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139-149 Boundary Road, North Melbourne

Town Planning Report

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6	29/06/2020	20181671.1/2711A/R6/SHN	SHN	BAW	

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1 INTRODUCTION

Acoustic Logic Consultancy (ALC) has been engaged by BEG Developments Pty Ltd to undertake an acoustic assessment of the proposed residential development located at 139-149 Boundary Road, North Melbourne.

The assessment has been conducted based on the following documentation.

Table 1 – Referenced Documents

Company	Document No.	Date
CHT Architects	Drawing Number TP0.00 – TP4.09	27/03/2020

2 PROJECT DESCRIPTION

The subject development is located at 139-149 Boundary Road, North Melbourne. It is bounded by Boundary road to the east and existing commercial buildings to the north, south and west. Boundary Road which carries a high volume of vehicles is located East of the site. Racecourse Road which also carries a high volume of traffic is located approximately 70 metres north of the subject site. The Upfield Metropolitan Line rail corridor approximately 100 metres west of the subject site (between western façade and the centre of the nearest track), and the Citylink (Toll Road) is also located approximately 100 metres west of the subject site. The Arden Macaulay industrial precinct is located approximately 500m south of the site and the Laurens Street Industrial Precinct is also located approximately 1 kilometre to the south of the subject site.

The proposed development consists of 3 mixed use buildings with 3 levels of common basement car park levels. Upper ground floor of the development consists of communal areas including retail, gym, wellness, games and dining areas. The development also includes lower ground floor and upper ground floor town houses. Level 1 to 11 of the development contain apartments with roof plant over.

Figure 1 below details the subject site and the surrounding environments.

Figure 1 – Subject site and surrounding environments (source: CHT Architects drawing YA0.00)

2.1 LOCAL NOISE SOURCES

The following observations were made with respect to the subject site and its surrounding environment.

- Boundary Road - traffic noise associated with vehicle movement along Boundary Road.
- Citylink Tollway - traffic noise associated with vehicle movement on the Citylink Tollway.
- Train corridor - train noise associated with train movement along the Upfield line.
- Racecourse Road - traffic noise associated with vehicle movement along Racecourse Road.
- Lauren Street industrial precinct and Arden Macaulay industrial precinct – Inaudible at the subject site during site inspections. Based on this the noise from the industrial precincts will not affect the subject site and will not be assessed.

3 ENVIRONMENTAL NOISE DESCRIPTORS

Environmental noise constantly varies in level, due to fluctuations in local noise sources including traffic, tram and train. Accordingly, a 15-minute measurement interval is normally utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In the case of environmental noise three principle measurement parameters are used, namely L_{10}, L_{90} and L_{eq}.

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source depends on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. L_{eq} is important in the assessment of traffic and rail noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of industrial noise.

The L_1 parameter (or the noise level exceeded for 1% of the time) is used during the night period to assess potential sleep arousal effects due to transient noise sources.

4 ASSESSMENT CRITERIA

4.1 BETTER APARTMENTS DESIGN STANDARD - D16 AT CLAUSE 58.04-3

Standard D16 of Clause 58.04-3 contains the following condition:

To contain noise sources in developments that may affect existing dwellings.

To protect residents from external and internal noise sources.

Standard D16

Noise sources, such as mechanical plants should not be located near bedrooms of immediately adjacent existing dwellings.

The layout of new dwellings and buildings should minimise noise transmission within the site.

Noise sensitive rooms (such as living areas and bedrooms) should be located to avoid noise impacts from mechanical plants, lifts, building services, non-residential uses, car parking, communal areas and other dwellings.

New dwellings should be designed and constructed to include acoustic attenuation measures to reduce noise levels from off-site noise sources.

Buildings within a noise influence area specified in Table D3 should be designed and constructed to achieve the following noise levels:

- *Not greater than 35dB(A) for bedrooms, assessed as an LAeq,8h from 10pm to 6am.*
- *Not greater than 40dB(A) for living areas, assessed LAeq,16h from 6am to 10pm.*

Buildings, or part of a building screened from a noise source by an existing solid structure, or the natural topography of the land, do not need to meet the specified noise level requirements.

Noise levels should be assessed in unfurnished rooms with a finished floor and the windows closed.

Table D3 Noise influence area

Noise Source	***Noise influence area***
Zone interface	
Industry	*300 metres from the industrial 1, 2 and 3 zone boundaries*
Roads	
Freeways, tollways and other roads carrying 40,000 Annual Average Daily Traffic Volume	*300 metres from the nearest trafficable lane*
Railways	
Railway servicing passengers in Victoria	*80 metres from the centre of the nearest track*
Railway servicing freight outside Metropolitan Melbourne	*80 metres from the centre of the nearest track*
Railway servicing freight in Metropolitan Melbourne	*135 metres from the centre of the nearest track*

Note: The noise influence area should be measured from the closest part of the building to the noise source.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- *The design response.*
- *Whether it can be demonstrated that the design treatment incorporated into the development meets the specified noise levels or an acoustic report by a suitably qualified consultant submitted with the application.*
- *Whether the impact of potential noise sources within a development have been mitigated through design, location and siting.*
- *Whether the layout of rooms within a dwelling mitigates noise transfer within and between dwellings.*
- *Whether an alternative design meets the relevant objectives having regard to the amenity of the dwelling and the site context.*

Based on these conditions, the subject site has been reviewed as follows:

1. The development is within 300m of an industrial zone.
2. The development is within 300m of a freeway or road carrying an AADT >40,000
    - Citylink Tollway is a freeway, and the development is approximately 100m from the freeway
3. The development is not within 80m of railway servicing passengers.

- Upfield rail corridor is approximately 100m from the closest façade of the development.

Based on the above the following criteria are recommended for this development to achieve the objective of protecting residents from external noise sources:

Table 2 – Internal Noise Criteria – Apartments facing Citylink Tollway (Western, Northern, Southern Façade)

Location	Internal Design Noise Level[1]
Living Rooms	40 dB(A) $L_{eq(16hr)}$ (6am – 10pm)
Bedrooms	35 dB(A) $L_{eq(8hr)}$ (10pm – 6am)

Note 1 – With external windows and doors closed. Apartments are unfurnished with finished floor.

Internal noise level criteria for external noise intrusion from traffic on Boundary road and Alfred road has been developed in accordance with *Australian Standard AS/NZS 2107:2016 "Recommended Design Sound Levels and Reverberation Times for Building Interiors"*. AS/NZS 2107:2016 sets out recommended design sound levels for residential developments depending on locality to minor or major roads. The Table 3 below details the criteria for the proposed development which is located adjacent to a major road.

Table 3 – Apartments facing away from Citylink Tollway (Eastern Façade)

Location	Required Internal Noise Level	
	Day dB(A) $L_{eq,1hr}$ (7am – 10pm)	Night dB(A) $L_{eq,1hr}$(10pm – 7am)
Bedrooms	35-45[1]	30-40
Living rooms	35-45	N/A

Note 1: Bedrooms are assessed as living areas outside the night time period of 10pm to 7am.
Note 2: Assessment is based on apartments suitably furnished ready for occupation.

