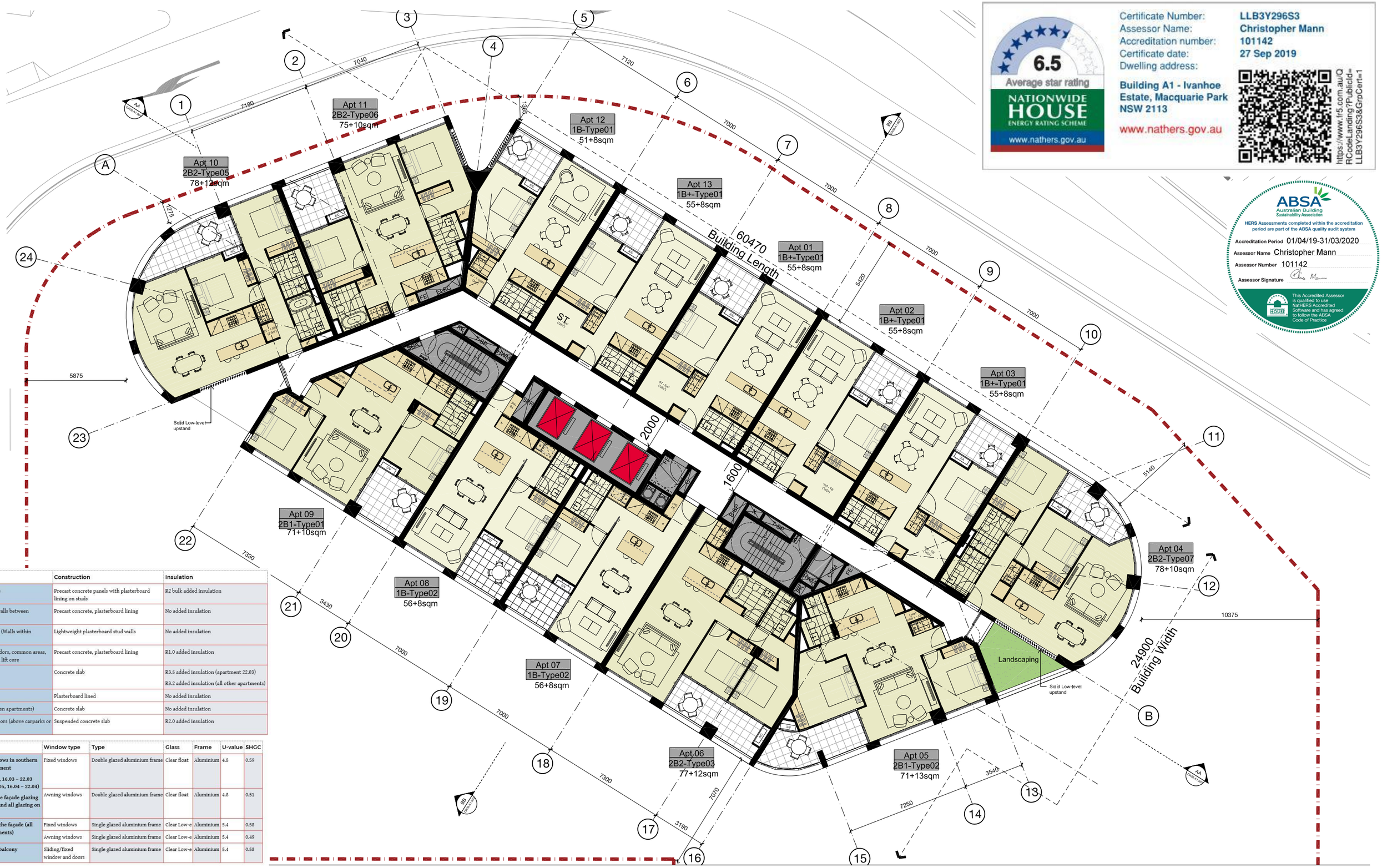

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
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Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

6.5
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

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Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 08, 10 ,12 & 14 Plan

0 1 2 5 7.5 m

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Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 4/6/2018 5:33:25 PM
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Drawing No. [Revision]
DA03.A1.008[D]

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email melb@batessmart.com.au
http://www.batessmart.com.au

