



BASIX Compliance Report

35-43 Belgrave Street, Manly 2095

Project No.	P00567
Revision	03
Issued	10 July 2023
Client	Time & Place

E-LAB Consulting

Where science and engineering inspire design.

Document QA and Revisions

ISSUE	DATE	COMMENTS	ENGINEER	REVIEWER
1	27/06/2023	For Review	JJ/NA	AK
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4				

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Disclaimer:

The building's energy and water performance is computed using the online BASIX tool and an energy model developed for thermal comfort and provides only an estimation and potential performance of the building. This cannot be used alone to determine performance in actual practice as they are based on the idealised version of the building which does not and cannot fully consider all the complexities of the building's maintenance and operation.

Authorised by:

Engineering Lab NSW Pty Ltd



Alex Kobler | Director

Sustainability

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1 EXECUTIVE SUMMARY

This report has been prepared to outline the BASIX compliance for the 35-43 Belgrave Street Manly, 2095 development. Time & Place are aiming to deliver a premium quality, sustainability-focussed outcome for the project, with a strong emphasis on holistic performance, user-experience, quality, health, and wellbeing.

The intent of this report is to outline the results of BASIX assessment; and details of how each section is independently meeting minimum legislated BASIX benchmarks using various sustainability opportunities the development is considering for BASIX certification. The minimum compliance requirements are per the below:

Apartments:

AREA	MINIMUM COMPLIANCE REQUIREMENT	PROJECT SCORE
Energy	35%	45%
Water	40%	50%
Thermal Comfort	Pass	Pass

Percentages stated for Energy and Water are the percentage improvement upon the NSW average dwelling's consumption.

This report has found that based on the design of 35-43 Belgrave Street Manly and the inputs provided to BASIX, the proposal complies with the requirements of BASIX. The information and performance required to achieve this is contained within this report.



2 INTRODUCTION

2.1 PROJECT DESCRIPTION

The 35-43 Belgrave Street, Manly development consists of four levels of residential apartments above a ground floor commercial level and two underground basement carpark levels. The residential portion of the development includes:

- 15 Two bedroom units
- 10 Three bedroom units

2.2 SITE LOCATION

The retail portion of the site borders Belgrave Street to the west and Raglan Street to the North. Access to the underground carpark is via Whistler Street to the east.

Figure 1 below is an image of the site in context of its location.



Figure 1: Site Location (Source: SIXMaps)

2.3 DESIGN DOCUMENTATION

BASIX Assessment done was based on architectural package issued by SJB Architects on 28/06/2023. The following drawings were referred for the assessment:

DRAWING NUMBER	DRAWING NAME	REVISION DATE
DA-0103	SITE PLAN & SITE ANALYSIS	28/06/2023
DA-0110	FLOOR PLAN – BASEMENT 2	28/06/2023
DA-0111	FLOOR PLAN – BASEMENT 1	28/06/2023
DA-0112	FLOOR PLAN – GROUND	28/06/2023
DA-0113	FLOOR PLAN – LEVEL 1	28/06/2023
DA-0114	FLOOR PLAN – LEVEL 2	28/06/2023
DA-0115	FLOOR PLAN – LEVEL 3	28/06/2023
DA-0116	FLOOR PLAN – LEVEL 4	28/06/2023
DA-0117	FLOOR PLAN – ROOF	28/06/2023
DA-1401	EVEVATION NORTH	28/06/2023
DA-1402	ELEVATION EAST	28/06/2023
DA-1403	ELEVATION SOUTH	28/06/2023
DA-1404	ELEVATION WEST	28/06/2023
DA-1410	STREETSCAPE ELEVATION	28/06/2023
DA-1501	SECTION A-A	28/06/2023
DA-1504	SECTION D-D	28/06/2023
DA-6101	AREA PLANS GFA	28/06/2023

3 BASIX COMPLIANCE

3.1 OVERVIEW

BASIX Compliance is the minimum sustainability performance requirement in the state of NSW. It serves as the only pathway for compliance to demonstrate compliance with the National Construction Code, Part J.

E-LAB Consulting have completed modelling of all sections of the BASIX assessment; Water, Thermal Comfort and Energy for the development located at 35-43 Belgrave Street Manly, 2095.

The BASIX outcome achieved based on the assumptions listed in the report and information provided to the date are as follows:

AREA	MINIMUM COMPLIANCE REQUIREMENT	PROJECT SCORE
Energy	35%	45%
Water	40%	50%
Thermal Comfort	Pass	Pass

3.2 BASIX CERTIFICATION DETAILS

PROJECT SUMMARY	
Project Name	35-43 Belgrave St, Manly
Local Government Area	Northern Beaches Council
Plan Type	SP
Plan No.	14133
No. of Residential Buildings	1
Total Number of units & Townhouses	25
Project Type	Residential flat buildings
BASIX Certificate No.	TBC

3.3 ENERGY MODELLING SOFTWARE

Simulation method in BASIX has been used to show the thermal comfort compliance. For energy simulations, FirstRate5 (Version 5.3.1a (3.21)) has been used which is approved under Thermal comfort protocol of BASIX since March 2021. This method does not guarantee or warrantee the performance in practical world as it only considers a simplified and idealistic building.



3.4 BASIX ENERGY

The following minimum standards will be required to comply with the BASIX Energy Targets for the project.

Apartment Buildings:

DESIGN ELEMENT	COMPLIANCE CRITERIA
Central hot water system	Gas Instantaneous Internal & External Piping – R1.0 (~38 mm)
Cooking	Induction cooktop & electric oven
Mechanical heating and cooling	Reverse cycle air-conditioning (1-Phase) for all units (Living and Bedroom). Minimum EER ratings – Cooling 3.0-3.5, Heating 3.5-4.0.
Ceiling Fans	Only unit 401 requires the ceiling fan in all bedrooms – Min 1200 mm Diameter
Apartment ventilation	Bathroom: individual fan, ducted to façade or roof – Interlocked to Light Laundry: individual fan, ducted to roof or façade – Interlocked to Light Kitchen range hood: Individual fan, ducted to roof or façade – Interlocked to Light
Common area ventilation	Basement Car Park Area: Ventilation (supply and exhaust) with CO monitor + VSD Fans. Residential Waster Room: Exhaust only. Hydraulic Plantroom: Exhaust only, thermostatically controlled. Ground WC: Exhaust only, time clock or BMS controlled. Service Rooms, Substation: Supply only, thermostatically controlled. Fire stairs, Ground floor lobbies, Corridors: No mechanical ventilation.
Apartment artificial lighting	LED throughout with dedicated fittings
Common area artificial lighting	Lift: LED connected to lift call button. Carpark, Residential waste room, Hydraulic plantroom, Fire stairs, Ground WC, Ground floor lobbies, Corridors: LEDs controlled by Motion Sensors. Substation, Service rooms: LEDs controlled by manual on/off switch.
Appliances in Apartments (minimum Energy Star rating)	Refrigerators: Minimum 3.5 Star Energy Rated Dishwashers: Minimum 4 Star Energy Rated Clothes Dryers: Not specified Clothes Washers: Minimum 4.5 Star Energy Rated
Photovoltaic Array	Minimum 14 kW peak PV.
Vertical transport	All Lifts with gearless traction and VVVF motor



Figure 2 below shows the energy score breakdown by end uses.

