PLANNING REPORT TO ACCOMPANY AN APPLICATION FOR A SITE COMPATIBILITY CERTIFICATE UNDER STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004

Part Lot 30 in DP 1106209 and Lots 6 (part), 7, 8 and 9 in DP 22506

Toongabbie Sports Club

Wentworth Avenue, Toongabbie

Prepared for
Opal Aged Care

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Job No. 16-050
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1. INTRODUCTION

1.1 Overview

This Planning Report accompanies an application for a Site Compatibility Certificate ("SCC") under Clause 25 of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 ("SEPPHS"). The application for a site compatibility certificate is made relating to land that is owned by Toongabbie Sports Club at Wentworth Avenue Toongabbie used as part of an existing registered club being land on which development for the purpose of a residential care facility is proposed to be carried out by Opal Aged Care.

Opal Aged Care is one of the leading, privately owned aged care providers in Australia with 72 homes in four states providing specialist aged care services for a range of needs including dementia and respite care services.

Clause 24 of SEPPHS applies to development application made pursuant to the SEPP in respect of development for the purposes of seniors housing if the development is proposed to be carried out on land that is used for the purposes of an existing registered club.

A consent authority must not consent to a development application to which Clause 24 applies unless the consent authority is satisfied that the Director-General has certified in a current site compatibility certificate that, in the Director-General's opinion:

> (a) the site of the proposed development is suitable for more intensive development, and
>
> (b) development for the purposes of seniors housing of the kind proposed in the development application is compatible with the surrounding environment having regard to (at least) the criteria specified in clause 25 (5) (b).

Toongabbie Sports Club, an existing registered club, occupies Lot 30 in DP 1106209 at 12 Station Road, Toongabbie ("the club site") being land that is within Zone RE2 Private Recreation under Parramatta Local Environmental Plan 2011. The proposed residential care facility is to be located on the southern part of the club land to the south of the existing clubhouse and bowling greens. The site compatibility certificate is required for this land as seniors housing is permitted on land that is being used for the purpose of an existing registered club subject to a site compatibility certificate.

The proposed residential care facility would also be located on adjoining land owned by the club but not used for the purpose of an existing registered club. This land comprises Lots 6 (part), 7, 8 and 9 in DP 22506 at 4-10 Wentworth Avenue, Toongabbie and is zoned R3 Medium density development. Although a SCC is not required for this land, the overall concept for the site is included in this application so that the proposal to which this application relates can be seen in its wider context.

Thus a site compatibility certificate is required in respect of land occupying the southern part of Lot 30 in DP 1106209. The proposed development would involve part Lot 30 in DP 1106209, part Lot 6 in DP 22506 and Lots 7-9 in DP 22506.

Toongabbie Sports Club benefits from development consent to subdivide the club site into two lots (**Appendix 1**). The proposed residential care facility would be located on proposed

Lot 502 in the plan contained in **Appendix 1**. A boundary adjustment would be required to amend the approved subdivision to suit the layout of the proposed facility.

1.2 Purpose of this Report

The purpose of this Planning Report is to assist the Director-General in forming an opinion that the site of the proposed development is suitable for more intensive development, and development for the purposes of seniors housing of the kind proposed is compatible with the surrounding environment having regard to (at least) the criteria specified in clause 25 (5) (b). These criteria are:

> (i) the natural environment (including known significant environmental values, resources or hazards) and the existing uses and approved uses of land in the vicinity of the proposed development,
>
> (ii) the impact that the proposed development is likely to have on the uses that, in the opinion of the Director-General, are likely to be the future uses of that land,
>
> (iii) the services and infrastructure that are or will be available to meet the demands arising from the proposed development (particularly, retail, community, medical and transport services having regard to the location and access requirements set out in clause 26) and any proposed financial arrangements for infrastructure provision,
>
> (iv) in the case of applications in relation to land that is zoned open space or special uses—the impact that the proposed development is likely to have on the provision of land for open space and special uses in the vicinity of the development,
>
> (v) without limiting any other criteria, the impact that the bulk, scale, built form and character of the proposed development is likely to have on the existing uses, approved uses and future uses of land in the vicinity of the development,
>
> (vi) if the development may involve the clearing of native vegetation that is subject to the requirements of section 12 of the Native Vegetation Act 2003—the impact that the proposed development is likely to have on the conservation and management of native vegetation.

The Planning Report includes:-

- a description of the site context;
- an overview of the proposal;
- permissibility of the proposal; and
- an assessment of the proposal against the site compatibility criteria.

2. SITE AND CONTEXT

2.1 The Site

The proposed residential care facility is located on part Lot 30 in DP 1106209, being the southern part of the club site and Lots 6 (part), 7, 8 and 9 in DP 22506 at 4-10 Wentworth Avenue, Toongabbie. Although a SCC is only required for the club site, the overall concept for the site is included in this application so that the proposal to which this application relates can be seen in its wider context.

The site of the proposed development ("the site") is irregular in shape and has an area of approximately 5,000 square metres with a frontage of 57 metres to Wentworth Avenue (see **Figures 1** and **2**).

The site comprises the southern portion of the Toongabbie Sports Club site and adjoining residential lots (see **Figures 3A** and **3B**).

The majority of the site has been generally levelled, with a slight slope to the north-west. Most notable is the fall along the western boundary to Girraween Creek. A survey of the site accompanies this report (see **Appendix 6**).

