

332-342 Water Street,
Fortitude Valley

Project Waters

Master Plan + Stage 1 & 2

Preliminary Development Approval

Traffic Engineering Report

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 30 / 8 / 2017

Prepared for: Metro Property Development Pty Ltd

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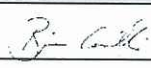
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- A Development Layout
- B Brunswick Street Indented Bus Stop Layout
- C "Baxter Street Extension" Road Layout and Design
- D Service Vehicle Swept Paths

1. Introduction

1.1 Background

TTM Consulting has been engaged by Metro Property Development Pty Ltd to prepare a traffic engineering report investigating the proposed master plan of the Project Waters development, including a preliminary development application for Stages 1 and 2. It is understood that this report will form part of a submission to the Urban Land Development Authority (ULDA).

1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- ▶ Parking supply
- ▶ Parking layout
- ▶ Surrounding road layout and site accessibility
- ▶ Access locations and designs
- ▶ Traffic generation and distribution
- ▶ Development impacts on surrounding road network
- ▶ Service vehicle operation
- ▶ Public transport accessibility
- ▶ Bicycle provisions

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- ▶ ULDA Planning Scheme, specifically;
 - 3.0 Land Use Plan for Precinct 4: Water Street Precinct
- ▶ Australian Standard 2890 Parking Facilities
- ▶ Queensland Complete Streets
- ▶ Austroads Guide to Traffic Management

In addition, guidance on particular design issues has been taken from sections of the Brisbane City Council (BCC) City Plan 2000.

1.3 Site Location

The Project Waters site is located at 62-68 Brunswick Street and 332-342 Water Street, Fortitude Valley, as shown in Figure 1.1. The site has road frontages onto Brunswick Street and Water Street.

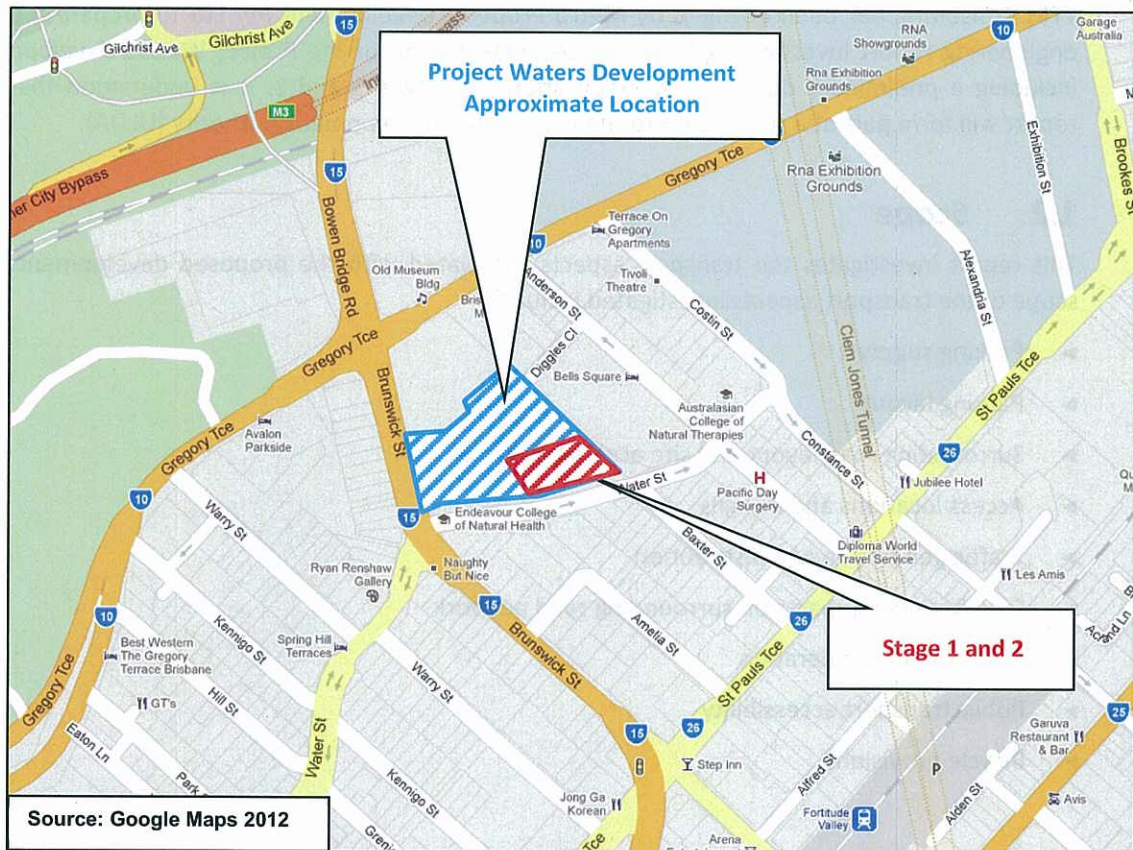


Figure 1.1: Site Location

Stages 1 and 2 of the development relate the portion of the development located on the south-east corner of the wider site. Stage 1 and 2 has a road frontage to Water Street and is currently occupied with narrow verges/pedestrian paths and on-street car parking.

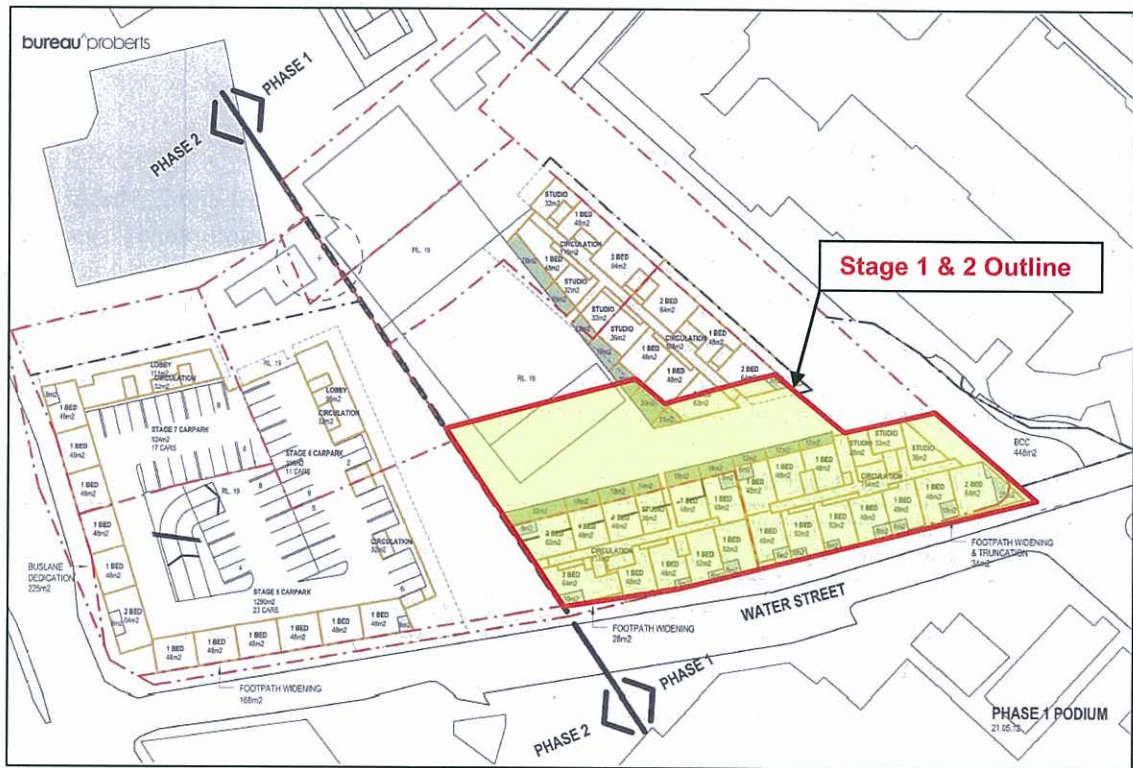


Figure 1.2: Stages 1 and 2 - Site Boundary

2. The Proposed Development

2.1 Development Profile

The Project Waters master plan divides the site into two phases; Phases 1 and 2. Phase 1 consists of construction of the two residential buildings, carparking area and community space on the eastern side of the site (right of the black dashed line shown in Figure 1.2). Phase 1 is broken up into Stages 1-4. Phase 2 consists of a separate carparking area, residential building and community space on the western side of the site (left of the black dashed line shown in Figure 1.2). Phase 2 is broken up into Stages 5-7. The proposed land uses and parking supply for each phase and stage of this development are summarised in Table 2.1:

Table 2.1: Proposed Land Uses

Development Component	Area/Qty	Parking Supply
Phase 1	578 units	374 spaces
- Stage 1	1 Bedroom: 114 units 2 Bedroom: 50 units	118 spaces
- Stage 2	1 Bedroom: 103 units 2 Bedroom: 36 units	75 spaces
- Stage 3	1 Bedroom: 99 units 2 Bedroom: 43 units	112 spaces
- Stage 4	1 Bedroom: 92 units 2 Bedroom: 41 units	69 spaces
Phase 2	460 units	305 spaces
- Stage 5	1 Bedroom: 116 units 2 Bedroom: 50 units	111 spaces
- Stage 6	1 Bedroom: 91 units 2 Bedroom: 53 units	81 spaces
- Stage 7	1 Bedroom: 96 units 2 Bedroom: 54 units	113 spaces
Total Development	1038 units	679 spaces

The concept development plans showing the ground and carparking levels of the whole site are included in Appendix A.

2.2 Access

The Project Waters development contains two proposed access points; one onto Water Street for access to Phase 2 and another onto the proposed "Baxter Street Extension" (running along the north-eastern boundary of the site) for access to Phase 1. Assuming that Water Street remains a one-way road, the Phase 2 access will be a 'Left-In/Left-out' access, and the Phase 1 will allow entry/exit in all directions. Preliminary concept plans also indicate a possible third internal access road leading off the Diggles Close / Baxter Street Extension intersection onto the site (to Phase 2 area) along the northern property boundary.

Vehicular access to basement parking and service area of Stages 1 and 2 will be via the 'Baxter Street Extension' Road access.

2.3 Parking

The development plan includes a total of 679 spaces, as outlined in Table 2.1 above, and 1290 bicycle spaces. Further details of the car and bicycle parking provisions is detailed in later sections of this report

3. Existing Transport Infrastructure

3.1 The Road Network

All roads in the immediate vicinity of the site are administered by Brisbane City Council. The hierarchy and characteristics of roads in the immediate vicinity of the site are shown below in Table 3.1.