Contributions sum to 117586.6 kg (CO₂)/year.

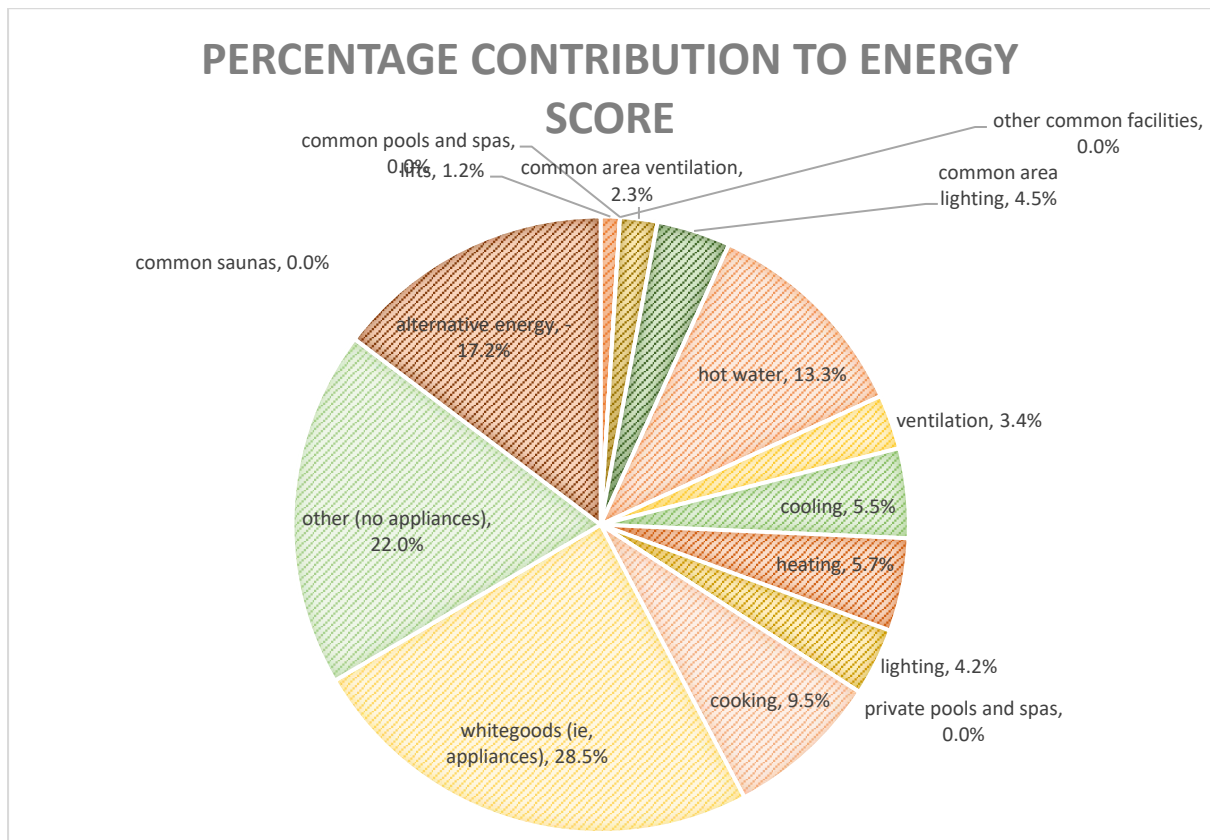


Figure 2 Energy Breakdown

3.5 BASIX THERMAL COMFORT

The following minimum standards are required to comply with the BASIX Thermal Comfort requirements for the project.



DESIGN ELEMENT	COMPLIANCE CRITERIA
Glazed Doors / Windows	Units 102, 104, 202, 302, 304, 402, 403 and 404 require the following glazing specifications: <u>Fixed and sliding windows</u> U-Value = 4.23; SHGC = 0.40 (+/- 5%) <u>Awning window</u> U-Value = 5.80; SHGC = 0.65 (+/- 5%) Unit 204 and 401 require the following glazing specifications: <u>Fixed and sliding windows</u> U-Value = 3.66; SHGC = 0.37 (+/- 5%) <u>Awning window</u> U-Value = 5.80; SHGC = 0.65 (+/- 5%)` All remaining apartments require the following glazing specification: <u>Fixed and sliding windows</u> U-Value = 5.80; SHGC = 0.65 (+/- 5%) <u>Awning window</u> U-Value = 5.80; SHGC = 0.65 (+/- 5%)
External Solid Walls	R2.5 bulk insulation, to achieve a total system R-value of R1.4
Exposed Roofs/Balconies	R3.0 bulk insulation, to achieve a total minimum R-value of R3.2 Medium or light colour
Suspended Floor Slabs (Enclosed floor levels between conditioned and internal non-conditioned spaces and open to outside)	R2.0 insulation to underside of suspended concrete slabs exposed to outside and unconditioned areas. R1.0 insulation to underside of suspended concrete slabs exposed to retail.
Floors Covering	Carpet in Bedrooms Timber in Living/Dining rooms Tile in Kitchen and Tile in Bathrooms.

3.6 BASIX WATER

The following minimum standards are required to comply with the BASIX Water Targets for the project.

DESIGN ELEMENT	COMPLIANCE CRITERIA
Fixtures	Showers: Minimum 4 Star (>6 but <= 7.5 L/min) WELS Rated Toilets: Minimum 4 Star WELS Rated All Taps: Minimum 6 Star WELS Rated
Fixtures within common areas	Toilets: Minimum 4 Star WELS Rated Taps: Minimum 5 Star WELS Rated
Fittings/Appliances within units	Clothes Washer: Minimum 4 Star WELS Rated Dishwasher: Minimum 6 Star WELS Rated
Fire Sprinkler Water Test	Fire sprinkler test water is contained in a closed system
Alternative Water	Minimum 5,000L Rainwater tank to harvest roof area serving landscape irrigation and 1 car wash bay

Figure 3 below shows the water score breakdown by end uses.

Contributions sum to 8159.2 L/day.