The rear (western boundary) of the site adjoins Girraween Creek and a vegetation buffer along both banks. The site is generally devoid of vegetation with the exception of some trees along the southern boundary and occasional domestic planting around the houses.

The site has 4 access points to Wentworth Avenue and Cornelia Road in the vicinity of the roundabout. The site is approximately 250 metres from Toongabbie Railway Station.

Adjoining the site to the north is the sports club. To the immediate east are a number of residential dwellings addressing Wentworth Avenue within a medium density residential zone. To the west is Girraween Creek beyond which is low density residential development. South of the site is higher density residential development.

2.1.1 Existing Buildings

The southern portion of the Toongabbie Sports Club site comprises a small building associated with the sports club, an existing formed vehicle access way, a fire hydrant, and a grassed area. This part of the site also contains several mature trees located along the southern and western boundaries.

The four adjoining residential lots (lots 6, 7, 8 and 9) contain single storey houses with tiled roofs which were built sometime in the 1950s/60s. They each have direct driveway access to Cornelia Road and are setback approximately 11 metres to the road. The rear part of Lots 7 and 8 in DP 22506 are used for overflow parking for the club.

The existing buildings are shown on the site survey contained in **Appendix 6**.

2.1.2 Access and Transport

The site has a frontage to Wentworth Avenue which is a classified Regional Road (7279), and in the vicinity of the site is aligned in a north-south direction. The southern extent of Wentworth Avenue links to the Cumberland Highway (State Road 13).

The site also fronts Cornelia Road which is also a classified Regional Road (7256) intersecting with Wentworth Avenue at a roundabout from which access to the site is proposed. Approximately 18,000 vehicles per day use Wentworth Avenue/Cornelia Street.

As discussed above, the site is well served by public transport including rail and bus, details of which are contained in the traffic assessment report contained in **Appendix 2**.

The dwelling houses at 4 to 10 Wentworth Avenue have vehicular access to Wentworth Avenue in the vicinity of the roundabout. Vehicular access to the southern portion of the sports club site is also provided via an access driveway.

2.1.3 Topography and Flooding

The site is generally flat with a gentle slope towards Girraween Creek to the west. Girraween Creek is subject to flooding in major storm events. Generally storm events up to the 1 in 100 year intensity are contained within the confines of the creek bank (**Appendix 3**). The site of the proposed development is not prone to flooding in the 1 in 100 year storm event. The facility has been designed so that the ground floor level would be at the PMF flood level which has been obtained from Council so that the building would not flood even in the PMF storm event.

The site of the proposed development is subject to inundation in the probable maximum flood (PMF) event. A Flood Emergency Response Plan has been prepared for the facility (**Appendix 4**).

2.1.4 Geology and Contamination

Reference to the Penrith 1:100 000 Series Geological Sheet indicates the site is in an area of fluvial sediments comprising fine grained sand, silt and clay. This is underlain by sandstone, siltstone and shale of the Wianamatta Group from the Triassic to Anisian period.

A detailed contamination assessment has been undertaken by Douglas and Partners on the site. The results of the investigations indicate that there is no unacceptable risk to human health from any chemical contaminants in the soil on site. However, bonded and fibrous asbestos has been confirmed to be present within the filling and hence poses a potential risk to human health if not managed appropriately.

It is therefore considered the site can be made suitable for the proposed residential aged care development, subject to the following being undertaken:

- A hazmat survey of existing buildings/structures is completed prior to demolition;
- Contamination status (and waste classification) of the soils under the building slabs in the residential properties post demolition is confirmed;

- The development of a remediation action plan and asbestos management plan prior to construction works commencing;
- The detailed assessment and/or remediation of the asbestos impacted filling across the site; and
- Validation of remedial works by an appropriately qualified environmental consultant.

The site can be made suitable for the proposed development by the remediation of asbestos impacted filling on the site.

2.1.5 Vegetation

The rear of the club site (part Lot 30) contains a grassed area and several mature trees along the southern and western boundaries of the site. The residential lots contain minimal vegetation with occasional domestic planting around the houses.

The site adjoins Girraween Creek and its associated bank vegetation. The site is clear of trees in the vicinity of the creek with the western part of the site affected by a sewer easement.

2.1.6 Aboriginal Archaeology

Previous investigations into the cultural significance of the site relating to the consent for subdivision contained in **Appendix 1**[1] found no known sites or Aboriginal objects within the study area. *The study area is considered to have some Aboriginal heritage sensitivity, due to its location adjacent to Girraween Creek, a landform which may indicate the likely presence of Aboriginal objects, so long as the adjacent land has not been disturbed. The results of the research and site inspection show that the whole of the study area has been disturbed, through vegetation clearance, use of the land for pasture and cultivation, and construction of the bowling club.*

2.1.7 Availability of Services

The site has access to all utility services required for the development as expected in an urban environment. Services would be diverted or extended to the site as required to suit the layout and expected loads for the development.

2.1.8 Acoustics

Acoustic investigations have been undertaken into the suitability of the site for seniors housing having regard to the location on the site of an existing registered club and proximity to roads and rail (**Appendix 4**). This report concludes:

Acoustic analysis of the site indicates that:

- *Although the site is impacted by external noise (road, rail and the Toongabbie Sports Club), suitable internal noise levels within the proposed development can still be achieved with an appropriately designed building shell (with some degree*

[1] Due Diligence Aboriginal Heritage Assessment for Toongabbie Sports and Bowling Club June 2014, by AHMS

of acoustic upgrade compared to standard building construction, as outlined in section 4.4).