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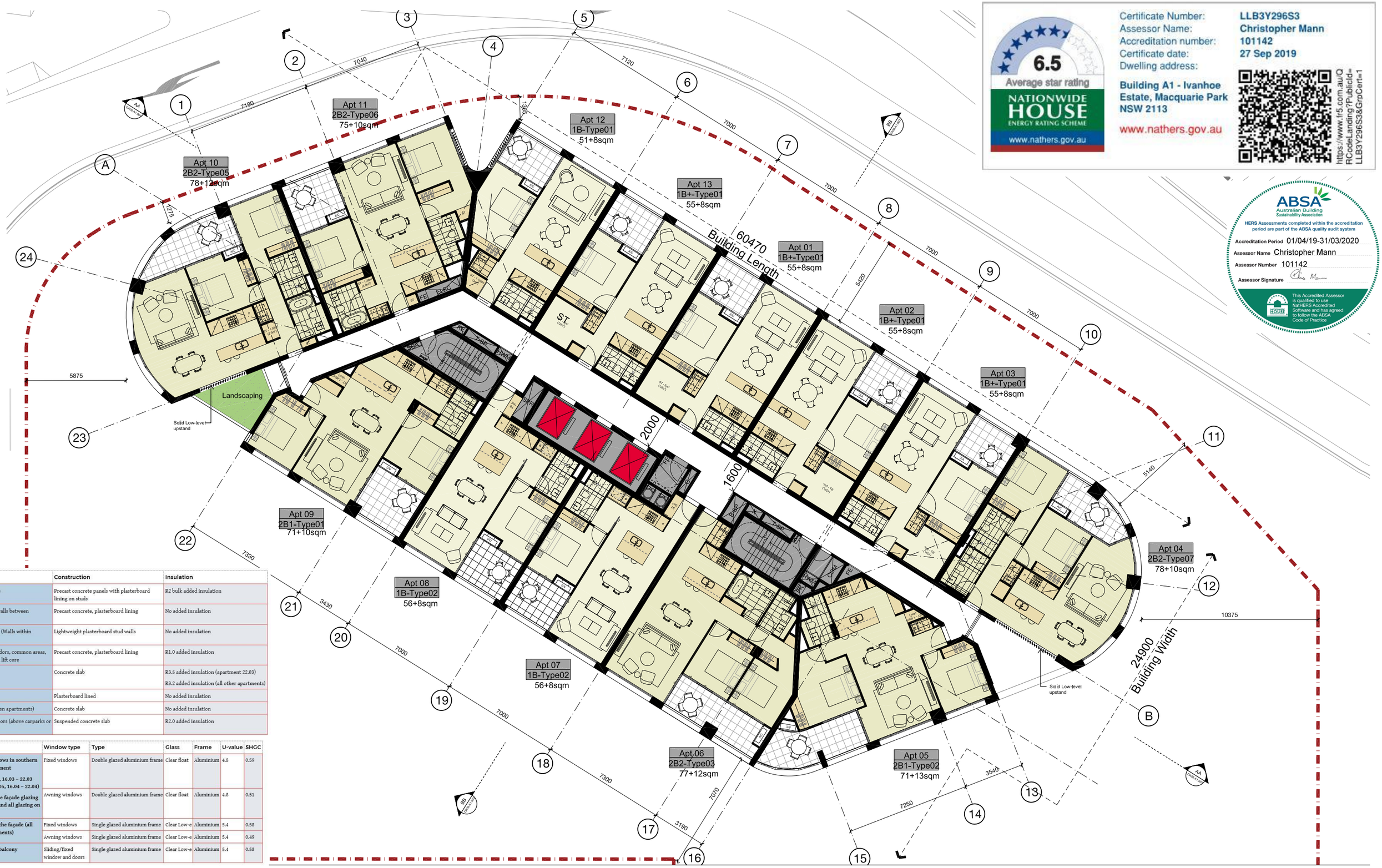

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

6.5
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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 09, 11, 13 & 15 Plan

0 1 2 5 7.5 m

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Drawn	Checked
Project No.	s12067.A
Status	DA
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email melb@batessmart.com.au
http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
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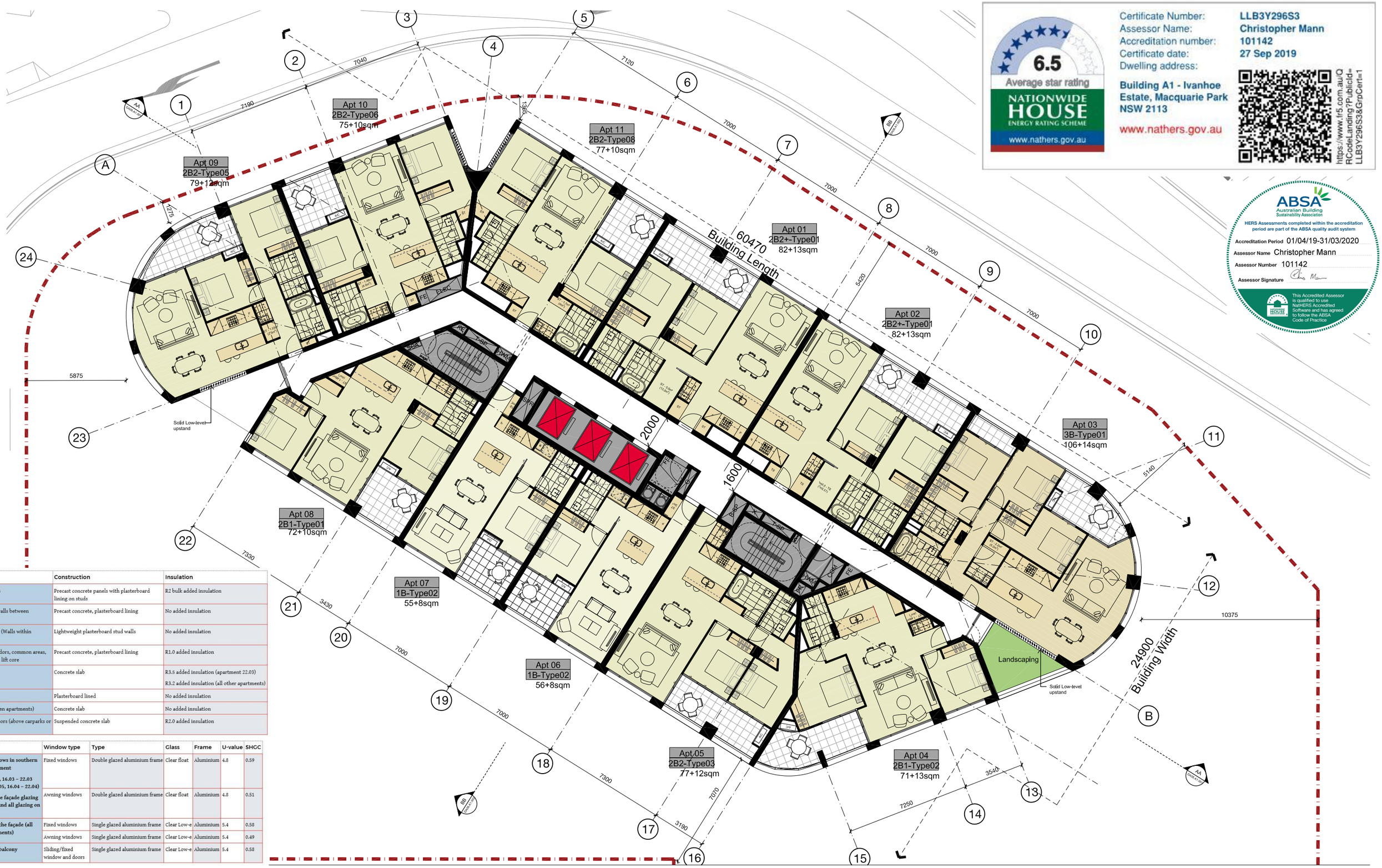