4.2 SCHEDULE 26 TO THE DESIGN AND DEVELOPMENT OVERLAY

10/06/2010
C122

SCHEDULE 26 TO THE DESIGN AND DEVELOPMENT OVERLAY

Shown on the planning scheme map as **DDO26**

NORTH AND WEST MELBOURNE NOISE ATTENUATION AREA

1.0 Design objectives

19/01/2006
VC37

- To ensure that new, refurbished or converted developments for new residential and other noise sensitive uses constructed in the vicinity of the Laurens Street, North Melbourne Industrial Area include appropriate acoustical measures to attenuate noise levels within the building.
- To ensure that land use and development in the vicinity of the Laurens Street, North Melbourne Industrial Area does not adversely affect the viability of industry within the Area.

2.0 Requirements

19/01/2006
VC37

2.1 Building Design and Pre-construction Noise Measurement

19/01/2006
VC37

Any new or refurbished development or any conversion of part or all of an existing building that will accommodate new residential or other noise-sensitive uses must:

- Be designed and constructed to include noise attenuation measures. These noise attenuation measures must achieve a maximum noise level of 35dB(A)Leq in unfurnished and uncarpeted habitable rooms, with all windows and doors closed, unless there is no suitable air conditioning and/or mechanical ventilation, in which case the maximum noise level of 35dB(A)Leq in unfurnished and uncarpeted habitable rooms must be achieved with all the windows half open and the doors closed.
- Be fitted with suitable air conditioning and /or mechanical ventilation system to the satisfaction of the responsible authority unless the maximum noise level of 35dB(A)Leq in unfurnished and uncarpeted habitable rooms can be achieved with all the windows half open and the doors closed.
- Have walls, roof, windows, doors and external glazing and the air conditioning or ventilation system designed by a qualified acoustical consultant who must certify that the incorporation of the design features recommended by the consultant will achieve a maximum noise level in unfurnished and uncarpeted habitable rooms of 35dB(A)Leq, based on the external noise levels measured by the consultant as part of a noise level assessment conducted to the satisfaction of the responsible authority.

The pre-construction noise measurement will be conducted as follows:

- Be sufficient in detail and duration to be representative of the noise from the industrial operations which occur in the vicinity of the Laurens Street North Melbourne Industrial Area. This monitoring shall include sampling during the day, evening and night periods on weekdays and weekends.

4.3 SUMMARY OF DDO26 – CLAUSE 2.1

Table 4 – Noise Level Criteria

Location	Criteria dB(A) $L_{eq(1\ hour)}$[1]
Habitable Room	35

Note 1 – Noise level within unfurnished and uncarpeted habitable rooms with all windows and doors closed.

5 NOISE LEVEL MEASUREMENTS

5.1 MEASUREMENT LOCATION

Figure 2 – Measurement Locations (source: Google Maps)

Noise level measurements were conducted at the locations indicated in Figure 2, which are as the following:

- Location 1 – manned noise level measurements were conducted adjacent Boundary Road on the eastern boundary of the site. The microphone of the sound level meter was located approximately 1.5 metres above grade. The measurements were influenced by façade reflections and has full view of Boundary road.

- Location 2 – manned noise level measurements were conducted adjacent Alfred street on the southern boundary of the site. The microphone of the sound level meter was located approximately 1.5 metres above grade. The measurements were influenced by façade reflections and has full view of Alfred street.

- Location 3 – manned noise level measurements were conducted adjacent Racecourse road north of the site. The microphone of the sound level meter was located approximately 1.5 metres above grade. The measurements were influenced by façade reflections and has full view of Racecourse road.

- Location 4 – manned noise level measurements were conducted adjacent upfield train line west of the site. The microphone of the sound level meter was located approximately 1.5 metres above grade. The measurements were free field and has full view of the train line.

Additionally, the noise level measurements of the Citylink (Toll road) had been previously measured by ALC on the following locations (not show in figure 2)

- Location 5 - An unmanned noise monitor was installed on an external balcony on level 8 of the 111 Canning Street development facing the Citylink toll road

- Location 6 – an unmanned noise monitor was installed on an external balcony on level 4 of the Parkville Stage 7 development located at Galada Avenue, Parkville.

5.2 MEASUREMENT EQUIPMENT

A Norsonic Nor140 Sound Level Analyser was used for the manned noise level measurements. The equipment was calibrated at the beginning and the end of the measurement using a B&K 4231 calibrator; no significant drift was detected. All measurements were taken on fast response mode.

The long-term noise monitoring was conducted using an ARL-315 noise monitor. The equipment was calibrated at the beginning and the end of the measurement using a B&K 4231 calibrator; no significant drift was detected. All measurements were taken on fast response mode.

5.3 INSPECTION / MEASUREMENT DATE AND TIME

The inspections / measurements were conducted as the following:

- The inspection and manned noise level measurements at the subject site was conducted on 30 November 2018 between 3:00pm and 5:00pm.

- The unmanned noise monitor on Location 5 was installed between 24 and 26 September 2018.

- The unmanned noise monitor on Location 6 was installed between 23 and 26 August 2016.

5.4 MEASUREMENT RESULTS

Tables 5 to 7 below details the measured noise levels.

Table 5 – Measured Traffic Noise Levels (Manned Measurements)

Measurement Location[1]	Date of Measurements	Time of Measurements	Measured Noise Levels $L_{eq,\ 15mins}$ dB(A)[2]
Location 1 – facing Boundary Road	30/11/2018	03:24pm-03:39pm	65

Location 2 – facing Alfred Street	30/11/2018	03:44pm-03:59pm	56
Location 2 – facing Racecourse road	30/11/2018	04:05pm-04:20pm	72

Note 1 – Refer Figure 2 for measurement locations.
Note 2 – Measured noise levels presented have been corrected for façade reflections

Table 6 – Unmanned Traffic Noise Level Measurements

Location[1]	Period	Measured Noise Levels
Location 5 – Facing Citylink Tollway	Day (6.00 – 22.00)	66 $L_{eq,16hr}$ dB (A)
	Night (22.00 – 6.00)	62 $L_{eq,8hr}$ dB (A)
Location 6 – Facing Citylink Tollway	Day (6.00 – 22.00)	74 $L_{eq,16hr}$ dB (A)
	Night (22.00 – 6.00)	68 $L_{eq,8hr}$ dB (A)

Note 1 – Refer Section 5.1 for measurement locations.
Note 2 – Measured noise levels presented have been corrected for façade reflections

Table 7 – Measured Train Noise Levels (Manned Measurements)

Measurement Location[1]	Time	Measured Noise Levels[2]
Location 4 – facing the rail corridor	Day (6am – 10pm)	74 $L_{eq,16hr}$ dB(A)
	Night (10pm – 6am)	68 $L_{eq,8hr}$ dB(A)

Note 1 – Refer Figure 2 for measurement locations.
Note 2 – Train noise L_{eq} is derived by measuring the level of multiple train pass-bys and deriving a Sound Exposure Level (SEL). An $L_{eq,16hr}$ and $L_{eq,8hr}$ value is then derived from this based on the frequency of the train service during these periods.