- *The site is not likely to generate significant noise, and the noise sources are in keeping with typical aged care development (plant noise, vehicle noise). Compliance with EPA noise emission controls can be achieved through adoption of the recommendations set out in section 5.4.*
- *Although the site lies in the vicinity of a rail corridor, no building vibration isolation is required to ensure that vibration levels in the development are compliant with relevant EPA vibration guidelines.*

As such, in our opinion the site is suitable for its proposed use as a residential aged care facility with respect to acoustics.

2.1.9 Site Analysis

A detailed consideration of the site and its context has driven the design approach to the development. This site analysis is summarised in the site drawings contained in **Appendix 6**.

2.2 Surrounding Area

2.2.1 Location and Context

The site is within an urbanised context approximately 6 kilometres to the west of Parramatta CBD. It is within 250 metres of Toongabbie Station and 340 metres from the Toongabbie local shopping centre (on the western side of the railway line and 220 metres on the eastern side of the railway line. It is readily accessible by public transport and by car.

The area is undergoing change resulting from proximity to the railway station and planning initiatives to increase residential densities in accessible locations close to public transport and existing centres, facilities and services.

2.2.2 Surrounding Built Form

Adjoining the site to the north is the Toongabbie Sports and Bowling Club. The club was originally built in 1959 and has since undergone extensive renovations. The club has many different facilities including a bistro restaurant, TAB services, bowling greens and function rooms. The main entrance to the club is off Station Road.

To the immediate east are a number of single and two storey residential dwellings addressing Wentworth Avenue. Directly opposite the site (on the southern side of Wentworth Avenue) is medium density townhouse development.

To the south of the site is higher density residential development known as No.2 Wentworth Avenue comprising a mix of buildings up to six storeys.

To the west is Girraween Creek beyond which is low density residential development. South of the site is higher density residential development. Further south is the Toongabbie Railway Station and Toongabbie Shopping Centre.

The character of the site and the adjoining area is presented in drawings contained in **Appendix 6** and **Figures 3A** and **3B**. **Figure 4A** indicates the zoning of the land in the vicinity of the site including the R3 Medium Density Residential zone land around the station and open space systems.

2.2.3 Potential Land Use Conflicts

Given the residential and low traffic generating nature of the proposed development, it is considered that the use is totally compatible with the surrounding environment with no land use conflicts anticipated.

The proposed residential care facility would be located in proximity to the club. The uses would be subject to separate management and would operate independently. The building envelope and reference drawings accompanying this application have been designed to ensure that clause 23 of the SEPPHS can be satisfied in the preparation of a development application. Thus it is expected that a consent authority would be readily satisfied that the proposed development provides for appropriate measures to separate the club from the residential areas of the proposed development in order to avoid land use conflicts, and an appropriate protocol will be in place for managing the relationship between the proposed development and the gambling facilities on the site of the club in order to minimise harm associated with the misuse and abuse of gambling activities by residents of the proposed development.

In this regard the design reflected in the site compatibility certificate application allows separate pedestrian access points for the club and the residential facility and enables a development that has an acceptable acoustic amenity for residents. The acoustic suitability of the site has been considered in the report contained in **Appendix 5**.

2.2.4 Surrounding Natural Environment

The site is developed and has a history of use for agricultural purposes prior to development for urban purposes. There is evidence of the site being totally cleared of all natural vegetation, which remains the case with all plantings in the site being associated with development.

Girraween Creek to the west is a semi-natural watercourse with vegetated banks. The development of the site would have no direct impact on this existing riparian vegetation. Subject to detailed design, there may be a need for an additional stormwater discharge to the creek. Any development in proximity to the creek would require approval under the Water Management Act 2000.

2.2.5 Access to Services and Facilities

Public transport is available along Cornelia Road and Wentworth Avenue in the form of a bus service. Hillsbus provides a regular bus service between Blacktown and Parramatta via Wentworthville (route 711). The site is approximately 140 metres from the nearest bus stop and the majority of services are identified by the bus company as being accessible by wheelchair. Works are likely to be required to form a suitable walking path to meet the requirements of Clause 26(2) of the HSSEPP. Such works include the formation of a footpath for part of Cornelia Road and Wentworth Avenue.

The site is also located in close proximity to Toongabbie Railway Station (approximately 250 metres from the site) which services the T1 Western Line (Richmond to city) and T5 Cumberland Line (Schofields to Campbelltown).

2.3 Land Use Zoning

Lots 6, 7, 8 and 9 are zoned R3 Medium Density Residential under the provisions of Parramatta Local Environmental Plan 2011 ("the LEP") and part Lot 30 is zoned RE2 Private Recreation under the LEP (see **Figure 4A**).

The objectives of the R3 Medium Density zone are to provide for a variety of housing types within a medium density residential environment.

The R3 zoned land has the following core controls under the LEP:

- Seniors housing is permissible but residential flat buildings are prohibited;
- Maximum building height of 11 metres; and
- Maximum Floor Space Ratio of 0.6:1.