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
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6.5 Average star rating
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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 16, 18 & 20 Plan

0 1 2 5 7.5 m

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Melbourne VIC 3000 Australia
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email melb@batessmart.com.au
http://www.batessmart.com.au

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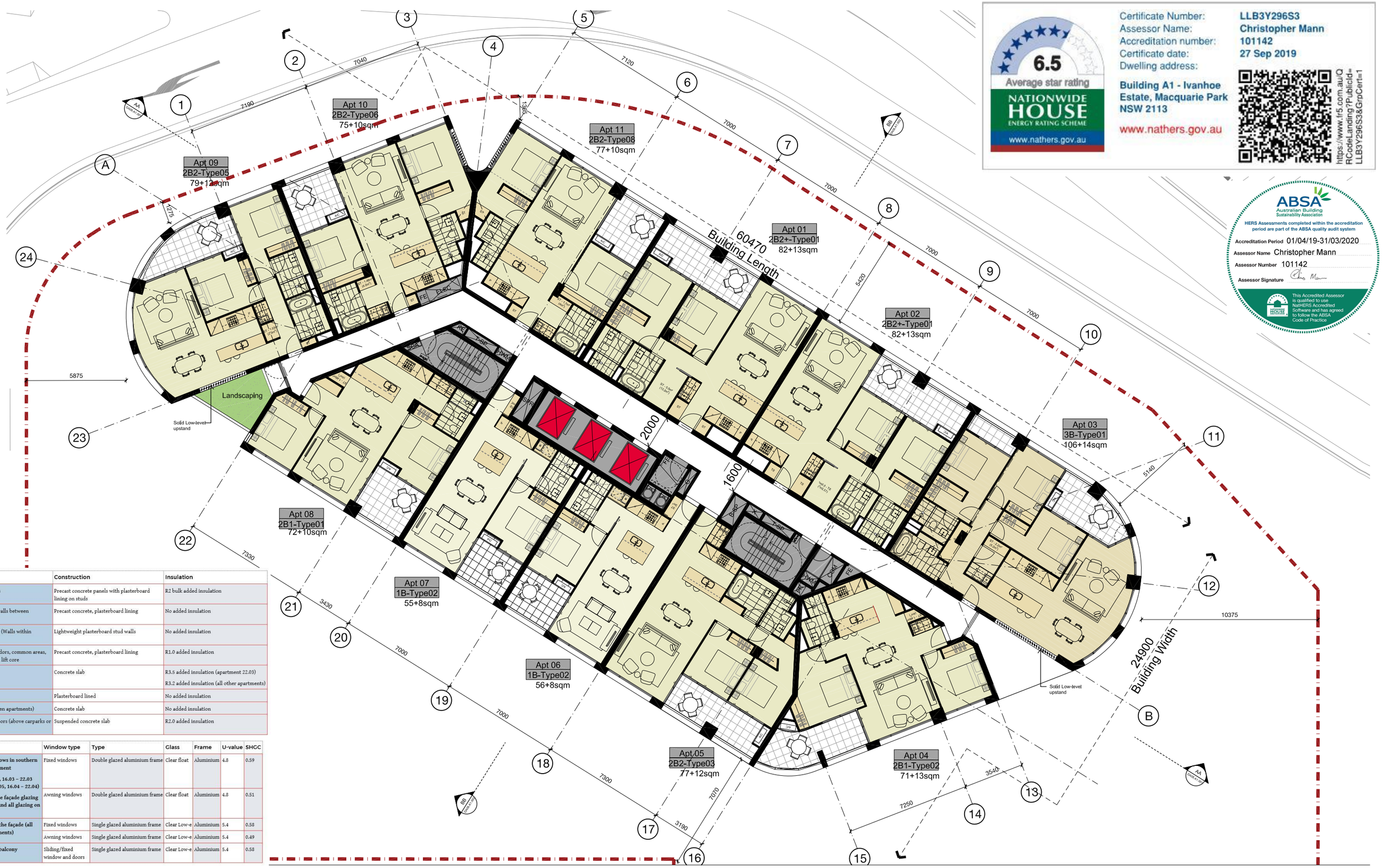

	Construction	Insulation
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Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
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6.5 Average star rating
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ABSA Australian Building Sustainability Association
HERS Assessments completed within the accreditation period are part of the ABSA quality audit system
Accreditation Period 01/04/19-31/03/2020
Assessor Name Christopher Mann
Assessor Number 101142
Assessor Signature
This Accredited Assessor is qualified to use NatHERS Accredited Software and has agreed to follow the ABSA Code of Practice

Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 17, 19 & 21 Plan

0 1 2 5 7.5 m

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Scale 1:100@A1 / 1:200@A3
Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 4/6/2018 5:33:46 PM
Plot File S:\12000-12099\S12067.A_frasers_ivanhoe\70_CAD\Plots\DA\D... -- A03.A1.017[D].dwg
Drawing No. [Revision]
DA03.A1.017[D]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
email syd@batessmart.com.au
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Bates Smart Architects Pty Ltd ABN 68 094 740 986

BATESSMART™

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.1 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (L.04 - 15.04, 16.03 - 22.03 and L.05-15.05, 16.04 - 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.0	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.0	0.51
Windows to the façade (all other apartments)	Fixed windows	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.55
	Awning windows	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.49
Windows to balcony	Sliding/Bind window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.55

Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113
6.5 Average star rating — NATIONWIDE HOUSE ENERGY RATING SCHEME — www.nathers.gov.au
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ABSA Accredited Assessor — Sustainability Associates — Accreditation Period 01/04/19-31/03/2020 — Assessor Name Christopher Mann — Assessor Number 101142

Revision	Date	Description	Initial	Checked
F	26.09.19	Additional skylights Apt 03+04	JM	MA
E	16.09.19	B1.1 Envelope revised	JC	MA
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 22 Plan

0 1 2 5 7.5 m

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Scale: 1:100@A1 / 1:200@A3
Drawn: Checked:
Project No.: s12067.A
Status: DA
Plot Date: 26/9/2019 5:26:04 PM
Plot File: S:\12000-12099\S12067 A_frasers_ivanhoe\70_CAD\Plots\DA\D ... ... A03.A1.022[F].dwg
Drawing No.: [Revision]
DA03.A1.022[F]

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Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
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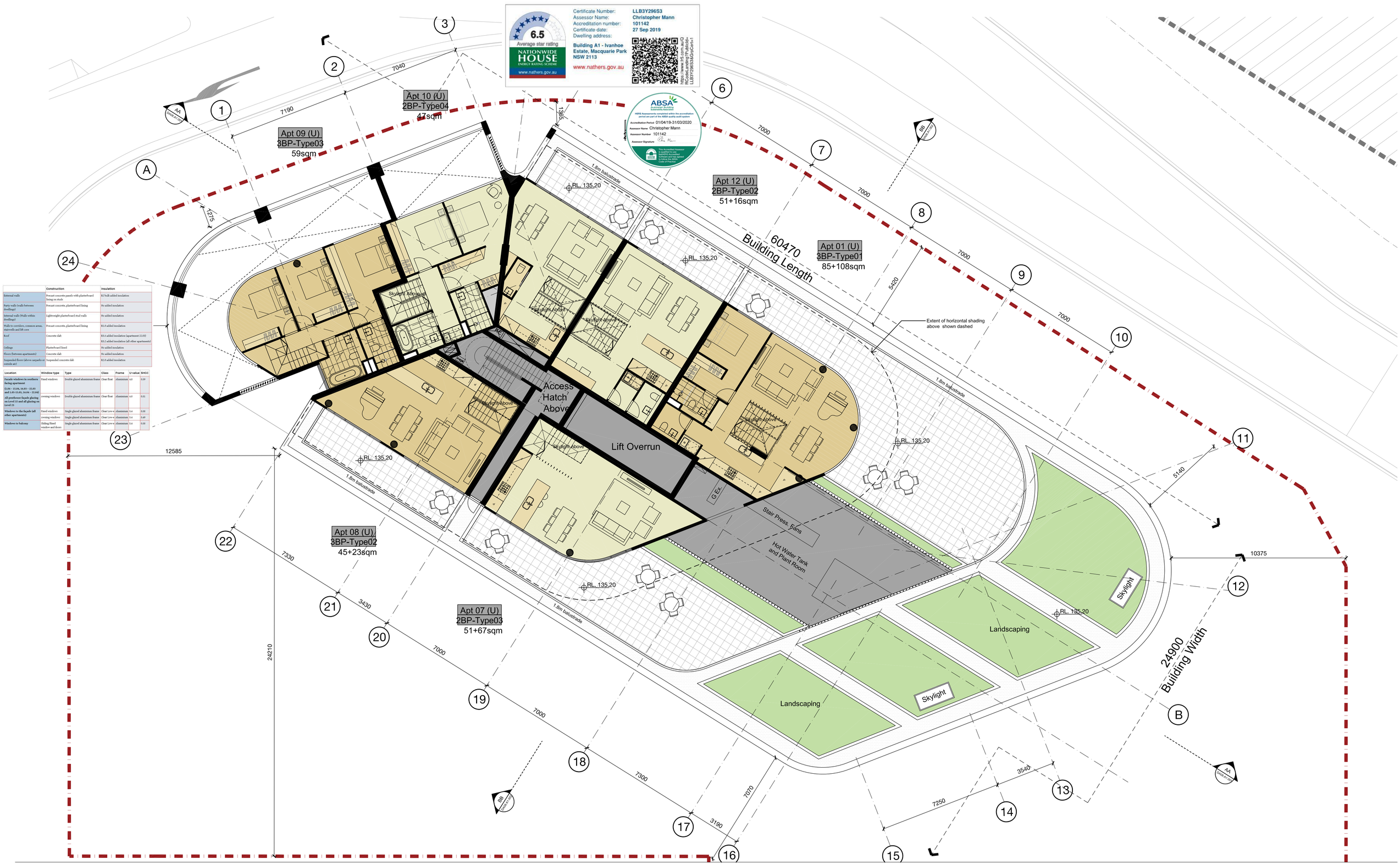