Table 3.1: Local Road Hierarchy

Road	Speed Limit	Carriageway		Road Reserve Width	Classification	Road Authority
		Width	Lanes			
► Water Street	50 km/h	6m	1 (one-way)	13m	Local access	BCC
► Brunswick Street	60 km/h	15m	5 (2 northbound, 3 southbound)	22m	Arterial route	BCC
► Diggles Close	50 km/h	5m	1 (plus parking on 1 side)	11m	Local access	BCC
► Anderson Street	50 km/h	7m	2 (plus parking on 1 side)	14m	Local access	BCC
► Baxter Street	50 km/h	13m	2 (plus parking on both sides)	20m	Local access	BCC

Water Street is a one-way street allowing only eastbound traffic. It is 6m wide where the main building of Stages 1 and 2 fronts onto it, but widens to 10m just west of it to provide a small number of parking spaces on both sides of the road. The intersection of Water Street / Baxter Street is priority controlled, while the intersection of Brunswick Street / Water Street is signalised.

3.2 Road Planning

The concept development plans provided in Appendix A incorporate the following resumptions/land dedications to facilitate planned road network improvements:

- A 225m² road dedication on the western property boundary of the Project Waters site, on the Phase 2 Brunswick Street frontage, to allow for an indented bus stop to be constructed clear of the through carriageways on Brunswick Street. A preliminary concept layout of the proposed bus stop has been designed by TTM and is included in Appendix B.
- A 196m² road dedication on the southern property boundary of the Project Waters site, on the Water Street frontage primarily along the Phase 2 section, to allow for future footpath widening on the north side of Water Street.
- A 1337m² road dedication on the eastern property boundary of the Project Waters site to allow for the "Baxter Street Extension" from Water Street through to Diggles Close.
- A 34m² road dedication on the eastern most corner of the site (by tapering the existing pointed end of the property) to facilitate footpath widening on the corner of Water Street.

The UDA Land Use Plan for Precinct 4 (Water Street Precinct) indicates that a road is to be constructed connecting Baxter Street with Diggles Close. The ULDA have also undertaken the Bowen Hills Traffic Study with the objective of identifying ultimate road requirements and intersection configurations to accommodate the total development in accordance with the Bowen Hills UDA development Scheme.

Also, the RNA redevelopment (renamed the "Showground Hill" project) to the east of the subject site will include a new internal local road that will influence the operation of the wider road network in the vicinity of the subject site.

Figure 3.1 indicates the proposed road network upgrades in the immediate area.

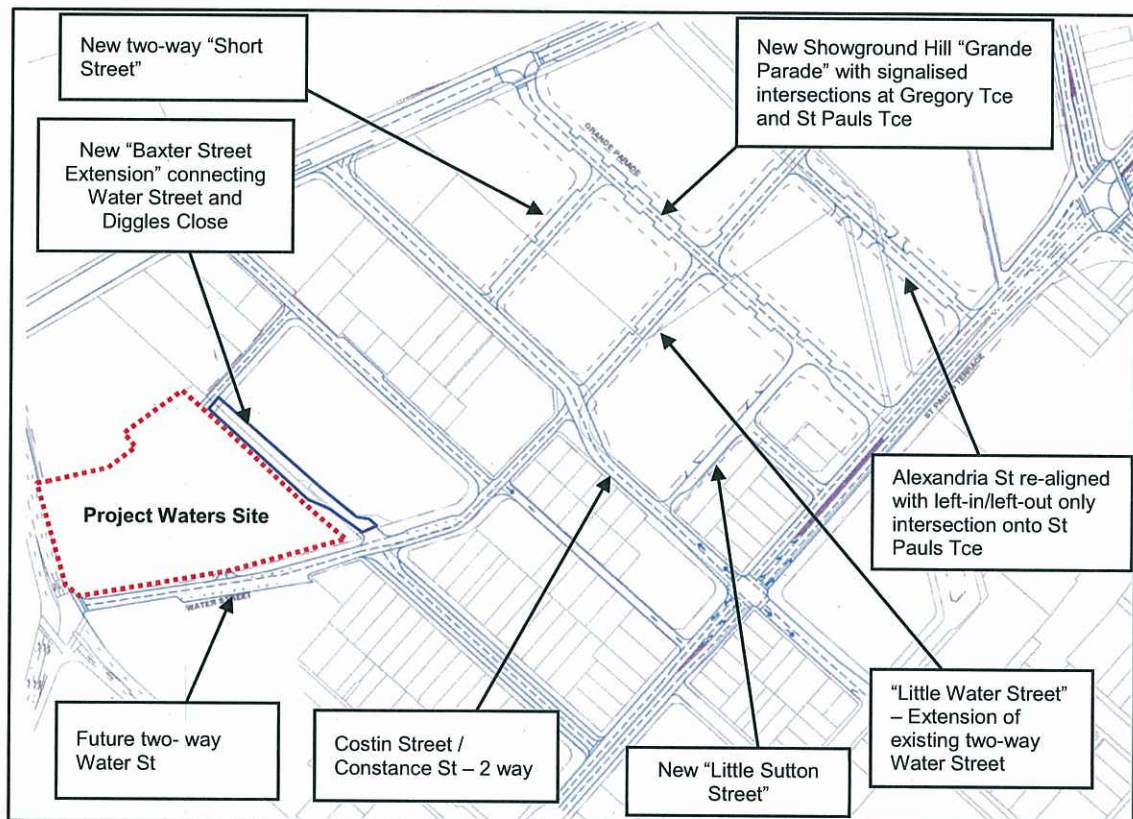


Figure 3.1: Future Road Network Configuration

3.3 Public Transport and Pedestrian Facilities

Fortitude Valley train station is located approximately 550m to the south of the site, and provides access to all train lines going through the central city.

On-street bus stops are located on Brunswick Street adjacent to the site, as well as on Gregory Terrace some 250m walk from the site.

The Riverside Citycat stop is located approximately 1.5km to the south of the site.

Most of the streets in the area provide footpaths on both sides of the road, with the exception of Diggles Close which provides a footpath on the south side only. The signalised intersection of Brunswick Street / Bowen Bridge Road / Gregory Terrace provides pedestrian crossings on all approaches, while the signalised intersection of Brunswick Street / Water Street provides crossings on three of the four approaches.

No dedicated cycle lanes are provided in the immediate vicinity of the site, the nearest being provided on Gregory Terrace beginning some 300m west of the intersection with Brunswick Street. The nearest CityCycle station is 360m walk from the site at the intersection of Constance Street and St Pauls Terrace.

4. Car Parking Arrangements

4.1 ULDA Requirement for Car Parking

The 'Bowen Hills Urban Development Area Development Scheme' stipulates that a **maximum** rate of 1 car parking space (inclusive of visitor car parking) be provided per unit. Based on this requirement, the overall development can have at most 1038 car parking spaces.

4.2 Proposed Car Parking Supply

The total proposed on-site parking supply for the development is 679 car spaces, including 193 spaces as part of Stages 1 and 2.

The proposed parking supply rate is based on constraining the commuter traffic generated by the development, which is consistent with Transport-Orientated-Development (TOD) principles. The UDA Development Criteria states:

"In support of TOD principles priority should be given to pedestrian, cycle and public transport modes, over private vehicle use".

As mentioned previously the site enjoys a high level of connectivity to the public transport network and therefore it is considered appropriate, in terms of travel demand management strategies, to reduce the overall parking supply and encourage residents to use alternative modes of transport. The site is also located within walking distance of the key centres of Fortitude Valley, Royal Brisbane Hospital and Brisbane CBD.

The parking supply has been derived based on applying the rates of 0.4 spaces per one bedroom unit (so only 40% of the 1 bedroom units will have a dedicated parking space), 1 space per two bedroom unit and an additional 1 visitor space per 20 units. These rates, aside from the rate for one bedroom units, are consistent with the Brisbane City Council recommended rates for CBD residential developments. The BCC rate is 0.5 spaces for one bedroom units, as opposed to the 0.4 spaces adopted for this development.

TTM considers that 0.4 spaces per one bedroom unit is an acceptable rate based on the following factors:

- TTM is currently undertaking an extensive parking study of high-density residential units in the CBD fringe area for the purpose of identifying practical parking demands for residents and visitors. In particular, this study focuses on the demands associated with one bedroom "investor" style units. Preliminary indications so far suggest that at rate of 0.4 spaces for one bedroom units is acceptable.
- Metro Property Developments has extensive experience in developing high density investor orientated residential developments. This experience indicates that the market would accept a rate of 0.4 spaces per unit.

Regardless of this lower rate of parking for one bedroom units, there is limited potential for vehicle parking 'overflow' onto the surrounding street due to the limited amount of on-street parking and this developments location within "Brisbane Central Traffic Area". The traffic area comprises 2hr limits and paid parking zones on all on-street parking spaces. Given the fact then that there is limited ability to park on the streets for an extended period of time, this factor plays a significant role in the consideration of prospective residents. Buyers/renters who own cars are extremely unlikely to purchase/rent a unit without a dedicated parking space in the CBD/fringe area, given there is no alternative location for their vehicle to be housed. Therefore, there will be limited adverse effects on the surrounding area as a result of the reduced onsite parking supply.

4.3 Proposed Car Park Design

'AS2890.1:2001' is adopted as a reference for car park design. The key design parameters in accordance with 'AS 2890.1' are set out in Table 4.2 below.

Table 4.1: Car Park Design Criteria

Design Aspect	AS2890 Requirement
Parking Spaces (Class 1A)	2.4m x 5.4m minimum
Motorcycle Spaces	1.2m x 2.5m minimum
Parking Aisle	5.8m minimum width
Circulation Road - Two-lane - One-lane	5.5m minimum width 3.0m minimum width
Ramp Grades	Maximum 1:4 (25%) (up to 20m) Maximum 1:5 (20%) (over 20m)

It should be noted that the current basement and parking layouts plans provided in Appendix A are concept designs only, as detailed civil/structural designs are yet to be provided. As such, the specific characteristics of the parking area cannot be provided. Further detailed designs - including the Stage 1 and 2 basement footprint in particular - will be developed ensuring that compliance with the above Australian Standards design requirements are met.

5. Site Access Arrangements

Given the size of the whole Project Waters Development, it was considered necessary that there be multiple accesses fronting onto different roads surrounding the site. Not only would this provide maximum flexibility to assist in the staging of the development, but it would also help cater for the travel movement desires of the development related traffic and would avoid congestion by efficiently distributing the development traffic on the surrounding roads. It was considered that direct access onto Brunswick Street would be unachievable given the current traffic volumes using the road and topography of the site. Therefore, an alternative to construct a new road fronting the site was considered as multiple access points could then be incorporated on both this new road and the existing Water Street.