The RE2 (private recreation) zoned land has the following core controls and affectations under the LEP:

- Residential flat buildings and seniors housing prohibited; and
- No height or FSR controls.

The following table provides further provisions applicable to the proposed development.

Table 1 –Parramatta LEP 2011	
Provision	**Comment**
5.9 Preservation of trees or vegetation (1) The objective of this clause is to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation. (2) This clause applies to species or kinds of trees or other vegetation that are prescribed for the purposes of this clause by a development control plan made by the Council. **Note.** A development control plan may prescribe the trees or other vegetation to which this clause applies by reference to species, size, location or other manner. (3) A person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation to which any such development control plan applies without the authority conferred by: (a) development consent, or (b) a permit granted by the Council.	Some trees would be retained along the southern boundary of the site. As the club site is largely devoid of vegetation, landscaping is proposed to suit to proposed building form and use.
6.2 Earthworks (1) The objectives of this clause are as follows: (a) to ensure that earthworks for which development	Development consent will be required for initial earthworks. Earthworks are expected to be minimal as no

Table 1 –Parramatta LEP 2011	
Provision	**Comment**
consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land, (b) to allow earthworks of a minor nature without requiring separate development consent. (2) Development consent is required for earthworks unless: (a) the work is exempt development under this Plan or another applicable environmental planning instrument, or (b) the work is ancillary to other development for which development consent has been given.	basement excavation is proposed.
6.3 Flood planning (1) The objectives of this clause are as follows: (a) to minimise the flood risk to life and property associated with the use of land, (b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change, (c) to avoid significant adverse impacts on flood behaviour and the environment. (2) This clause applies to land at or below the flood planning level. (3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development: (a) is compatible with the flood hazard of the land, and (b) is not likely to significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and (c) incorporates appropriate measures to manage risk to life from flood, and (d) is not likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and (e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.	Part of the site is likely to be below the flood planning level (below the 1 in 100 year design flood plus 500mm freeboard) and all of the site is below the probable maximum flood. The development has been designed with the ground floor level at the PMF level.

2.4 Site Analysis

The characteristics of the site and its context are summarised on the Site Analysis Drawing contained in **Appendix 6**.

3. THE PROPOSED DEVELOPMENT

3.1 Overview

The applicant seeks a site compatibility certificate for:

- the use of the site for a 124-bed residential care facility;
- the location of the building as shown in the DA drawings contained in **Appendix 6**;
- access to the site from the existing roundabout.

Development varies in height up to four storeys and responds to the irregular shape of the site, the constraint imposed by the sewer easement to the west and the access road to the facility from the roundabout. The development is set back from the southern boundary to minimise impacts on the neighbours and to allow retention of trees.

Resident rooms are configured to not overlook the neighbouring residential properties and the care wings on each floor are to be well articulated for natural light and ventilation. Generous side setbacks have been designed for quality landscaped outdoor areas and courtyards.

The site is suitable for a range of development forms and patterns if the development occurs in a manner consistent with the following development principles appropriate for this site.

A site compatibility certificate is sought for the development of the site in a manner that meets these development principles.

3.2 Design Principles

The development envelope and reference drawings have been designed having regard to the characteristics of the site and its context. Calder Flower, the project architects, have provided the following urban design statement.

> *The proposed new 124 bed Residential Care Facility (RCF) for Opal Aged Care is located on the site consisting of a parcel of land currently owned by the Toongabbie Bowling Club and three adjacent residential lots.*
>
> *The site make an irregular shape of a 'broken rectangle'. In this regard the proposed building footprint reflects the shape of the site with two similar rectangular shapes offset at an angle to one another.*
>
> *The building form is arranged as a combination of three and four stories with the greater height towards the north western end. The building steps down to three stories adjacent to the neighbouring residential properties. The three storey building height is consistent with the zoning and much of the development over the road from the site on Cornelia and Wentworth Avenues.*
>
> *A new leg from the Wentworth Avenue roundabout would provide access to a new driveway on the site. The driveway will extend along the eastern boundary to the carpark and service dock and the Toongabbie Bowling Club. The driveway also*

extends along the southern and street front boundary to an entry forecourt for visitors, staff and residents.

The form of the building bulk is designed to be articulated with courtyards and upper level terraces and between shorter wings which run perpendicular off the main spine of the building.

The intention of having short wings off the main spine is so that resident rooms can be arranged to look out or access the courtyard spaces in between. In this regard the resident rooms can be arranged so as not to overlook the neighbouring properties to the south. Overlooking to the eastern neighbours is minimized with a setback of 10 – 11 metres.

Entry to the building is located towards the centre of the site at the junction of the angles of the two building footprint rectangles. This configuration suits the design layout for residential care with the central location of the vertical circulation lift core.

The entry to the building is also the 'front of house' and includes the administrative functions and shared 'wellness' spaces such as the café, hairdresser and community/multi-function room.

Care wings can be configured in numbers of 18 – 20 beds are connected to the central core. There is one care wing on the ground floor and two care wings on each level above.

The ground floor care wing can be assigned for residents suffering from dementia and will extend to include dementia gardens and outside spaces for wandering residents to access safely.

The back of house services and carparking would be also located on the ground level.

The service dock would be located at the rear of the building and is discretely positioned away from resident areas and the front entry.

Car parking is proposed to be located on grade with the majority of spaces being located in the undercroft of the upper level of the eastern wing.