6 EVALUATION OF EXTERNAL NOISE INTRUSION

Internal noise levels will primarily be as a result of noise transfer through the windows, doors and roof as these are relatively light building elements that offer less resistance to the transmission of sound. Walls that are proposed to be precast / heavy masonry elements will not require upgrading acoustically.

The measured traffic and train noise levels conducted have been used to predict the noise levels at the façade of the proposed development, which considered the distance between measurement location and proposed building location.

The predicted noise levels through the windows, doors and roof are discussed below. The predicted noise levels have been based on the expected level and spectral characteristics of the external noise, the area of building elements exposed to traffic/train noise, the absorption characteristics of the rooms and the noise reduction performance of the building elements.

The constructions set out below are necessary for the satisfactory control of external noise.

6.1 RECOMMENDED GLAZING

The minimum glazing requirements schedule for this development is detailed in **Appendix 1 – Façade Mark up**. The glass thicknesses shown in the schedule do not consider thermal, structural, safety or any other requirements other than acoustic requirements and thus may require upgrading in some instances. In these instances, increasing the glass thickness beyond the acoustic requirement will be acceptable. Where the glazing thickness has not been specified, standard glazing will be acceptable.

Table 8 below details the minimum R_w performance requirements for the glazing assembly installed. Where open-able windows or sliding doors are installed, the total R_w performance of the system shall not be lower than the values listed in Table 8**.** It is noted that the system supplied shall meet the overall minimum R_w ratings nominated based on a laboratory test report for the system. If an alternative system is proposed the system shall be reviewed and will require approval by a suitably qualified acoustic consultant to ensure that the proposed system is acceptable and will ensure compliance with the nominated internal noise design criteria.

Table 8 – Minimum External Glazing Requirements / Performance

Location	Required Glazing Construction[1]	Minimum R_w of Installed Window System	Acoustic Seals[2]
Refer Appendix 1 – Façade Mark-up	6mm or 6/12/6 IGU	29	Yes
	6.38mm lam or 6/12/6.38 lam IGU	31	Yes
	10.38mm lam or 6/12/10.38 lam IGU	35	Yes
	12.76mm lam or 6/12/12.76 lam IGU	37	Yes
	12/12/8.76 lam IGU	39	Yes

Note 1 – or approved equivalent.
Note 2 – Mohair Seals in windows and doors are not acceptable where acoustic seals are required. Seals in these instances shall be equal to Schlegel Q-lon.

6.2 ROOF/CEILING

Concrete roof construction does not require further upgrade acoustically. Any lightweight element shall be designed to ensure compliance with the assessment criteria is achieved.

Penetrations in ceilings (such as for light fittings etc.) must be sealed gap free with a flexible sealant. Any ventilation openings in the ceilings would need to be acoustically treated to maintain the acoustic performance of the ceiling construction.

6.3 EXTERNAL WALLS

Concrete or masonry external walls will not require upgrading acoustically. Penetrations in walls must be sealed gap free with a flexible sealant. Any ventilation openings in the walls would need to be acoustically treated to maintain the acoustic performance of the wall construction.

7 CONCLUSION

This report details our acoustic assessment for the proposed development site located at 139-149 Boundary Road, North Melbourne. The recommendations detailed in Section 6 will ensure compliance with the assessment criteria based on the requirements outlined in Standard-D16 at Clause 58.04-3 and DDO26 as detailed in Section 4.

Please contact us should you have any further queries.

Yours faithfully,

Sheran Nanayakkara

APPENDIX 1 – FAÇADE MARKUP

ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
- 6.38mm lam or 6/12/6.38mm lam IGU
- 10.38mm lam or 6/12/10.38mm lam IGU
- 12/12/8.76mm lam IGU

All glazing to be installed with acoustic seals equal to Schlegel Q-lon bulb seals. Note that Mohair seals will not be acoustically acceptable.

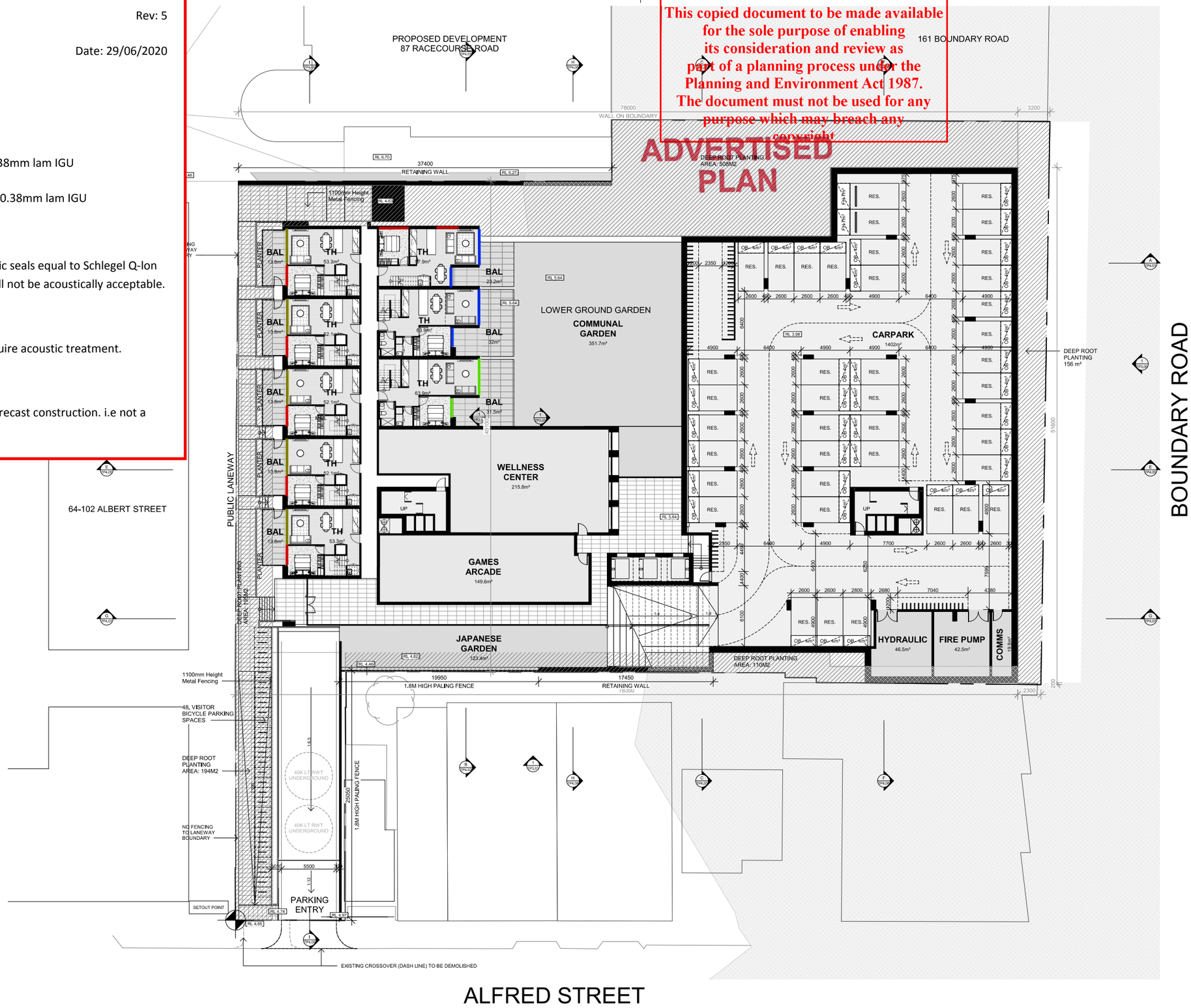
External Wall Types

Masonry or precast walls do not require acoustic treatment.

