Water Engineering Partners

Water Engineering Partners Pty Ltd

330 Macarthur Avenue, Hamilton Flood Assessment

Prepared for: Silverstone Developments

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Disclaimer

The flood modelling presented in this report was based and relies on the adopted Council flood model.

The flood modelling presented in this report is based and relies on survey data and other data obtained from third parties. While all reasonable steps have been taken to verify the data, Water Engineering Partners does not guarantee the data obtained or supplied for the investigation

Rainfall is variable in nature. The modelling presented in this report is based on available rainfall data sourced from government agencies, with appropriate factors added to account for climate change estimates in accordance with guidance from local and state government bodies relevant to the study location in their planning schemes. Actual rainfall patterns and totals in the future could vary from those adopted for this report.

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APPENDICES

1 Introduction

Site 17 Northshore Hamilton is located at 330 Macarthur Avenue, Hamilton (the Site). The Site 17 Northshore Hamilton development is located within the Northshore Hamilton PDA.

The Site has a total area of 7,466 m^2 and will include:

- a basement providing 191 car park spaces and 178 bicycle park spaces;
- communal areas at ground level;
- 115 apartments over 7 levels, comprising:
  - 20 ground floor units;
  - 20 units on Level 1;
  - 19 units on each of Levels 2 to 4; and
  - 9 units on each of Levels 5 and 6.

The location of the site is shown on Figure 1-1.

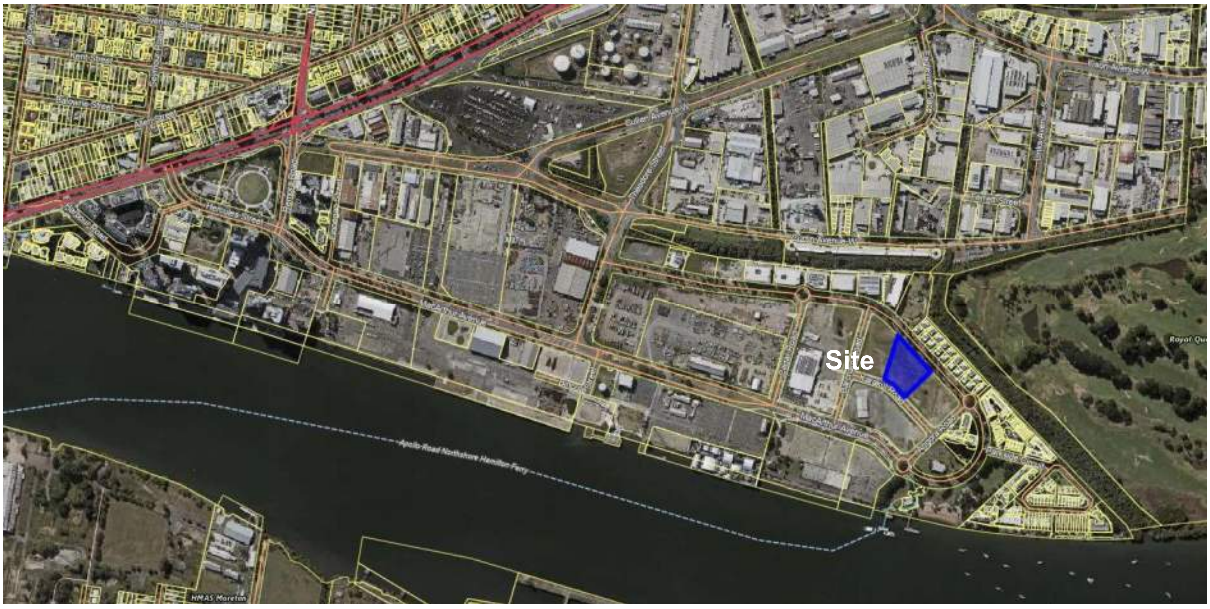


Figure 1-1 Site Location and Context Plan (Queensland Globe)

The key drawings for the building, as provided by Carr Architects, are contained in Appendix A. The ground floor plan for the development (Carr Drawing TP1-1002, Rev 14) is shown on Figure 1-2. The figure has been annotated to show the location of the proposed substation adjacent to Macarthur Avenue.

Figure 1-2 Ground Floor Plan

This report considers the various sources of flooding that could affect the Site and the potential impact of the development on flooding.

The site is potentially affected by inundation associated with Brisbane River flooding, local catchment overland flow, local street flow, and storm tide. Section 2 describes the various sources of inundation and the water levels applicable to the site for each source of inundation.

Section 3 details the potential impact of the development on flood levels.

Section 4 details the desirable flood immunity levels for the site with reference to guidance provided by the planning scheme of the local government area in which the PDA lies, namely *City Plan 2014* of Brisbane City Council. This section also details the higher immunity required to achieve immunity with respect to the 1% AEP event including climate change to 2100, which it is understood is the standard being adopted for the current design of Northshore Hamilton.

Section 5 provides an initial consideration of flood risk, noting the expectation that the preparation of a Flood Emergency Management Plan will be a condition of approval for the development.

2 Flooding and Storm Tide- Relevant Levels

2.1 General

This section of the report details the potential sources of flooding that could affect the site and presents the flood levels associated with each type of flooding.

Overall, the Site is potentially affected by flooding from four sources:

- Brisbane River flooding;
- Flooding in the local catchment in which the Site lies;
- Flooding due to local flooding in the street system around the site; and
- Storm tides in Moreton Bay.

To be consistent with current terminology, the severity of a flood is expressed in terms of its Annual Exceedance Probability (AEP). A 1% AEP event has a one percent probability of occurring in one year. This terminology replaces the previous reference to the Average Recurrence Interval (ARI) of an event. A 100-year Average Recurrence Interval event will occur, on average over a long period of time, once every 100 years. A 1% AEP event is equivalent to a 100-year ARI event.

It is noted that the immunity standard applied under the Brisbane City Council *City Plan 2014* planning scheme varies according to the source of flooding and only fully considers climate change with respect to storm tide. In comparison, a higher design standard, namely the 1% AEP event including climate change to 2100, is being adopted within the PDA for the design of internal roads.

The flood levels nominated in this section refer to both the immunity standard applicable under the Council planning scheme and the higher design standard which is currently being applied within the PDA.

2.2 Brisbane River Flooding

The Brisbane River catchment has a total catchment area of about 13,500 km^2 to the Brisbane CBD.

The most recent comprehensive flood modelling of the Brisbane River, known as the Brisbane River Catchment Flood Study (BRCFS) was completed in response to the Queensland Floods Commission of Inquiry held subsequent to the January 2011 Brisbane River flood. The results of the modelling are summarised in the *Technical Summary Report, Comprehensive Hydrologic and Hydraulic Assessments, Brisbane River Catchment Flood Study (Revision 2, February 2017)* (the BRCFS Technical Report).

The flood model developed in support of the BRCFS Technical Report was used by Water Engineering Partners for this investigation under licence from the State Government.

This is consistent with the approach of Brisbane City Council, which has adopted the flood levels derived from the BRCFS study, albeit without climate change.

Section 8.3 of the BRCFS Technical Report detailed four climate change scenarios:

- CC1 – 0.3m sea level rise;
- CC2 – 0.3m sea level rise and 10% increase in rainfall;
- CC3 – 0.8m sea level rise; and
- CC4 – 0.8m sea level rise and 20% increase in rainfall.

The flood levels nominated with respect to climate change in this report reflect the CC4 scenario (equivalent to the RCP8.5 scenario at the time the Technical Report was prepared).

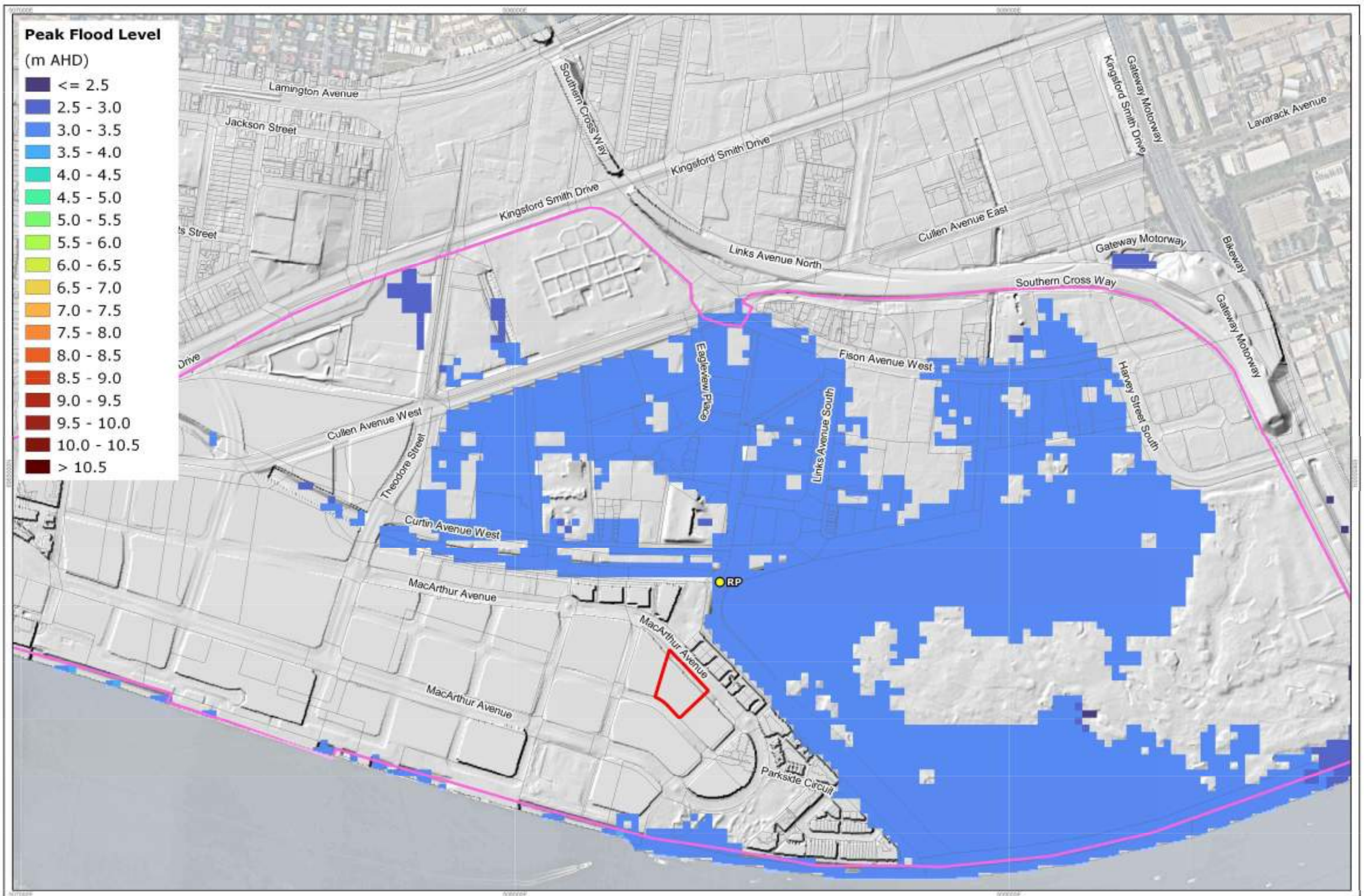
The inundation associated with the Brisbane River 1% AEP event including climate change to 2100 is shown on:

- Figure 2-1 Peak Flood Levels; and
- Figure 2-2: Peak Flood Depths.

With reference to the figures, ground levels at the Site and in the surrounding area are above the river flood level for the 1% AEP event including climate change.

The flood level in the channel to the north of the Site therefore reflects the flood level at the point the channel joins the Brisbane River.

Table 2-1 presents the peak flood levels at the closest point to the Site, namely in the channel to the north of the Site (at the point denoted as “RP” in the figures). The flood level in the channel to the north of the Site reflects the flood level at the point the channel joins the Brisbane River.



LEGEND

PDA Boundary | Site

Reporting Point | Cadastre

N

Lot 17 Northshore Hamilton
Flood Assessment

Silverstone Developments

Brisbane River Flooding, Peak Flood Levels, 1% AEP Event including Climate Change to 2100

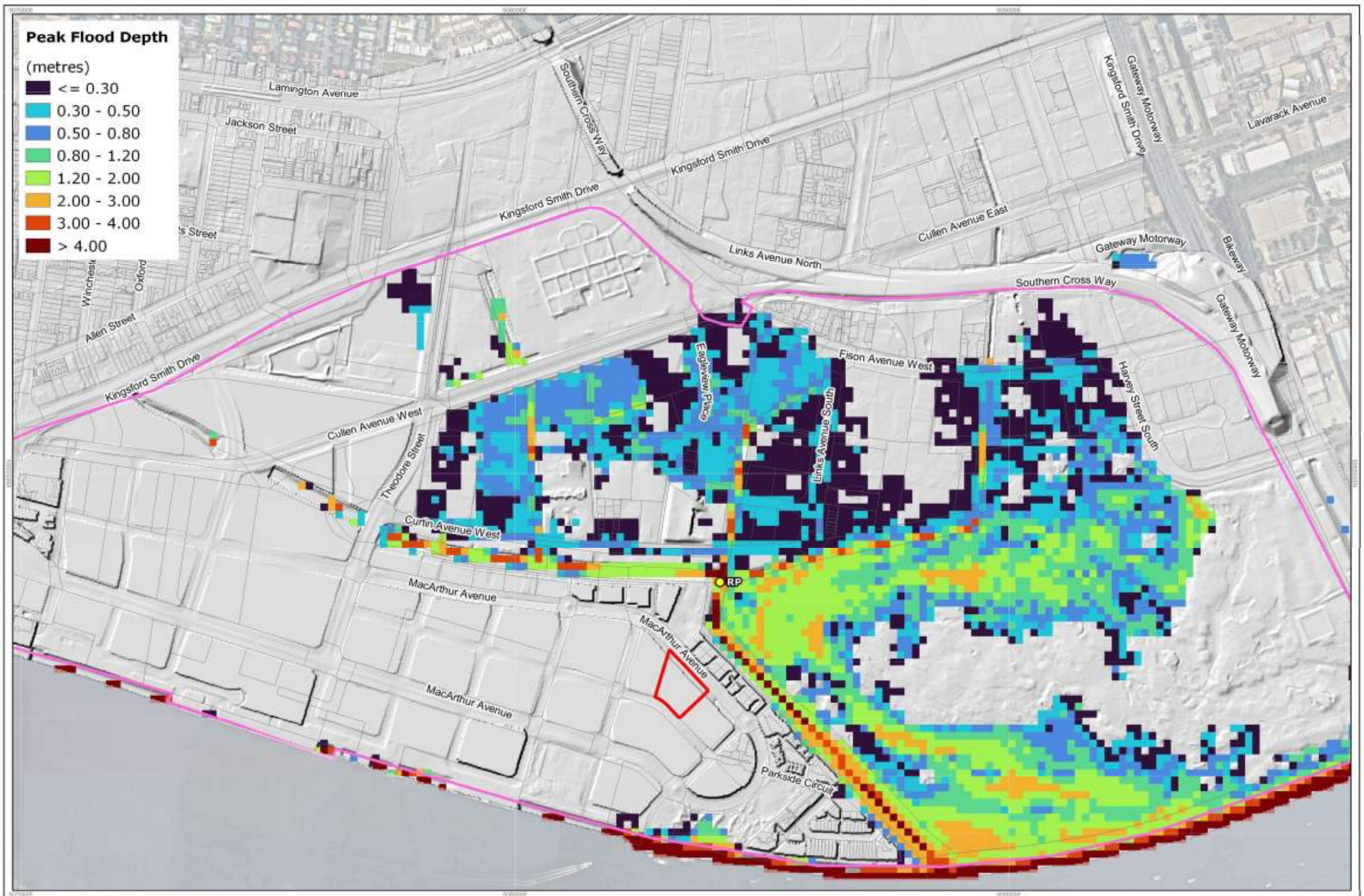
WEP Water Engineering Partners

0 100 200 m

2-1

-

18-September-2024



LEGEND

PDA Boundary | Site | Reporting Point | Cadastre

Lot 17 Northshore Hamilton Flood Assessment

Brisbane River Flooding, Peak Flood Depth, 1% AEP Event including Climate Change to 2100

Silverstone Developments

WEP Water Engineering Partners

Scale: 0 100 200 m

Figure number: 2-2

Revision: -

Date: 18-September-2024

2.3 Local Catchment Flooding

According to the BMT report *External Catchment Drainage Master Plan – Northshore Hamilton* (Revision 1, September 2017) (the Drainage Master Plan), the PDA is located within a local catchment with a total area of approximately 500 hectares (including the PDA).

Figure 2-3 shows the external local catchment areas (in yellow) relative to the PDA based on mapping prepared by consultants BMT. The figure also shows the open channel that drains runoff from the PDA to the Brisbane River.