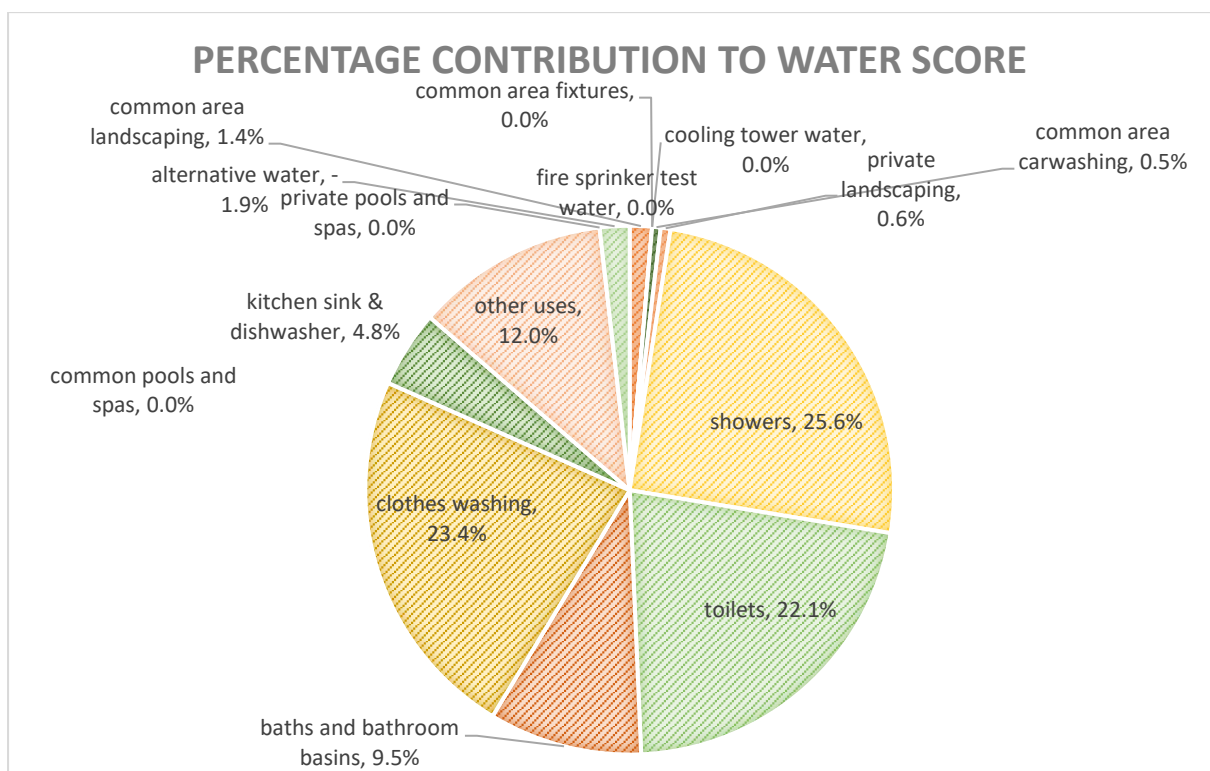


Figure 3 Water Use Breakdown

APPENDIX A BASIX REPORT



BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 1396814M

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

Secretary

Date of issue: Monday, 10 July 2023

To be valid, this certificate must be lodged within 3 months of the date of issue.



Planning,
Industry &
Environment

Project summary

Project name	35-43 Belgrave St, Manly
Street address	35-43 Belgrave Street Manly 2095
Local Government Area	Northern Beaches Council
Plan type and plan number	strata 14133
Lot no.	Null
Section no.	Null
No. of residential flat buildings	1
No. of units in residential flat buildings	25
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score

Water	✓ 50	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 45	Target 35

Certificate Prepared by

Name / Company Name: E-LAB Consulting

ABN (if applicable): 84647520634

Description of project

Project address

Project name	35-43 Belgrave St, Manly
Street address	35-43 Belgrave Street Manly 2095
Local Government Area	Northern Beaches Council
Plan type and plan number	strata 14133
Lot no.	Null
Section no.	Null

Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	25
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details

Site area (m²)	1060.4
Roof area (m²)	500
Non-residential floor area (m²)	481.5
Residential car spaces	35
Non-residential car spaces	4

Common area landscape

Common area lawn (m²)	0.0
Common area garden (m²)	260.35
Area of indigenous or low water use species (m²)	-

Assessor details

Assessor number	16/1751
Certificate number	BBFPH60MBU
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	 50	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 45	Target 35

Description of project

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

Residential flat buildings - Building1, 25 dwellings, 5 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)
101	2	83.0	1.7	0.0	0.0
106	2	84.3	1.7	5.3	0.0
204	3	107.8	3.0	0.0	0.0
302	3	110.8	3.0	0.0	0.0
307	2	84.0	1.7	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)
102	3	110.8	3.0	6.7	0.0
107	2	84.0	1.7	0.0	0.0
205	2	83.9	1.8	0.0	0.0
303	2	83.0	1.8	0.0	0.0
401	3	182.4	2.6	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)
103	2	83.0	1.8	5.3	0.0
201	2	83.0	1.7	0.0	0.0
206	2	84.3	1.7	0.0	0.0
304	3	107.5	3.0	0.0	0.0
402	3	166.1	2.6	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)
104	3	107.8	3.0	11.4	0.0
202	3	110.8	3.0	0.0	0.0
207	2	84.0	1.7	0.0	0.0
305	2	83.9	1.8	0.0	0.0
403	3	130.0	2.6	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)
105	2	84.0	1.7	5.3	0.0
203	2	83.0	1.8	0.0	0.0
301	2	83.0	1.7	0.0	0.0
306	2	84.3	1.7	0.0	0.0
404	2	123.9	2.6	0.0	0.0

Description of project

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

Common areas of unit building - Building1

Common area	Floor area (m²)
Carpark	1541.0
Ground Resi Waste Room	26.2
Fire Stairs	116.6
Corridors	5.2

Common area	Floor area (m²)
Lift car (No.1)	-
B2 Hydraulic Plantroom	37.5
Ground WC	22.5

Common area	Floor area (m²)
Service Rooms	26.0
Ground Substation	22.8
GF Lobby	72.1

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building1

(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 - Building1

(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	6 star	6 star	no	4 star	6 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
All dwellings	central water tank (no. 1)	See central systems	See central systems	yes	-	-	-	-
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

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	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
104	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.5 - 4.0	1-phase airconditioning EER 3.5 - 4.0	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
401	1-phase airconditioning EER 3.0 - 3.5	ceiling fans + 1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.5 - 4.0	1-phase airconditioning EER 3.5 - 4.0	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
102, 202, 204, 302, 304, 402, 403	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.5 - 4.0	1-phase airconditioning EER 3.5 - 4.0	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.5 - 4.0	1-phase airconditioning EER 3.5 - 4.0	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	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
104	-	-	-	-	induction cooktop & electric oven	3.5 star	no	4 star	4.5 star	-	no	no
All other dwellings	-	-	-	-	induction cooktop & electric oven	3.5 star	no	4 star	4.5 star	-	-	-

(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/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
101	40.1	16.6
102	14.9	26.5
103	40.1	12.0
104	12.7	27.7

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
105	27.1	17.7
106	26.2	17.9
107	24.4	16.2
201	28.3	19.4
202	7.9	27.5
203	30.5	13.8
204	9.7	29.2
205	23.1	19.4
206	23.6	19.4
207	23.6	17.1
301	34.0	19.7
302	13.5	28.3
303	36.5	12.6
304	17.0	26.5
305	30.4	17.5
306	28.2	16.7
307	22.2	18.6
401	32.8	29.1
402	17.4	29.3
403	41.1	28.7
All other dwellings	31.6	23.6

(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	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	5000.0	To collect run-off from at least: - 460.6 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 260.35 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(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
Carpark	ventilation exhaust only	carbon monoxide monitor + VSD fan	light-emitting diode	motion sensors	No
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	No
Service Rooms	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	No
Ground Resi Waste Room	ventilation exhaust only	-	light-emitting diode	motion sensors	No
B2 Hydraulic Plantroom	ventilation exhaust only	thermostatically controlled	light-emitting diode	motion sensors	No
Ground Substation	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	No
Fire Stairs	no mechanical ventilation	-	light-emitting diode	motion sensors	No
Ground WC	ventilation exhaust only	time clock or BMS controlled	light-emitting diode	motion sensors	No
GF Lobby	no mechanical ventilation	-	light-emitting diode	motion sensors	No
Corridors	no mechanical ventilation	-	light-emitting diode	motion sensors	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas instantaneous	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.45 (~20 mm); (b) Piping internal to building: R0.45 (~20 mm)