Roof

Roof assumed to be of masonry or precast construction. i.e not a lightweight roof

ADVERTISED PLAN



TP - PARKING SCHEDULE - LOWER GROUND FLOOR		
LEVEL	USE	NUMBER
LOWER GROUND FLOOR	BIKES	81
LOWER GROUND FLOOR	RES.	41

STORAGE CAGES - 4M3 FULL HEIGHT - LOWER GROUND FLOOR	
LEVEL	NUMBER
LOWER GROUND FLOOR	2

STORAGE CAGES - 4M3 OVER BONNET - LOWER GROUND FLOOR	
LEVEL	NUMBER
LOWER GROUND FLOOR	39

TOWN PLANNING

CHT ARCHITECTS

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Project

MIXED USE DEVELOPMENT

139 - 149 Boundary Road, North Melbourne

Client

BLUE EARTH GROUP

Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LOWER GROUND FLOOR PLAN

Sheet

PRELIMINARY
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Sheet No. TP2.03

Revision B

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Date 27/03/2020

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
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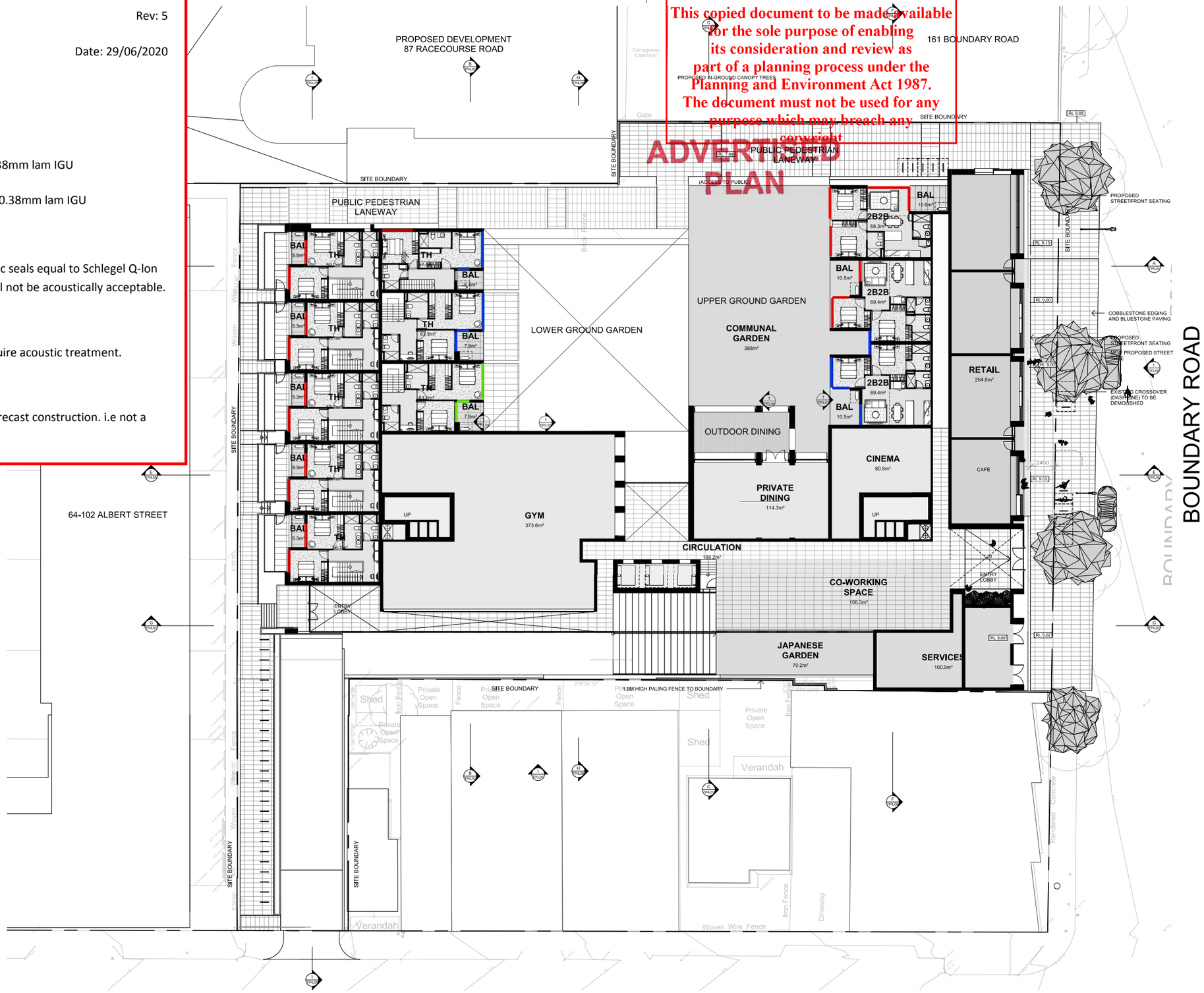

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A	09/12/2019	TP SUBMISSION
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Title

UPPER GROUND FLOOR PLAN

Sheet

PRELIMINARY
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Sheet No. TP2.04