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.1 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Class	Frame	U-value	SHGC
Facade windows in southern facing apartment (L04 - 15.04, 16.03 - 22.03 and L05-15.05, 16.04 - 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.0	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.0	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/Bind window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.55

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ABSA Accredited Assessor Sustainability Associates
Accreditation Period 01/04/19-31/03/2020
Assessor Name Christopher Mann
Assessor Number 101142
Assessor Signature

Revision	Date	Description	Initial	Checked
F	26.09.19	Additional skylights Apt 03+04	JM	MA
E	16.09.19	1.8m balustrade noted	JC	MA
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 23 Plan

0 1 2 5 7.5 m

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Scale	1:100@A1 / 1:200@A3
Drawn	Checked
Project No.	s12067.A
Status	DA
Plot Date	26/9/2019 5:25:00 PM
Plot File	S:\12000-12099\S12067.A_frasers_ivanhoe\70_CAD\Plots\DA\D ... ... A03.A1.023[F].dwg
Drawing No.	[Revision]

DA03.A1.023[F]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
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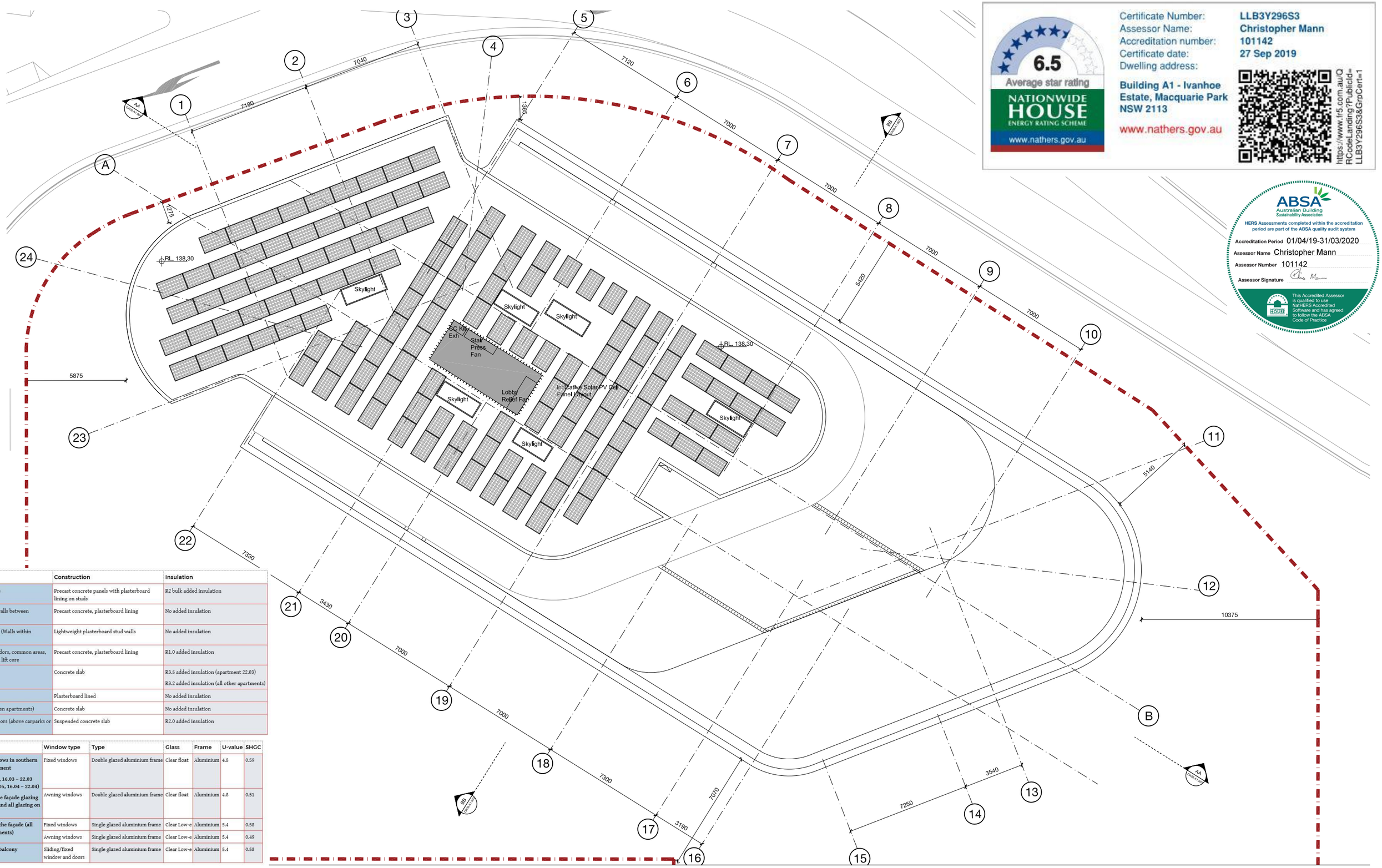

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (Walls within dwellings)	Lightweight plasterboard stud walls	No added insulation
Walls to corridors, common areas, stairwells and lift core	Precast concrete, plasterboard lining	R1.0 added insulation
Roof	Concrete slab	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Certificate Number: LLB3Y296S3
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Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

6.5 Average star rating
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Revision	Date	Description	Initial	Checked

Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Roof Plan

0 1 2 5 7.5 m

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Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 4/6/2018 5:34:07 PM
Plot File S:\12000-12099\S12067.A_frasers_ivanhoe\70_CAD\Plots\DA\D ... ... A03.A1.024[D].dwg
Drawing No. DA03.A1.024[D]
[Revision]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
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Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

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Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	DL	KM
A	18.02.09	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park
North Elevation