Further design development proposed for the facades and exterior building detail will include sun shading elements, a pallette of cladding materials and finishes and balustrade details. The roof design is proposed to integrate and conceal mechanical plant and other services and will provide safe access for maintenance and servicing. Gutters and downpipes will be compliment the façade design.

The front entry would have a porte cochere element and the whole site will be landscaped to suit the use and enhance and soften the building.

3.3 Indicative Development Concept

3.3.1 Layout and Urban Form

The site layout responds to the principal northern orientation of the site. The building footprint respects the nature of surrounding development and site boundary conditions and the desired future character of the area reflected in Council's planning controls.

3.3.2 Height of Building and FSR

The building has a height of four (4) storeys (part 3 and part 4 storeys) and a floor space ratio ("FSR") of approximately 1.4:1. Building height relates to surrounding development with the building envelope reducing in height towards the northern boundary reflecting the lower permitted building height (2 to 3 storeys) on the land zoned R3 Medium Density to the north of the site and the existing development to the east of the site on the eastern side of Wentworth Avenue. The higher southern part of the building is compatible with the six storey height of existing residential buildings to the south.

The proposed development sits within the building envelope included in the previous SCC application.

3.3.3 Siting and Setbacks of Building

The proposed building is mostly oriented to the north and south providing good solar access and ventilation.

A setback of 7.5 metres is proposed along the northern boundary of the site with a small portion of the building with a smaller setback on the north-western corner of the building. The proposed building is also set well back from the southern, eastern and western boundary providing adequate buffer to Girraween Creek to the west and the residential dwellings to the east and south.

There is potential for stepped building heights adjacent to the southern boundary providing adequate setback to the existing apartment buildings to the south for adequate solar access.

3.4 Traffic Management

Vehicular access to the aged care facility is proposed via the construction of a new leg at the Wentworth Avenue/ Cornelia Road roundabout. This will link to an internal access road which would run along the northern boundary of the site, providing access to an at-grade car park (containing 28 car spaces) and the Toongabbie Bowling and Sports Club. This access road would satisfy planning restrictions on the site that require the provision of a path of egress for vehicles from Toongabbie Bowling and Sports Club.

There is also a turning circle proposed at the entrance of the building location towards the central part of the site.

A loading dock is provided along the rear of the at-grade car park providing access to both the loading dock for the proposed aged care facility and also access to the existing loading dock for the sports club.

4. STRATEGIC JUSTIFICATION AND SEPP COMPATIBILITY CRITERIA

4.1 Overview

Clauses 24 and 25 applies to applications for site compatibility certificates. In issuing a site compatibility certificate, the Director-General needs to form the opinion that:

> *(a) the site of the proposed development is suitable for more intensive development, and*
>
> *(b) development for the purposes of seniors housing of the kind proposed in the development application is compatible with the surrounding environment having regard to (at least) the criteria specified in clause 25 (5) (b).*

Clause 25(5) provides that:

> *The Director-General must not issue a site compatibility certificate unless the Director-General:*
>
> *(a) has taken into account the written comments (if any) concerning the consistency of the proposed development with the criteria referred to in paragraph (b) that are received from the relevant General Manager within 21 days after the application for the certificate was made, and*
>
> *(b) is of the opinion that the proposed development is compatible with the surrounding land uses having regard to (at least) the following criteria:*
>
> *(i) the natural environment (including known significant environmental values, resources or hazards) and the existing uses and approved uses of land in the vicinity of the proposed development,*
>
> *(ii) the impact that the proposed development is likely to have on the uses that, in the opinion of the Director-General, are likely to be the future uses of that land,*
>
> *(iii) the services and infrastructure that are or will be available to meet the demands arising from the proposed development (particularly, retail, community, medical and transport services having regard to the location and access requirements set out in clause 26) and any proposed financial arrangements for infrastructure provision,*
>
> *(iv) in the case of applications in relation to land that is zoned open space or special uses—the impact that the proposed development is likely to have on the provision of land for open space and special uses in the vicinity of the development,*
>
> *(v) without limiting any other criteria, the impact that the bulk, scale, built form and character of the proposed development is likely to have on the existing uses, approved uses and future uses of land in the vicinity of the development,*

(vi) if the development may involve the clearing of native vegetation that is subject to the requirements of section 12 of the Native Vegetation Act 2003—the impact that the proposed development is likely to have on the conservation and management of native vegetation.

These criteria are addressed below. The application form also requests documentation on strategic justification of the proposal. These matters are also discussed below.

4.2 Strategic Justification

4.2.1 Relationship with regional and local strategies

Our Greater Sydney 2056 A metropolis of three cities

The current and past metropolitan strategies present clear strategies for accommodating Sydney's future population growth for the next 20 years.

People aged 55+ are a key demographic group which has been rapidly growing in Australia in recent years, and is expected to continue to do so in future, with increases in life expectancy. In the 2011 Census, there were 35,369 people aged 55+ residing in the City of Parramatta, representing 21.2% of the total population. This figure is likely to grow over the next 20 years. From a base of an estimated 34,937 people in 2011, over 55s will increase by just under 8,000 (about 25%) to 42,848 by 2031. This will require a significant policy response to ensure that appropriate housing for seniors is provided.