Revision B

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

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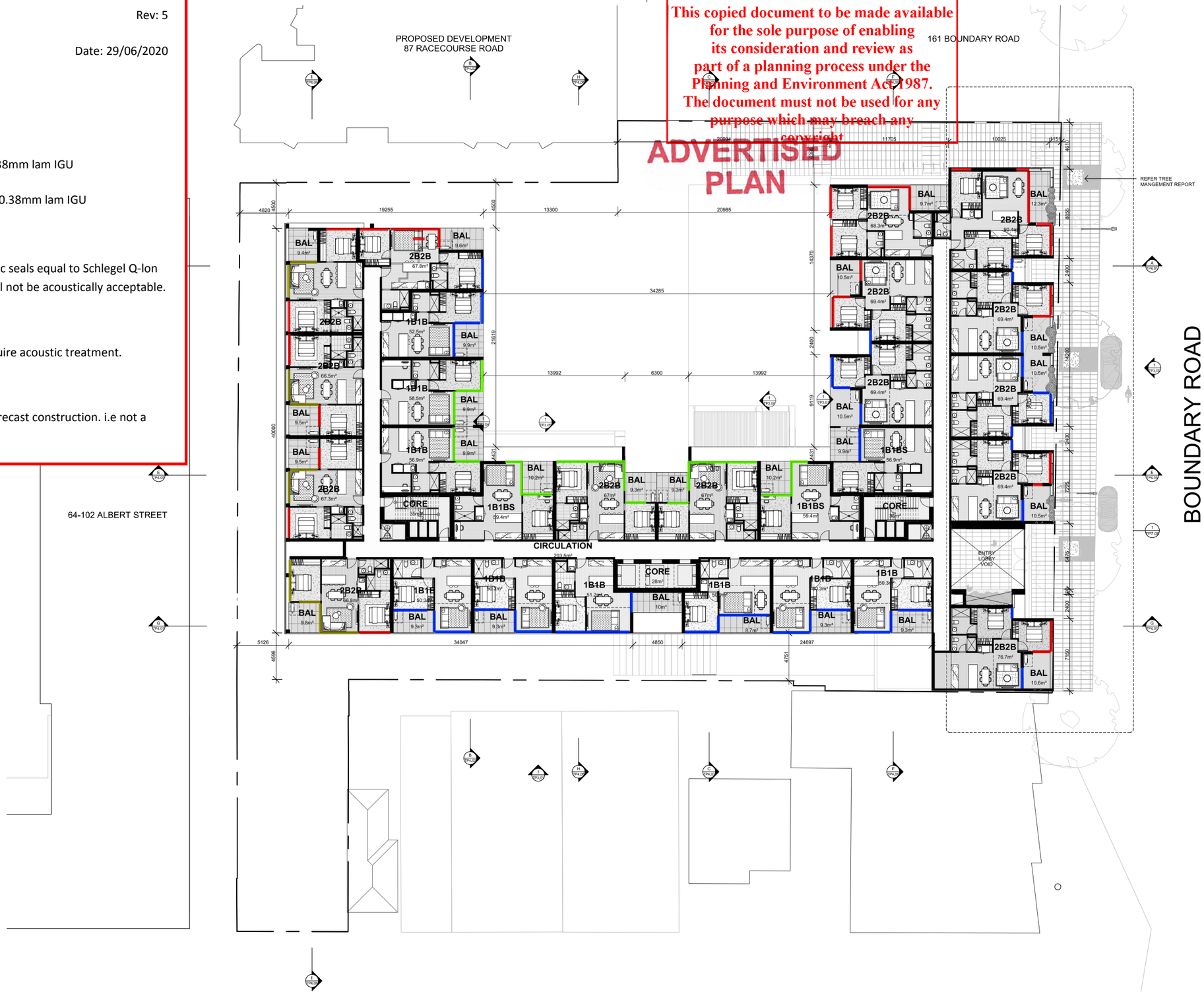

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No.	Date	Notes
A	09/12/2019	TP SUBMISSION
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LEVEL 01

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

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ACOUSTIC LOGIC

Rev: 5

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MIXED USE DEVELOPMENT
139 - 149 Boundary Road, North Melbourne

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BLUE EARTH GROUP

Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 02

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.06

Revision

B

Scale
1 : 200@A1

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27/03/2020

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ACOUSTIC LOGIC

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B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 03

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.07

Revision

B

Scale
1 : 200@A1

Date
27/03/2020

18113

Drawn by:AuthoChecked by:Checker

18113 - 5/06/2020 2:03:45 PM

ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
- 6.38mm lam or 6/12/6.38mm lam IGU
- 10.38mm lam or 6/12/10.38mm lam IGU
- 12/12/8.76mm lam IGU

All glazing to be installed with acoustic seals equal to Schlegel Q-lon bulb seals. Note that Mohair seals will not be acoustically acceptable.

External Wall Types

Masonry or precast walls do not require acoustic treatment.

Roof

Roof assumed to be of masonry or precast construction. i.e not a lightweight roof

ADVERTISED PLAN

TOWN PLANNING

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Urban Design

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Project

MIXED USE DEVELOPMENT

139 - 149 Boundary Road, North Melbourne

Client

BLUE EARTH GROUP

Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 04

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.08

Revision

B

Scale

1 : 200@A1

Date

27/03/2020

18113

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18113 -- 5/06/2020 2:04:07 PM

ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
- 6.38mm lam or 6/12/6.38mm lam IGU
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External Wall Types

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Roof

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ADVERTISED PLAN

TOWN PLANNING

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Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 05

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No. TP2.09

Revision B

Scale 1 : 200@A1

Date 27/03/2020

18113

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
- 6.38mm lam or 6/12/6.38mm lam IGU
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- 12/12/8.76mm lam IGU

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External Wall Types

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Roof

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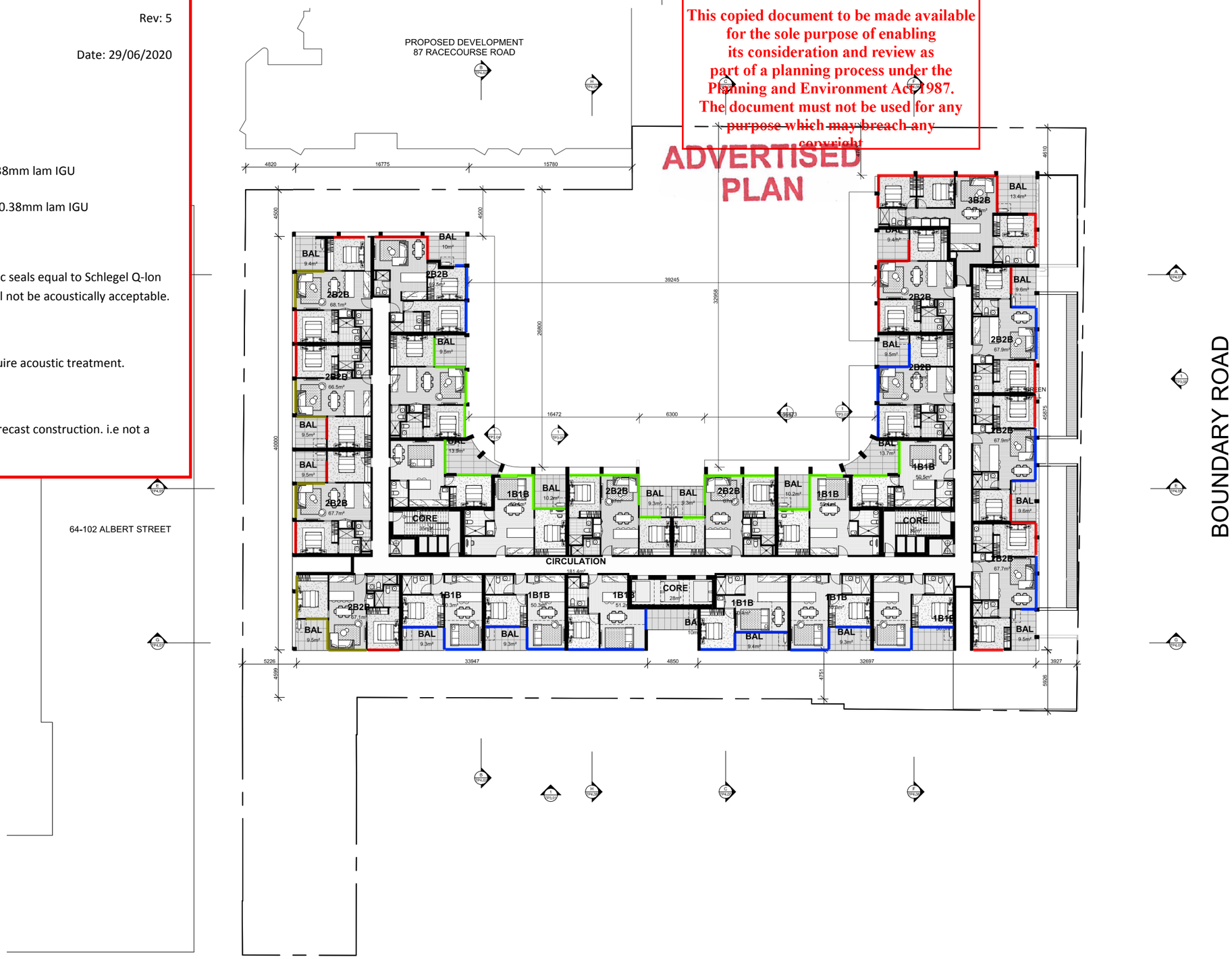
ADVERTISED PLAN