5.1 New Baxter Street Extension and Road Design

The precinct outcomes in the Precinct 4 (Water Street Precinct) Land Use Plan identify a “new road” through the site along the eastern boundary connecting Water Street to Diggles Close. This is the proposed “Baxter Street Extension” referenced in this report. Taking into account the potential for two access points onto this new “Baxter Street Connection” (one for Phase 1 and potentially a secondary access for Phase 2), it was therefore assumed that up to 75% of the development traffic could theoretically use this new road. As outlined in Section 6 below, the peak hour generation rate of the development is expected to be up to 244vph. Assuming this equates to 10% of the daily development traffic generation, and applying the 75% factor, it is expected that the volumes of traffic on this new road attributed to this development could be up to 1800vpd. Given the existing ‘grid’ style of the surrounding network, this new road is not expected to significantly change the flow of the existing traffic movements throughout and into/out of the catchment. As such, the traffic volumes using this new road can be expected to be primarily related to this development, with a minimal amount of additional residential traffic for the dwellings in the immediate area (i.e. on Diggles Close). For this purpose then, it can be assumed the daily traffic volumes on the new “Baxter Street Extension” will not exceed 2000vpd.

The new Baxter Street Extension has been designed to the standard of a ‘Neighbourhood Access’ (non-bus route) road, in accordance with the requirements of the BCC Transport and Traffic Facilities Planning Scheme Policy. As outlined in the policy, a Neighbourhood Access road is suitable to carry traffic volumes of up to 3000vpd, above the daily volumes expected to use the new Baxter Street Extension. A 14m wide road reserve has been dedicated for this new road, and the proposed cross section incorporates a 7.5m carriageway, 3.5m open verge on the western side and a 1.5m undercroft, giving a total verge width adjacent to the development of 5.0m. The proposed layout and design of the new Baxter Street Extension, including intersections and Project Waters access details, is included in Appendix C.

It is anticipated that volumetric dedications will be required along the eastern side, and south-eastern most corner, of the Phase 1 area as the footprint of the upper levels of the Phase 1 buildings will encroach over the verge/footpath of the new “Baxter Street Connection”. All of the building overhangs, however, will remain clear of the road carriageway.

Overall, the design of the new Baxter Road Extension is consistent with the requirements of the Bowen Hills UDA development scheme and is considered suitable.

5.2 Access to Phase 1 of Development

Vehicular access to Phase 1 will be gained through an all-movements access onto the new “Baxter Street Extension” and will be located approximately 45m north of Water Street. As with the carpark, ‘AS2890.1:2001’ is adopted as a suitable reference for access design. The key design parameters in accordance with ‘AS 2890.1’ are set out in Table 5.1 below.

Table 5.1: Phase 1 (Baxter Street Extension) Access Characteristics

Design Aspect	AS 2890 Requirement	Proposed Provision	Comply (yes or no)
Crossover width	Category 3 6m entry width and 4.0-6.0 exit width	10.0m entry width and 6.0m exit width (plus central median island)	Yes
Minimum distance to adjacent intersections	6m from tangent point on kerb	45m north of Water Street / Baxter Street Intersection	Yes
Sight distance	Ideally 69m, minimum of 45m	50m to south and 70m to the north	Yes
Exit queue capacity	5 vehicles (30m) for Stage 1 & 2 7 vehicles (42m) for Stages 3-4	18m (for Stage 1 and 2 Basement layout), then 28m once basement area is extended for Stages 3-4	No
Gradient of first 6m	1 in 20 (5%)	1 in 20 max	Yes

5.3 Access to Phase 2 of Development

Vehicular access to Phase 2 will be gained through a Left-in/Left-Out access onto the existing one-way Water Street and will be located approximately 50m east of Brunswick Street. TTM understands there are future plans to potentially convert Water Street into a two-way road (east of Brunswick Street). Should this occur, there is the ability for this access to be converted to an all-movements access. The key design parameters in accordance with 'AS 2890.1' are set out in Table 5.2 below.

Table 5.2: Phase 2 (Water Street) Access Characteristics

Design Aspect	AS 2890 Requirement	Proposed Provision	Comply (yes or no)
Crossover width	Category 3 6m entry width and 4.0-6.0 exit width	Yet to be designed	-
Minimum distance intersection	6m from tangent point on kerb	50m from Brunswick Street	Yes
Sight distance	Ideally 69m, minimum of 45m	60m to the west to the Brunswick Street / Water Street intersection, +100m to the east	Yes
Exit queue capacity	6 vehicles (30m)	Carpark area yet to be designed	-
Gradient of first 6m	1 in 20 (5%)	Access yet to be designed	-

A detailed design of this access and parking area has yet to be undertaken, however, compliance with all requirements of the Australian Standards will be met.

6. Road Network Performance

6.1 Traffic Generation & Distribution

The RTA *Guide to Traffic Generating Developments* indicates that the peak hour trip generation characteristics of medium to high density residential developments is between 0.25 - 0.4 trips/unit. Considering that in this proposed development not all units have a car parking space, it can be assumed that these units will not contribute to the total traffic generation of the development. Based on this, the development traffic generation can be expected to be as shown in Table 6.1 below.

Table 6.1: Project Waters Peak Hour Traffic Generation

Development Component	Number of Units	Traffic Generation Rate	Peak Hour Trips
Phase 1			84 – 133 vph
- 1 Bedroom with no car space	245 units	0 trips/unit	0 vph
- 1 Bedroom with car space	163 units	0.25-0.4 trips/unit	41 -65 vph
- 2 Bedroom with car space	170 units	0.25-0.4 trips/unit	43 – 68 vph
Phase 2			70 – 111 vph
- 1 Bedroom with no car space	182 units	0 trips/unit	0 vph
- 1 Bedroom with car space	121 units	0.25-0.4 trips/unit	30 - 48 vph
- 2 Bedroom with car space	157 units	0.25-0.4 trips/unit	40 – 63 vph
Total Development			154 – 244 vph

The distribution of this development traffic has been determined and is shown in Figures 6.1 and 6.2. It should be noted that these volumes are based on the following assumptions:

- The higher end of the traffic generation range (0.4 trips/unit) has been adopted as a worst case scenario when calculating the intersection movement volumes shown
- The in/out split development traffic is 25%/75% in the AM Peak and 75%/25% in the PM Peak.
- All vehicles entering the access on the new “Baxter Street Extension” (Phase 1) come from Water Street and Baxter Street. No traffic enters from the north (i.e. via Diggles Close). Assumed 40% will come from Baxter Street and 60% from Water Street.

- 70% of vehicles exit to the south from the "Baxter Street Extension" access, and 30% to the north. Out of all the vehicles exiting to the south, 50% head south along Baxter Street, 10% turn left into Anderson Street and 40% turn right into Constance Street.
- Out of all the vehicles exiting to the north from the Phase 1 access, 70% turn right onto Gregory Terrace to head east, and 30% turn left to head west.
- 50% of vehicles entering the Water Street (Phase 2) access come from the north (via Bowen Bridge Road) and 50% from the south (from the east side of Water Street). No right turns are allowed at the traffic signals from Brunswick Street (south) into Water Street.
- Out of all the vehicles exiting the Water Street (Phase 2) access, 20% turn right into Baxter Street, 50% turn left onto Anderson Street and 30% turn right into Constance Street.
- Out of all the vehicles exiting to the north from Phase 2 access (via Anderson Street), 60% turn right onto Gregory Terrace to head east, and 40% turn left to head west.