Runoff from the external catchments (referred to as Oxford Street, Theodore Street and Cullen Avenue East in the BMT report) drain through the PDA to the Brisbane River via existing excavated open channels (shown in blue on Figure 2-3).

The total external catchment area to the PDA is 196 hectares, comprising:

- Oxford Street: 93.4 hectares;
- Theodore Street: 21.8 hectares; and
- Cullen Avenue East: 80.8 hectares.

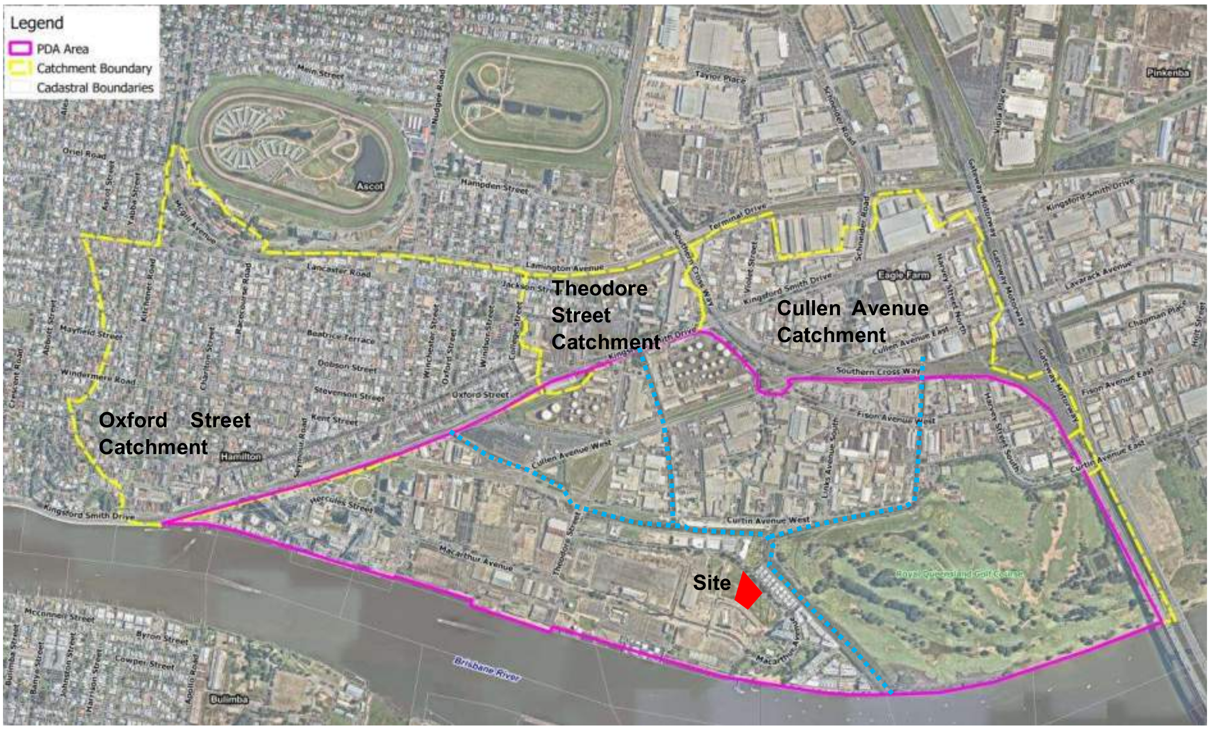


Figure 2-3 Extent of Local Catchment

The model developed in support of the Drainage Master Plan is documented in Appendix B of the *BMT Hamilton Northshore Trunk Drainage Assessment* (Revision 3, September 2019).

BMT is currently completing flood modelling in support of the road design for the PDA (including the Olympic Village), based on the model developed for the Drainage Master Plan. At the time of preparation of this assessment, the final configuration of the master drainage solution for the PDA is yet to be adopted and as a consequence the flood modelling is yet to be documented.

As the developed case modelled by BMT represents the latest modelling of the local catchment (noting it remains to be finalised) and reflects the likely development within the PDA, it was considered appropriate to adopt the developed case model for the purposes of flood level derivation for the local catchment.

BMT provided model outputs for use in the study. Consequently, the flood levels presented in this report are based and rely on the flood model developed by BMT.

The inundation associated with the local catchment 1% AEP event including climate change to 2100 is shown on:

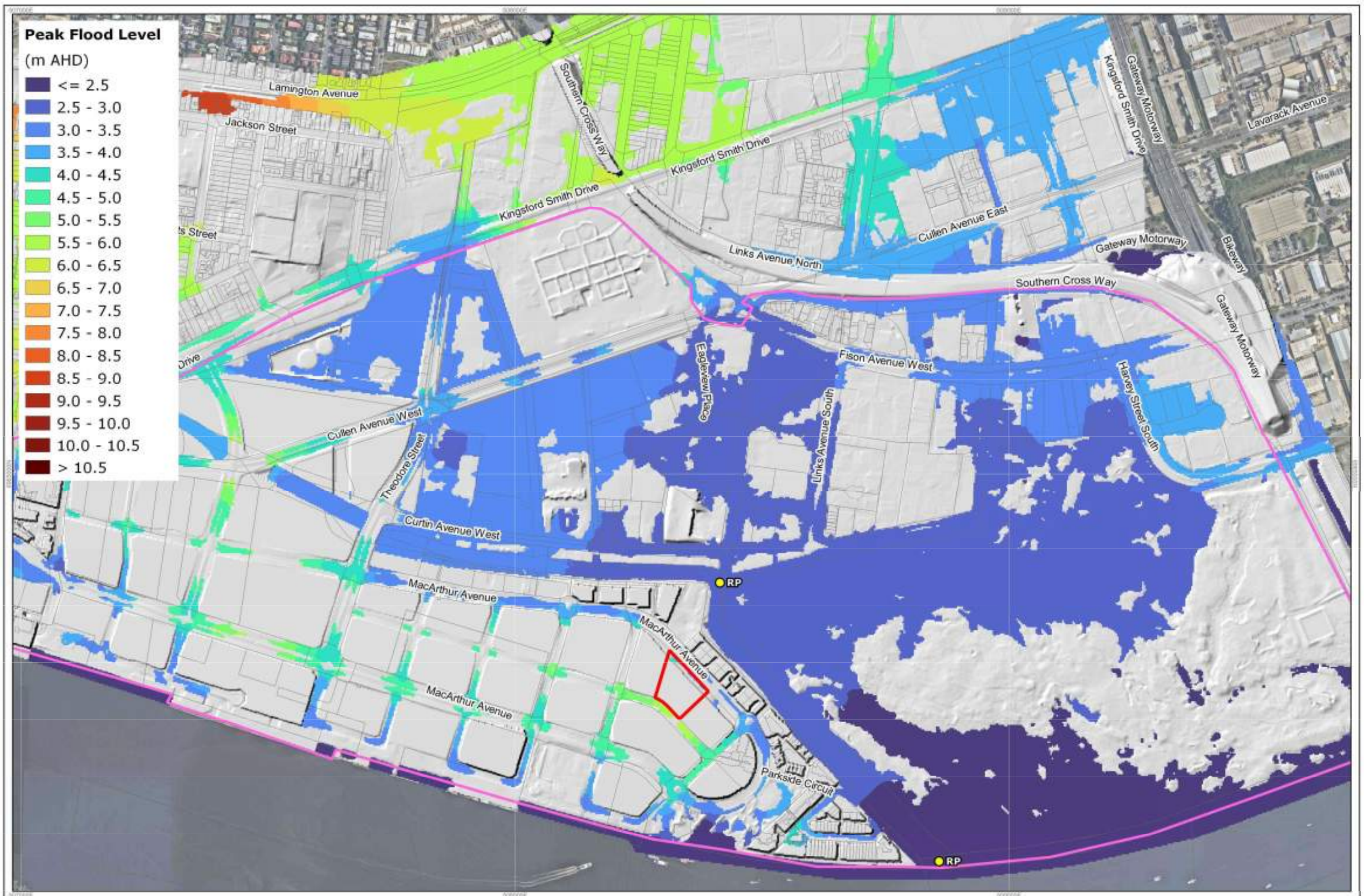
- Figure 2-4: Peak Flood Levels; and
- Figure 2-5: Peak Flood Depths.

With reference to the figures, it is important to note that the modelling includes the calculation of runoff from points within the PDA to the main channel that drains runoff to the Brisbane River. Based on the flood levels presented on Figure 2-4, the inundation of the local road network shown on the figures reflects runoff drained via the road network to the main channel.

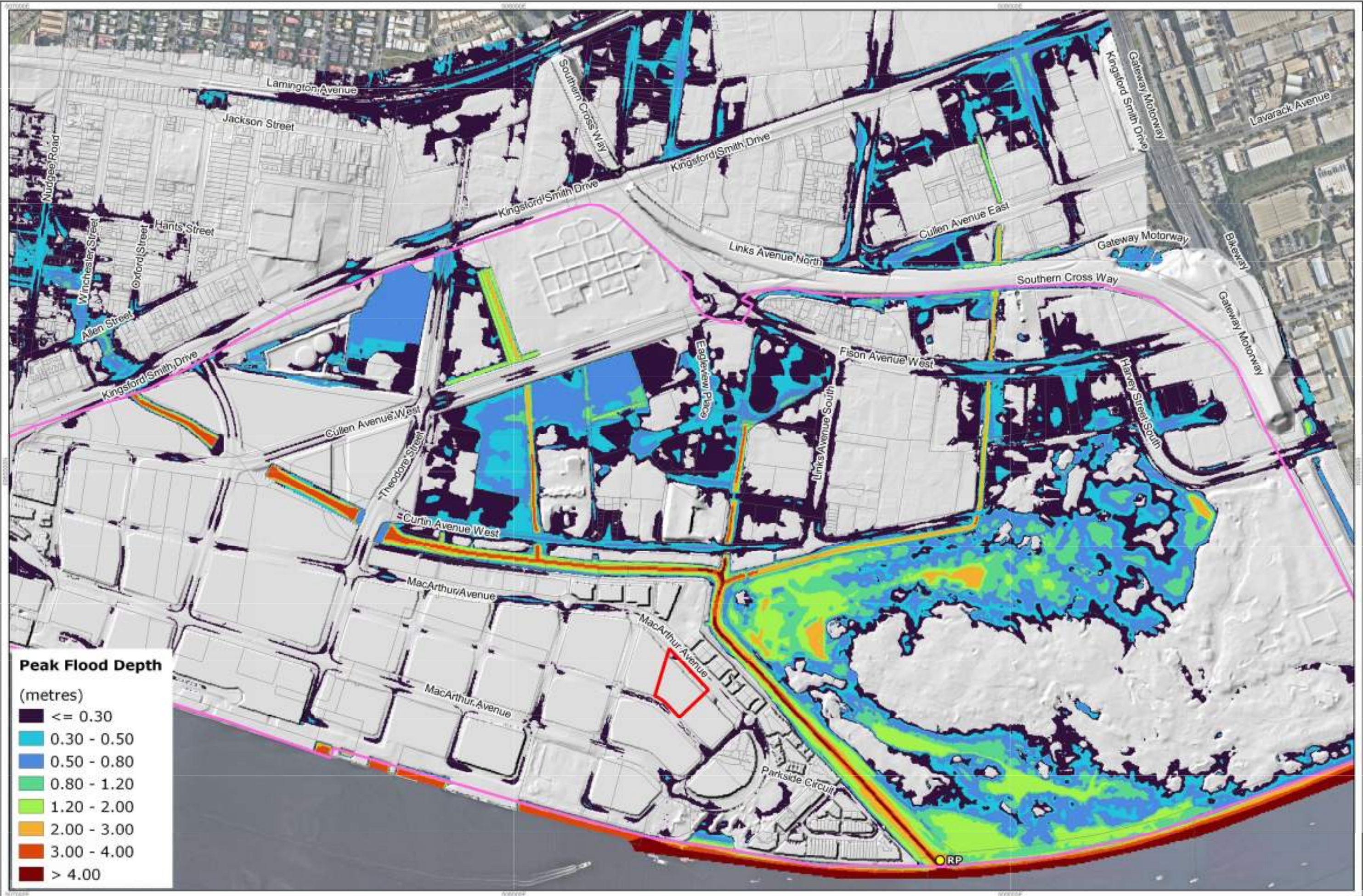
Given the shallow nature of the runoff, the flood level in the road network adjacent to the Site is governed by the level of the road rather than the level in the channel.

Consequently, it is considered that in this case, the local catchment flood level of relevance to the determination of development levels is the level in the main channel adjacent to the Site.

Table 2-1 lists the peak flood levels in the main channel to the north of the Site (at the point denoted as “RP” in the figures).



LEGEND PDA Boundary · Site Reporting Point · Cadastre	Lot 17 Northshore Hamilton Flood Assessment	Local Catchment Flooding, Peak Flood Levels, 1% AEP Event including Climate Change to 2100	
	Silverstone Developments	WEP Water Engineering Partners · 0 100 200 m	2-4 · - · 18-September-2024



LEGEND

PDA Boundary | Site

Reporting Point | Cadastre

N

Lot 17 Northshore Hamilton
Flood Assessment

Silverstone Developments

1% AEP + 2100 Climate Change, Peak Flood Depths
Local Catchment

WEP Water Engineering Partners

0 100 200 m

2-5

-

18-September-2024

2.4 Local Flooding- Street System

As noted in Section 2.3, the local catchment flood modelling completed by BMT included modelling of runoff in the local street system in the vicinity of the Site.

With reference to Figure 2-5, the calculated depths of flooding in the vicinity of the Site are less than 300 mm. Such depths are consistent with standard road design completed in accordance with guidelines such as the *Queensland Urban Drainage Guidelines* (2017).

Noting that the local catchment modelling considered a considerable area, the level of detail with respect to catchments draining to each part of the road system was necessarily limited. Consequently, recourse was made to design drawings prepared when the roads surrounding the Site were constructed to confirm that the stormwater drainage design for the roads was consistent with standard design practice and that therefore the depth of flooding in the road system is limited.

Most recently, SMEC completed the design of Karakul Road on the southern boundary of the Site, Figure 2-6 shows the internal catchment boundaries defined in the vicinity of the Site, including the subcatchments collecting runoff in Macarthur Avenue to the north. The figure has been annotated to show the approximate boundary of the Site and the location of the driveway to the basement.

Figure 2-6 Local Subcatchments (SMEC Drawing 2521E-01-321 Rev B)

Figure 2-7 presents an excerpt from SMEC Drawing 2521E-02-301 Rev D which shows the stormwater drainage design for Karakul Road. The figure has been annotated to show the location of the Site.

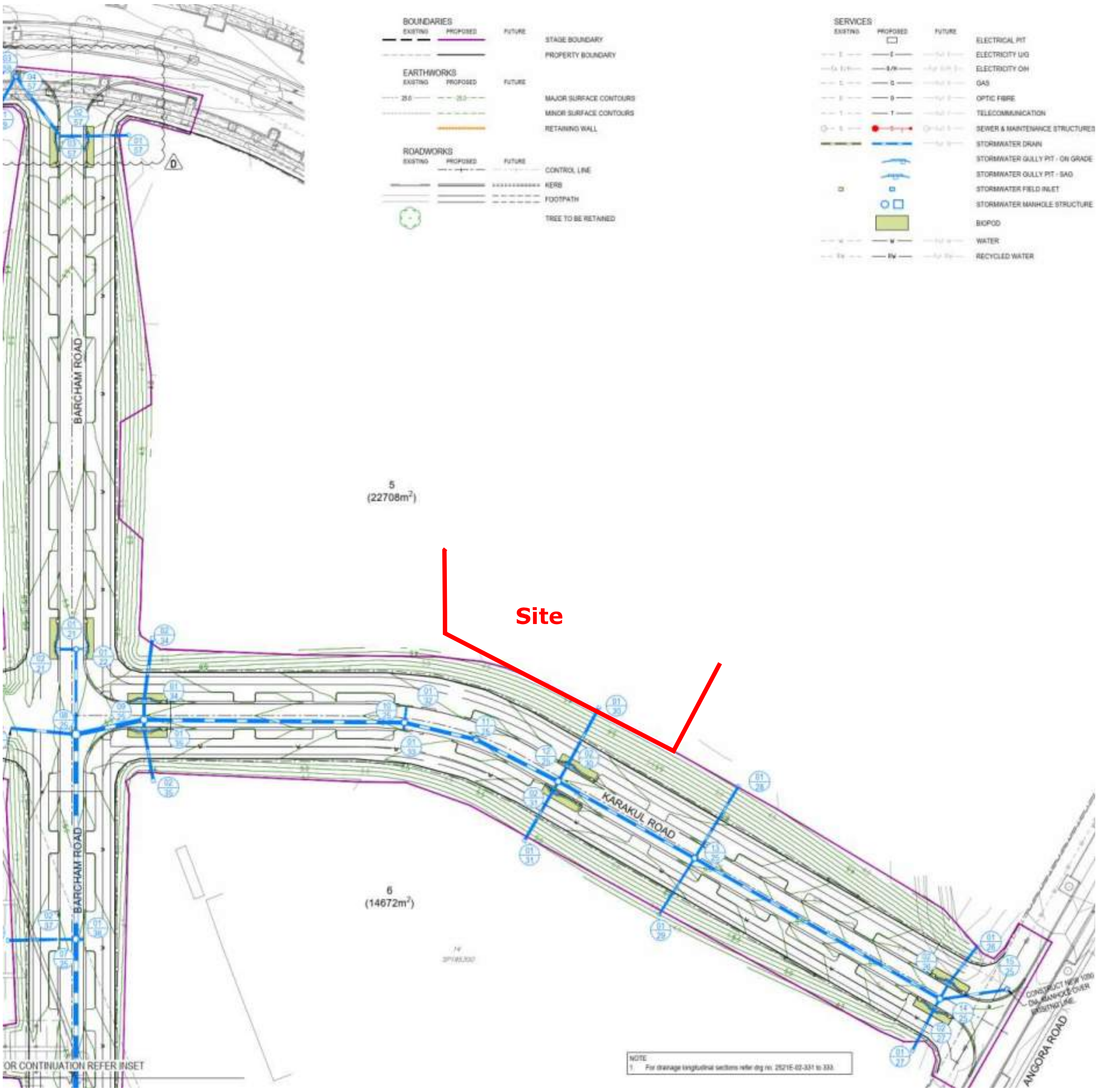


Figure 2-7 Karakul Road Works (SMEC Drawing 2521E-02-301 Rev D)

With regard to Figure 2-6, the driveway providing access to Karakul Road is located essentially at a high point (crest) in the road. Consequently, the depth of flow at the driveway will be limited. Similarly, the catchment area contributing runoff to Karakul Road will be relatively small.