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Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 06

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.10

Revision

B

Scale
1 : 200@A1

Date
27/03/2020

18113

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
- 6.38mm lam or 6/12/6.38mm lam IGU
- 10.38mm lam or 6/12/10.38mm lam IGU
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External Wall Types

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Roof

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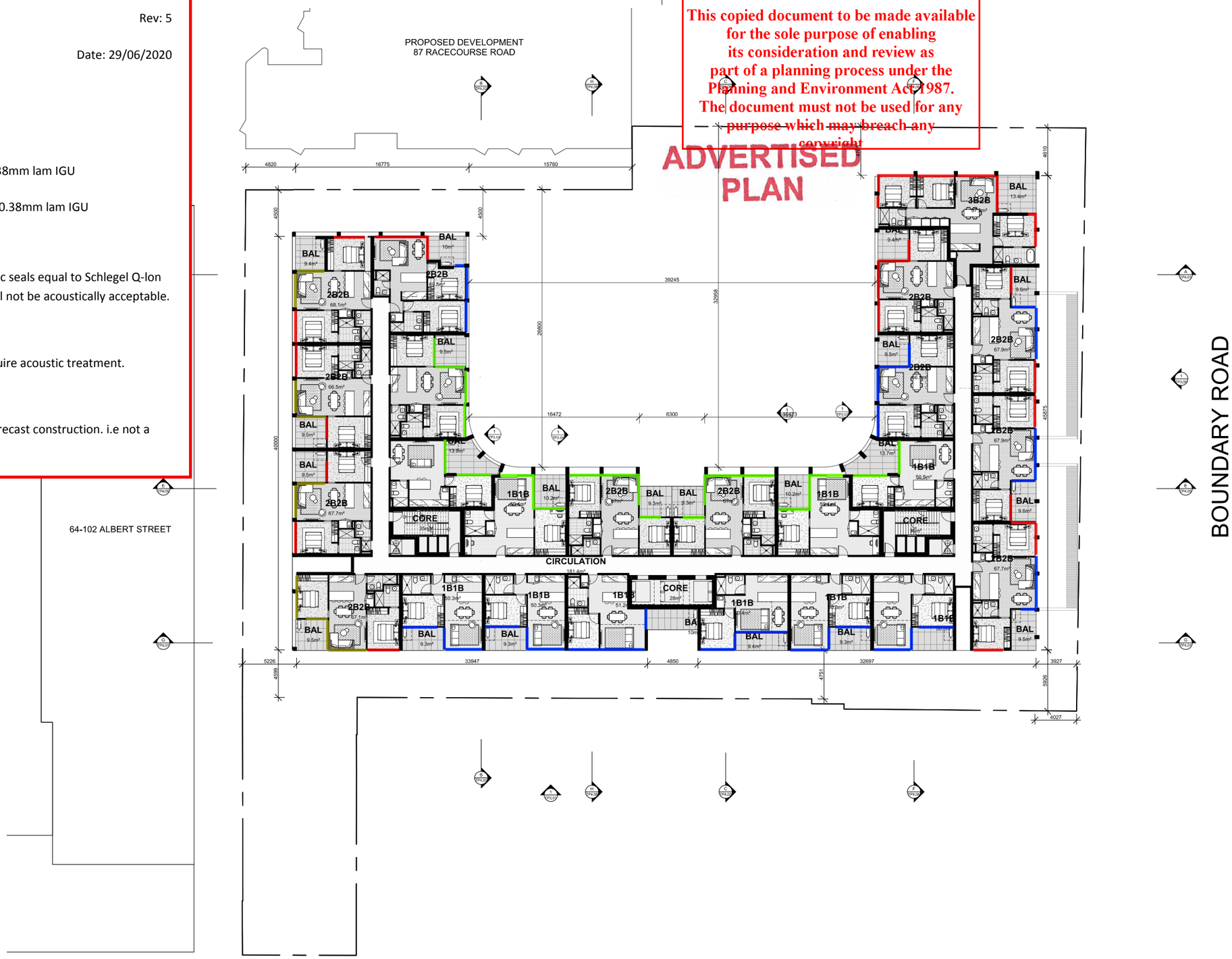

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Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 07

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.11

Revision

B

Scale
1 : 200@A1

Date
27/03/2020

181113

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
- 6.38mm lam or 6/12/6.38mm lam IGU
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External Wall Types

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Roof

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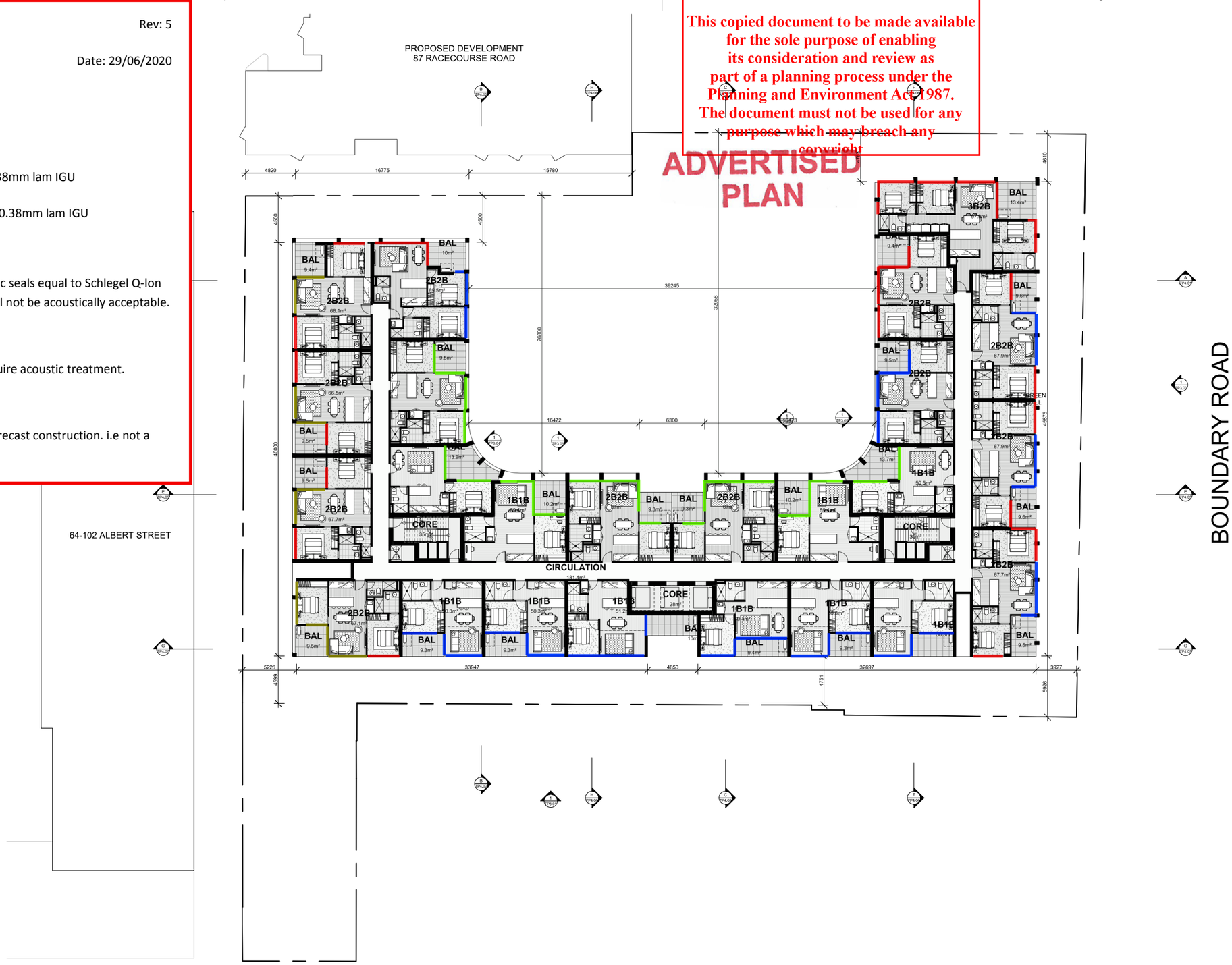
ADVERTISED PLAN