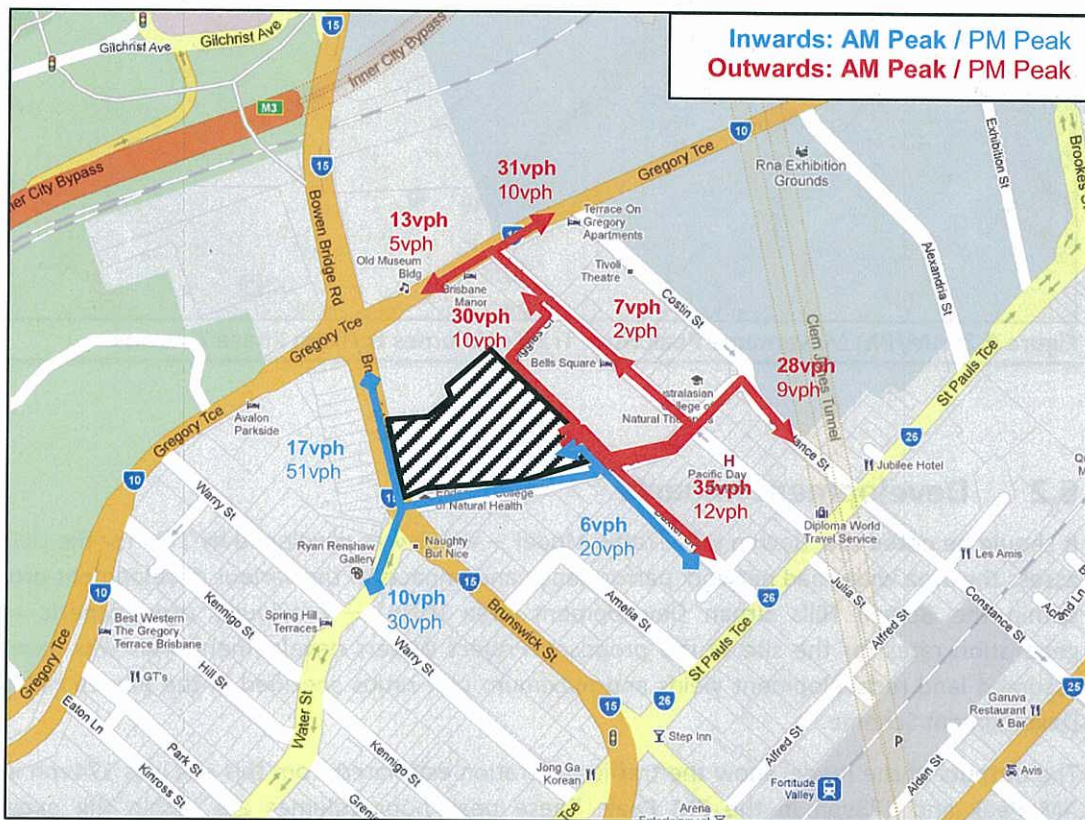


Figure 6.1: AM/PM Movements Peak Hour Traffic Volumes to/from Phase 1 Access

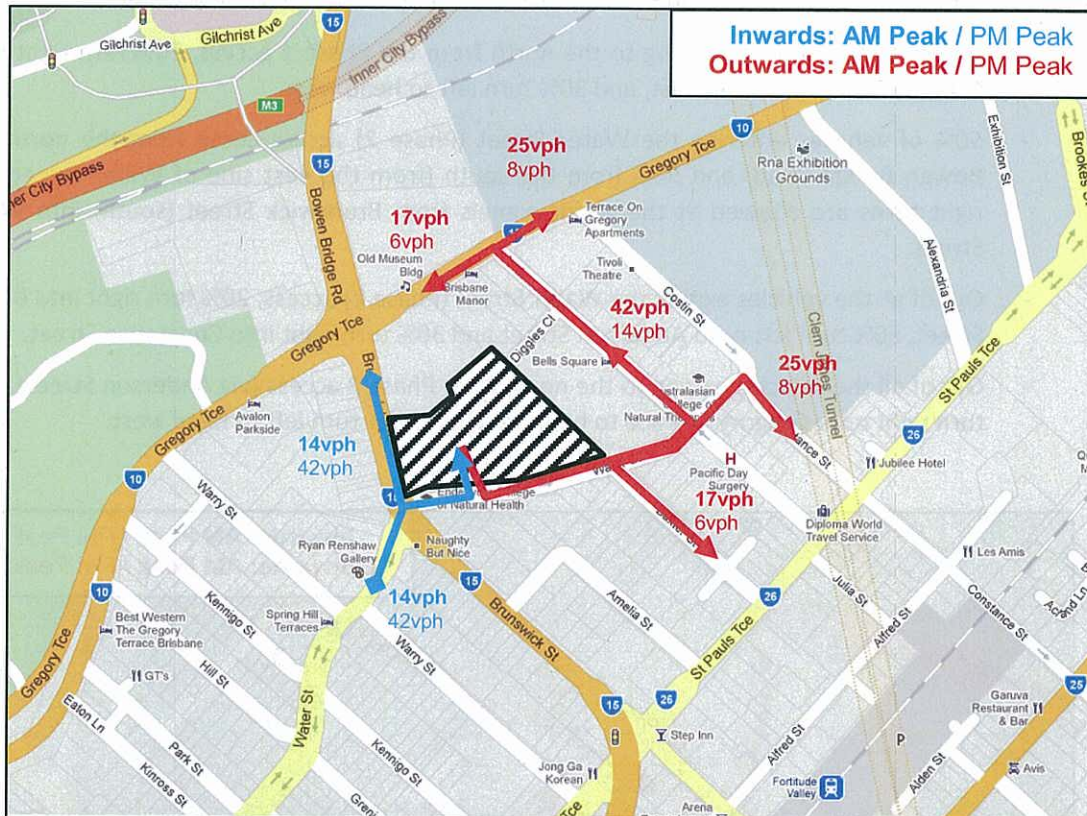


Figure 6.2: AM/PM Movements Peak Hour Traffic Volumes to/from Phase 2 Access

6.2 Development Impacts

It should be noted the 'Bowen Hills Traffic Model' – which was developed by TTM for the ULDA to assess the area wide road network performance and impacts of the various development projects within the Bowen Hills Urban Development Area (UDA) – previously used generic traffic generation rates for the site of the proposed Project Waters development. This was based on assumed land redevelopment yields and maximum plot ratios specified in the Bowen Hills UDA Development Scheme.

The outputs of the model show the traffic generation estimated from this site was 174vph in the AM Peak and 173vph in the PM Peak. These peak hour volumes are within the expected development traffic generation range shown in Table 6.1, although slightly at the lower end of the range. It is expected that the overall difference in movement volumes at surrounding intersections - between the volumes assigned by the model and those shown in Figures 6.1 and 6.2 above – will be negligible. Therefore, TTM feels there is no need to rerun the model incorporating the updated traffic generation rates indicated in this report. The impacts of this development have already been considered in the planning of future road infrastructure for Bowen Hills UDA, as per the "Bowen Hills Network Analysis Report" submitted to ULDA.

7. Service Vehicle Arrangements

The service vehicle facility needs to accommodate the demands generated by the residential components of the development. Although the development also incorporates a small amount of retail space and a number of Sole Occupancy/Home Office (SOHO) uses, the service vehicle size and general demand generated by these uses is not likely to be larger than the residential component.

Brisbane City Council's 'TAPS Policy' provides a useful guide to determine the number of service vehicle bays required. The policy indicates that 1 VAN bay plus space for a LRV to stand on site (such as in a parking aisle) should be provided to cater residential service vehicle demand.

It is noted that all of the residential apartments within the development are one or two bedroom units and are targeted at the investor market, which relates to a high proportion of rental units. Whilst this may relate to a higher turn-over of tenants, most tenants typically have less furniture to move in/out of the unit and so utes or vans will more typically be expected for furniture removals, with the occasional larger furniture trucks. Given the number of units in each of the Phases, regular refuse collection is likely to be needed and so TTM feels a dedicated RCV bay is warranted.

The proposal provides two separate service areas; one area each for both Phase 1 and 2 of the development. Each service area will consist of two dedicated VAN bay, one LRV bay and one RCV bay. Preliminary service vehicle swept path analysis of the Phase 1 service area is included in Appendix D to show that manoeuvring up to an LRV is expected to be possible. The arrangement of the Phase 2 service area is yet to be determined, however, it shall be designed to ensure manoeuvring up to an LRV size vehicle is possible.

8. Public Transport, Pedestrians and Cyclists

8.1 Public Transport

As indicated previously the subject site enjoys a high level of connectivity to the public transport network. The masterplan allows for the inclusion of an indented bus bay which is consistent with BCC planning outcomes.

It has been demonstrated that the proposed development accords with Translink's requirements whereby public transport can be accessed within a 5 minute (400m) walk of the site. The fact that there is an indented bus bay also being constructed on the Brunswick Street frontage of the site is likely to allow for increased frequency and an expanded range of services to be added in the future, improving the overall public transport serviceability and connectivity of the site

8.2 Pedestrians and Cyclists

It is proposed that the "Baxter Street Extension" be designed as a space shared by pedestrians and vehicles. Through the use of contrasting paving materials, planting, street furniture and outdoor seating an environment will be achieved where drivers understand intuitively to maintain low speeds and be aware that other people will be using the space.

ULDA requires 1 resident's bicycle space per apartment equating to 1038 spaces over the whole Project Waters site, plus 1 visitor's space per 400m² GFA equating to 252 spaces. The overall proposal will reflect this required supply of parking spaces. The majority of the bicycle spaces (resident and visitor) will be located in the basement carpark areas, spread across the different levels and building stages, and a small number of the visitor spaces will be located in public areas (such as in the Baxter Street Extension or Water Street road verges/building frontage) to allow for convenient parking for the small amount of retail and SOHO components of the development.

9. Recommendations

9.1 Impact on Surrounding Road Network

The impact of the whole Project Waters development has effectively been accounted for in the original Bowen Hills Traffic Model established for the wider Bowen Hills UDA. Any road network impacts and proposed improvements are detailed in the original Bowen Hills Network Analysis Report provided to the ULDA.

9.2 Development Access

The Project Waters development is planned to include two accesses; one onto the new "Baxter Street Extension" for Phase 1 buildings and the other onto Water Street for Phase 2 buildings. There is also potential for a third access point extending off the new Baxter Street Extension / Diggles Close intersection, and linking to the Phase 2 area of the development. These arrangements are considered satisfactory in providing a high level of accessibility to the site and cater to the movement/trip demands of the development.

9.3 Car Parking Arrangements

The proposal includes 679 parking spaces distributed over the two basement car park areas (one in Phase 1, and another in Phase 2). All parking provided is intended for the residential component, with no parking allocation for small amount of retail space in the development.

The proposed parking supply is based on constraining the commuter traffic generated by the subject site and is generally consistent with TOD principles. Although the parking rate adopted for the one bedroom units is below BCC recommendations, TTM feels this slight reduction is justified and therefore the parking arrangements are considered acceptable.

9.4 Service Vehicle Arrangements

The proposal provides two VAN bays, one LRV bay and one RCV bay for each of the two service areas. These service vehicle facilities are considered to be sufficient to service the demands of the development.