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7

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	4 star	5 star	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
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 14.0 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 CERTIFICATE



Nationwide House Energy Rating Scheme — Class 2 summary

NatHERS Certificate No. BBFPH60MBU

Generated on 10 Jul 2023 using

Property

Address 35-43 Belgrave St, Manly, NSW, 2095

Lot/DP

NatHERS climate zone

Accredited assessor



E-LAB Consulting

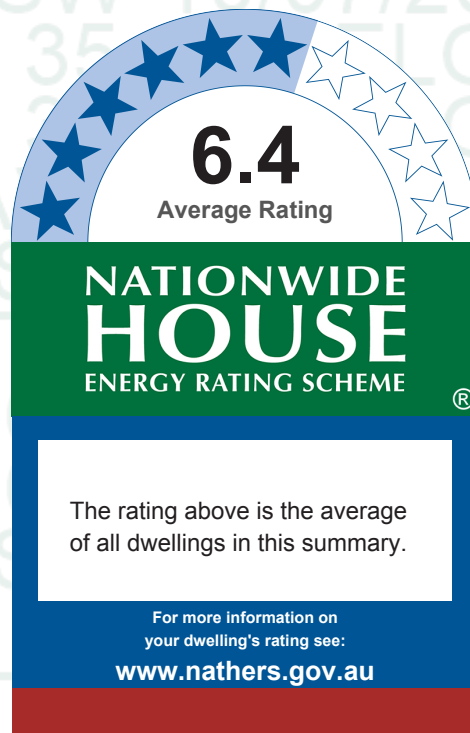
E-LAB Consulting

alex.kobler@e-lab.com.au

0447343451

Accreditation No. DMN/16/1751

Assessor Accrediting Organisation



Verification

To verify this certificate, scan the QR code or visit <https://www.fr5.com.au/QRCodeLanding?PublicId=BBFPH60MBU&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/m ² /p.a.)	Cooling load (MJ/m ² /p.a.)	Total load (MJ/m ² /p.a.)	Star rating
AN0630UBS6	101	40.10	16.60	56.70	5.6
ZRXP8W21L	102	14.90	26.50	41.40	6.8
BVRO6WSMC8	103	40.10	12.00	52.10	5.9
7EA9A09ZSG	104	12.70	27.70	40.40	6.9
4GNZ68CW16	105	27.10	17.80	44.90	6.5
HI9T9VQYP0	106	26.20	17.90	44.10	6.6
87KVQ5I2S8	107	24.40	16.20	40.60	6.9

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/m ² /p.a.)	Cooling load (MJ/m ² /p.a.)	Total load (MJ/m ² /p.a.)	Star rating
U6UG54L1XW	201	28.30	19.40	47.70	6.3
SXZL8WH30K	202	7.90	29.40	37.30	7.1
ROGB7G3G2R	203	30.50	13.80	44.30	6.6
FD3BXYLY2YF	204	9.70	29.20	38.90	7
JZB3HLH9X4	205	23.10	19.40	42.50	6.7
XPCHQGZTIZ	206	23.20	19.40	42.60	6.7
AE9FQP4YXX	207	23.60	17.10	40.70	6.9
7OEUA2MN3W	301	34.00	19.70	53.70	5.8
84T73ZAVUQ	302	13.50	28.30	41.80	6.8
WFU9EFZ5N1	303	36.50	12.60	49.10	6.2
QTLA6JKRGY	304	17.00	26.50	43.50	6.6
3LZV0GVBL0	305	30.40	17.50	47.90	6.3
PIDHA24FQ5	306	28.20	16.70	44.90	6.5
CQABGPTTBU	307	22.20	18.60	40.80	6.8
OSP6XKP8I8	401	32.80	29.10	61.90	5.3
TYTWMHPD9E	402	17.40	29.30	46.70	6.4
PFBLVMLYPL	403	41.10	28.70	69.80	4.8
XCA1L63GT0	404	31.60	23.60	55.20	5.7
Average		25.5	21.3	46.8	6.4

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 C INSULATION MARKUPS

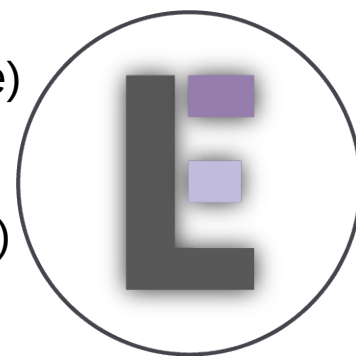


Insulation Mark-ups

LEGEND

- Total R1.4
(Solid external walls)
- Total R1.0 (installed in
underside of slab or above)
- Total R2.0 (installed in
underside of slab or above)
- Total R3.2 (installed in
ceiling - open to air)