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Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 08

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.12

Revision

B

Scale
1 : 200@A1

Date
27/03/2020

18113

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

- 6mm or 6/12/6 IGU
- 6.38mm lam or 6/12/6.38mm lam IGU
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External Wall Types

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Roof

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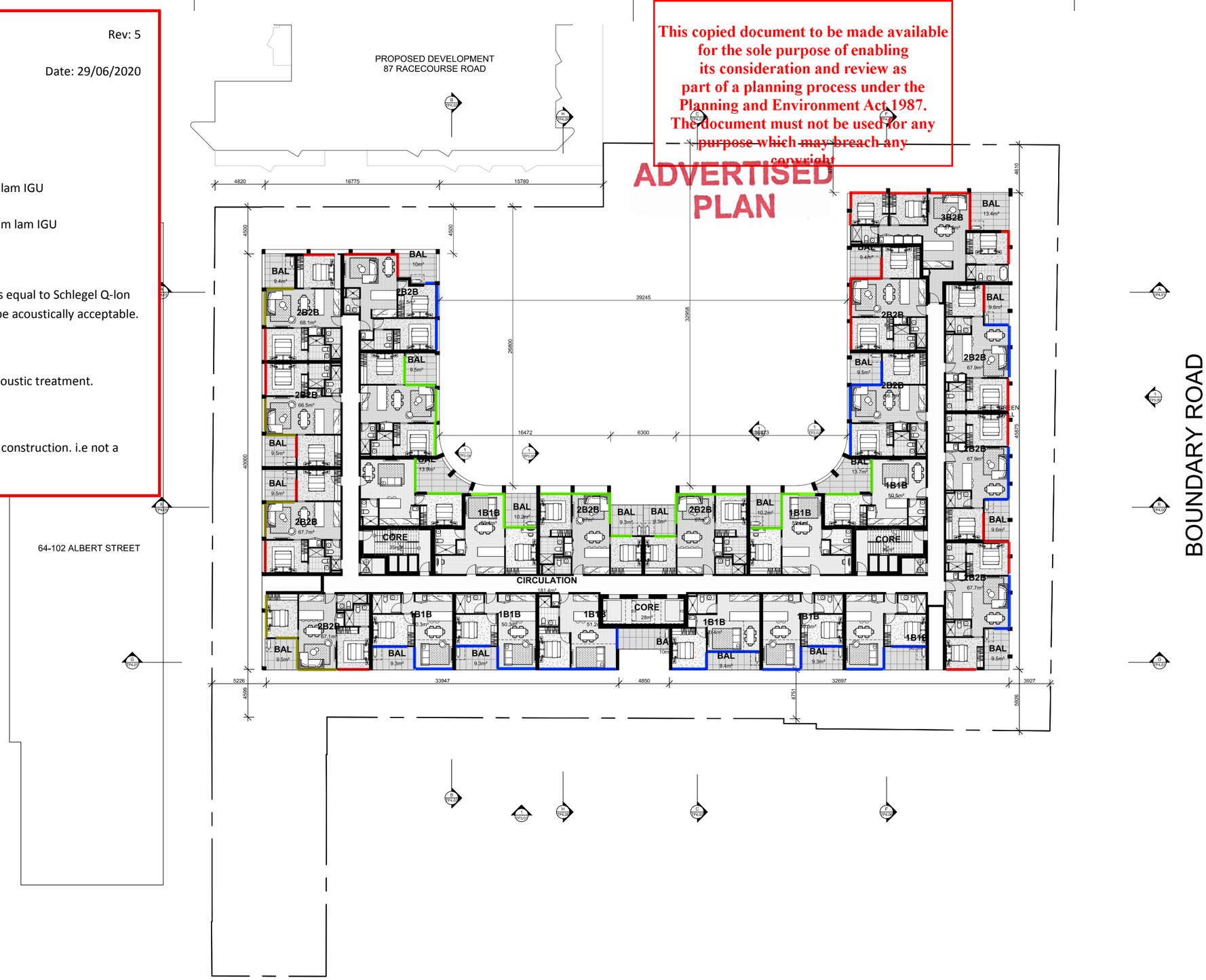

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Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 09