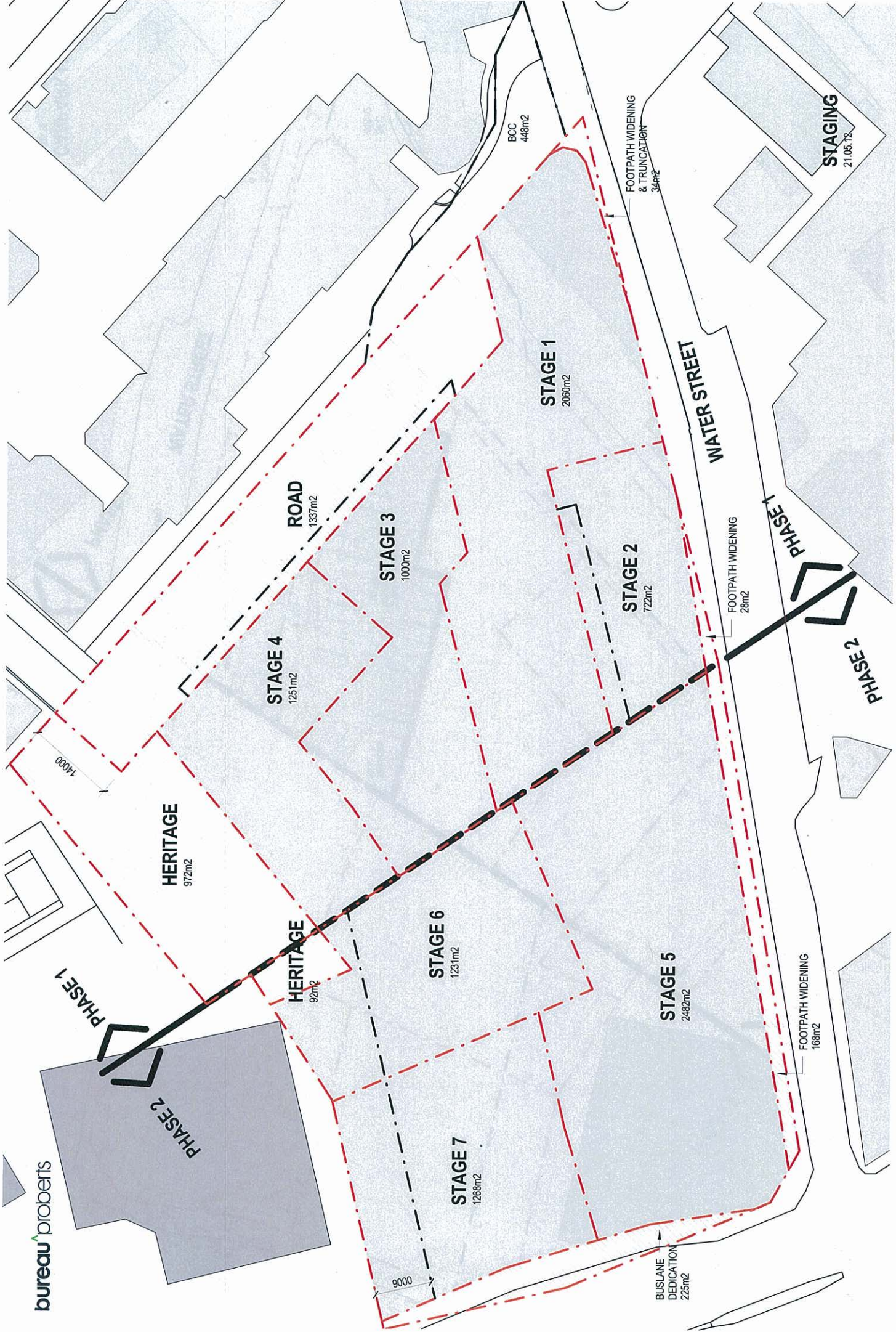
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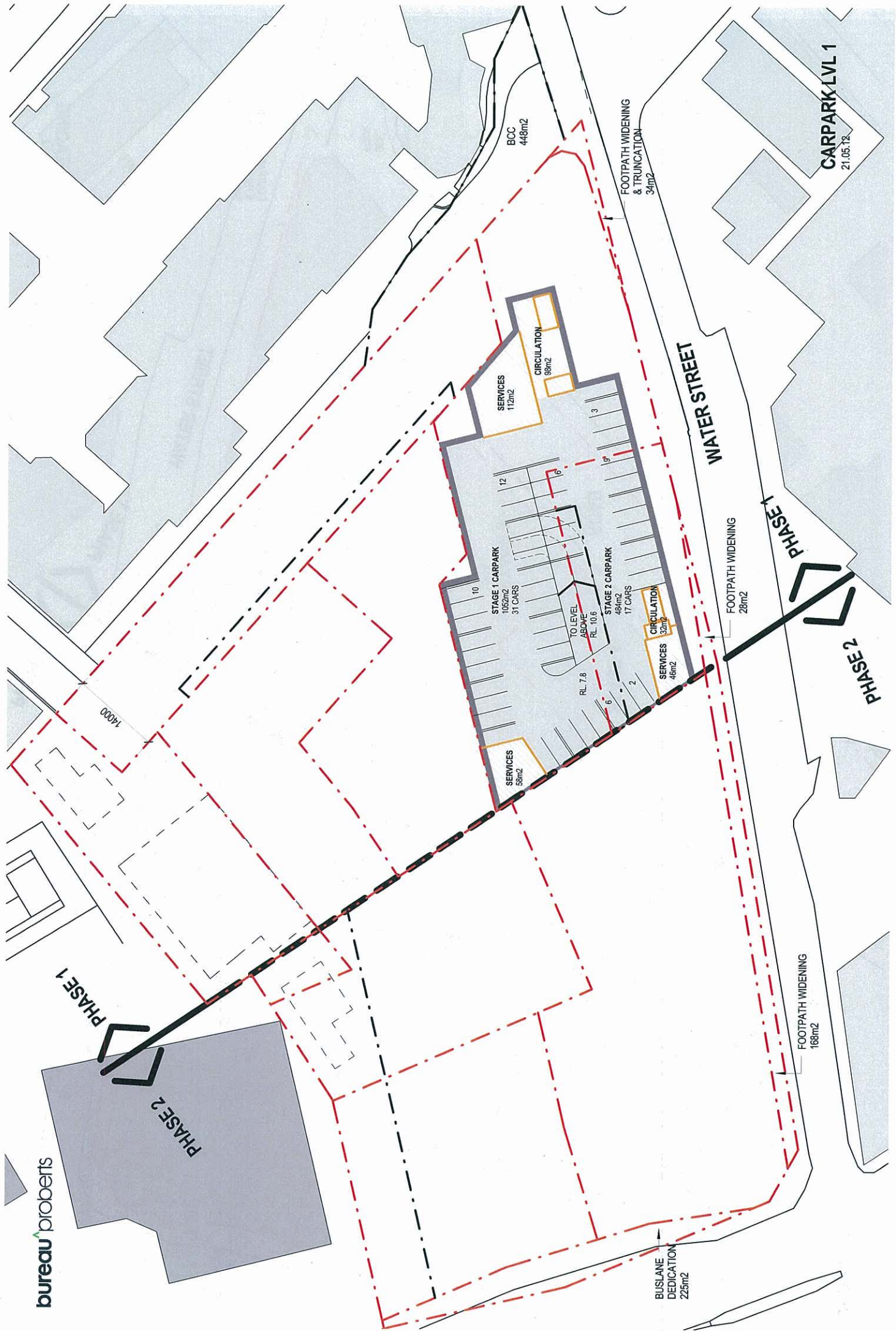
The site is well located in terms of providing a high level of accessibility to public transport, with the Fortitude Valley train station within easy walking distance of the site. This reinforces the proposal to constrain resident car parking and encourage residents to use public transport.

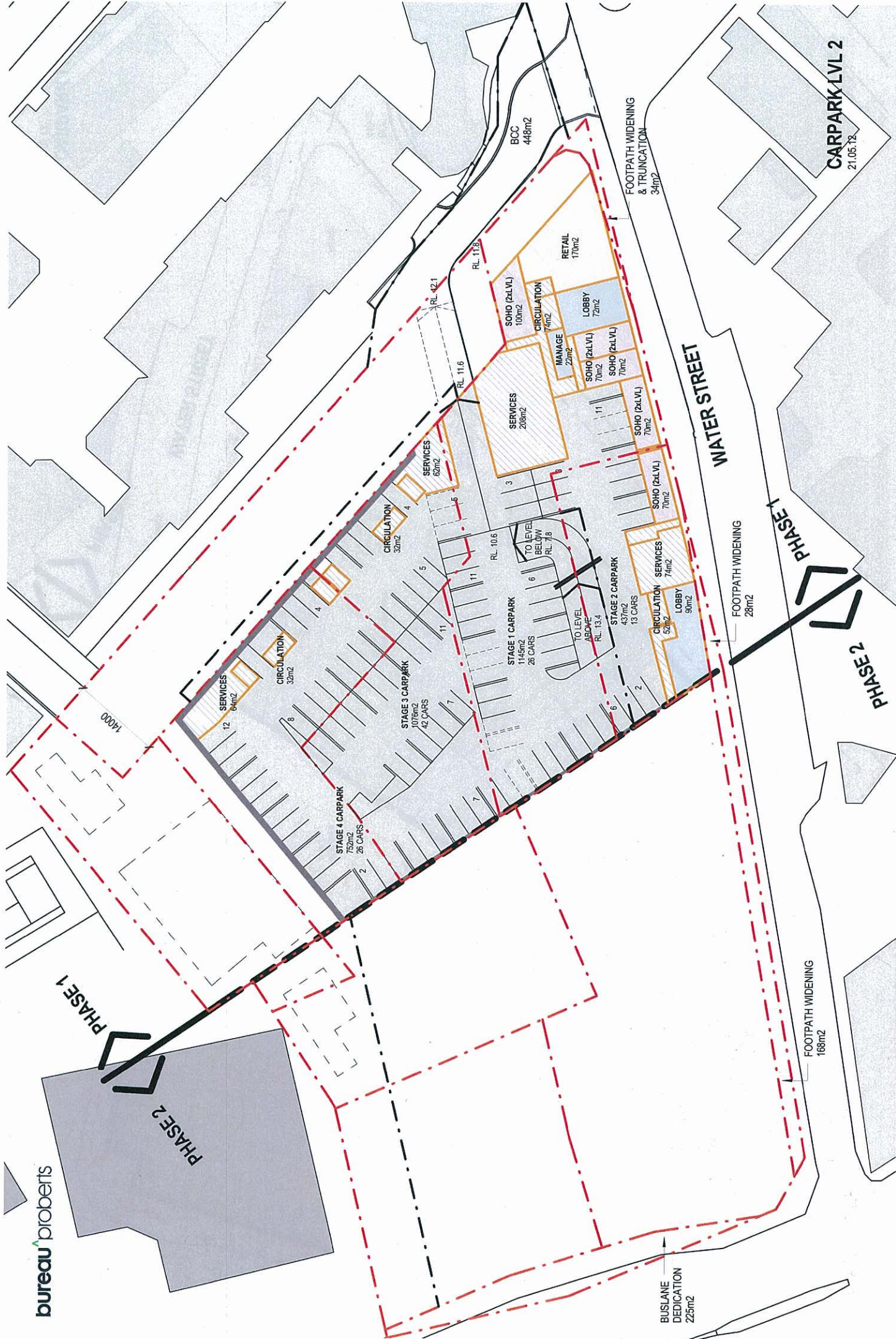
1290 bicycle spaces are provided in the proposal, comprising primarily secure spaces located in the basement parking area and a small number of public spaces in communal areas of the site.