BELGRAVE ST -
MANLY

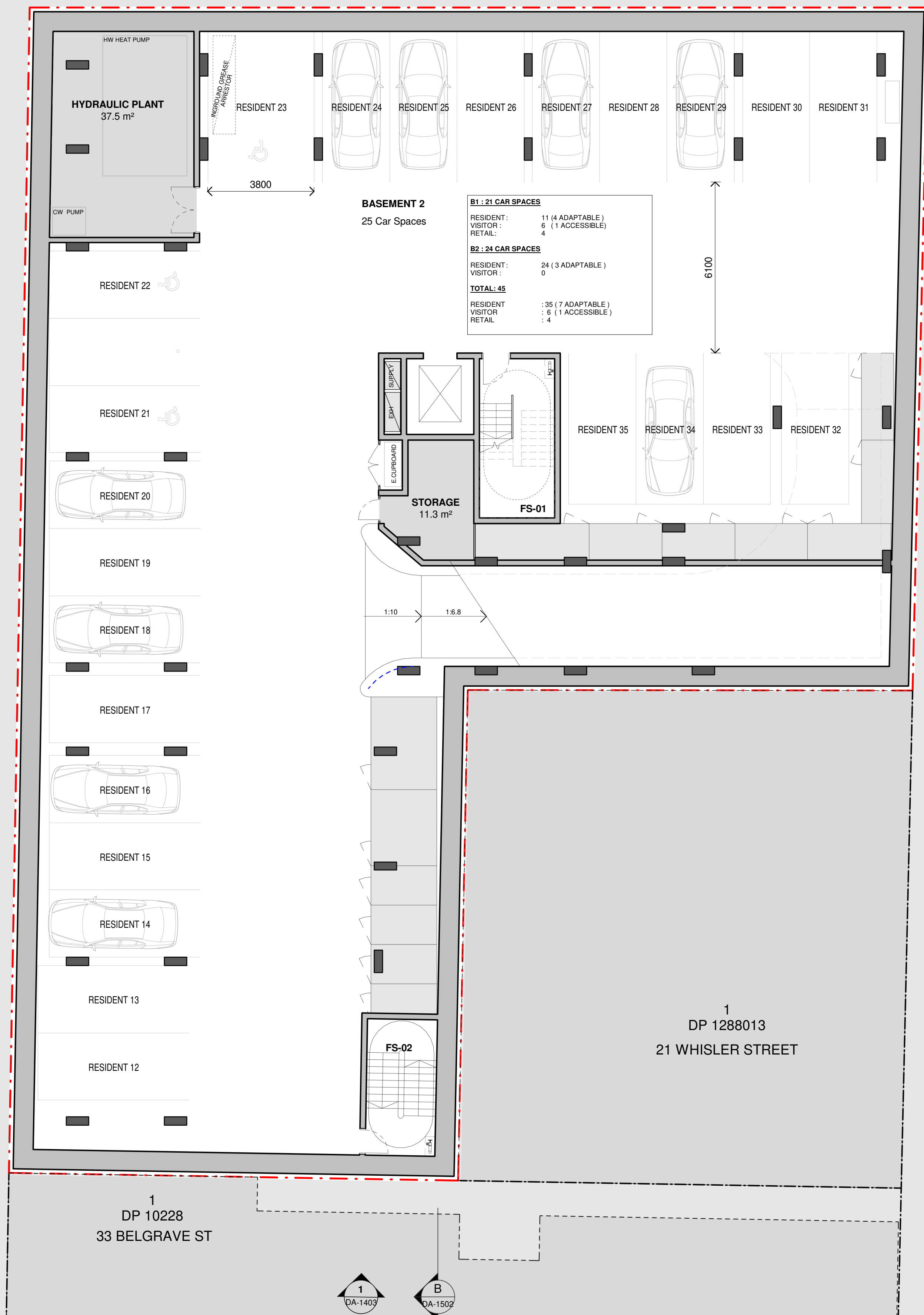


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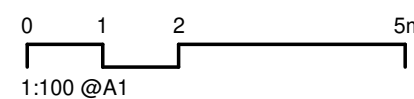
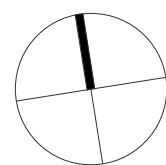
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4	2023/05/10	FOR COORDINATION	EW	TD
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Drawing No.

FLOOR PLAN - BASEMENT 2

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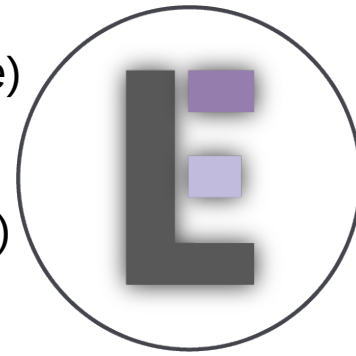


LEGEND

	Total R1.4 (Solid external walls)
	Total R1.0 (installed in underside of slab or above)
	Total R2.0 (installed in underside of slab or above)
	Total R3.2 (installed in ceiling - open to air)

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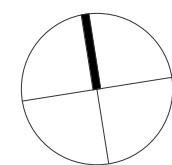
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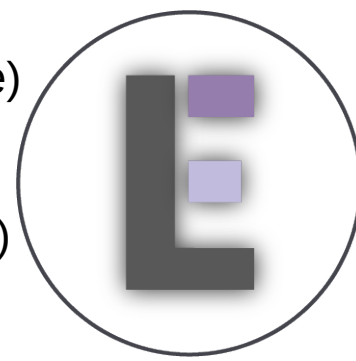


Insulation Mark-ups

LEGEND

- Total R1.4 (Solid external walls)
- Total R1.0 (installed in underside of slab or above)
- Total R2.0 (installed in underside of slab or above)
- Total R3.2 (installed in ceiling - open to air)

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MANLY

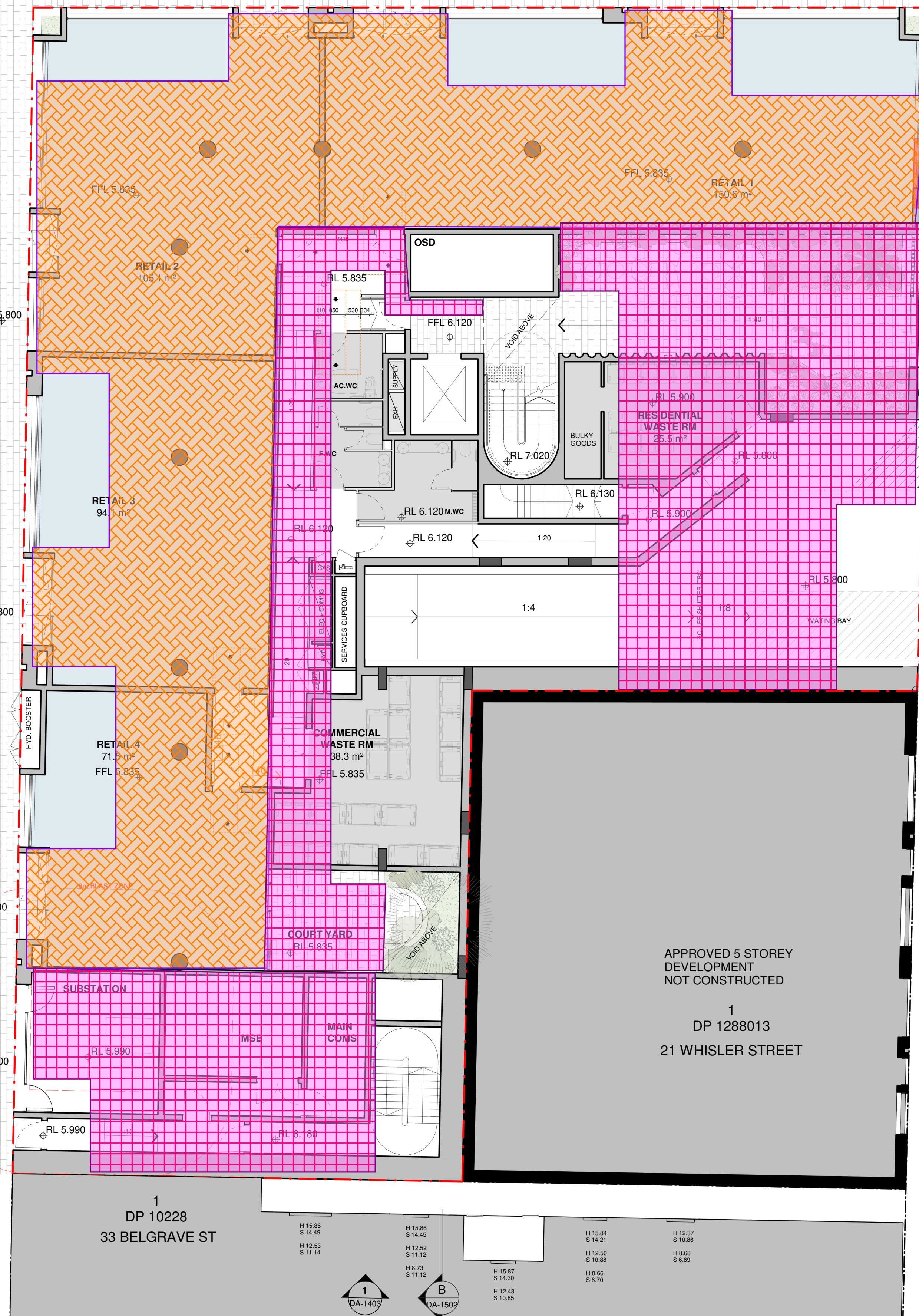


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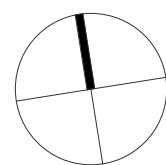