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Drawn
Checked
Project No. s12067.A
Status DA
Plot Date 12/2/2018 12:26:03 PM
Plot File S:\12000-12099\s12067.a_frasers_ivanhoe\70_CAD\Plots\DA\Dr ... ... \07.A1.001.dwg
Drawing No. DA07.A1.001
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Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

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Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
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External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

6.5
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
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Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

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Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	DL	KM
A	18.02.09	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park
East Elevation

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Scale 1:200@A1 / 1:400@A3
Drawn
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Project No. s12067.A
Status DA
Plot Date 12/2/2018 2:01:07 PM
Plot File S:\12000-12099\s12067.a_frasers_ivanhoe\70_CAD\Plots\DA\Dr ... \07.A1.002.dwg
Drawing No. DA07.A1.002
[Revision]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
email syd@batessmart.com.au
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	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment **(1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)** **All penthouse façade glazing on Level 22 and all glazing on Level 23**	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
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Revision	Date	Description	Initial	Checked

Revision	Date	Description	Initial	Checked
A	18.06.04	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park

South Elevation

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.
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Scale	1:200@A1 / 1:400@A3
Drawn	Checked
Project No.	s12067.A
Status	DA
Plot Date	4/6/2018 8:04:09 PM
Plot File	S:\12000-12099\S12067.A_frasers_ivanhoe\70_CAD\Plots\DA\D ... ... A07.A1.003[A].dwg
Drawing No.	[Revision]

DA07.A1.003[A]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
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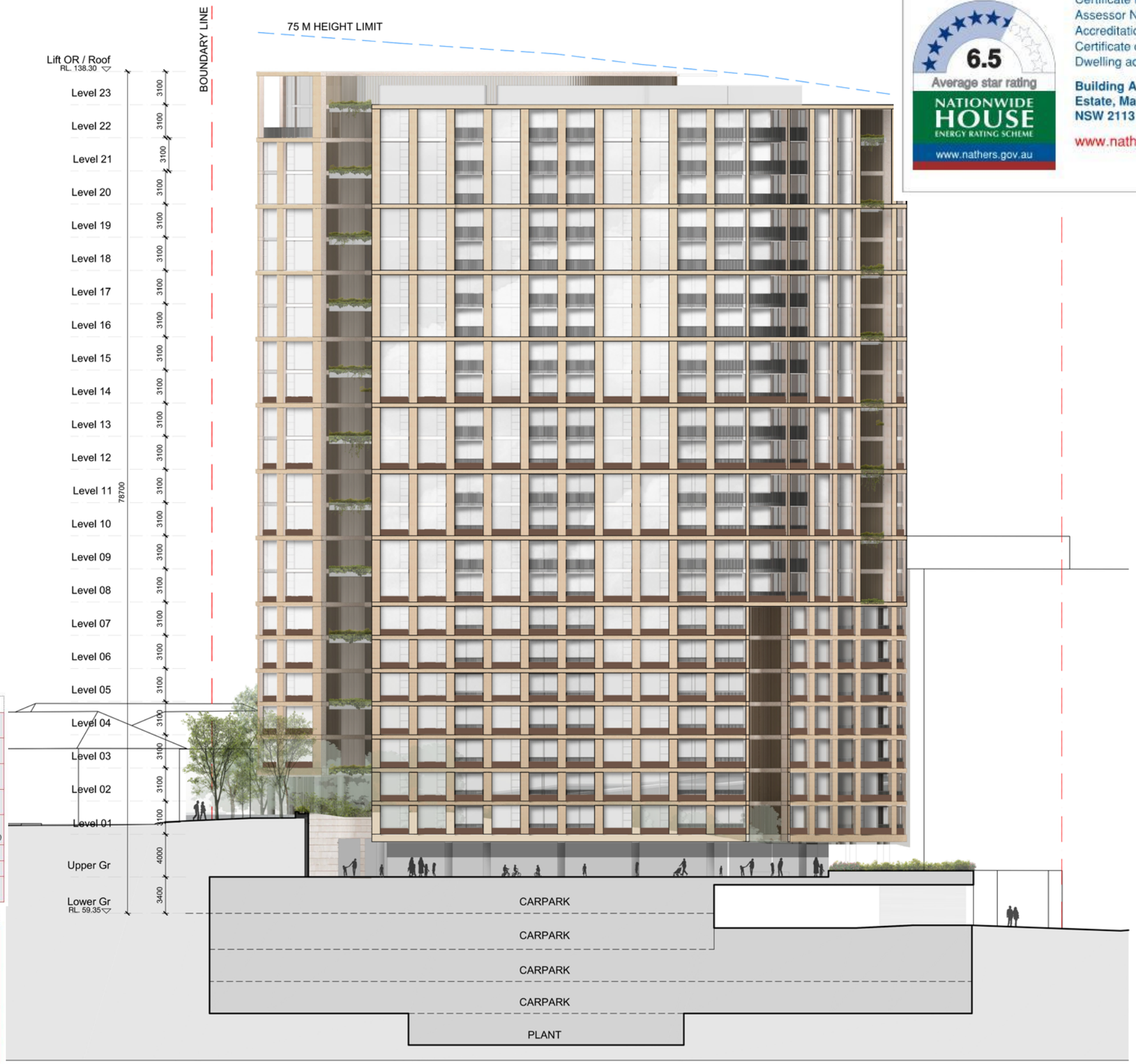

6.5 Average star rating
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Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

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Assessor Signature

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	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
All penthouse façade glazing on Level 22 and all glazing on Level 23	Awning windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.51
Windows to the façade (all other apartments)	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
Windows to balcony	Sliding/fixed window and doors	Single glazed aluminium frame	Clear Low-e	Aluminium	5.4	0.58