Based on a review of the design drawings for Karakul Road, it is noted that the road design was based on the 1% AEP event without climate change.

The stormwater drainage calculation sheets for the design of Karakul Road indicate a maximum flow depth in the vicinity of the Site of less than 150 mm for the 10% AEP event (SMEC Drawing 2521E-01-341 Rev A) and less than 200 mm for the 1% AEP event (SMEC Drawing 2521E-010343 Rev A).

Based on a review of the road design, it is considered that the increased flow associated with a climate change scenario (i.e., adding 20% to design rainfall intensities) would result in levels less than 300 mm and generally be consistent with the results obtained from the local catchment modelling undertaken by BMT. Such levels are not considered to be problematic with respect to the Site.

Further, the level of Macarthur Avenue is over a metre lower than the level of Karakul Road. As development levels have been set relative to the higher levels in Karakul Road and the BMT modelling of Macarthur Avenue indicates peak local flood depths less than 300 mm, it is also considered that the drainage of flow in Macarthur Avenue is not problematic with respect to the Site.

As the peak flood levels associated with local street system are governed by and vary according to the longitudinal grading of the road system, the flood levels associated with street runoff are not presented in Table 2-1.

Further, the freeboard requirements associated with street drainage differ from those associated with local catchment or river flow and are typically based on the recommendations of the *Queensland Urban Drainage Manual (*QUDM, 2017).

Section 4 includes the consideration of the immunity of the development with respect to street drainage.

Notwithstanding the above, as part of detailed design it is recommended that:

- the capacity of the road and underground drainage system be confirmed to ensure that appropriate freeboard exists to the substation (refer Figure 1-2 and Section 4.2); and
- survey of the road along the Karakul Road frontage be completed to confirm that sufficient freeboard exists between the invert of the road and the crest of the driveway to the basement.

2.5 Storm Tide

A storm surge is the increased water level that results from reduced atmospheric pressure and/or high velocity winds associated with tropical cyclones or intense low-pressure systems in Moreton Bay.

Where storm surge coincides with (high) astronomical tide, the associated increased water level constitutes a storm tide. The resultant storm tide can propagate from Moreton Bay upstream along the Brisbane River to the PDA.

The storm tide levels nominated by Brisbane City Council with respect to current day conditions (https://www.data.brisbane.qld.gov.au/data/dataset/flood_awareness_storm_tide) are listed in Table 2-1.

Table 8.2.6.3.C of the *Coastal Hazard Overlay Code* of *City Plan 2014* nominates a level of 3.1 mAHD for the 1% AEP storm tide event including climate change to 2100. It is understood that the climate change allowance is in accordance with the RCP8.5 pathway current at the time that the planning scheme was prepared.

To allow comparison to present day storm tide estimates, this value is also listed in Table 2-1.

The peak flood levels associated with the 1% AEP storm tide event including climate change to 2100 are shown on Table 2-1. A figure presenting water levels was not prepared due to the storm tide level being constant across the PDA.

With reference to the table, existing ground levels across the Site are above the water level associated with the 1% AEP storm tide event including climate change to 2100.

2.6 Summary

Table 2-1 presents a summary of the water levels associated with Brisbane River flooding, local catchment flooding and storm tide inundation.

Table 2-1 Summary of Flood and Inundation Levels

Event	Flood Level for Source of Flooding (mAHD)		
	Brisbane River Flooding	**Local Catchment Flooding**	**Storm Tide**
2% AEP		2.4	
1% AEP	2.1	2.5	2.5
1% AEP with climate change to 2100	3.1	2.8	3.1

Note: For river and local catchment flooding, nominated flood levels refer to conditions in the main channel that drains the PDA at a point close to the Site.

3 Potential Impact of Development

The potential impact of development on flooding and storm tide inundation was assessed as follows:

- **Brisbane River**

  Existing ground levels across the Site are higher than the flood level associated the 1% AEP Brisbane River flood event including climate change to 2100. Consequently, the development will not impact on flood levels in the Brisbane River for events up to this magnitude.

- **Local Catchment.**

  Existing ground levels across the Site are higher than the flood level associated with the 1% AEP local catchment flood event including climate change to 2100. Consequently, the development will not impact flood levels in the main channel draining the local catchment for local events up to this magnitude.

- **Local Street Runoff**

  It is considered that the design of the road system effectively contains street runoff to the road reserve. As a consequence, it is considered that development of the Site (in terms of Site earthworks and building footprint) will not adversely impact on local street runoff.

- **Storm Tide**

  Filling of land does not affect the level reached by storm tide as the storm tide level is governed by conditions in Moreton Bay and it is typically assumed that flow propagates inland to match the storm tide level in the Bay.

  In any case, existing ground levels across the Site are above the water level associated with the 1% AEP storm tide.

Given the above, it is considered that the development will not adversely impact flood or inundation levels to the 1% AEP event standard including climate change to 2100.

4 Development Levels

4.1 Minimum Development Levels

4.1.1 City Plan 2014

For comparative purposes, desirable development levels according to the Brisbane City Council *City Plan 2014* planning scheme were determined as follows:

- Flooding (Brisbane River and Overland Flow)
  - Flood planning categories: Table 8.2.11.3.D, Table 9.4.9.3.C
  - Categories of flood planning levels: Table 8.2.11.3.L, Table 9.4.9.3.B
- Coastal Hazard (Storm Tide)
  - Flood planning level categories: Table 8.2.6.3.D
  - Categories of flood planning levels: Table 8.2.6.3.C

The immunity standard applied for flooding and storm tide under *City Plan 2014* varies according to the source of inundation being considered:

- Brisbane River: 1% AEP event without climate change;
- Local Catchment: 2% AEP event without climate change; and
- Storm Tide: 1% AEP event including climate change to 2100.

Based on the categories and flood level information presented in the tables nominated above and the flood level information presented in *City Plan 2014*, the minimum development levels applicable to the Site are listed in Table 4-1 based on the levels nominated in Table 2-1. The governing level in each case is shaded.

Table 4-1 Minimum Development Levels – Brisbane City Council Planning Scheme

Area	Category	Brisbane River[1]		Local Catchment		Coastal/ Storm Tide	
		Standard	Level (mAHD)	Standard	Level (mAHD)	Standard	Level (mAHD)
Habitable room	A	RFL+500mm	2.6	2%AEP+500mm	2.9	3.1+0.5	3.6
Non-habitable room/lobby	B	RFL+300mm	2.4	2%AEP+300mm	2.7	3.1+0.3	3.4
Essential electrical services	A	RFL+500mm	2.6	2%AEP+500mm	2.9	3.1+0.5	3.6
Basement entry	C+300	DFL+300mm	2.4	2%AEP+300mm	2.7	3.1+0.3	3.4

Notes: 1. Development levels nominated based on 1% AEP (100-year ARI) flood level from new Brisbane River Catchment Flood Study as the RFL (Residential Flood Level), and also conservatively used for the DFL (Defined Flood Level) value.

4.1.2 PDA Road Design Standard

Development levels for the current design of the PDA road system are set relative to a higher immunity standard than the standard adopted for the Brisbane City Council planning scheme (i.e., the 1% AEP event including climate change to 2100 regardless of the source of inundation).

Table 4-2 lists the minimum development levels applicable to the Site for the higher standard. For the purposes of the table, the freeboard requirements nominated by Brisbane Council were adopted. The governing level in each case is shaded.

Table 4-2 Minimum Development Levels – PDA Road Design Standard

Area	Category	Brisbane River[1]		Local Catchment		Coastal/ Storm Tide	
		Freeboard	Level (mAHD)	Freeboard	Level (mAHD)	Freeboard	Level (mAHD)
Habitable room	A	500mm	3.6	500mm	3.3	500mm	3.6
Non-habitable room/lobby	B	300mm	3.4	300mm	3.1	300mm	3.4
Essential electrical services	A	500mm	3.6	500mm	3.3	500mm	3.6
Basement entry	C+300	300mm	3.4	300mm	3.1	300mm	3.4

4.2 Comparison to Proposed Development Levels

The Carr Architects plans for the Site (refer Appendix A) nominate the following key levels:

- Basement: 2.8 mAHD;
- Ground Level: 6.0 mAHD; and
- Level 1: 9.7 mAHD.

Based on these levels, the compliance of the development to the nominated minimum development levels is summarised below.

- **Basements**

  There is no immunity requirement for the actual level of the basement. However, it will be necessary to ensure that the minimum level at each point of entry to the basement meets the requirements nominated in Table 2-1 and in Table 4-1. In this case (refer to discussion of essential electrical services below) it is desirable to adopt a minimum access level of 3.6 mAHD.

  Figure 4-1 presents an excerpt from the basement plan for the development (Carr Architects Drawing TP1-1001 Rev 16).

  Based on Carr Architects Drawing TP1-0301 Rev2, the existing level at the driveway entrance off Karakul Road is about 6.05 mAHD, which is well above the requisite minimum level (i.e., 3.6 mAHD).

  Similarly, stairwell and lift access points to the main ground level will have a minimum level of 6.0 mAHD. Again, this level is well above the requisite minimum level.

  In addition to the above, there are two fire stairs to Macarthur Avenue. Although it will be necessary to confirm compliance as part of detailed design, as the existing ground level in Macarthur Avenue is above 4 mAHD, the points of access to the fire stairs should be well above the minimum level.

  Finally, it is noted that as part of detailed design it will be necessary to ensure that any vents to the basement satisfy the basement entry immunity requirement. However, based on Carr Architects Drawing TP1-1002 Rev 14, existing ground levels around the perimeter of the Site are typically in excess of 4 mAHD. As this level is above the minimum requirement, it is expected that any venting for the basement will satisfy immunity requirements.

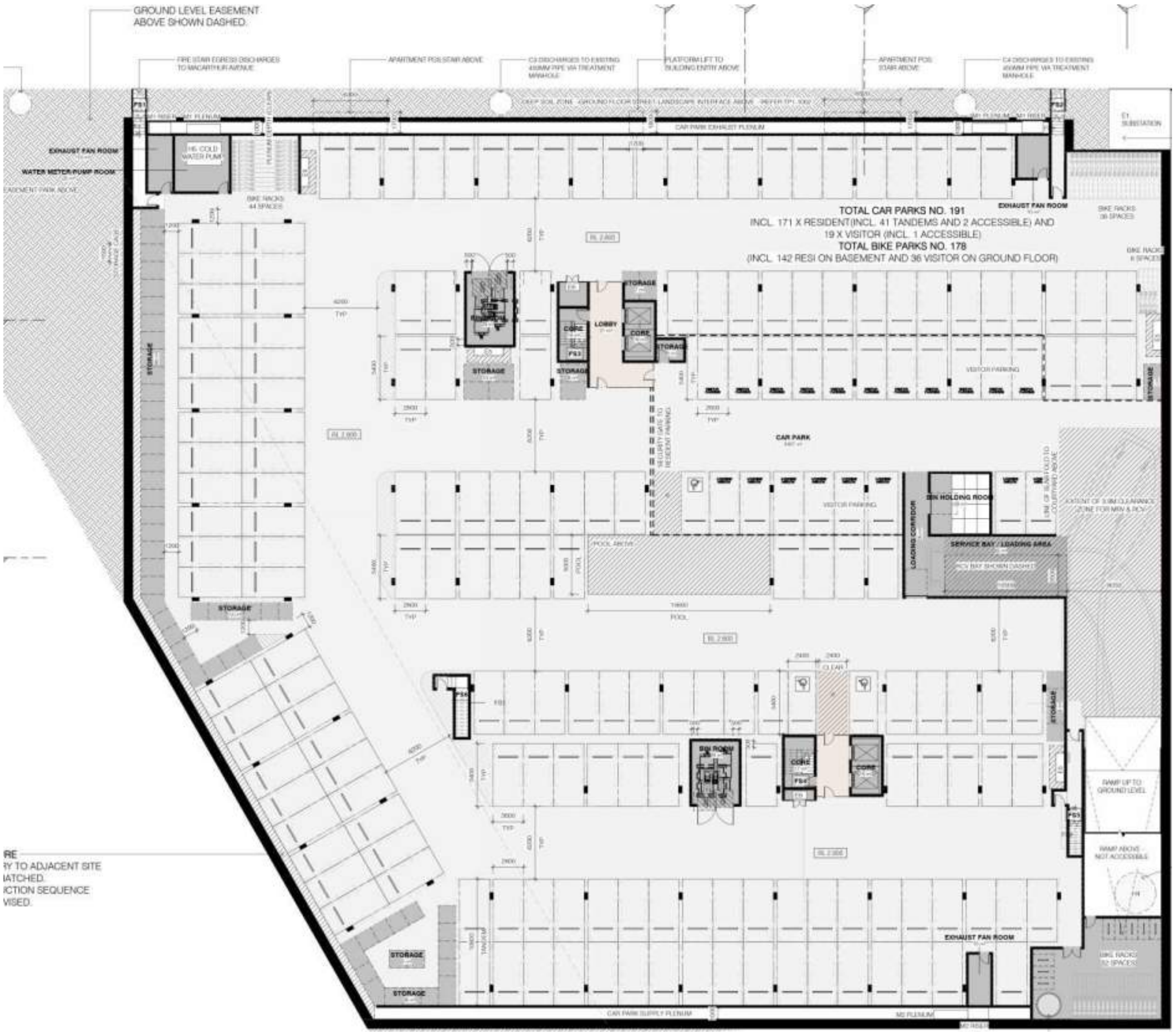


Figure 4-1 Basement Level Plan

- **Habitable Rooms**

  The lowest habitable rooms are on the Ground level (6.0 mAHD). This level is over 2 metres higher than the minimum requirement. It is noted that the Communal Amenities area is also at this level and therefore well above the required minimum development level.

- **Non-Habitable Rooms**

  The lowest non-habitable rooms are on the Ground level (6.0 mAHD). Similar to the case for habitable rooms, the level is over 2 metres higher than the minimum requirement.

- **Essential Electrical Services**

  According to Note 2 of Table 8.2.11.3.D of *City Plan 2014*, essential electrical services include *'any area or room used for fire control panel, telephone PABX, sensitive substation equipment including transformers, low voltage switch gear, high voltage switch gear, battery chargers, protection control and communication equipment, low voltage cables, high voltage cables, and lift or pump controls'*.

  - *Basement Pump Room*

    A pump room is located in the basement (refer Figure 4-1) which is considered to be an essential service. It is therefore necessary for all points of entry to the basement to be at a level of 3.6 mAHD or higher.

    Based on the above discussion with regard to the basement, all points of entry will be set at a level higher than 3.6 mAHD. Therefore, it will be possible to accommodate essential electrical services in the services area of the basement as required.

    However, other than the pump room, to optimise the flood resilience of the building all other essential electrical services are located at the ground floor level.

  - *Main Communications, switchboard and fire pumps*

    The Carr Architects Drawing TP1-1002 Rev 14 identifies the main communications/NBN, main switchboard and fire pump room as being located on ground level (i.e., 6.0 mAHD).