Appendix A

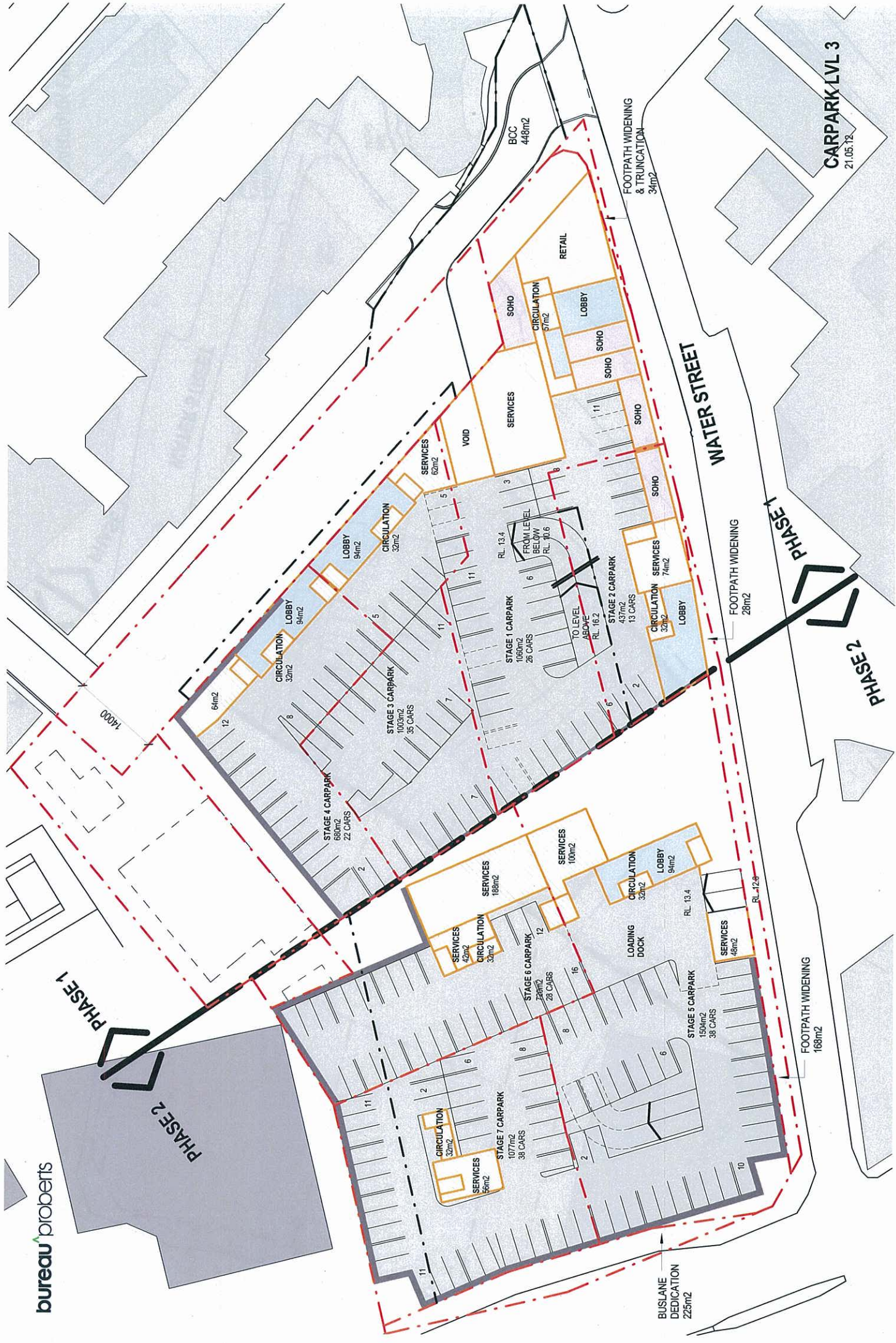
DEVELOPMENT LAYOUT







CARPARK LVL 2
21.05.12

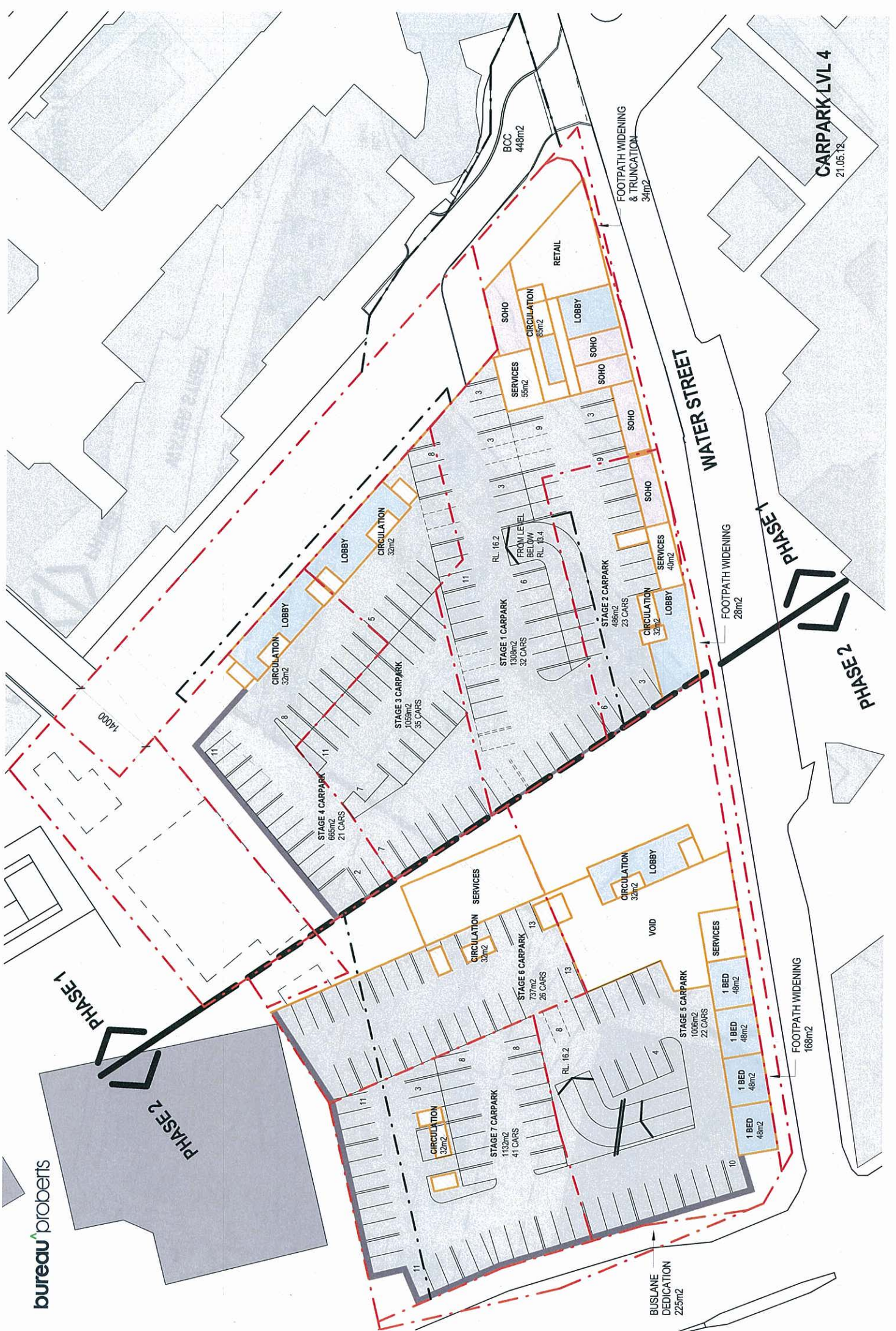


CARPARK LVL 3
21.05.12

PHASE 1
PHASE 2

PHASE 1
PHASE 2

WATER STREET



CARPARK LVL 4
21.05.13

WATER STREET

PHASE 1

PHASE 2

FOOTPATH WIDENING
168m²

BUSLANE
DEDICATION
225m²

FOOTPATH WIDENING
& TRUNCATION
34m²

BCC
448m²

SERVICES
55m²

CIRCULATION