The proposed development would serve an older client base with the average age of entry anticipated to be mid 80s. It is noted that the number of residents of Parramatta City aged 80 and over is anticipated to increase by 24% between 2011 and 2036.[2]. In the Sydney metropolitan area, the number of people 80 and over is predicted to more than double by 2031.

At the time there is a significant increase in the number of older persons in the community, there has been a shift in policy at the State and Commonwealth level towards enabling people to remain in their own home longer. This has been implemented by a range of policies and funding packages designed to provide services into homes and to encourage the provision of homes designed to enable seniors to 'age in place'. Thus older persons are remaining in their home longer and thus are more frail and in need of higher levels of care once they move into a residential care facility environment.

The SEPP (Housing for Seniors) aims to encourage the provision of housing that will:

(a) increase the supply and diversity of housing that meets the needs of seniors or people with a disability, and

(b) make efficient use of existing infrastructure and services, and

(c) be of good design.

The SEPP further identifies that aims of the policy will be achieved by:

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[2] Community id forecasts

(d) setting aside local planning controls that would prevent the development of housing for seniors or people with a disability that meets the development criteria and standards specified in this Policy, and

(e) setting out design principles that should be followed to achieve built form that responds to the characteristics of its site and form, and

(f) ensuring that applicants provide support services for seniors or people with a disability for developments on land adjoining land zoned primarily for urban purposes.

The SEPP (Housing for Seniors) is a policy response which recognises that there is currently an undersupply of seniors' housing throughout NSW and seeks to promote the provision of additional seniors housing designed to meet the specific needs of an ageing population.

Parramatta 2038

Parramatta 2038 is a long-term Community Strategic Plan for the City of Parramatta and it links to the long-term future of Sydney.

The People and Neighbourhoods strategies for 2038 focus on health and recreation, housing provision, learning and development, and building cohesive, safe neighbourhoods. One of the key strategies includes the provision of a range of housing for people at any stage of life and whatever their aspiration or need.

4.2.2 Adequacy of services and infrastructure to meet demand

Opal Aged Care seek to provide facilities in areas where they are needed in established residential areas close to facilities and services which can assist in enabling residents to remain within their existing communities.

In these established urban environments all necessary utility services are available and capable of accommodating the development.

The proposed residential care facility is not expected to place additional demand on aged care services in the area. This is because the needs of residents are met within the facility given the frail nature of residents and their inability to access facilities and services off site.

Council is active in planning for and coordinating aged care services. It provides and helps coordinate a number of services for older people, people with disabilities and their carers. Council is also involved with planning and developing new services based on the community's needs, and providing information and representing the rights of people from these groups.

4.2.3 Public interest reasons for applying for seniors housing in this locality

Toongabbie is located within the established urban area of Parramatta LGA. It has access to a range of facilities and services and has a significant and ageing population. The site is suited to seniors housing because of its accessibility and urban location. Seniors housing is compatible with the existing and desired future character of the area and is appropriate in the context.

4.3 Site Compatibility Criteria

4.3.1 Criteria (i)

Criteria: - *the natural environment (including known significant environmental values, resources or hazards) and the existing uses and approved uses of land in the vicinity of the proposed development*

Comment:

The Natural Environment

The proposal will be undertaken without detrimentally impacting on the nearby Girraween Creek or the vegetation on the banks of the creek.

The residential lots contain minimal vegetation with occasional domestic planting around the houses. Protection works can be employed during construction to ensure the creek and trees on site remain viable and stable.

Existing Uses in the Vicinity

The existing uses in the vicinity of the site include the higher density residential development to the south of the site, medium density development to the east and potentially to the north. The site is in close proximity to Toongabbie railway station and the adjacent Toongabbie shopping centre and has good access to bus stops. Whilst this public transport may not be utilised by residents due to their frailty, it would be used by staff and visitors.

The proposed use and built form are totally compatible with the existing character of the residential area, in particular the existing medium and high density development to the south and east.

Heritage

The site is not heritage listed or affected by any land reservations. The proposal will have no adverse impacts on the heritage significance of the area.

Visual Impacts

Consideration has been given to the proposal having regard to the location of the development along Cornelia Road.

In this regard it is noted that the proposal would have an overall building height and scale that is lower than the existing higher density development to the south (No.2 Wentworth Avenue), yet sympathetic to the existing low to medium density development to the north and east of the site.

The proposal will have no adverse visual impacts.

4.3.2 Criteria (ii)

Criteria:- *the impact that the proposed development is likely to have on the uses that, in the opinion of the Director-General, are likely to be the future uses of that land*

Comment:-

The future uses of the land include those permissible under the relevant environmental planning instruments. These include the local environmental plan and relevant State environmental planning policies that have precedence over local controls where there are inconsistencies. The SEPPHS, the Infrastructure SEPP and the Affordable Rental Housing SEPP are relevant in this regard in addition to the LEP.

Development for the purpose of a residential care facility is permissible with consent under the provisions of the SEPP (Housing for Seniors). A site compatibility certificate (SCC) is required for that part of the site that comprises the existing registered club (part Lot 30 in DP 1106209).

The zoning of the land under the LEP reflects the existing use of the site for the purposes of a registered club. The proposal is not for a club use. The alternative uses of surplus club land are limited by the current zoning, particularly for uses that are compatible with the surrounding predominantly residential context.