    As this level is well above the minimum required immunity level (i.e., 3.6 mAHD), the ground level services will have a level of flood immunity well in excess of that nominally required.

  - *Substation*

    A substation will be located at approximately ground level in the north-eastern corner of the Site (refer Figure 1-2), where the existing ground level is about 4.15 mAHD according to Carr Architects Drawing TP1-0301 Rev 2.

    Although this level is above the minimum required immunity level (3.6 mAHD), if possible, it is recommended that the level of the substation be raised as part of detailed design (to the ground floor level) in order to optimise the flood resilience of the building.

    While it is acknowledged that an extreme flood event would be required to inundate the substation, the ability to occupy the building following an extreme event would be delayed until the substation can be replaced or an alternate power source provided. It is conceivable that a flood event could impact the substation while not reaching a high enough level to inundate the ground floor or basement and it would not be possible to occupy the building due to the inundation of the substation despite the building not being damaged.

    Further, this section of the report relates to the development levels required to obtain immunity to river flooding, local catchment flooding and storm tide. It will also be necessary to ensure that the substation is above (with freeboard) the water level in Macarthur Avenue associated with street runoff. For surety in this regard, it is recommended that the substation be set no less than 500 mm above the invert level of Macarthur Avenue adjacent to the substation.

5 Flood Risk Management

5.1 Flood Risk- Rare and Extreme Events

Based on the immunity of the road system fronting the site with respect to river and local catchment flooding and storm tide inundation, it is considered that the immunity of the access to and from the Site via the surrounding road network is acceptable with respect to normal design standards.

While there can be a depth of flow associated with street drainage, this is a standard outcome for road design in greenfield sites under QUDM.

However, extreme flood events (i.e., events in excess of the design standard) could result in the inundation of the surrounding road network and the Site. The potential for this to occur is discussed below.

- ***Brisbane River***

  The peak flood levels at the site associated with Brisbane River flooding are listed in Table 5-1 for a range of rare to extreme events. For each event, the AEP and its corresponding ARI are nominated. It is noted that the 100,000 AEP event can be considered as being equivalent to the largest flood that could conceivably occur in the Brisbane River (the Probable Maximum Flood, or PMF).

  Peak flood levels associated with flooding in the Brisbane River were extracted from the results of the *Brisbane River Catchment Flood Study,* (refer Section 2.2).

Table 5-1 Peak Flood Levels, Rare and Extreme Events in Brisbane River

Event	Level (mAHD)
1% AEP (100-year ARI)	2.1
0.5% AEP (200-year ARI)	2.5
0.2% AEP (500-year ARI)	2.9
1% AEP with climate change (100-year ARI)	3.1
0.05% AEP (2,000-year ARI)	3.8
0.01% AEP (10,000-year ARI)	6.1
0.001% AEP (100,000-year ARI), PMF	9.4

With reference to Table 5-1, the adopted basement entry and ground floor levels will provide a very high level of immunity (slightly less than the 0.01% AEP or 10,000-year ARI event) for the basement and ground level. However, Level 1 (set at 9.7 mAHD) and all higher levels would be above the level of the PMF in the Brisbane River.

Although the Site has a high level of immunity, extreme flood events could result in the isolation of the Site for a considerable period due to the inundation of the road network that gives access to the Site.

Figure 5-1 presents the variation in flood level over time in the Brisbane River at the Site for the following events:

- 0.05% AEP (2,000-year) event; and
- 0.001% AEP (100,000-year or PMF) event.

In the case of the 0.05% AEP event, as the water level in the river is not sufficiently high to inundate the Site, the level in the river at a point close to the mouth of the channel that drains the local catchment was selected.

The figure also shows the adopted Ground Floor level (6.0 mAHD) and the minimum road design level within the PDA (3.1 mAHD).

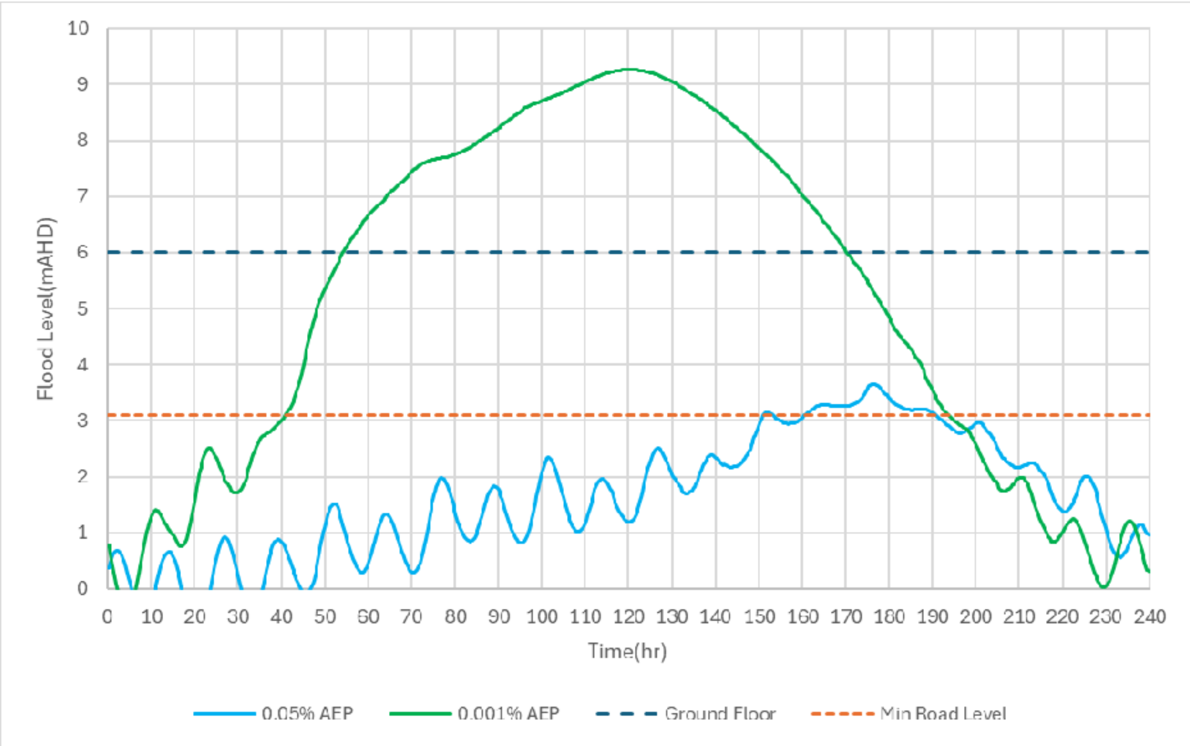


Figure 5-1 Variation in Flood Level over Time, Brisbane River

With reference to the figure, the period of isolation will increase with the increasing severity of the event being considered.

For the 0.05% AEP (2,000-year ARI) event, the road network around the Site would be inundated for a period of about 30 hours.

For the PMF event:

- the road network around the Site would be inundated for a period of about 153 hours; and
- the Ground Floor would be inundated for a period of about 117 hours.

It is considered that the above periods of isolation are such that it would be desirable to evacuate the Site prior to its isolation even though it would be possible to shelter above flood level.

According to the Bureau of Meteorology *Flood Warning System for the Brisbane River below Wivenhoe Dam to Brisbane City* (http://www.bom.gov.au/qld/flood/brochures/brisbane_lower/brisbane_lower.shtml), *'Average catchment rainfalls in excess of 200-300mm in 48 hours, may result in stream rises and the possibility of moderate to major flooding and local traffic disabilities throughout the Brisbane River catchment.'* Given the period over which rainfall is required in order to cause flooding in the Brisbane River, it is considered that ample time is available to evacuate in advance of flooding.

Further, major flooding in the Brisbane River is accompanied by significant warnings from the State Government. These warnings can be used to trigger evacuation of the Site.

If a shelter in place strategy were to be contemplated as part of further design, it would be necessary to ensure that sufficient provisions could be provided for the period of isolation, together with sufficient infrastructure (sewer and power, including any requirements for fire-fighting). Further, even then it would be desirable for people with medical conditions to be allowed to evacuate prior to the site being isolated.

- ***Local Catchment***

  For the local catchment, modelling of rare and extreme events was undertaken by consultants BMT in April 2024. The results of this modelling were supplied to Water Engineering Partners. However, similar to the outcome for the 1% AEP event, the flood levels in the Macarthur Avenue and Karakul Road reflect relatively shallow depths of flooding in the street system from runoff draining to the main channel rather than the flood level in the main channel.

  As a consequence of the relatively shallow flow in the road system, the variation in flood level as the severity of flooding increases is minimal. For example, for the PMF event, the maximum calculated flood level in Karakul Street is 5.9 mAHD.

  The calculated flood level is dependent on the underlying road surface and therefore the representation of the road surface in the flood model and the discretisation of the catchments within the PDA. There could consequently be a small variation in this level if more detailed modelling was undertaken. However, the modelling is sufficient to indicate that the ground floor (6.0 mAHD) will be either immune or only slightly affected by the PMF local catchment event.

  The basement entry level is also above the local catchment flood level obtained from the model.

  Given this, it is considered that the Site (other than the substation on Macarthur Avenue) will either not be inundated or only inundated to a minor extent during extreme events in the local catchment.

  Further, given the relatively small size of the local catchment, it is considered that any inundation would be for a limited period.

  The relatively small size of the local catchment will also result in the warning time associated with inundation to be short (of the order of 30 minutes). Such a period is not sufficient to provide for evacuation. However, due to the limited inundation of the Site, it will be possible to shelter on Site while local catchment flood events are in progress.

In summary:

- ***Brisbane River***
  - Very rare events in the Brisbane River have the potential to isolate the site, with extreme events causing inundation of the Ground Floor of the Site;
  - Level 1 and above of the development will be above the highest possible flood level in the Brisbane River;

- The period of isolation of the Site is significant in the event of Brisbane River flooding is significant; and
- There is ample time available to evacuate prior to flooding of the road network or Site commencing.

- ***Local Catchment***
  - Extreme events in the local catchment are unlikely to cause significant inundation of the Site;
  - The period of isolation of the Site will be relatively short in the event of local catchment flooding;
  - There is insufficient time available to evacuate prior to local catchment flooding commencing; and
  - In general, people can remain on Site during local catchment flood events.

5.2 Flood Risk Management

Recognising the potential for extreme flood events to affect the broader PDA, EDQ commissioned the report *Northshore Hamilton – High Level Flood Risk and Flood Emergency Response Assessment* (Version 2, 23 May 2024) (the **High Level Assessment**).

Noting the limited warning time associated with local catchment flooding and the significant warning time available with respect to Brisbane River flooding, the assessment proposes a strategy consisting of initially sheltering in place during severe weather events (which caters for local catchment flooding) and evacuation if a Brisbane River flood event is imminent).

The rationale for this can be summarised as follows:

- Insufficient time will be available to evacuate the Site in advance of an extreme local catchment event;
- Sufficient time will be available to move to higher parts of the Site should an extreme local catchment event occur;
- Extreme events in the local catchment will only result in the inundation of lower parts of buildings for a limited period of time; and
- Ample time is available for evacuation should an extreme event be forecast for the Brisbane River.

As a consequence, the proposed strategy for the PDA as a whole is:

- **Initial Response:** Shelter-in-place following issue of a severe weather warning of major flood alert from the Bureau of Meteorology.
- **Secondary Response:** Evacuation of the Site if flood levels in the Brisbane River reach 2.6 mAHD along the Site's southern boundary.

It is considered that this strategy is consistent with and responds to the nature and severity of local catchment and Brisbane River flooding.

The off-site evacuation route proposed in the High Level Assessment (Figure 4.1 of the High Level Assessment) is presented in Figure 5-2. The figure has been annotated to show the location of the Site.

Figure 5-2 Identified Off-Site Evacuation Route

With respect to Figure 5-2, the nominated route can be readily accessed via Karakul Road.

The High Level Assessment proposes the creation of site Flood Emergency Management Plans for each Site.

As noted in Section 4.2 of the High Level Assessment, the plan would include the following elements:

- Nomination of appropriate people to implement the plan (Flood Wardens);
- Appropriate warning systems (including notifications from the Bureau of Meteorology);
- Triggers associated with flood events;
- Measures to be implemented during flood events;
- Communications protocols;
- Emergency Power;
- Training of Flood Wardens; and
- Documentation and revision requirements.

It is noted that the High Level Assessment refers to the use of water level sensors local to each Site to warn of local catchment flooding and possibly a sensor for the PDA as a whole to advise of river flooding.

In this case, the inundation of Karakul Road in local catchment flooding is associated with the drainage of local site runoff to the main channel that drains the local catchment and not flooding in the main channel itself. It is typical for roads to convey such runoff (in excess of the capacity of the underground drainage system). Given that the duration of such flow would be of the order of minutes, it is not considered appropriate to install a sensor for this Site.

However, if EDQ installs gauges in other parts of the PDA where local catchment flooding is relevant, then data from such gauges could potentially be monitored.

Similarly, if a gauge is installed in the Brisbane River by EDQ, then the data from the gauge could be monitored. If a gauge is not present, then it is expected that recourse can be made to other gauges on the Brisbane River. In this regard, as most forecasts issued by the Bureau of Meteorology relate to the City Gauge in the CBD, it is expected that a relationship can be developed between the level at the gauge and the corresponding level at the Site to allow evacuation triggers to be set based on forecast or actual levels at the gauge.

While the risk of flooding of the Site is low, to be consistent with the recommendations of the High Level Assessment it is proposed that the approval of the development be conditioned to require the preparation of a Flood Emergency Management Plan for the Site.

6 Conclusion

Lot 17 Northshore Hamilton is located at 280 Macarthur Avenue, Hamilton.

A review of the potential for the Site to be inundated and the requisite minimum development levels has indicated that the proposed development will have a level of immunity well in excess of that nominally required to satisfy both the requirements of the LGA planning scheme and the higher immunity currently being adopted by EDQ with regard to the design of the road system within the PDA.

Despite this, to account for the isolation and potential inundation of the Site during extreme flood events, it is recommended that any approval for the Site be conditioned to require the preparation of a Flood Emergency Management Plan.

Appendix A Development Plans

LOT 17. NORTHSHORE HAMILTON, QUEENSLAND

MULTI-RESIDENTIAL DEVELOPMENT

DRAWING LIST

Rev	Date	Chkd	Reason for Issue
3	22/11/2024		DRAFT TOWN PLANNING ISSUE
2	16/10/2024		ISSUE FOR INFORMATION
1	12/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

TOWN PLANNING

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Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	COVER / REGISTER		
Date	22/11/2024	Project No	24047
Scale @ A1		Dwg No	TP1-0001
Drawn By	MH/ME Chkd KW	Rev	3

NOT FOR CONSTRUCTION

Project no.	24047
Project Name	Northshore Hamilton, Queensland
Date	22/11/2024

- The following areas relate to Lot 17, 330 Macarthur Ave, Hamilton QLD 4007

DEVELOPMENT SUMMARY - LOT 17, 330 Macarthur Ave

Area Summary	Area (sqm)
SITE AREA	7465.86
PLOT RATIO	1.58

GFA Calculation:		Yield:	
GFA Unit Area (NSA)	10,342	TOTAL APARTMENTS	118
TOTAL COMMUNAL AMENITY (INDOOR)	527	TOTAL CARSPACES	191
TOTAL CIRCULATION	904	TOTAL BIKE SPACES	179
TOTAL GFA (NSA + COMMUNAL INDOOR AMENITY + CIRCULATION)	11,773		

ABOVE GROUND - NORTH + SOUTH

LEVEL	TYPE	GFA (sqm)	NSA (sqm)	POS (sqm)	1 BED	2 BED	3 BED	TOTAL APT	TOTAL EDQ APT	INDOOR AMENITY (sqm)	CIRCULATION (sqm)	BUILDING SERVICES/PLANT/EQUIPMENT (sqm)
ROOF	PLANT (S)	101								99	5	221
6	RESIDENTIAL	884	815	180	0	8	1	9	2		69	44
5	RESIDENTIAL	884	815	188	0	8	1	9	2		69	44
4	RESIDENTIAL	1,890	1,739	344	2	14	3	19	5		151	88
3	RESIDENTIAL	1,890	1,739	344	2	14	3	19	5		151	88
2	RESIDENTIAL	1,890	1,739	355	2	14	3	19	5		151	88
1	RESIDENTIAL	1,950	1,796	391	3	14	3	20	4		157	88
G	RESIDENTIAL	2,282	1,659	696	6	11	3	20	3	423	158	133
TOTAL		11,773	10,342	2,547	18	83	17	118	28	527	904	573