Revision	Date	Description	Initial	Checked
A	18.06.04	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park

West Elevation

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Status DA
Plot Date 4/6/2018 8:04:22 PM
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Drawing No. DA07.A1.004[A]
[Revision]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
email syd@batessmart.com.au
http://www.batessmart.com.au

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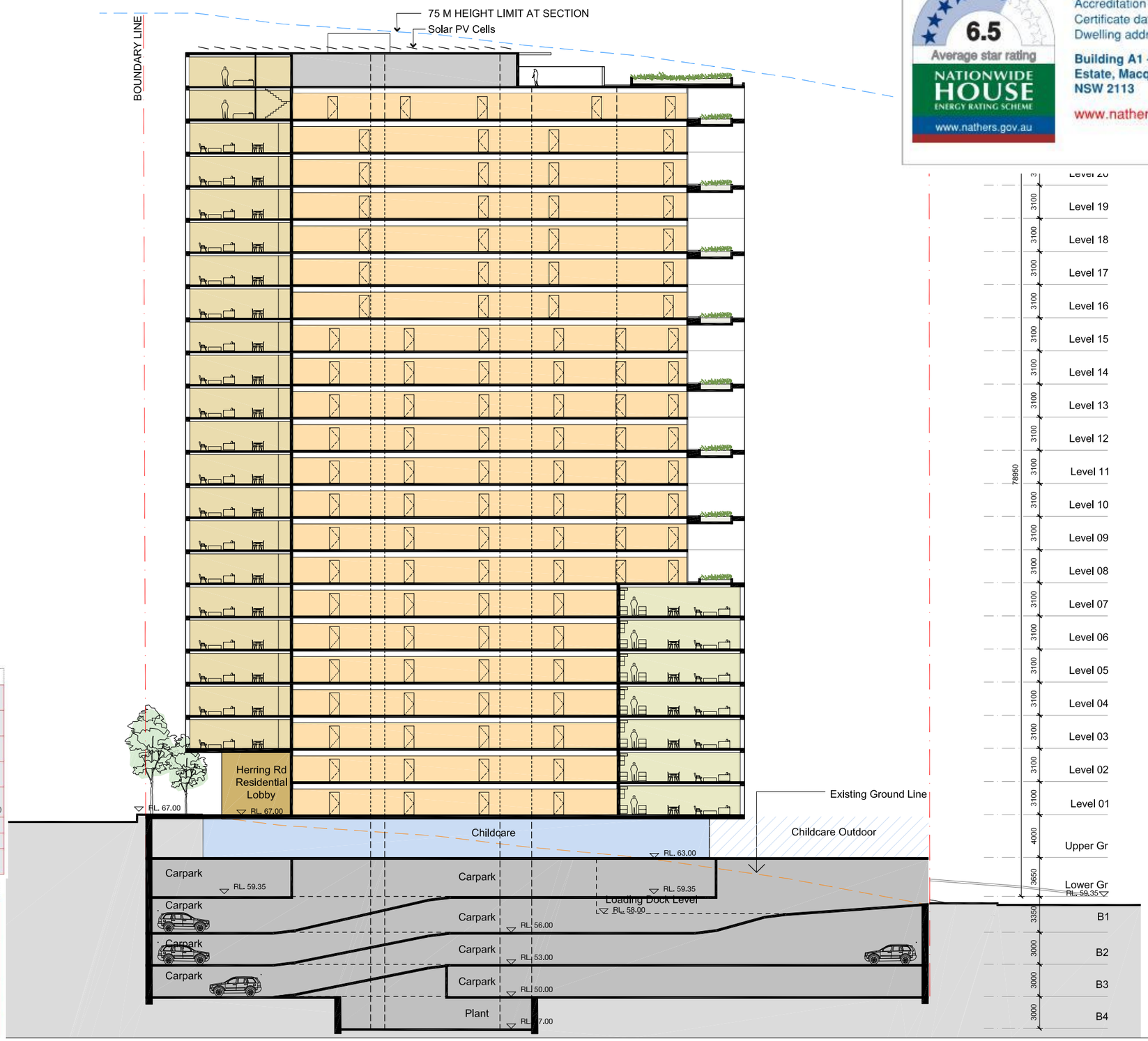

Certificate Number: LLB3Y296S3
Assessor Name: Christopher Mann
Accreditation number: 101142
Certificate date: 27 Sep 2019
Dwelling address: Building A1 - Ivanhoe Estate, Macquarie Park NSW 2113

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

www.nathers.gov.au

https://www.rf5.com.au/QRCodeLanding?PublicId=LLB3Y296S3&GrpCert=1

ABSA Australian Building Sustainability Association
HERS Assessments completed within the accreditation period are part of the ABSA quality audit system
Accreditation Period 01/04/19-31/03/2020
Assessor Name Christopher Mann
Assessor Number 101142
Assessor Signature
This Accredited Assessor is qualified to use NatHERS Accredited Software and has agreed to follow the ABSA Code of Practice

	Construction	Insulation
External walls	Precast concrete panels with plasterboard lining on studs	R2 bulk added insulation
Party walls (walls between dwellings)	Precast concrete, plasterboard lining	No added insulation
Internal walls (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	R3.5 added insulation (apartment 22.03) R3.2 added insulation (all other apartments)
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

Location	Window type	Type	Glass	Frame	U-value	SHGC
Facade windows in southern facing apartment (1.04 – 15.04, 16.03 – 22.03 and 1.05-15.05, 16.04 – 22.04)	Fixed windows	Double glazed aluminium frame	Clear float	Aluminium	4.8	0.59
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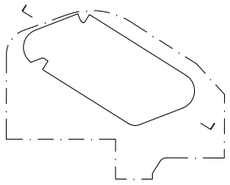