The site is suitable for housing purposes and the proposed built form is appropriate in the urban location. The facility can be designed to operate in a manner that is compatible with the on-going operations of the club.

4.3.3 Criteria (iii)

Criteria:- *the services and infrastructure that are or will be available to meet the demands arising from the proposed development (particularly, retail, community, medical and transport services having regard to the location and access requirements set out in clause 26) and any proposed financial arrangements for infrastructure provision*

Comment:-

The site is within an established urban area with access to a wide range of health and community services. The scale of the development is such that there would be no significant impact on the ability of the local service providers to meet the needs of residents of the proposal as they age in place.

Furthermore it can be expected that some residents would already live in Toongabbie or within the Parramatta or adjoining Holroyd LGAs and thus there would be no change in overall demand for support services.

Most services for the aged care facility would be provided on site. However, public transport access is available to the site providing access to nearby centres of Blacktown and Parramatta and essential services.

The site is also located in close proximity to Toongabbie Railway Station (approximately 300 metres from the site) which services the T1 Western Line (Richmond to city) and T5 Cumberland Line (Schofields to Campbelltown).

4.3.4 Criteria (iv)

Criteria:- *in the case of applications in relation to land that is zoned open space or special uses—the impact that the proposed development is likely to have on the provision of land for open space and special uses in the vicinity of the development.*

Comment:-

The proposal will use land zoned for RE2 Private Recreation. The compliance of the proposal with State policies on seniors housing is discussed above in relation to Criteria (ii). The SEPPHS seeks to achieve aims that are of State importance including the provision of seniors housing on special uses sites. In this instance these policy objectives take precedence over the objectives of local planning controls.

The site is zoned for private recreation and thus is not generally accessible to the public. There would be no reduction in public open space and no increase in demand for open space in the surrounding area because of the nature of resident at the facility.

The proposed use is ideal for the site and represents the orderly and economic development of the land in a manner that considers the environmental qualities of the site and its context.

4.3.5 Criteria (v)

Criteria:- *without limiting any other criteria, the impact that the bulk, scale, built form and character of the proposed development is likely to have on the existing uses, approved uses and future uses of land in the vicinity of the development*

Comment:-

The bulk and scale of the proposed development is typical of medium to high density development in the vicinity of the site. The height of proposed building would be no more than 4 storeys which is compatible with the existing medium density development adjacent to the site which ranges from 2 to 6 storeys.

The nature of the use, traffic generation, bulk and scale of the development would be compatible with other development in the locality and appropriate in this setting. It is also considered compatible with the nature of development permitted and likely to occur on land in the vicinity of the development.

4.3.6 Criteria (vi)

Criteria:- *if the development may involve the clearing of native vegetation that is subject to the requirements of section 12 of the Native Vegetation Act 2003—the impact that the proposed development is likely to have on the conservation and management of native vegetation*

Comment:-

The development does not involve the clearing of any native vegetation that is subject to the requirements of section 12 of the Native Vegetation Act 2003.

4.3.7 Conclusion

Having regard to the criteria in clause 25 of the SEPPHS it is considered that the development is not likely to have a significant negative effect on the environment and would have a positive impact on the environment through the provision of an important community resource in a manner that makes more efficient use of an underutilised part of an existing registered club.

It is considered that the development to which this application for a site compatibility certificate relates is compatible with the surrounding land uses.

4.4 Consultation

Prior to lodging the previous SCC application pre-lodgement consultation has been undertaken with Parramatta Council and other relevant utility service providers. Matters discussed with Council included the following:

Issue	Council Comments
Flooding:	Council provided details of the design flood event being the 1 in 100 year design storm and the flood levels for the site. Council's policy position was for the floor level to be set 500mm above the 1 in 100 year level which can be accommodated on the site. Provision is to be made for overland flows through the site from the surrounding road networks and acknowledged that the proposed building footprint can accommodate such flows subject to detailed design. Council requires evacuation planning to be undertaken in response to the probable maximum flood on the site. In response to on-going discussions with Council, the ground floor level of the building has been set at the level of the PMF resulting in no water entering the building in all floods up to the PMF. The preferred method of managing residents during a flood event is to remain in place and an emergency response plan has been prepared (**Appendix 4**).
Access:	Council is in agreement with the proposed access from the existing roundabout subject to detailed design of the intersection and approach ways. Provision is to be made for pedestrian movement across the new access. Parking is required to meet the requirements of the SEPPHS.
Landscaping:	Council noted the potential for off-site works in the vicinity of the site to provide additional landscaping in a disused area off Cornelia Road.
Built form:	Council noted that the built form of the development would be something considered at DA stage but that there were no issues with the bulk and

	scale of the development reflected in the envelope drawings and the reference drawings. The density and height of the development is appropriate having regard to the nature of surrounding development.
Need:	Council officers acknowledged that residential care facilities are in demand in the area.

5. CONCLUSION

The site of the proposed development comprises the southern part Lot 30 in DP 1106209 and Lots 6 (part), 7, 8 and 9 in DP 22506, Wentworth Avenue Toongabbie. It is located in a residential context where the predominant zoning is medium density residential.