	1 BED	2 BED	3 BED	TOTAL
APARTMENT MIX	13%	72%	15%	100%
AVERAGE AREA/APT	62	87	127	

BASEMENT

LEVEL	TYPE	AREA (sqm)	NSA (sqm)	CAR SPACES	BIKE SPACES
B1	BASEMENT	5,575	n/a	191	179
TOTAL		5,575		191	179

BASEMENT

LEVEL	REQUIRED RESIDENT CAR PARKS	REQUIRED VISITOR CAR PARKS	PROVIDED CAR PARKS	REQUIRED BICYCLE STORAGE	PROVIDED BICYCLE STORAGE
ROOF					
6	10	1.30			
5	10	1.30			
4	23	2.85			
3	25	2.96			
2	25	2.92			
1	23	3			
G	23	3			
TOTAL	152	17.29	191	143.78	179

ABOVE GROUND - NORTH

LEVEL	TYPE	GFA (sqm)	NSA (sqm)	POS (sqm)	1 BED	2 BED	3 BED	TOTAL APT	TOTAL EDQ APT	INDOOR AMENITY (sqm)	CIRCULATION (sqm)	BUILDING SERVICES/PLANT/EQUIPMENT (sqm)
ROOF	PLANT/AMENITIES											
4	RESIDENTIAL	1,006	924	180	2	6	2	10	2		82	44
3	RESIDENTIAL	1,006	924	180	2	6	2	10	2		82	44
2	RESIDENTIAL	1,006	924	180	2	6	2	10	2		82	44
1	RESIDENTIAL	1,094	1,053	218	2	7	2	11	1		86	46
G	RESIDENTIAL	1,448	944	372	3	6	2	11	1	379	88	109
TOTAL		5,560	4,769	1,120	11	31	10	52	8	379	418	287

Note: North lower ground level indoor amenity includes central courtyard amenity

	1 BED	2 BED	3 BED	TOTAL
APARTMENT MIX	21%	60%	19%	100%

ABOVE GROUND -SOUTH

LEVEL	TYPE	GFA (sqm)	NSA (sqm)	POS (sqm)	1 BED	2 BED	3 BED	TOTAL APT	TOTAL EDQ APT	INDOOR AMENITY (sqm)	CIRCULATION (sqm)	BUILDING SERVICES/PLANT/EQUIPMENT (sqm)
ROOF	PLANT/AMENITIES	101								99		221
6	RESIDENTIAL	884	815	155		8	1	9	2		69	44
5	RESIDENTIAL	884	815	155		8	1	9	2		69	44
4	RESIDENTIAL	884	815	155		8	1	9	2		69	44
3	RESIDENTIAL	884	815	155		8	1	9	2		69	44
2	RESIDENTIAL	884	815	155		8	1	9	2		69	44
1	RESIDENTIAL	952	783	173	1	7	1	9	2		71	42
G	RESIDENTIAL	834	715	324	3	6	1	9	2	49	70	24
TOTAL		6,208	5,573	1,427	4	52	7	63	20	148	486	557

	1 BED	2 BED	3 BED	TOTAL
APARTMENT MIX	6%	83%	11%	100%

General Notes:

1. Outdoor amenity includes Landscape and Courtyard
2. All area calculations are advisory only and all figures should be checked and verified by a licensed surveyor
3. Gross floor area, for a building, means the total floor area of all storeys of the building, measured from the outside of the external walls and the centre of any common walls of the building, other than areas used for—
   a. building services, plant or equipment; or
   b. access between levels; or
   c. a ground floor public lobby; or
   d. a mall; or
   e. parking, loading or manoeuvring vehicles; or
   unenclosed private balconies, whether roofed or not
4. Plot ratio - Ratio of the gross floor area of a building on a site to the area of the site. Where the development includes dedication of land for a new roadway, the site area for calculating the plot ratio does not include the land to be dedicated for the new roadway.

NOT FOR CONSTRUCTION

GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
1	22/11/2024		DRAFT TOWN PLANNING ISSUE

Based on Drawings Received:

TOWN PLANNING

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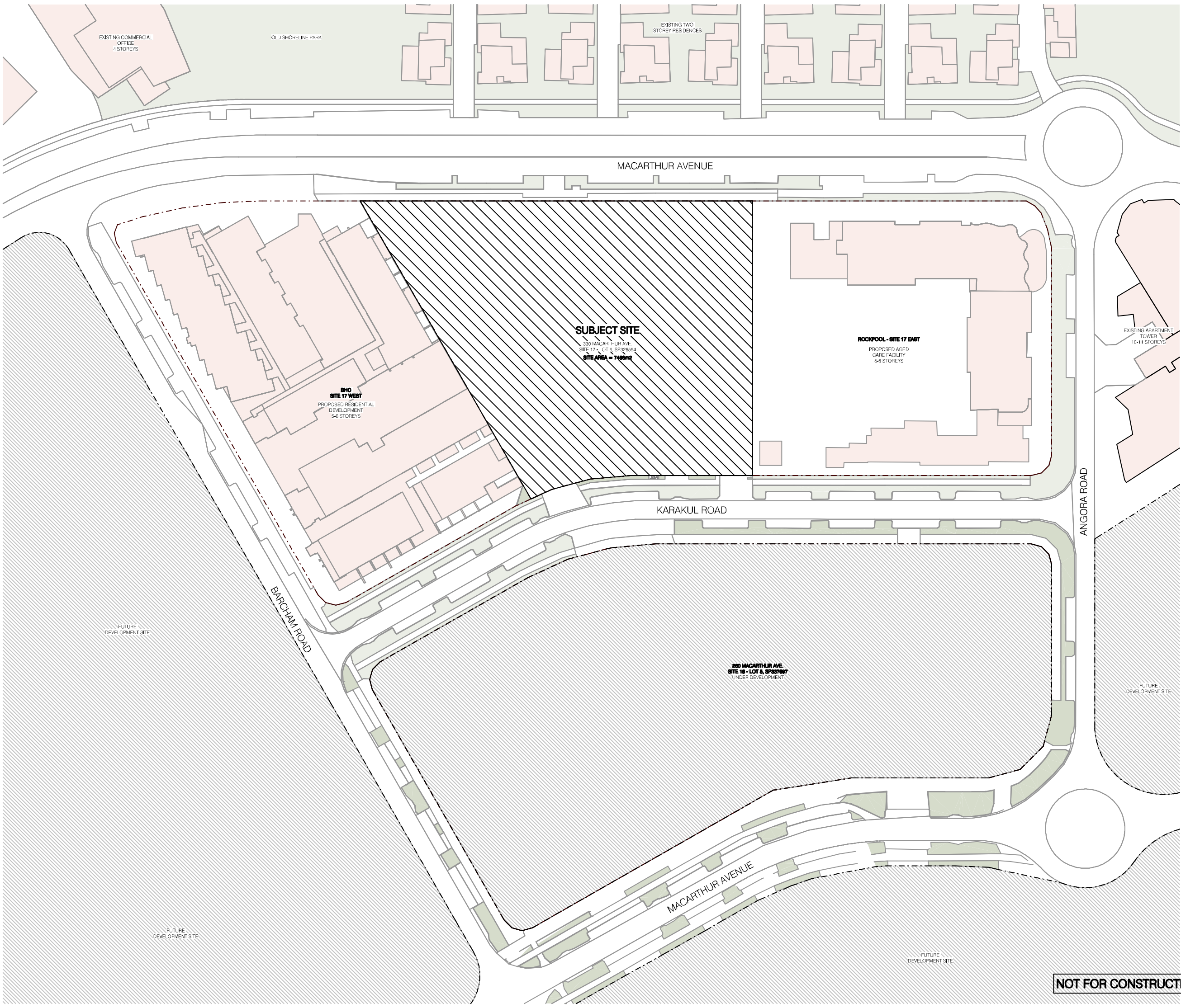
Project	LOT 17 NORTHSHORE HAMILTON
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland
Title	DEVELOPMENT SUMMARY
Date	22/11/2024 — Project No 24047
Scale @ A1	Dwg No TP1-0002
Drawn By MH	Chkd KW — Rev 1



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Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
2	22/11/2024		DRAFT TOWN PLANNING ISSUE
1	24/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

0 5 10 25m
SCALE 1:500

TOWN PLANNING

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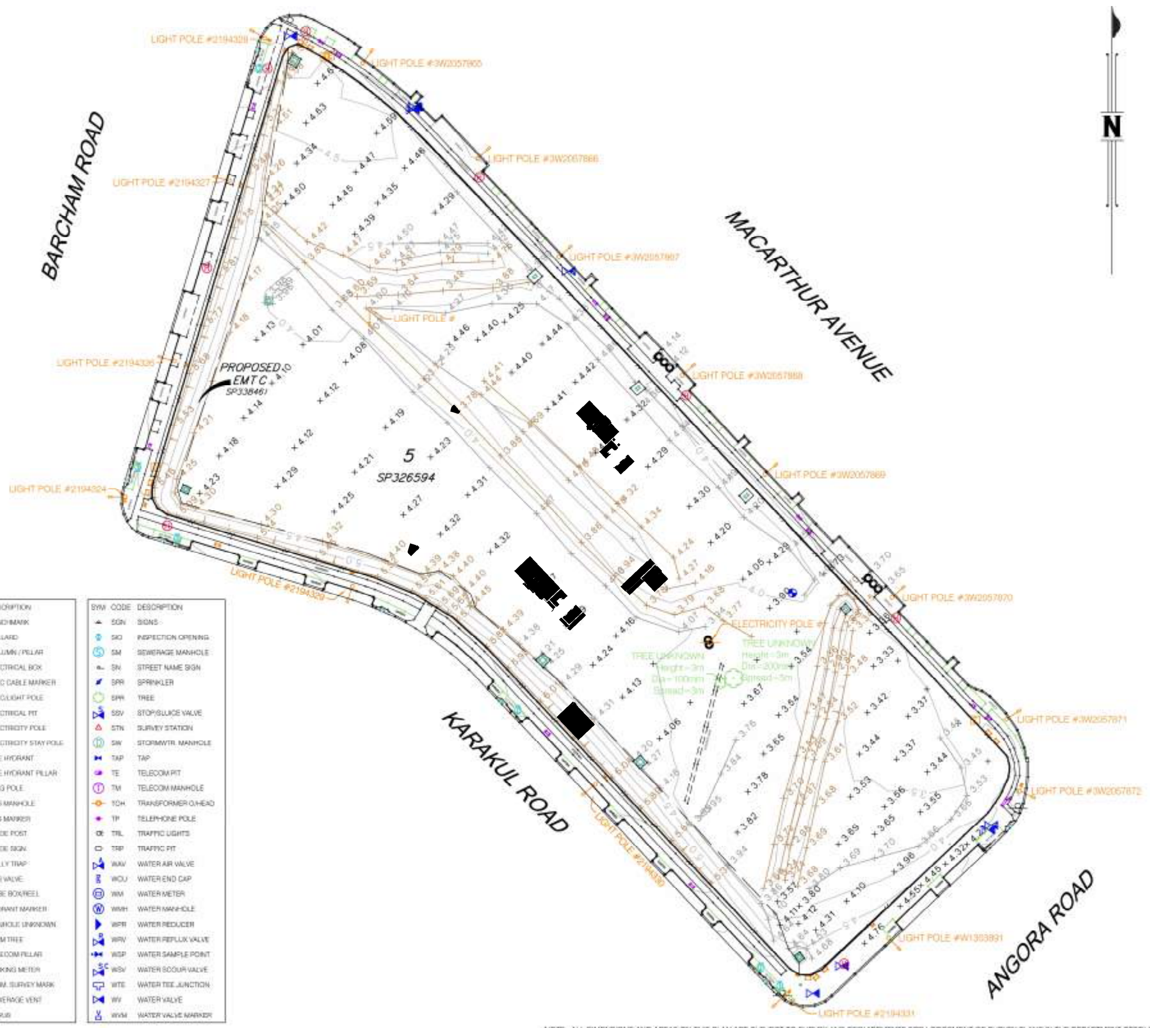
Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	LOCATION PLAN		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 500	Dwg No	TP1-0101
Drawn By	MH/ME Chkd KW	Rev	2



SYM	CODE	DESCRIPTION
	BM	BENCHMARK
	BOL	BOLLARD
	CP	COLUMN / PILLAR
	EBX	ELECTRICAL BOX
	ECM	ELEC CABLE MARKER
	ELP	ELEC/LIGHT POLE
	EM	ELECTRICAL PIT
	EP	ELECTRICITY POLE
	ESP	ELECTRICITY STAY POLE
	FH	FIRE HYDRANT
	FHP	FIRE HYDRANT PILLAR
	FP	FLAG POLE
	GMH	GAS MANHOLE
	GMK	GAS MARKER
	GP	GUIDE POST
	GS	GUIDE SIGN
	GT	GULLY TRAP
	GV	GAS VALVE
	HB	HOSE BOX/REEL
	HM	HYDRANT MARKER
	MHU	MANHOLE UNKNOWN
	PLM	PALM TREE
	PL	TELECOM PILLAR
	PKM	PARKING METER
	PSM	PERM. SURVEY MARK
	SEV	SEWERAGE VENT
	SHB	SHRUB

SYM	CODE	DESCRIPTION
	SGN	SIGNS
	SIO	INSPECTION OPENING
	SM	SEWERAGE MANHOLE
	SN	STREET NAME SIGN
	SPR	SPRINKLER
	SPR	TREE
	SSV	STOP/SLUICE VALVE
	STN	SURVEY STATION
	SW	STORMWTR. MANHOLE
	TAP	TAP
	TE	TELECOM PIT
	TM	TELECOM MANHOLE
	TOH	TRANSFORMER O/HEAD
	TP	TELEPHONE POLE
	TRL	TRAFFIC LIGHTS
	TRP	TRAFFIC PIT
	WAV	WATER AIR VALVE
	WOU	WATER END CAP
	WM	WATER METER
	WMH	WATER MANHOLE
	WPR	WATER REDUCER
	WRV	WATER REFLUX VALVE
	WSP	WATER SAMPLE POINT
	WSV	WATER SCOUR VALVE
	WTE	WATER TEE JUNCTION
	WV	WATER VALVE
	WVM	WATER VALVE MARKER

NOTE: ALL DIMENSIONS AND AREAS ON THIS PLAN ARE SUBJECT TO SURVEY AND REQUIREMENTS FOR LODGEMENT OF SURVEY PLANS IN THE DEPARTMENT RESOURC

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GENERAL NOTES

CLIENT
Economic Development Queensland

LOT LAYOUT
DETAIL SURVEY

REAL PROPERTY DESCRIPTION
Proposed
Lot 5 on SP326594

NOTES
i) This plan has been prepared for the exclusive use of EDQ and their consultants for design purposes and is not to be used for any other purpose or by any other entity without the express permission of LandPartners Pty Ltd.

ii) The title boundaries as shown hereon were not marked or surveyed at the time of survey and have been determined from the dimensions shown on plans of survey registered in the Department of Resources.

iii) The boundaries may change subject to survey, engineering design or council requirements.

iv) Services shown hereon have been located where visible by field survey. No investigation or location of underground services has been undertaken. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

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LANDPARTNERS
built environment consultants

HEIGHT DATUM AHD D	LOCAL AUTHORITY BRISBANE C.C.
HEIGHT ORIGIN PSM166779 RL 4.325m	SCALE 1:1000 (A3)
MERIDIAN SP326594	DRAWN AJO DATE 6/10/2022
CO-ORD SYSTEM Arbitrary Plane	CHECKED MLM DATE 6/10/2022
CAD FILE BRMM7695-000-240-2	APPROVED MLM DATE 6/10/2022
LDN BRMM7695-000-244-1	

Rev	Date	Chkd	Reason for Issue
1	22/11/2024		DRAFT TOWN PLANNING ISSUE

Based on Drawings Received:

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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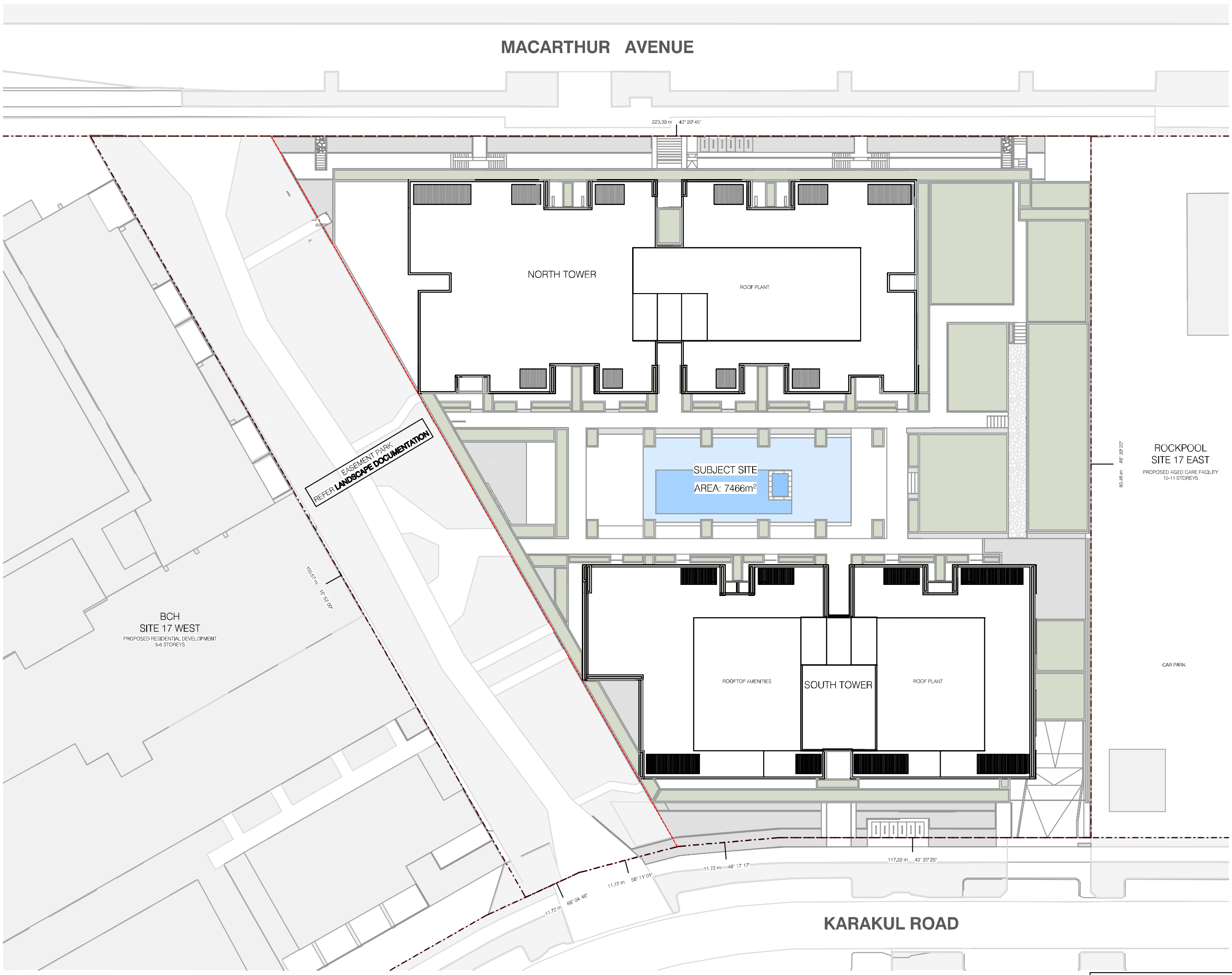
Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	SURVEY PLAN		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 500	Dwg No	TP1-0102
Drawn By	MH/ME Chkd KW	Rev	1



NOT FOR CONSTRUCTION

Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
2	22/11/2024		DRAFT TOWN PLANNING ISSUE
1	12/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

0 2 4 10m
SCALE 1:200

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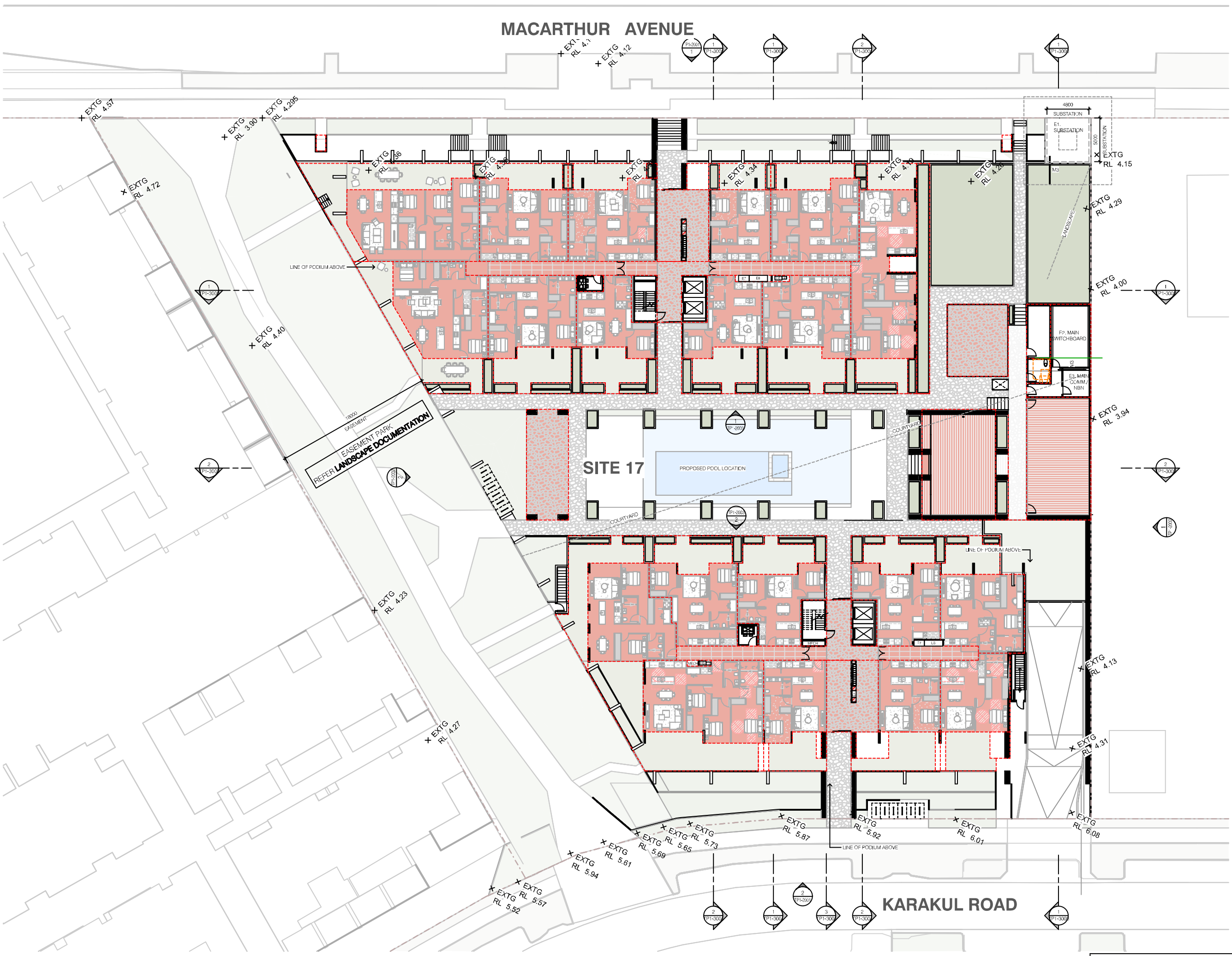
Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	PROPOSED SITE PLAN		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-0103
Drawn By	MH/ME Chkd KW	Rev	2



NOT FOR CONSTRUCTION

GENERAL NOTES

LEGEND

- GROSS FLOOR AREA (GFA)
- PRIVATE OPEN SPACE (POS)

Rev	Date	Chkd	Reason for Issue
2	22/11/2024		DRAFT TOWN PLANNING ISSUE
1	24/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

SCALE 1:200 (0, 2, 4, 10m)

TOWN PLANNING

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Project	LOT 17 NORTHSHORE HAMILTON
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland
Title	GROUND LEVEL - GFA PLAN
Date	22/11/2024
Project No	24047
Scale @ A1	1 : 200
Dwg No	TP1-0301
Drawn By	MH/ME
Chkd	KW
Rev	2

NOT FOR CONSTRUCTION

GENERAL NOTES

LEGEND

- GROSS FLOOR AREA (GFA)
- PRIVATE OPEN SPACE (POS)

Rev	Date	Chkd	Reason for Issue
2	22/11/2024		DRAFT TOWN PLANNING ISSUE
1	24/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	LEVEL 01 - GFA PLAN		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-0302
Drawn By	MH/ME Chkd KW	Rev	2

NOT FOR CONSTRUCTION

GENERAL NOTES

LEGEND

- GROSS FLOOR AREA (GFA)
- PRIVATE OPEN SPACE (POS)

Rev	Date	Chkd	Reason for Issue
2	22/11/2024		DRAFT TOWN PLANNING ISSUE
1	24/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

0 2 4 10m
SCALE 1:200

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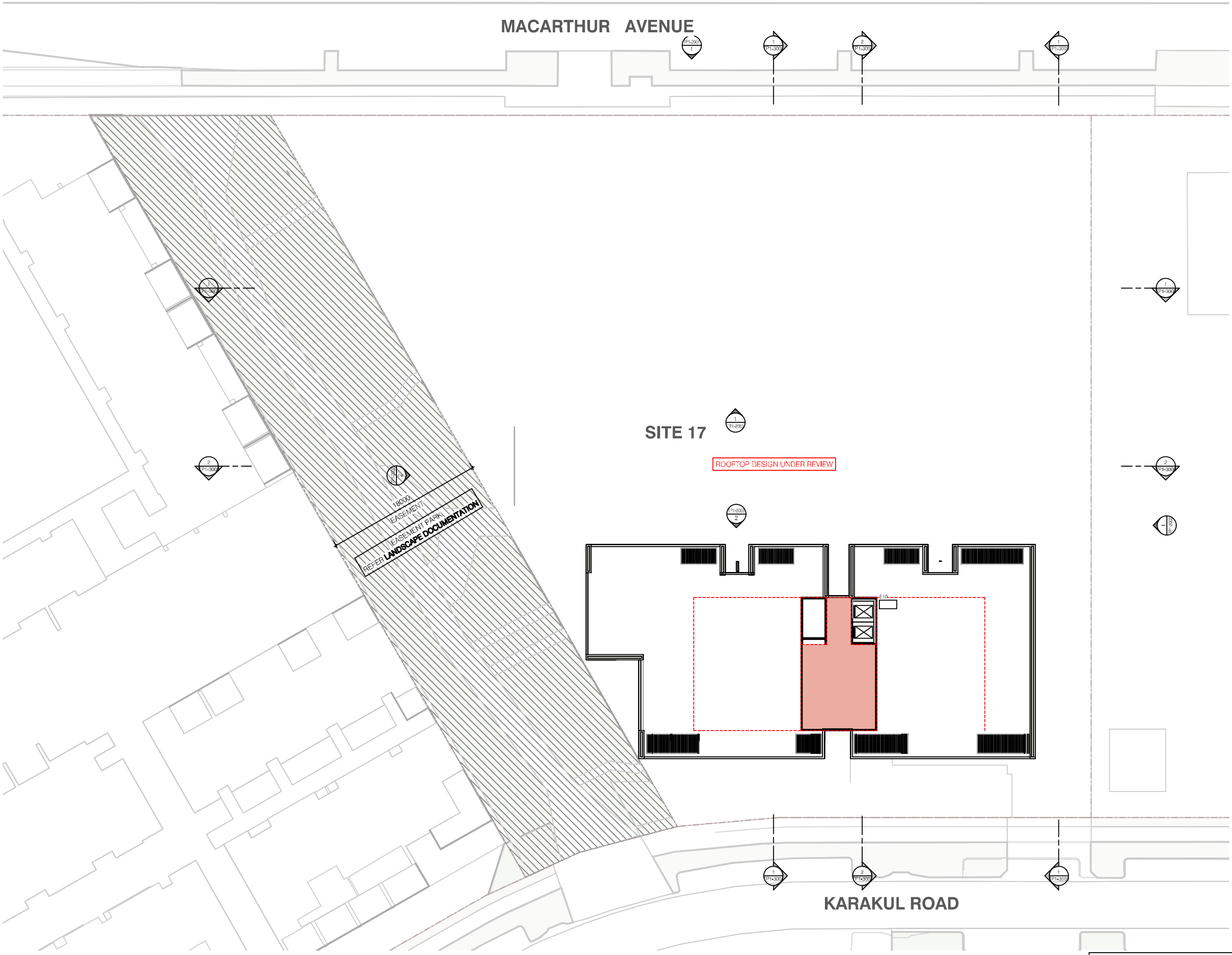
Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	LEVEL 02-06 (Typical) - GFA PLAN		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-0303
Drawn By	MH/ME Chkd KW	Rev	2



NOT FOR CONSTRUCTION

Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

GENERAL NOTES

LEGEND

- GROSS FLOOR AREA (GFA)
- PRIVATE OPEN SPACE (POS)

Rev	Date	Chkd	Reason for Issue
2	22/11/2024		DRAFT TOWN PLANNING ISSUE
1	24/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

SCALE 1:200 (0, 2, 4, 10m)

TOWN PLANNING

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Level 4
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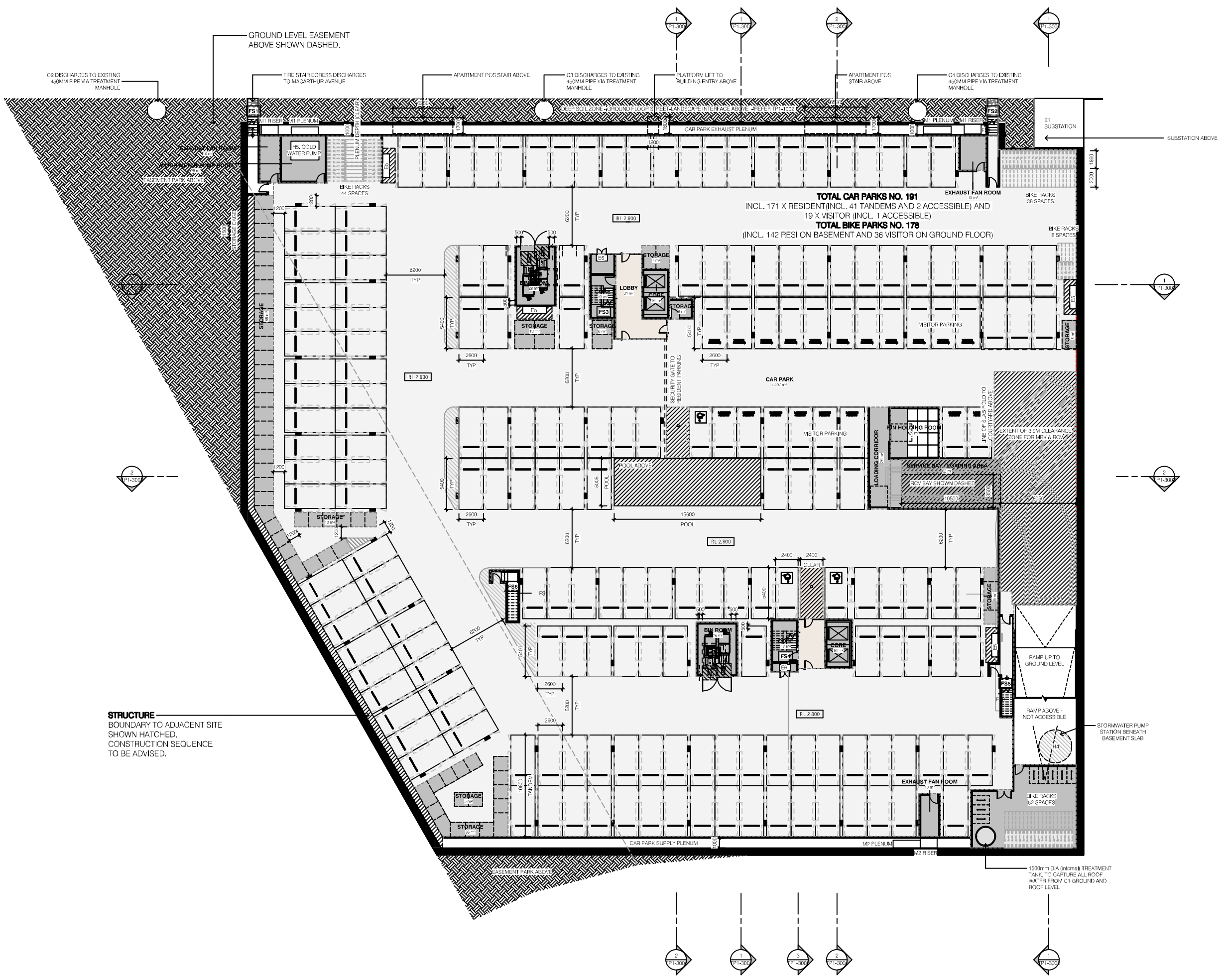
Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	LEVEL 07 - GFA PLAN		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-0304
Drawn By	MH/ME Chkd KW	Rev	2