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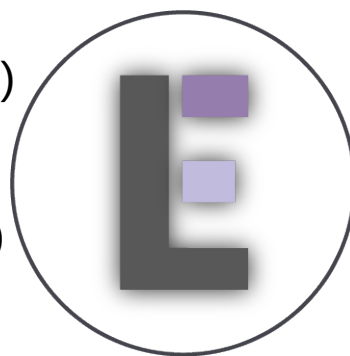
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Insulation Mark-ups

LEGEND

- Total R1.4
(Solid external walls)
- Total R1.0 (installed in
underside of slab or above)
- Total R2.0 (installed in
underside of slab or above)
- Total R3.2 (installed in
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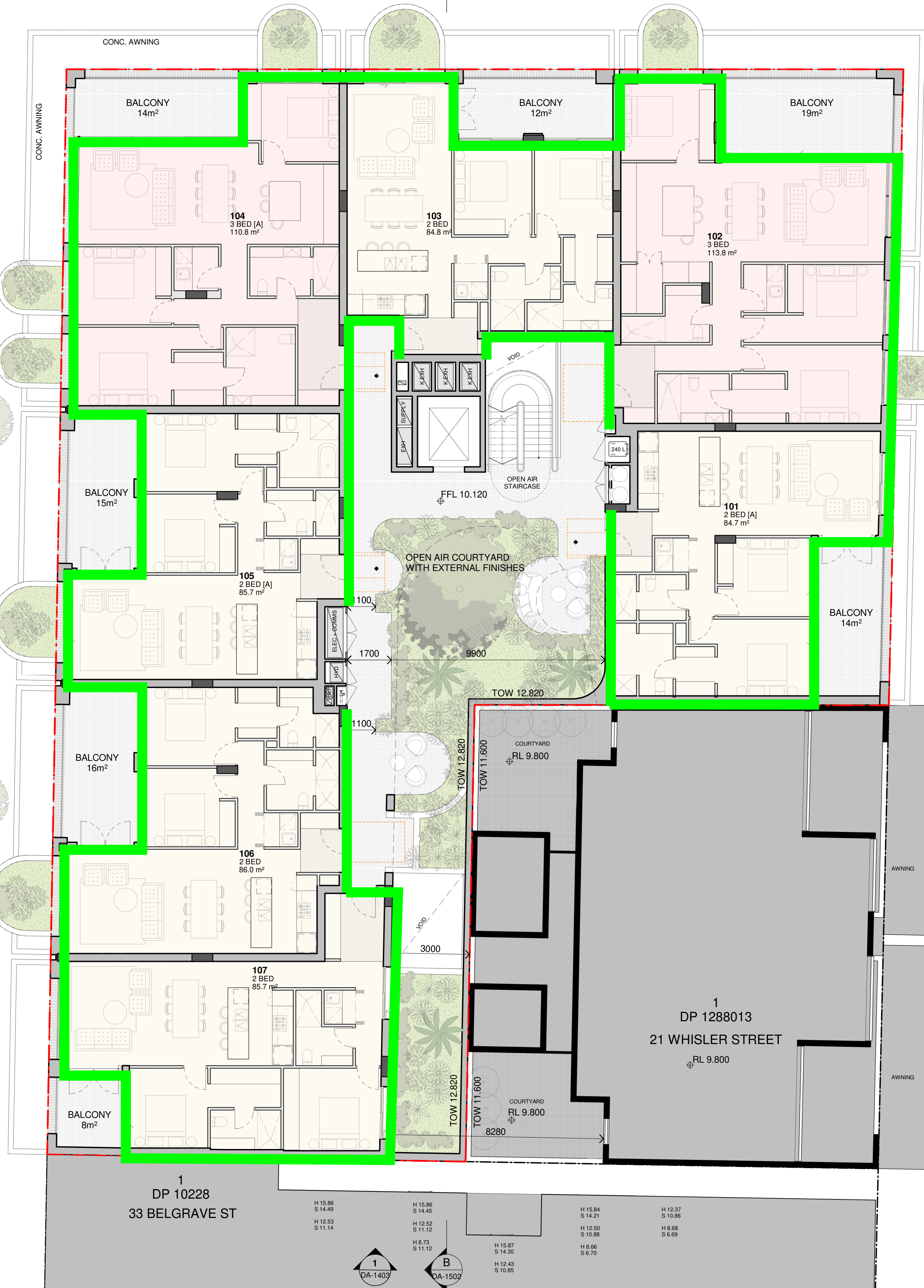
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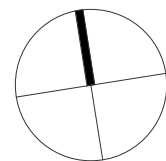
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DA-0113

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/ 8

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1
DP 1262447
6 WHISTLER ST

043

RAGLAN STREET

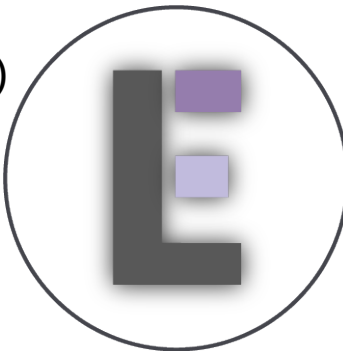


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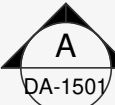
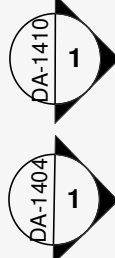
LEGEND

- Total R1.4 (Solid external walls)
- Total R1.0 (installed in underside of slab or above)
- Total R2.0 (installed in underside of slab or above)
- Total R3.2 (installed in ceiling - open to air)