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.13

Revision

B

Scale
1 : 200@A1

Date
27/03/2020

181113

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

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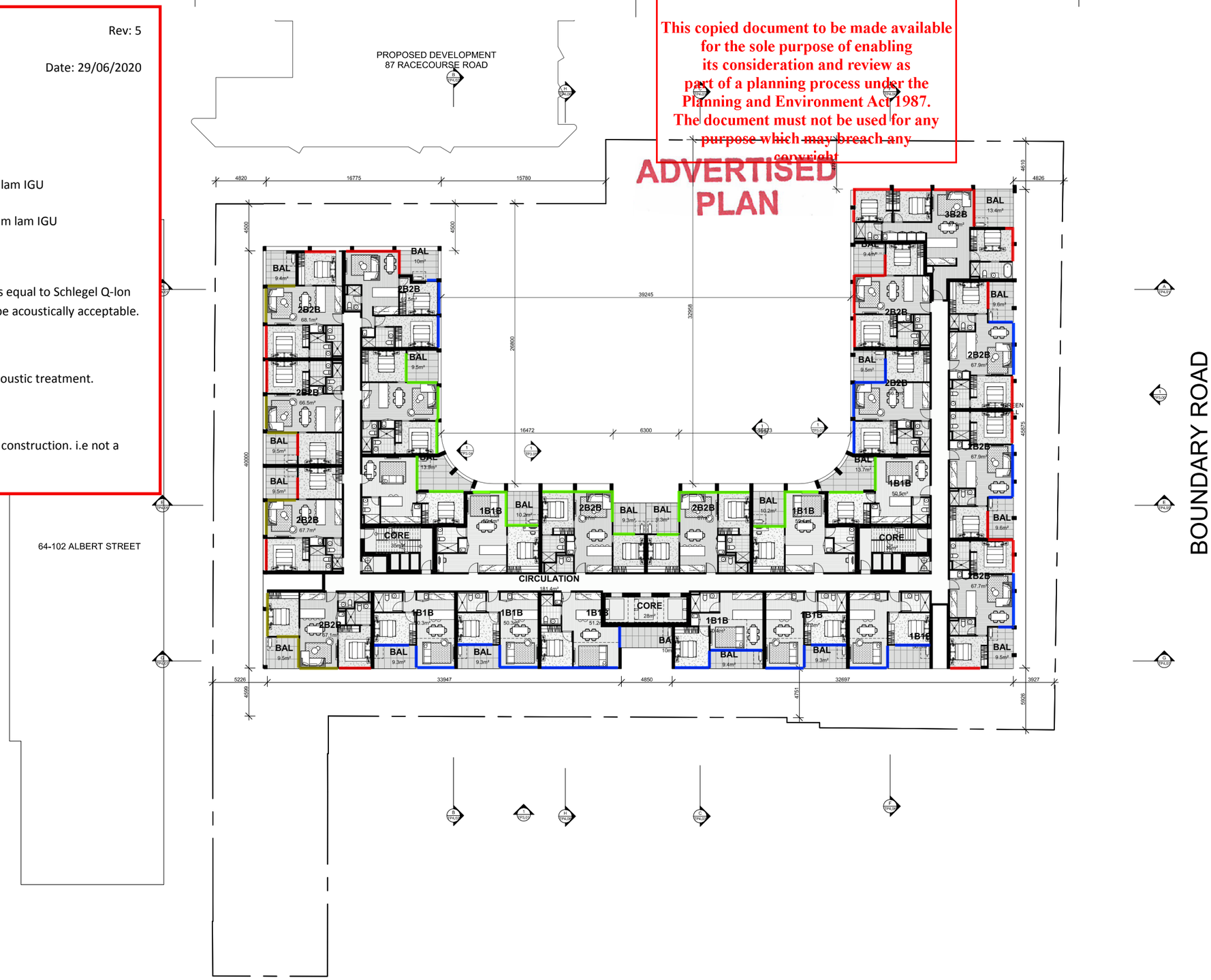

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Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 10

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No.

TP2.14

Revision

B

Scale

1 : 200@A1

Date

27/03/2020

18113

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ACOUSTIC LOGIC

Rev: 5

Date: 29/06/2020

Glazing Schedule

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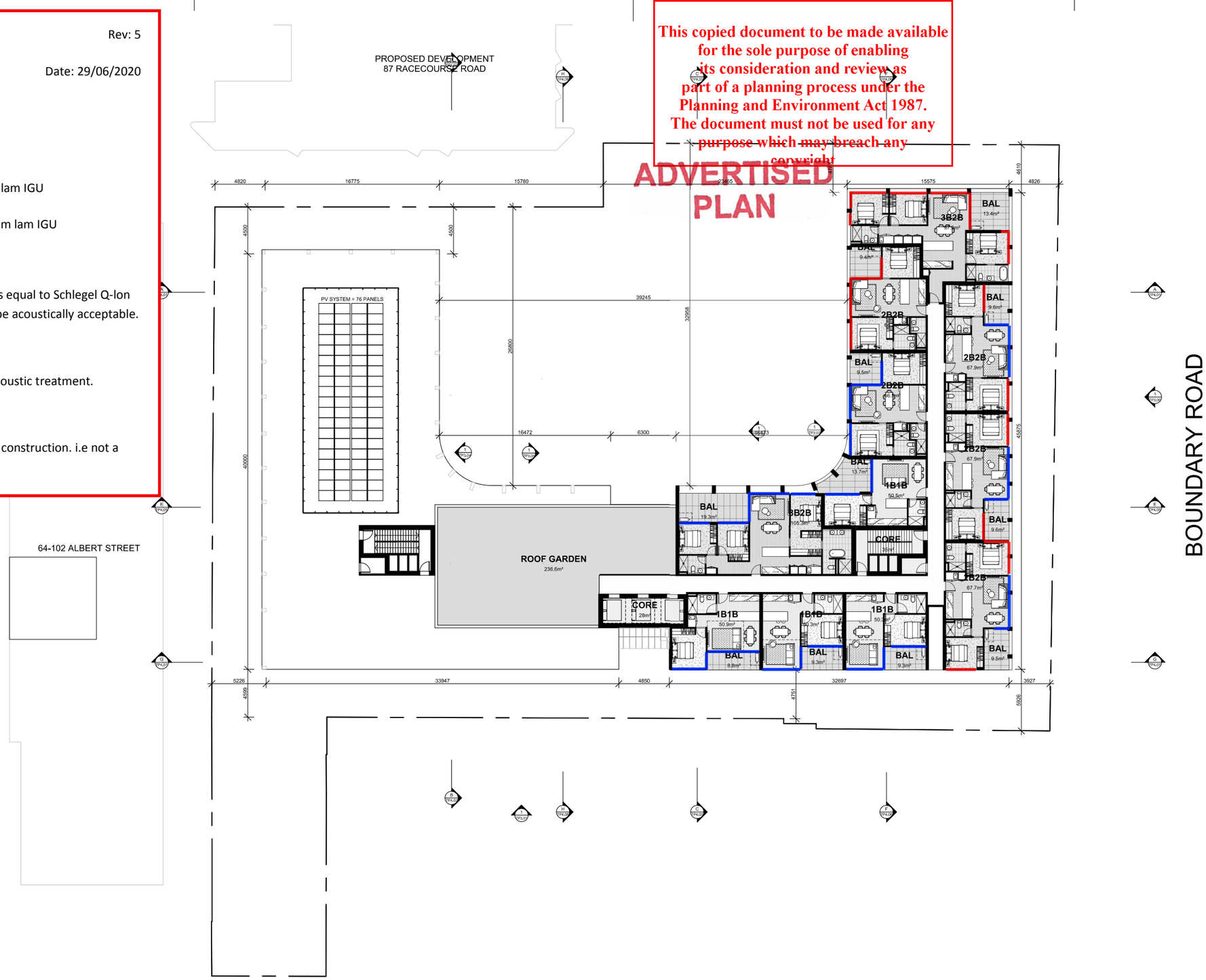

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Client

BLUE EARTH GROUP

Amendments

No.	Date	Notes
A	09/12/2019	TP SUBMISSION
B	27/03/2020	DELWP RFI RESPONSE

Title

LEVEL 11

Sheet

PRELIMINARY
NOT FOR CONSTRUCTION

Sheet No. TP2.15

Revision B

Scale 1 : 200@A1

Date 27/03/2020

18113

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18113 - - 5/06/2020 2:06:22 PM