NOT FOR CONSTRUCTION

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GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
16	22/11/2024		DRAFT TOWN PLANNING ISSUE
15	20/11/2024		ISSUE FOR INFORMATION
14	19/11/2024		ISSUE FOR INFORMATION
13	15/11/2024		ISSUE FOR INFORMATION
12	13/11/2024		ISSUE FOR INFORMATION
11	06/11/2024		ISSUE FOR INFORMATION
10	01/11/2024		ISSUE FOR INFORMATION
9	23/10/2024		ISSUE FOR INFORMATION
8	16/10/2024		ISSUE FOR INFORMATION
7	12/09/2024		ISSUE FOR INFORMATION
6	05/09/2024		ISSUE FOR INFORMATION
5	05/09/2024		ISSUE FOR INFORMATION
4	29/08/2024		ISSUE FOR INFORMATION
3	29/08/2024		ISSUE FOR INFORMATION
2	20/08/2024		ISSUE FOR INFORMATION
1	13/08/2024	-	ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

SCALE 1:200 (0, 2, 4, 10m)

TOWN PLANNING

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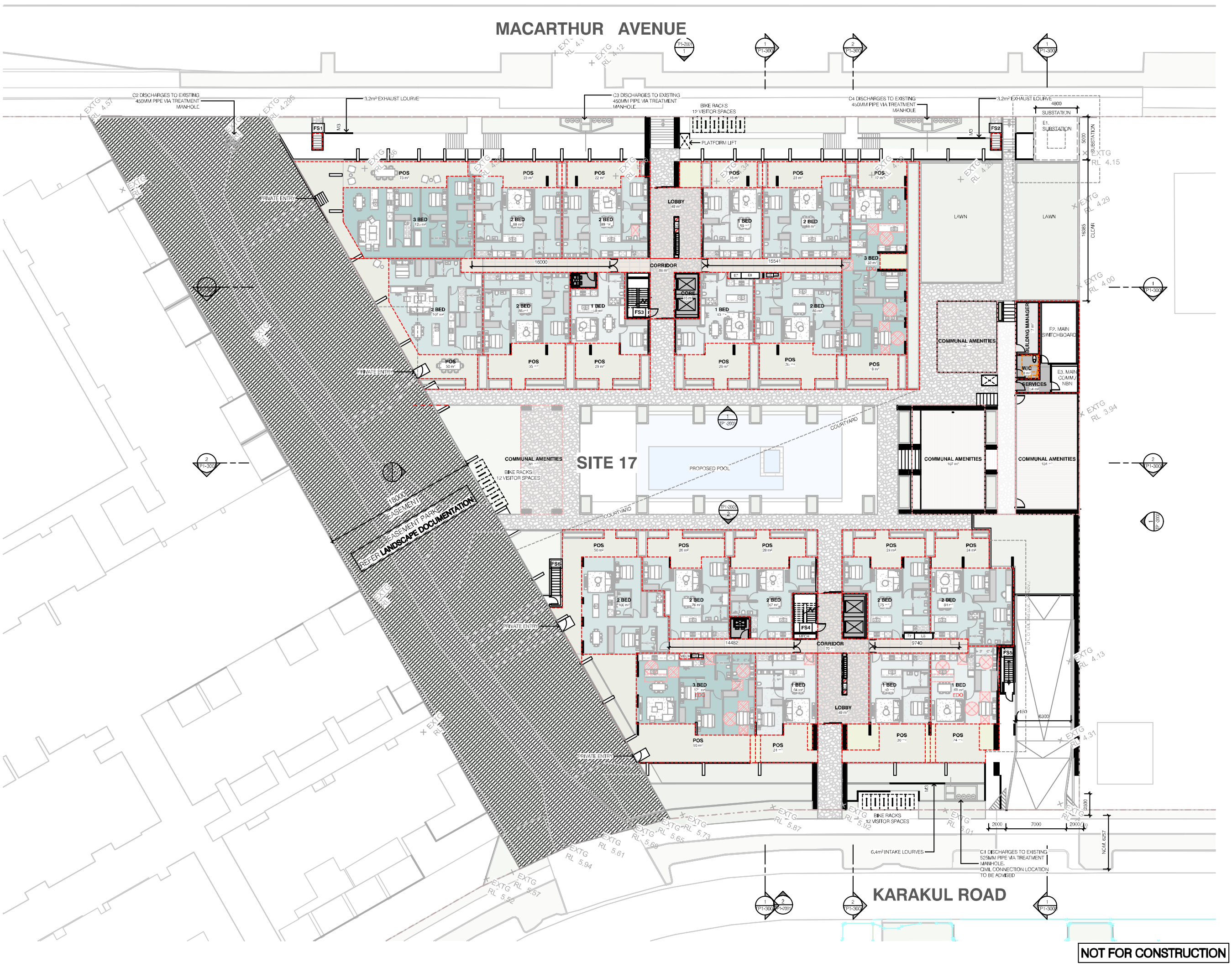
Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	BASEMENT 01		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-1001
Drawn By	MH/ME Chkd KW	Rev	16



GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
14	22/11/2024		DRAFT TOWN PLANNING ISSUE
13	20/11/2024		ISSUE FOR INFORMATION
12	19/11/2024		ISSUE FOR INFORMATION
11	15/11/2024		ISSUE FOR INFORMATION
10	13/11/2024		ISSUE FOR INFORMATION
9	23/10/2024		ISSUE FOR INFORMATION
8	16/10/2024		ISSUE FOR INFORMATION
7	14/10/2024		ISSUE FOR INFORMATION
6	11/10/2024		ISSUE FOR INFORMATION
5	12/09/2024		ISSUE FOR INFORMATION
4	10/09/2024		ISSUE FOR INFORMATION
3	05/09/2024		ISSUE FOR INFORMATION
2	28/08/2024		ISSUE FOR INFORMATION
1	13/08/2024	-	ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

SCALE 1:200

TOWN PLANNING

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Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	GROUND LEVEL		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-1002
Drawn By	MH/JH/ME Chkd KW	Rev	14

NOT FOR CONSTRUCTION

Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
8	22/11/2024		DRAFT TOWN PLANNING ISSUE
7	20/11/2024		ISSUE FOR INFORMATION
6	13/11/2024		ISSUE FOR INFORMATION
5	01/11/2024		ISSUE FOR INFORMATION
4	12/09/2024		ISSUE FOR INFORMATION
3	10/09/2024		ISSUE FOR INFORMATION
2	05/09/2024		ISSUE FOR INFORMATION
1	28/08/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

0 2 4 10m
SCALE 1:200

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Project: LOT 17 NORTHSHORE HAMILTON
Lot 17 280 Macarthur Avenue, Hamilton, Queensland

Title: LEVEL 01

Date: 22/11/2024 | Project No: 24047
Scale @ A1: 1 : 200 | Dwg No: TP1-1003
Drawn By: MH/JH/ME | Chkd: KW | Rev: 8

NOT FOR CONSTRUCTION

Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
7	22/11/2024		DRAFT TOWN PLANNING ISSUE
6	20/11/2024		ISSUE FOR INFORMATION
5	13/11/2024		ISSUE FOR INFORMATION
4	01/11/2024		ISSUE FOR INFORMATION
3	12/09/2024		ISSUE FOR INFORMATION
2	10/09/2024		ISSUE FOR INFORMATION
1	05/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

NORTH

SCALE 1:200 (0 2 4 10m)

TOWN PLANNING

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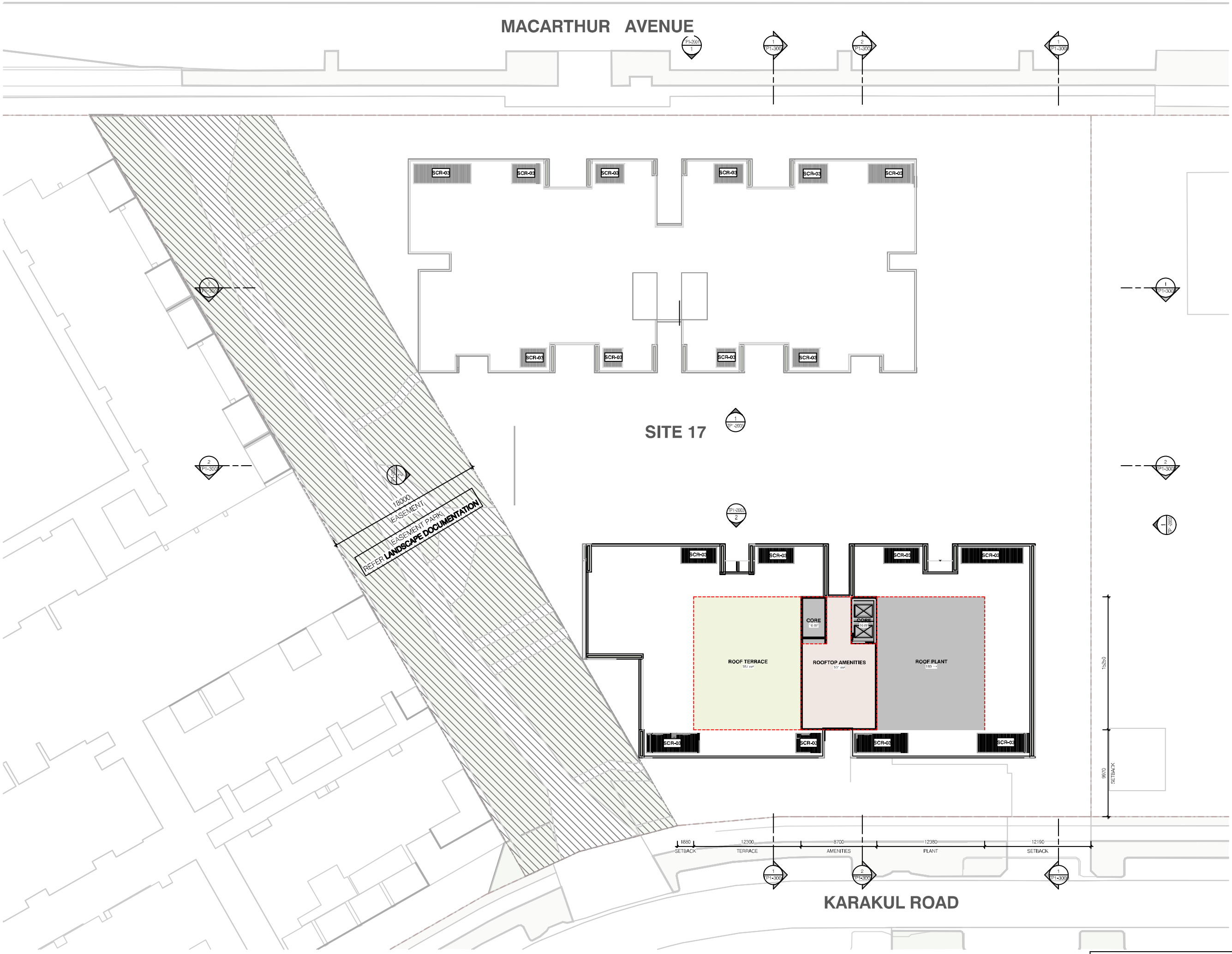
carr.net.au

Project	LOT 17 NORTHSHORE HAMILTON
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland
Title	LEVEL 02-06 (Typical)

Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-1004
Drawn By	MH/JH/MB Chkd KW	Rev	7



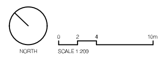
NOT FOR CONSTRUCTION

Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
1	22/11/2024		DRAFT TOWN PLANNING ISSUE

Based on Drawings Received:



TOWN PLANNING

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Project	LOT 17 NORTHSHORE HAMILTON
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland
Title	LEVEL 07 (Roof Amenities)

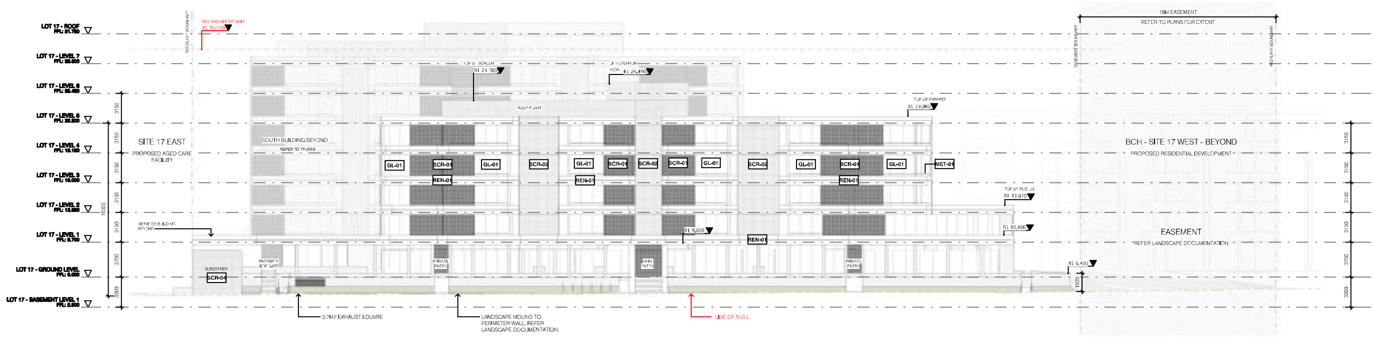
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-1005
Drawn By	MH/JH/ME Chkd KW	Rev	1

Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

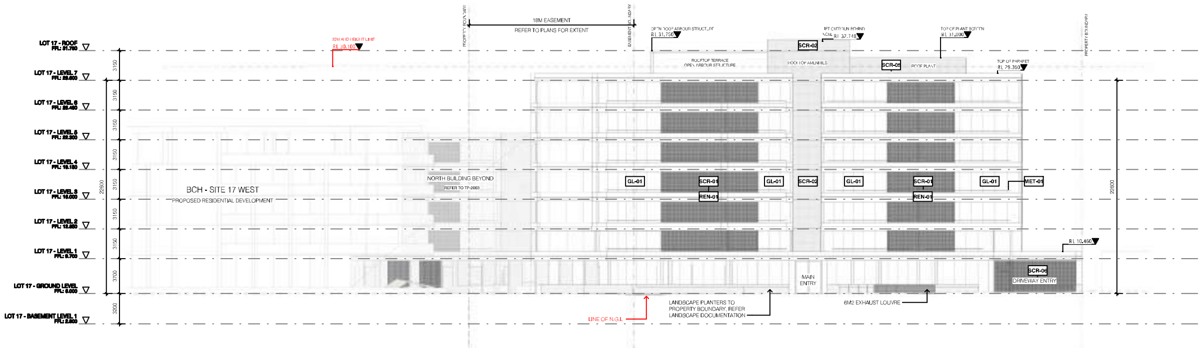
GENERAL NOTES

LEGEND

- REN-01 - RENDER FINISH
- SCR-01 - METAL SCREENS (TIMBER LOOK)
- SCR-02 - WIRE MESH SCREEN (LANDSCAPE PLANTING)
- SCR-03 - ROOFTOP TRELLIS
- SCR-04 - METAL BATTEN SCREEN (TRANSFORMER)
- SCR-05 - METAL SCREEN (ROOF PLANT)
- SCR-06 - METAL BATTEN SCREEN (DRIVEWAY ENTRY)
- GL-01 - CLEAR GLAZING
- MAS-01 - TEXTURED MASONRY
- LVR-01 - VENTILATION LOUVRES
- MET-01 - METAL BALUSTRADE



1 PROPOSED NORTH ELEVATION - MACARTHUR AVE
SCALE 1 : 200



2 PROPOSED SOUTH ELEVATION - KARAKUL RD
SCALE 1 : 200

Rev	Date	Chkd	Reason for Issue
6	22/11/2024		DRAFT TOWN PLANNING ISSUE
5	13/11/2024		ISSUE FOR INFORMATION
4	01/11/2024		ISSUE FOR INFORMATION
3	16/10/2024		ISSUE FOR INFORMATION
2	12/09/2024		ISSUE FOR INFORMATION
1	10/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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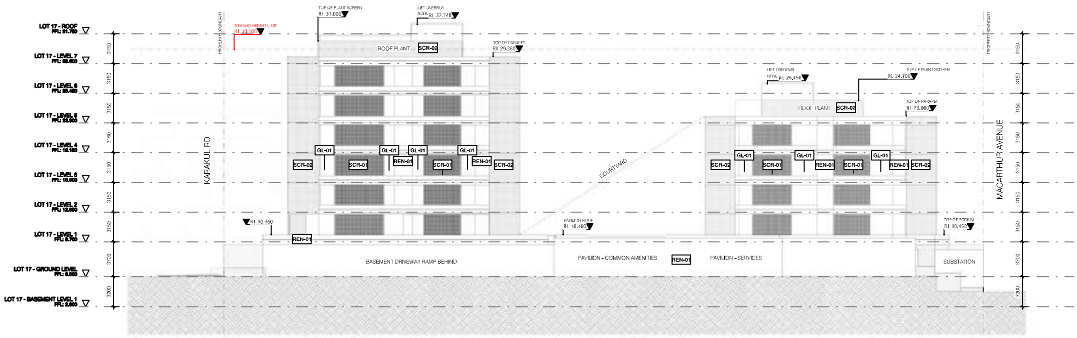
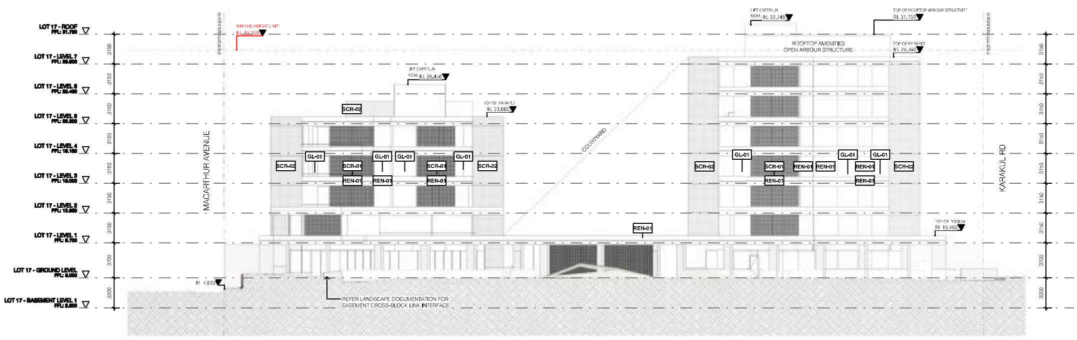
Project	LOT 17 NORTHSHORE HAMILTON
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland
Title	ELEVATION - NORTH + SOUTH
Date	22/11/2024 — Project No 24047
Scale @ A1	1 : 200 — Dwg No TP1-2001
Drawn By	MH/ME Chkd KW — Rev 6