Revision	Date	Description	Initial	Checked
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Section AA

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Plot Date 4/6/2018 5:34:12 PM
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Drawing No. [Revision]

DA08.A1.001[C]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
email syd@batessmart.com.au
http://www.batessmart.com.au

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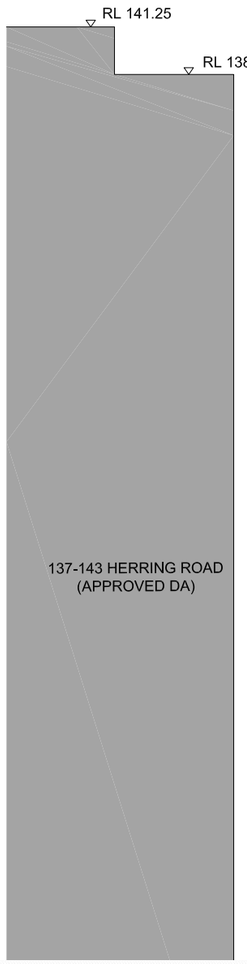

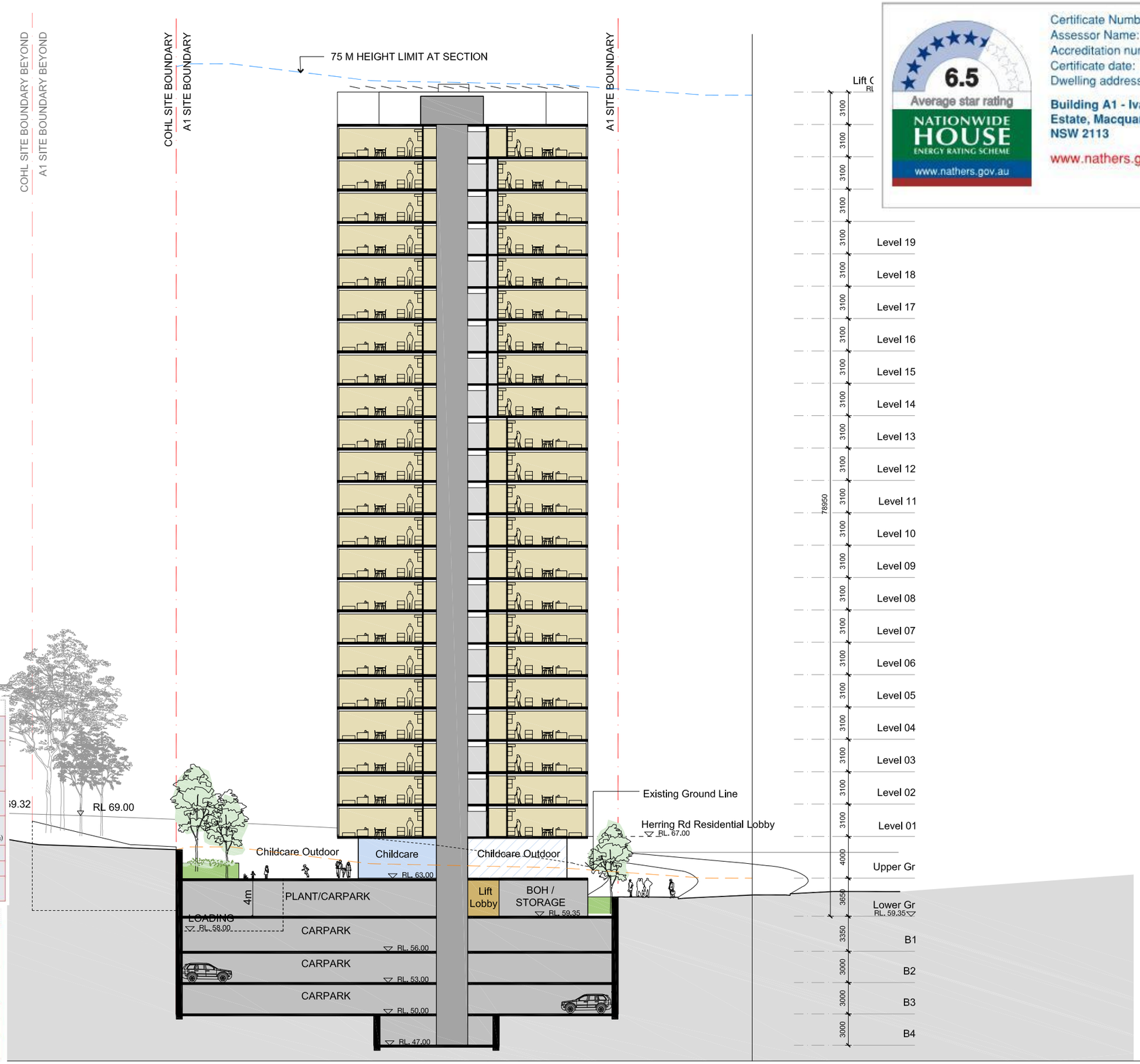

	Construction	Insulation
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Location	Window type	Type	Glass	Frame	U-value	SHGC
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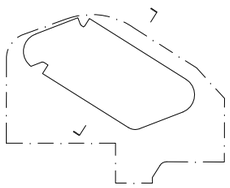

Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Section BB

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Scale	1:200@A1 / 1:400@A3
Drawn	Checked
Project No.	s12067.A
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Drawing No.	[Revision]

DA08.A1.002[D]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
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