35m²

RETAIL

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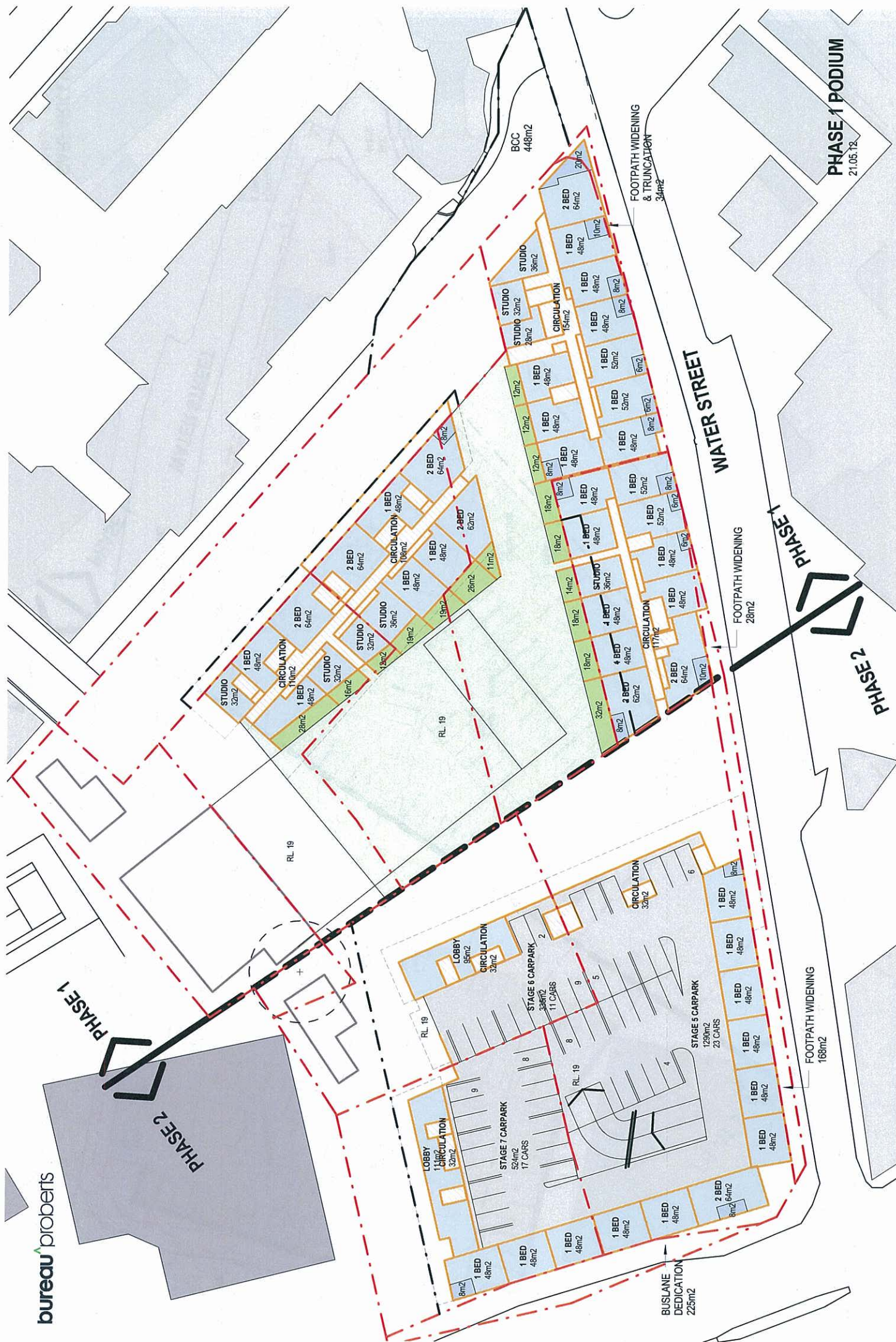
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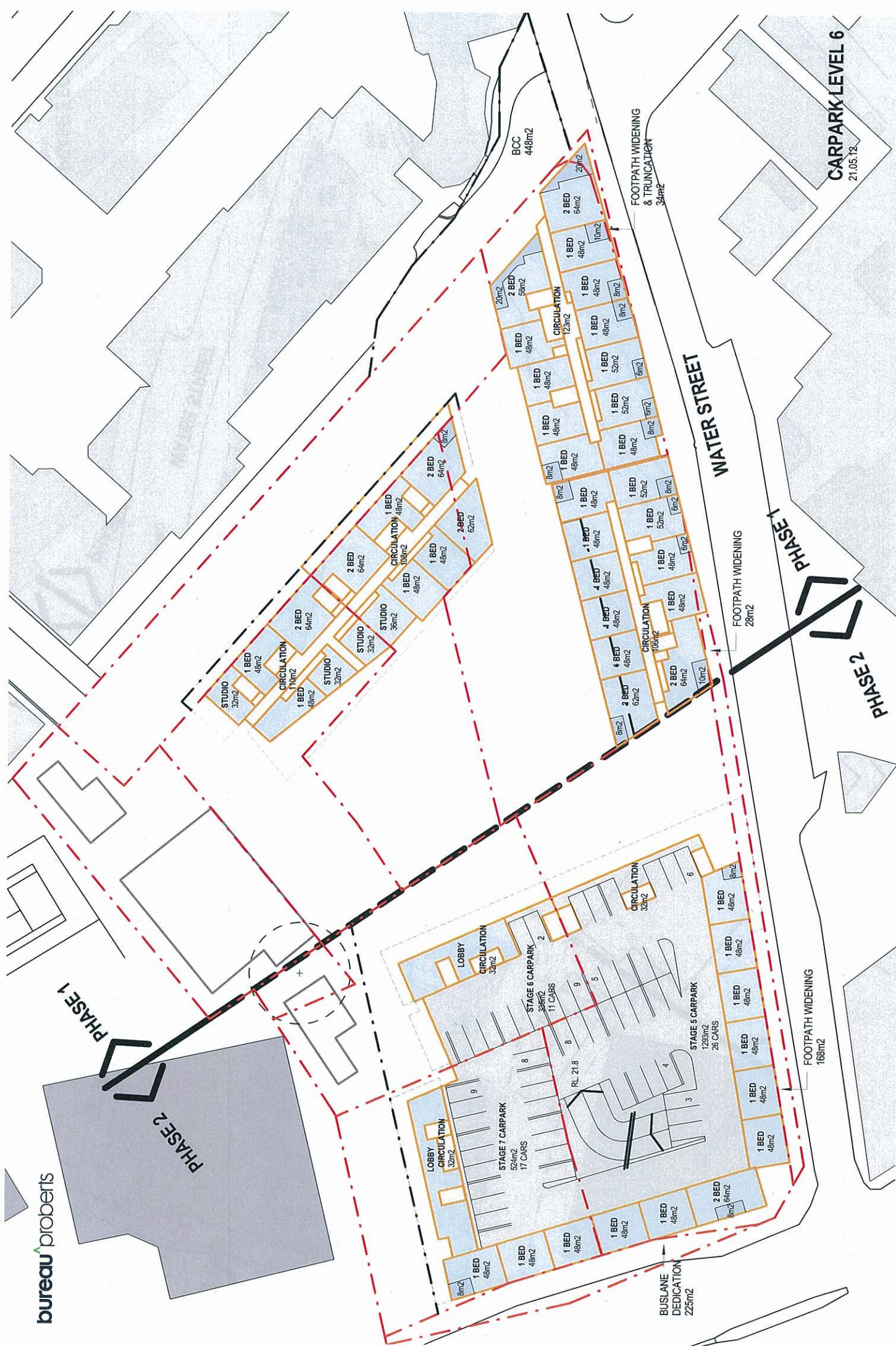
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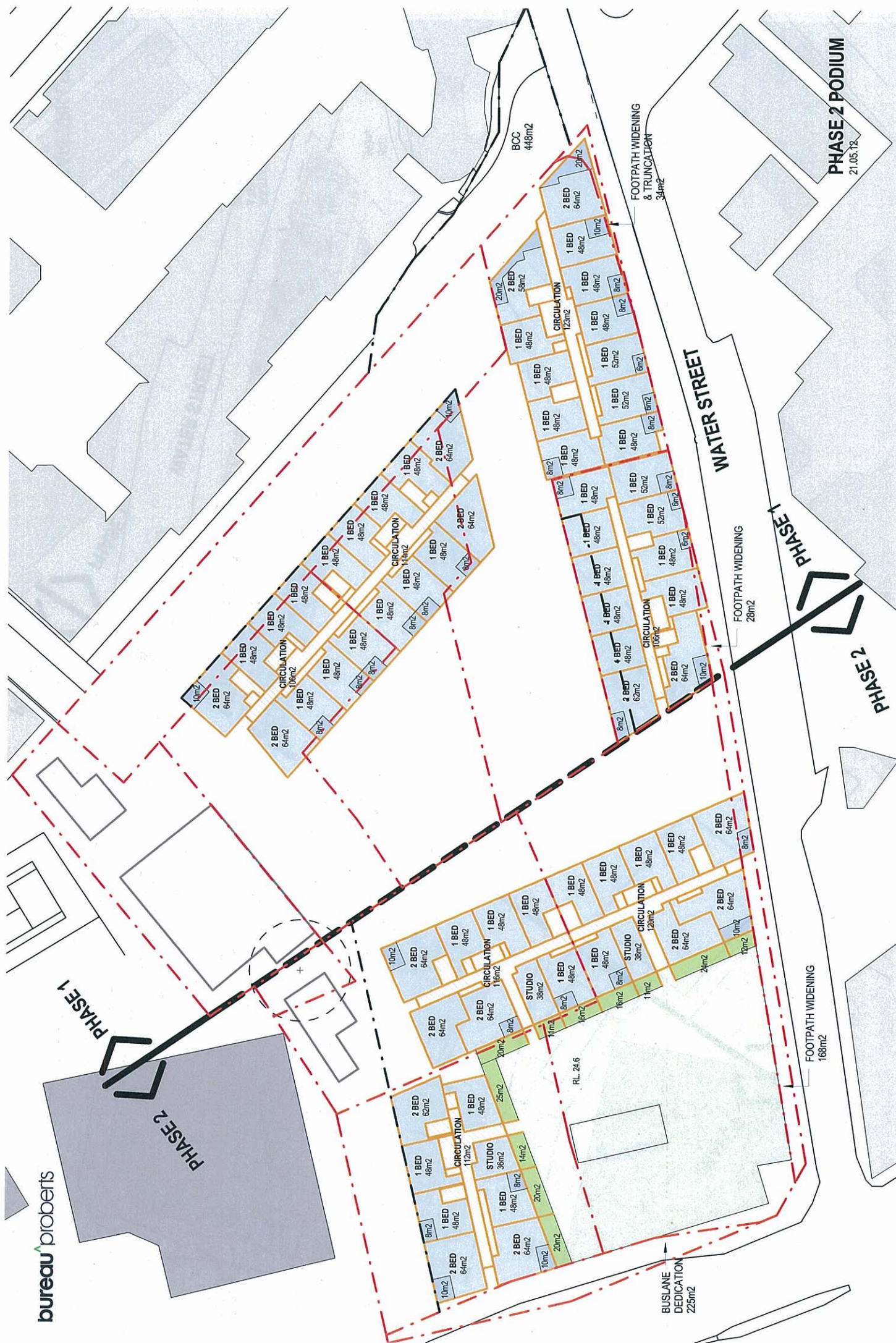
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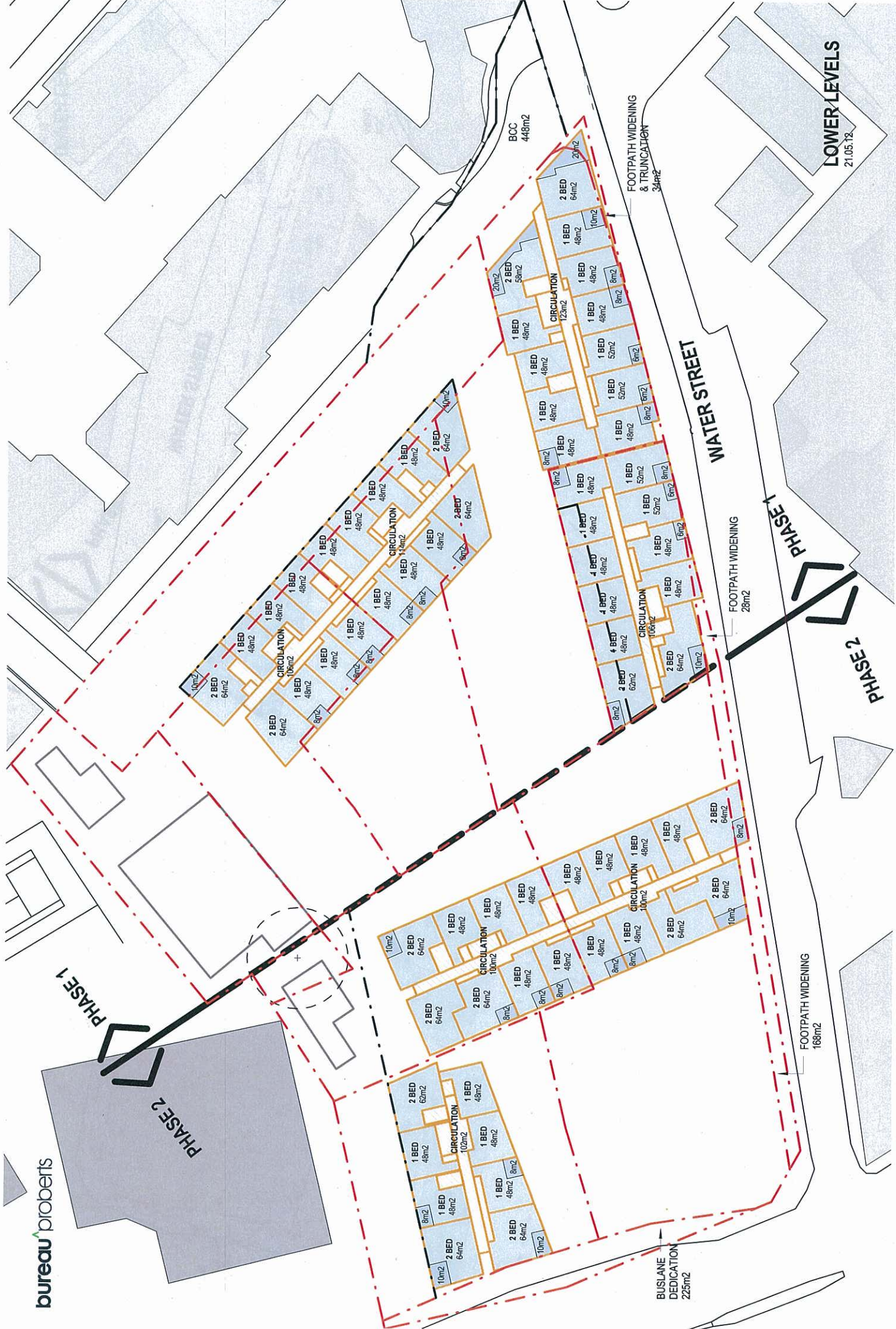
SOHO