NOT FOR CONSTRUCTION



1 PROPOSED EAST ELEVATION
SCALE 1 : 200



2 PROPOSED WEST ELEVATION
SCALE 1 : 200

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GENERAL NOTES

LEGEND

- REN-01 - RENDER FINISH
- SCR-01 - METAL SCREENS (TIMBER LOOK)
- SCR-02 - WIRE MESH SCREEN (LANDSCAPE PLANTING)
- SCR-03 - ROOFTOP TRELLIS
- SCR-04 - METAL BATTEN SCREEN (TRANSFORMER)
- SCR-05 - METAL SCREEN (ROOF PLANT)
- SCR-06 - METAL BATTEN SCREEN (DRIVEWAY ENTRY)
- GL-01 - CLEAR GLAZING
- MAS-01 - TEXTURED MASONRY
- LVR-01 - VENTILATION LOUVRES
- MET-01 - METAL BALUSTRADE

Rev	Date	Chkd	Reason for Issue
6	22/11/2024		DRAFT TOWN PLANNING ISSUE
5	13/11/2024		ISSUE FOR INFORMATION
4	01/11/2024		ISSUE FOR INFORMATION
3	16/10/2024		ISSUE FOR INFORMATION
2	12/09/2024		ISSUE FOR INFORMATION
1	10/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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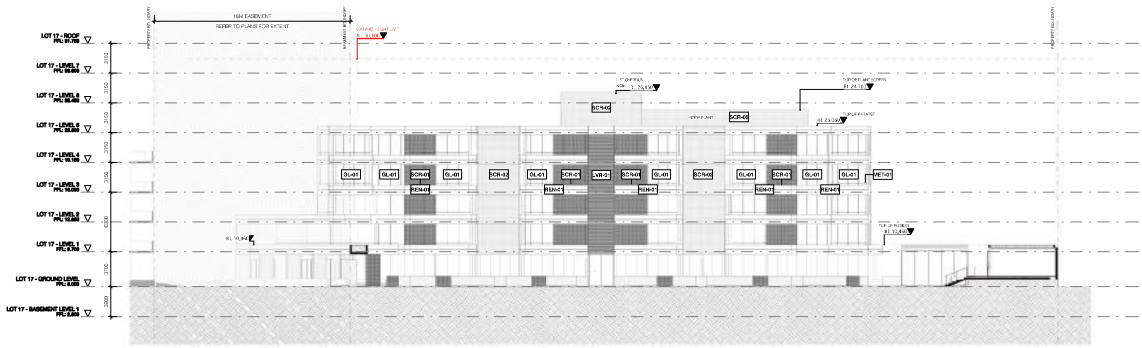
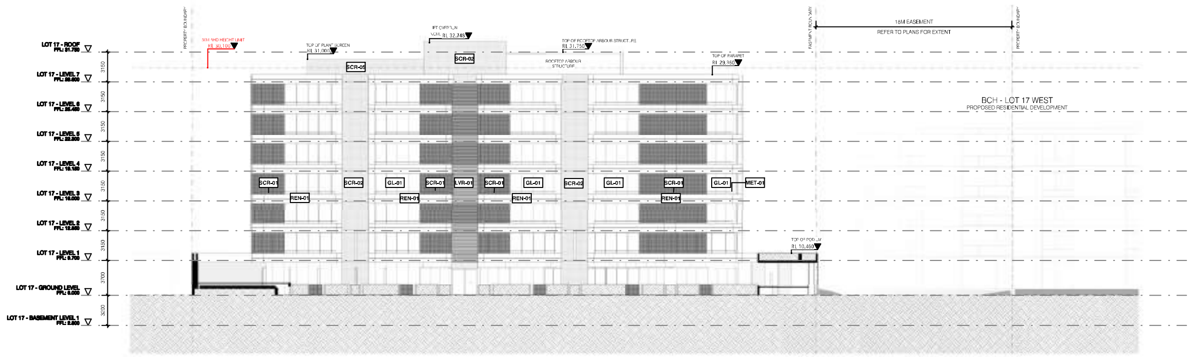
Project	LOT 17 NORTHSHORE HAMILTON
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland
Title	ELEVATION - EAST – WEST

Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-2002
Drawn By	MH/ME Chkd KW	Rev	6

NOT FOR CONSTRUCTION



1 PROPOSED INTERNAL COURTYARD ELEVATION - BUILDING 1
SCALE 1 : 200



2 PROPOSED INTERNAL COURTYARD ELEVATION - BUILDING 2
SCALE 1 : 200

GENERAL NOTES

LEGEND

- REN-01 - RENDER FINISH
- SCR-01 - METAL SCREENS (TIMBER LOOK)
- SCR-02 - WIRE MESH SCREEN (LANDSCAPE PLANTING)
- SCR-03 - ROOFTOP TRELLIS
- SCR-04 - METAL BATTEN SCREEN (TRANSFORMER)
- SCR-05 - METAL SCREEN (ROOF PLANT)
- SCR-06 - METAL BATTEN SCREEN (DRIVEWAY ENTRY)
- GL-01 - CLEAR GLAZING
- MAS-01 - TEXTURED MASONRY
- LVR-01 - VENTILATION LOUVRES
- MET-01 - METAL BALUSTRADE

Rev	Date	Chkd	Reason for Issue
5	22/11/2024		DRAFT TOWN PLANNING ISSUE
4	13/11/2024		ISSUE FOR INFORMATION
3	01/11/2024		ISSUE FOR INFORMATION
2	12/09/2024		ISSUE FOR INFORMATION
1	10/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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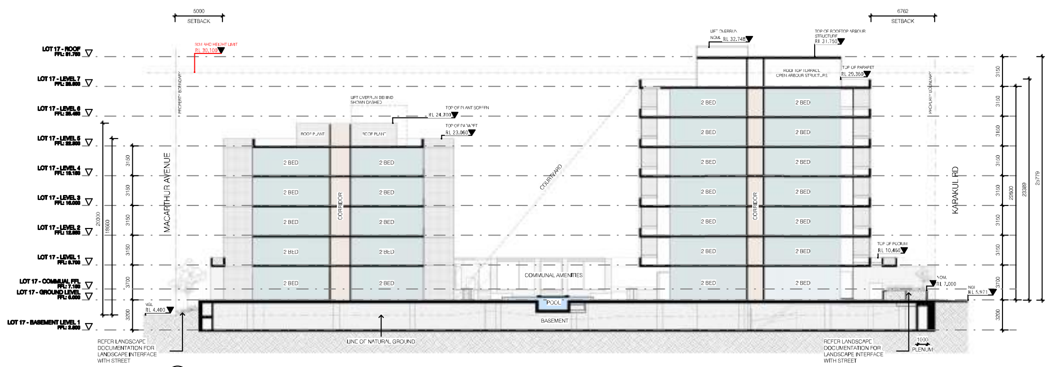
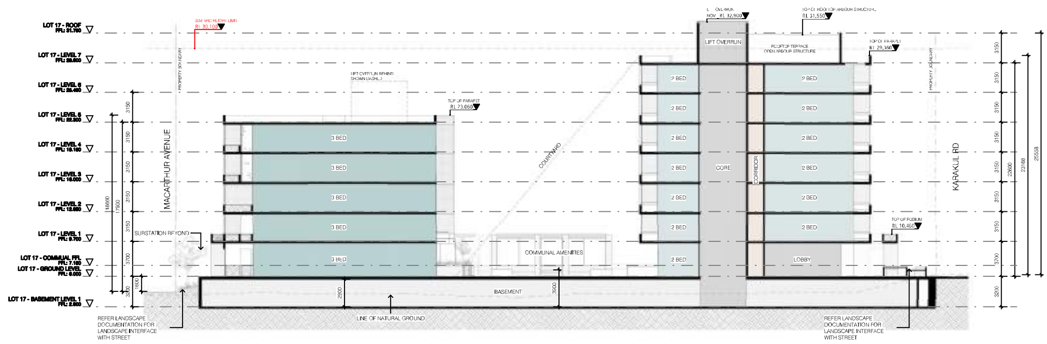
Project	LOT 17 NORTHSHORE HAMILTON
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland
Title	ELEVATION - INTERNAL COURTYARD
Date	22/11/2024
Project No	24047
Scale @ A1	1 : 200
Dwg No	TP1-2003
Drawn By	MH/ME
Chkd	KW
Rev	5

NOT FOR CONSTRUCTION



1 SECTION AA
SCALE 1 : 200



2 SECTION BB
SCALE 1 : 200

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GENERAL NOTES

LEGEND

- REN-01 - RENDER FINISH
- SCR-01 - METAL SCREENS (TIMBER LOOK)
- SCR-02 - WIRE MESH SCREEN (LANDSCAPE PLANTING)
- SCR-03 - ROOFTOP TRELLIS
- SCR-04 - METAL BATTEN SCREEN (TRANSFORMER)
- SCR-05 - METAL SCREEN (ROOF PLANT)
- SCR-06 - METAL BATTEN SCREEN (DRIVEWAY ENTRY)
- GL-01 - CLEAR GLAZING
- MAS-01 - TEXTURED MASONRY
- LVR-01 - VENTILATION LOUVRES
- MET-01 - METAL BALUSTRADE

Rev	Date	Chkd	Reason for Issue
9	22/11/2024		DRAFT TOWN PLANNING ISSUE
8	19/11/2024		ISSUE FOR INFORMATION
7	18/11/2024		ISSUE FOR INFORMATION
6	13/11/2024		ISSUE FOR INFORMATION
5	01/11/2024		ISSUE FOR INFORMATION
4	16/10/2024		ISSUE FOR INFORMATION
3	12/09/2024		ISSUE FOR INFORMATION
2	10/09/2024		ISSUE FOR INFORMATION
1	05/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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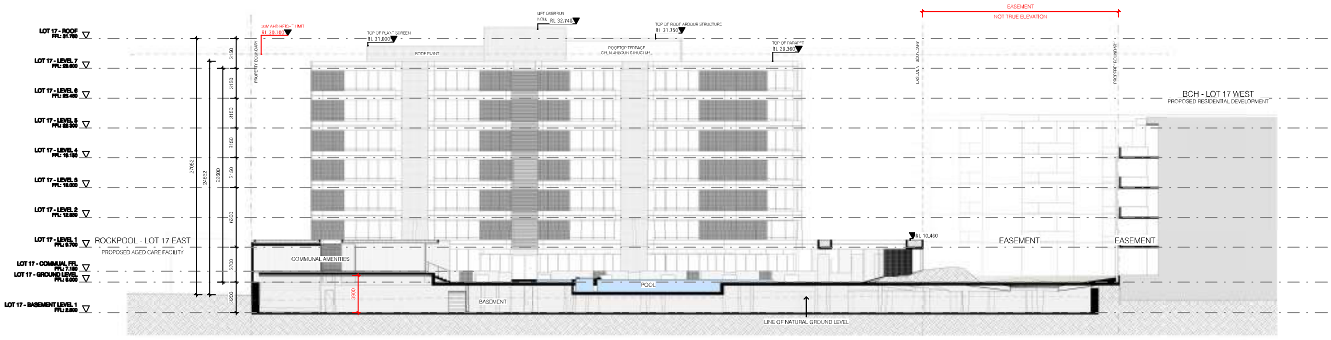
carr.net.au

Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	BUILDING SECTIONS - NORTH/SOUTH		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-3001
Drawn By	MH/ME Chkd KW	Rev	9

NOT FOR CONSTRUCTION

1 SECTION CC
SCALE 1 : 200



2 SECTION DD
SCALE 1 : 200

Builders / Contractors shall verify all dimensions before any work commences. Dimensions shown are nominal. Figured dimensions shall take precedence over scaled dimensions. Any discrepancies are to be made known to the Architects / Designers studio prior to any works commencing on site. All shop drawings shall be submitted for review and manufacture shall not commence prior to the return of stamped shop drawings.

GENERAL NOTES

LEGEND

- REN-01 - RENDER FINISH
- SCR-01 - METAL SCREENS (TIMBER LOOK)
- SCR-02 - WIRE MESH SCREEN (LANDSCAPE PLANTING)
- SCR-03 - ROOFTOP TRELLIS
- SCR-04 - METAL BATTEN SCREEN (TRANSFORMER)
- SCR-05 - METAL SCREEN (ROOF PLANT)
- SCR-06 - METAL BATTEN SCREEN (DRIVEWAY ENTRY)
- GL-01 - CLEAR GLAZING
- MAS-01 - TEXTURED MASONRY
- LVR-01 - VENTILATION LOUVRES
- MET-01 - METAL BALUSTRADE

Rev	Date	Chkd	Reason for Issue
8	22/11/2024		DRAFT TOWN PLANNING ISSUE
7	18/11/2024		ISSUE FOR INFORMATION
6	13/11/2024		ISSUE FOR INFORMATION
5	01/11/2024		ISSUE FOR INFORMATION
4	16/10/2024		ISSUE FOR INFORMATION
3	12/09/2024		ISSUE FOR INFORMATION
2	10/09/2024		ISSUE FOR INFORMATION
1	05/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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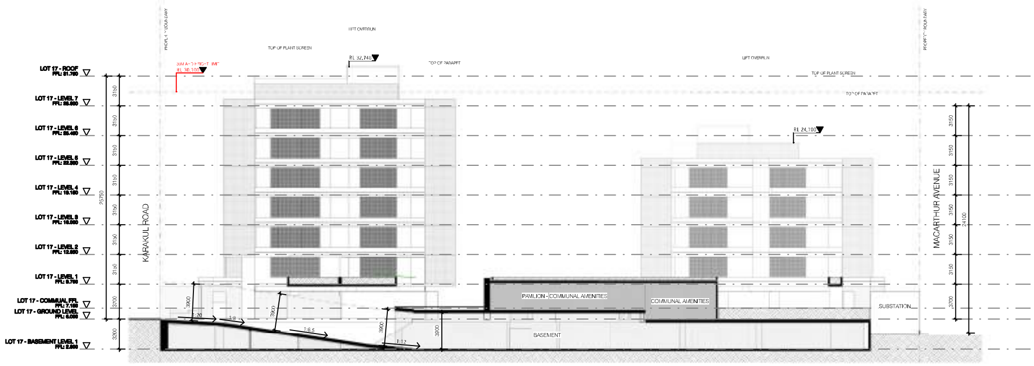
carr.net.au

Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	BUILDING SECTIONS - EAST/WEST		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-3002
Drawn By	MH/ME Chkd KW	Rev	8

NOT FOR CONSTRUCTION



GENERAL NOTES

Rev	Date	Chkd	Reason for Issue
6	22/11/2024		DRAFT TOWN PLANNING ISSUE
5	01/11/2024		ISSUE FOR INFORMATION
4	16/10/2024		ISSUE FOR INFORMATION
3	12/09/2024		ISSUE FOR INFORMATION
2	10/09/2024		ISSUE FOR INFORMATION
1	05/09/2024		ISSUE FOR INFORMATION

Based on Drawings Received:

0 2 4 10m
SCALE 1:200

TOWN PLANNING

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Project	LOT 17 NORTHSHORE HAMILTON		
	Lot 17 280 Macarthur Avenue, Hamilton, Queensland		
Title	BUILDING SECTIONS - RAMP		
Date	22/11/2024	Project No	24047
Scale @ A1	1 : 200	Dwg No	TP1-3003
Drawn By	MH/ME Chkd KW	Rev	6

NOT FOR CONSTRUCTION