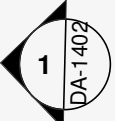
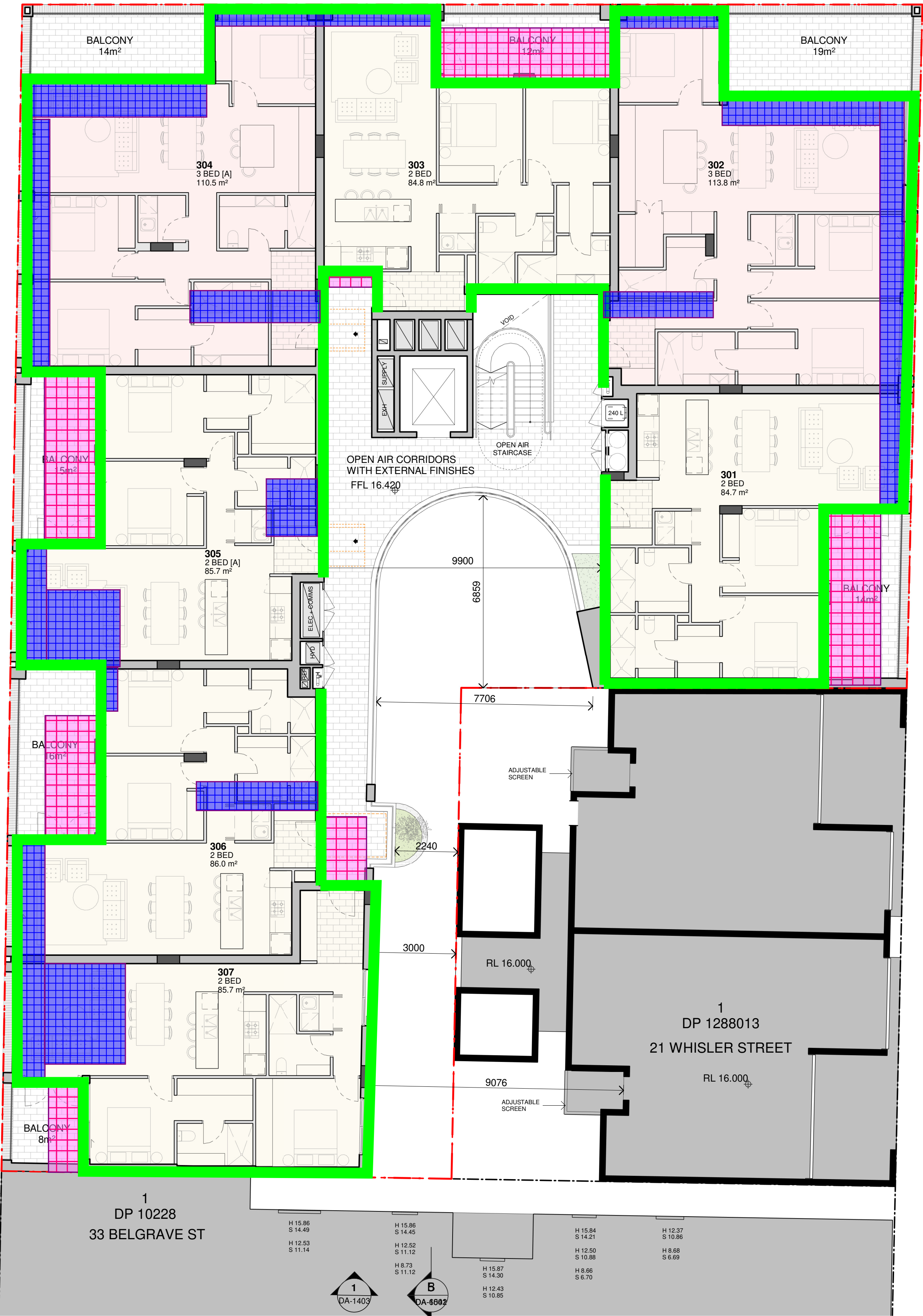
BELGRAVE ST -
MANLY



NA | P00567
10/07/2023
Rev 02



BELGRAVE STREET



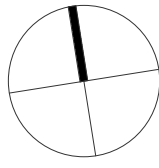
WHISTLER STREET

SP 667753
7 RAGLAN ST

2
DP 803273
34 WHISTLER ST

1
DP 1262447
26 WHISTLER ST

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Nominated Architects: Adam Haddow-7188 | John Pradel-7004



0 1 2 5m
1:100 @A1

Rev	Date	Revision	By	Chk.
1	2023/05/10	FOR COORDINATION	EW	TD
2	2023/05/29	FOR COORDINATION	EW	TD
3	2023/06/20	FOR COORDINATION	EW	TD
4	2023/06/28	DRAFT DA APPROVAL	EW	TD

Client

TIME & PLACE

Project

BELGRAVE ST - MANLY
40,41,42,43 Belgrave Street, Manly NSW 2095

Drawing No.

FLOOR PLAN - LEVEL 3

Date

2023/06/28

Scale

1 : 100

Sheet Size

@ A1

Drawn

Chk.

Job No.

Author

Checker

6693

Drawing No.

DA-0115

Revision

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RAGLAN STREET

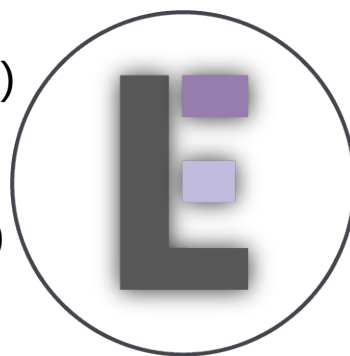


Insulation Mark-ups

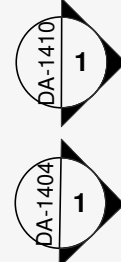
LEGEND

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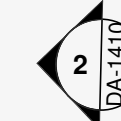
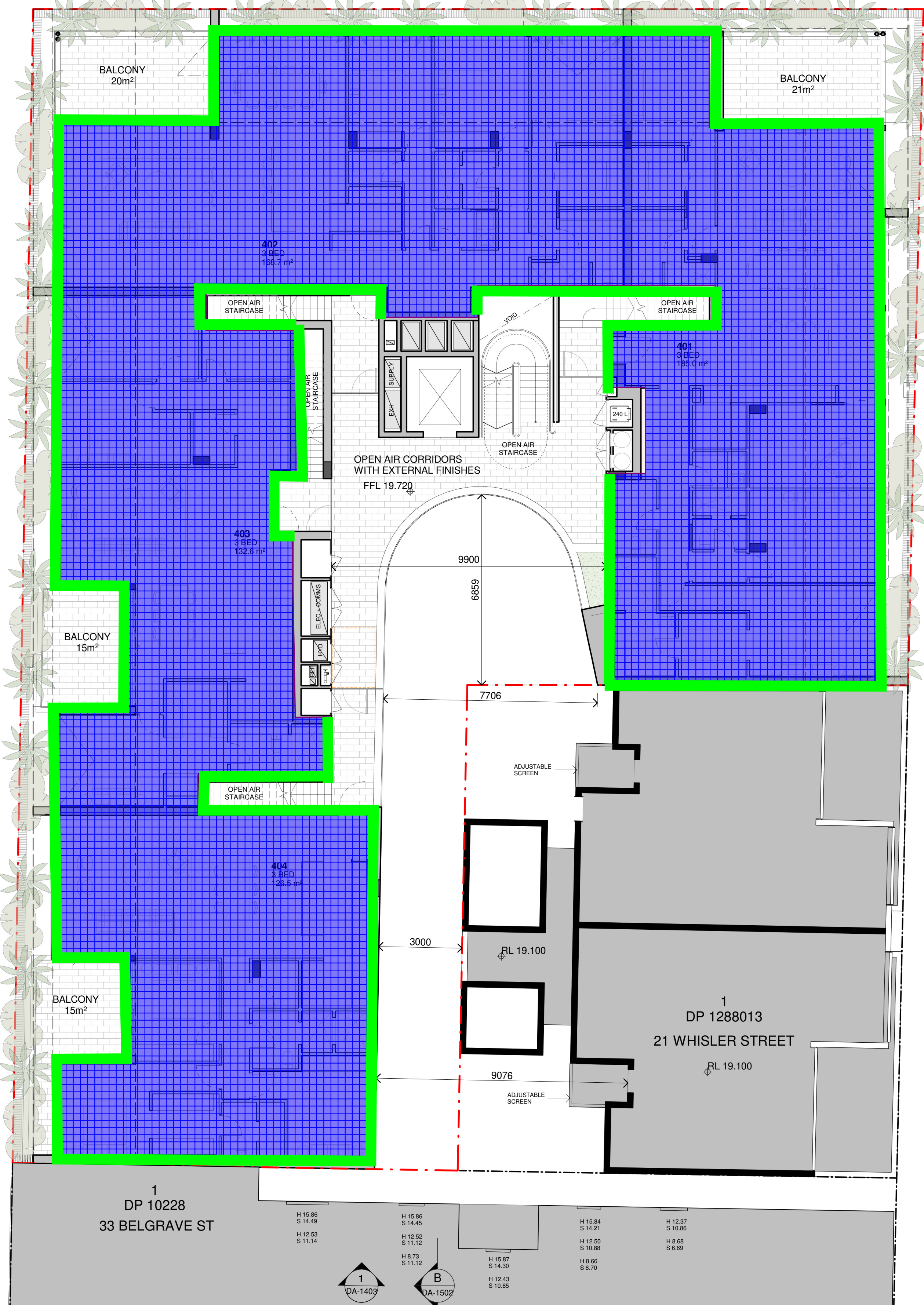
BELGRAVE ST -
MANLY