SOHO





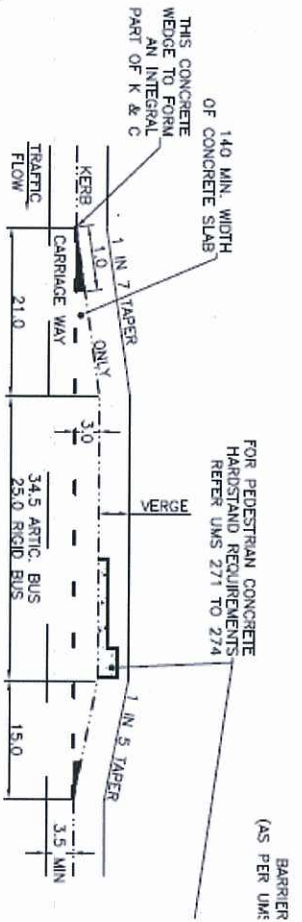
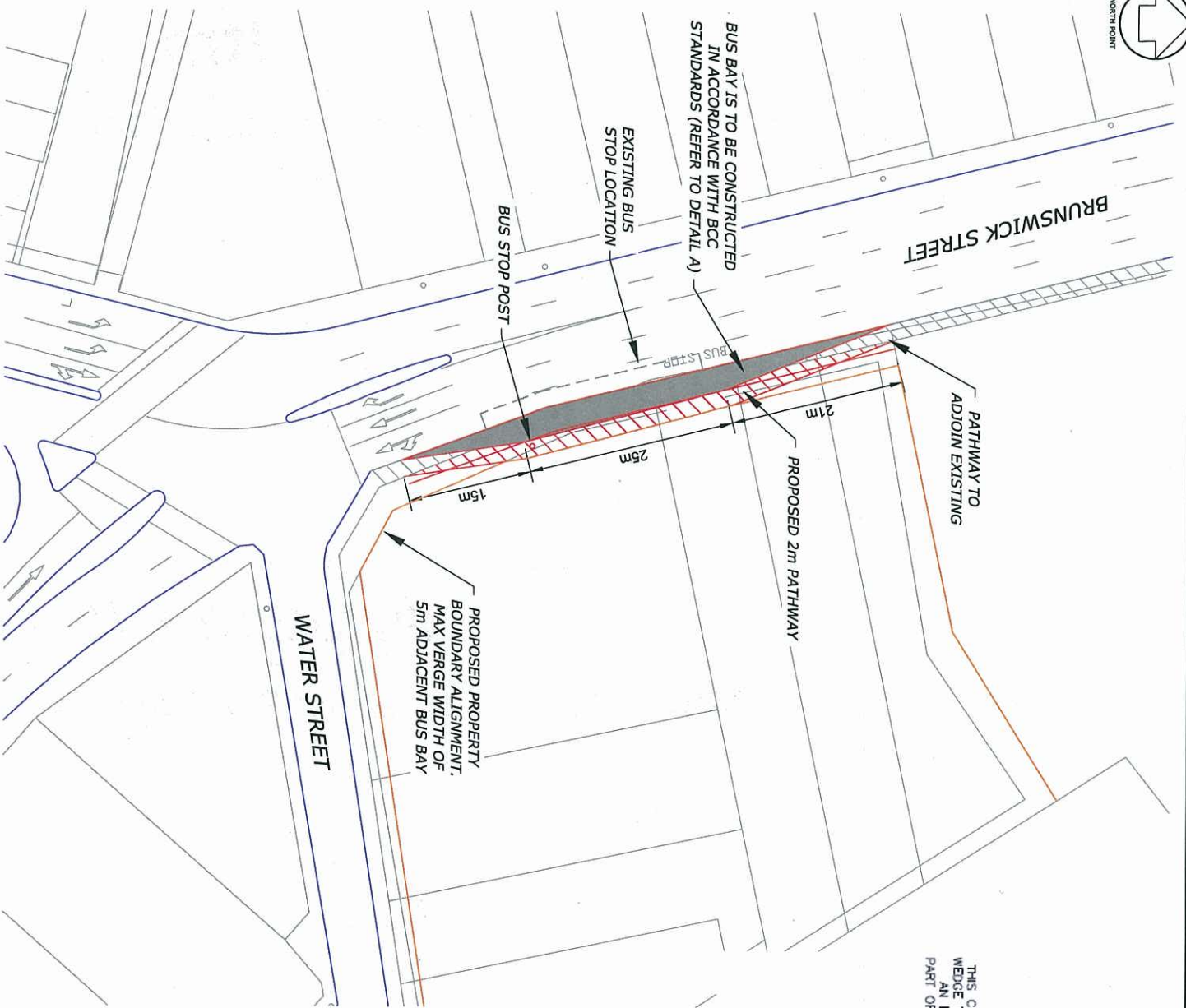






Appendix B

BRUNSWICK STREET INDENTED BUS STOP LAYOUT



RECESSED BUS BAY – GEOMETRIC LAYOUT

DETAIL A

27703-SK1
BUS BAY INSTALLATION PLAN
Brunswick Street, Fortitude Valley

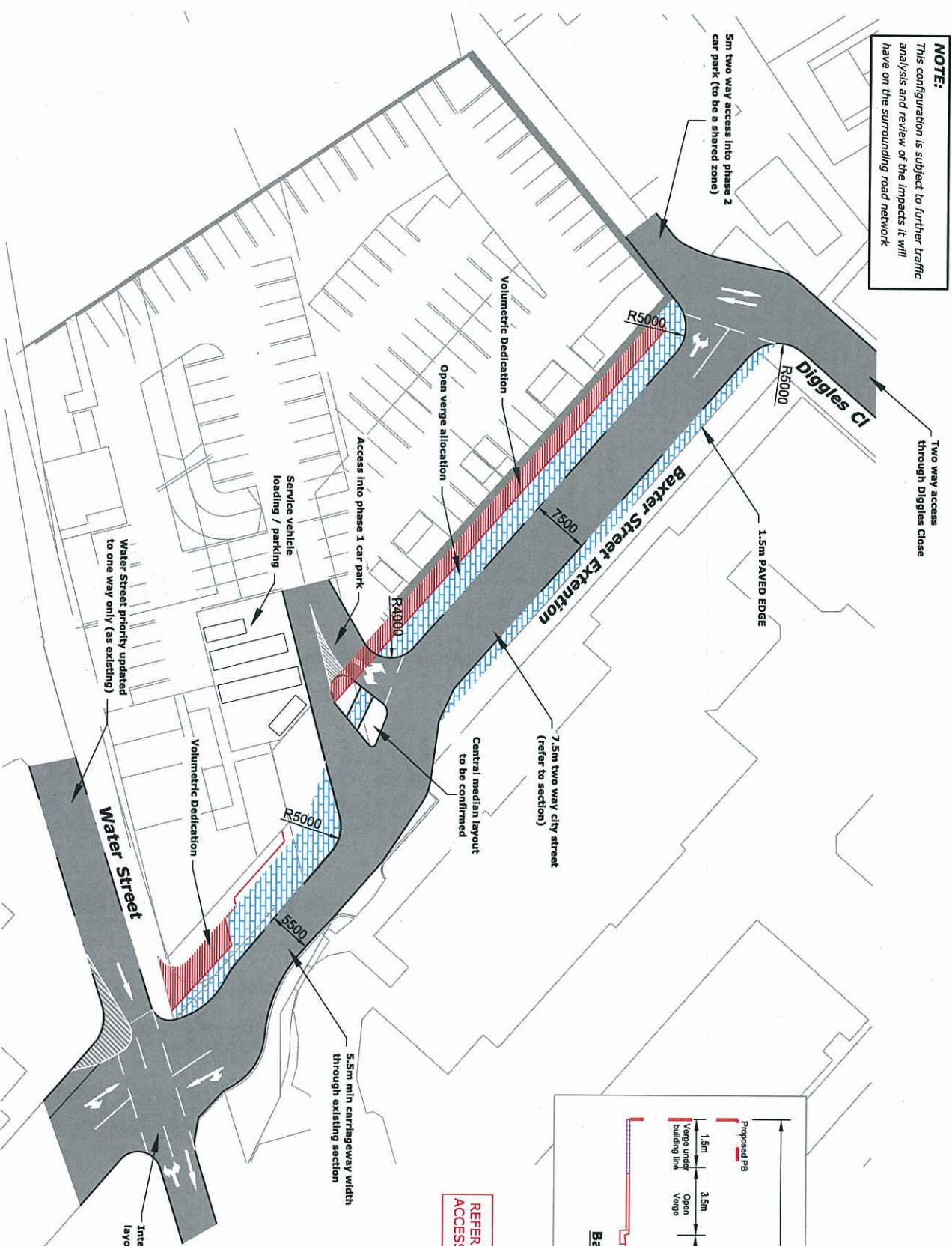
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INVESTIGATION PLAN
FOR DISCUSSION PURPOSES ONLY

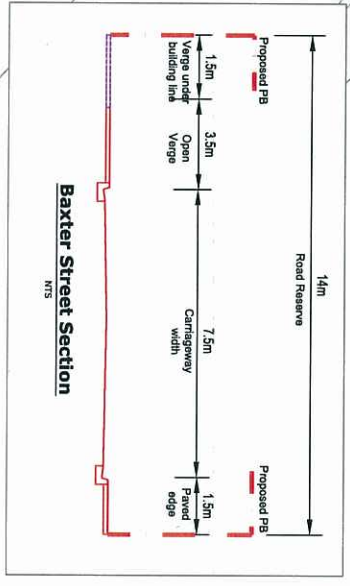
Appendix C

"BAXTER STREET EXTENSION" ROAD LAYOUT AND DESIGN

NOTE:
This configuration is subject to further traffic analysis and review of the impacts it will have on the surrounding road network



INVESTIGATION PLAN
FOR DISCUSSION PURPOSES ONLY



REFER TO DWG SK-17 FOR VEHICLE ACCESS AND TURNING MANOEUVRES

Appendix D

SERVICE VEHICLE SWEEP PATHS

INVESTIGATION PLAN
FOR DISCUSSION PURPOSES ONLY