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10/07/2023
Rev 02



BELGRAVE STREET



WHISTLER STREET

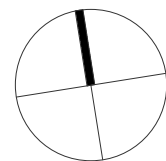
SP 667753
7 RAGLAN ST

2
DP 803273
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1
DP 1262447
26 WHISTLER ST

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Nominated Architects: Adam Haddow-7188 | John Pradel-7004



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Rev	Date	Revision	By	Chk.
1	2023/04/13	PRELIMINARY	EW	TD
2	2023/05/11	PRELIMINARY	EW	TD
3	2023/05/03	PRE DA	EW	TD
4	2023/05/10	FOR COORDINATION	EW	TD
5	2023/05/29	FOR COORDINATION	EW	TD
6	2023/06/20	FOR COORDINATION	EW	TD
7	2023/06/28	DRAFT DA APPROVAL	EW	TD

Client

TIME & PLACE

Project

BELGRAVE ST - MANLY
40,41,42,43 Belgrave Street, Manly NSW 2095

Drawing No.

FLOOR PLAN - LEVEL 4

Date

2023/06/28

Scale

1 : 100

Sheet Size

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Author

Checker

6693

Drawing No.

DA-0116

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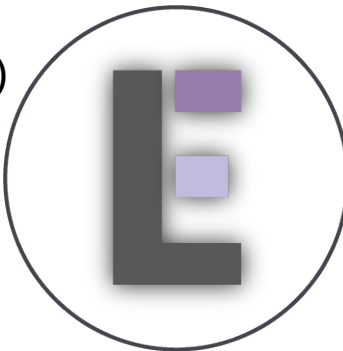


Insulation Mark-ups

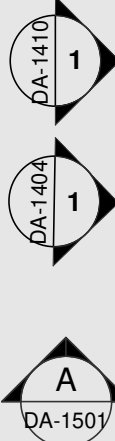
LEGEND

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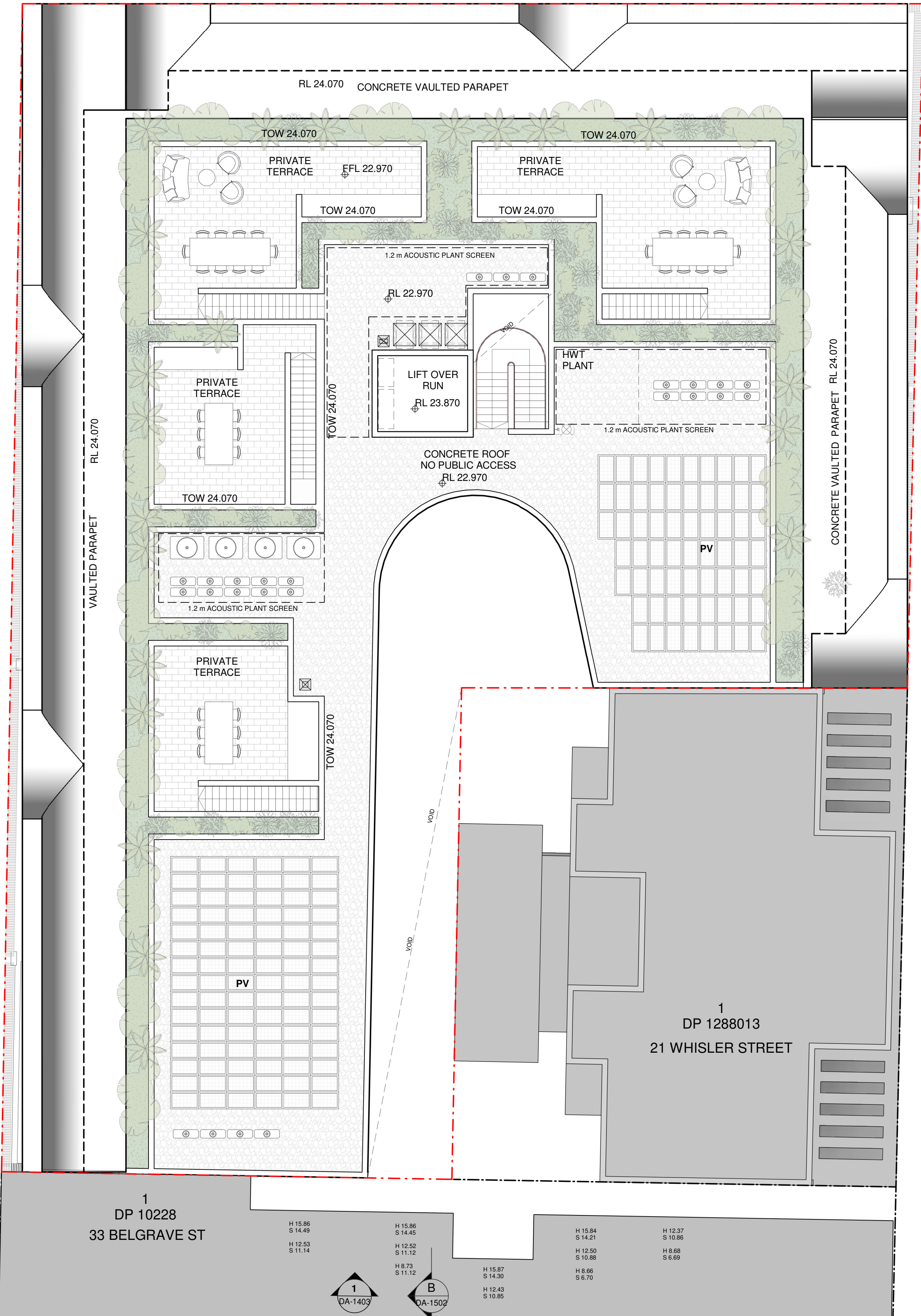
BELGRAVE ST -
MANLY



NA | P00567
10/07/2023
Rev 02

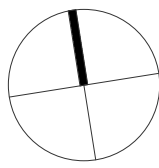


BELGRAVE STREET



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5	2023/06/20	FOR COORDINATION	EW	TD
6	2023/06/28	DRAFT DA APPROVAL	EW	TD

Client

TIME & PLACE

Project

BELGRAVE ST - MANLY
40,41,42,43 Belgrave Street, Manly NSW 2095

Drawing No.

FLOOR PLAN - ROOF

Date

2023/06/28 1 : 100

Drawn

Author

DA-0117

Scale

1 : 100

Chk.

Checker

Sheet Size

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Job No.

6693

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