The site has the following features, making it suitable for a range of uses:

- It is located in an established urban area will a range of community facilities and services available in the vicinity of the site;
- It is approximately 250 from Toongabbie Station and shopping centre and is accessible to a number of commercial centres and services;
- Accessible paths of travel can be provided to the nearest bus stop;
- It has good access to the arterial road network and public transport;
- It has a pleasant north facing outlook;
- The site is suitable for development having regard to land capability, soil contamination and other physical hazards;
- Urban utility services are available or are capable of being readily augmented to meet the needs of the development;
- There is minimal vegetation on the site, some of which may be incorporated into the development;
- The site has a size and shape that makes it suitable for seniors housing.

Matters to be considered in the development of the site include:

- Proximity to residential areas to the east and south and the need for development to be compatible with the amenity of the surrounding residential areas;
- The on-going operations of Toongabbie Sports Club.

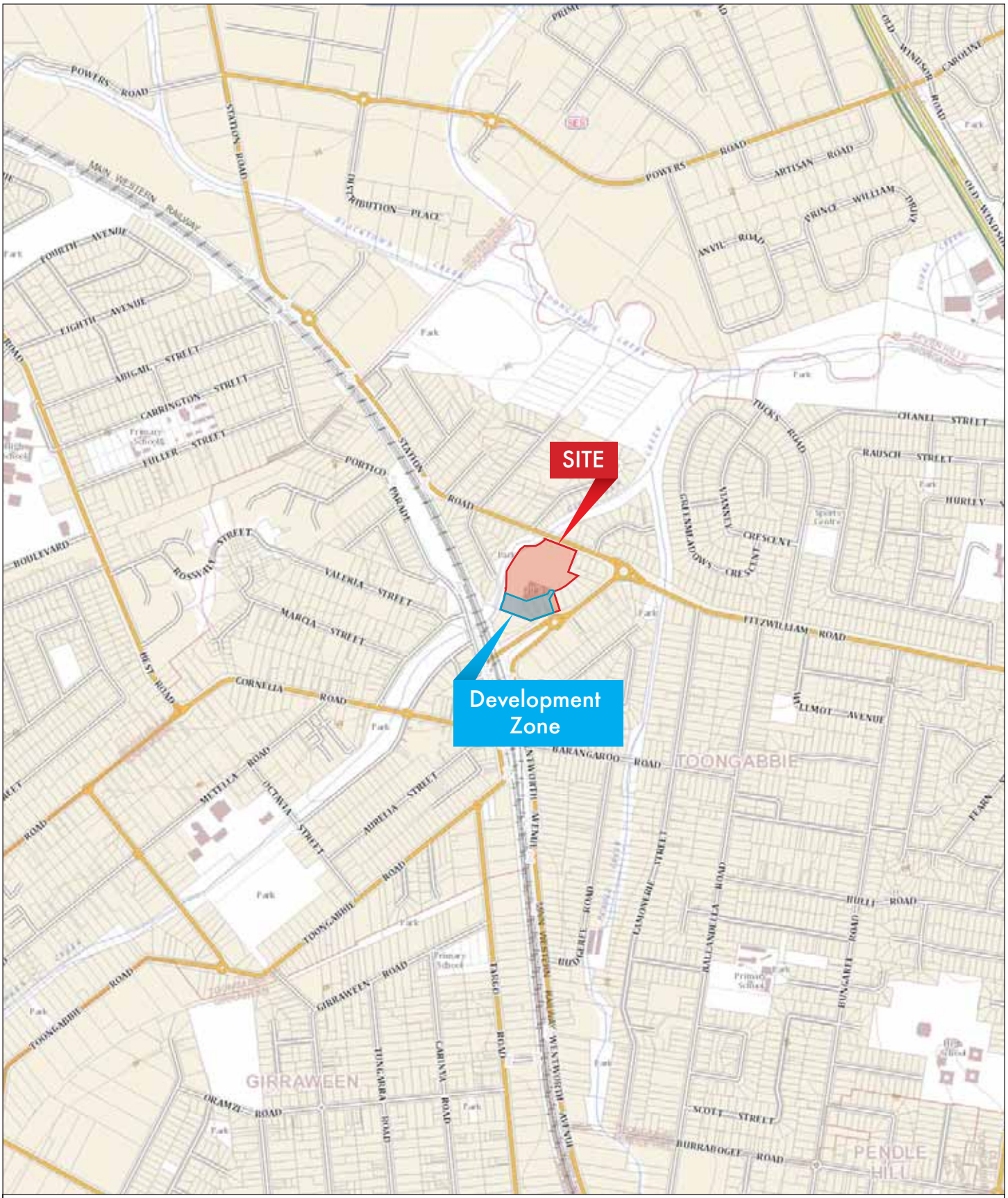
The locality is primarily urban residential in nature with medium to higher density development dominating the built form in the immediate vicinity.

The characteristics of the site are such that it is suitable for a range of residential uses and associated uses compatible with the residential amenity of the surrounding area. This includes seniors housing.

The applicant seeks to obtain a site compatibility certificate for the use of the site for seniors housing. The site is suitable for a range of development forms and patterns if the development occurs in a manner consistent with the development principles appropriate for this site. Thus a site compatibility certificate is sought for the development of the site for seniors housing in the form of a residential care facility of approximately 124 beds in a building generally as shown on the drawings contained in **Appendix 6**.

It is considered that the development proposed for the site readily satisfies the site compatibility criteria listed in Clause 25 of the SEPPHS and would be compatible with the surrounding land uses.

FIGURES



Source: http://maps.six.nsw.gov.au

N

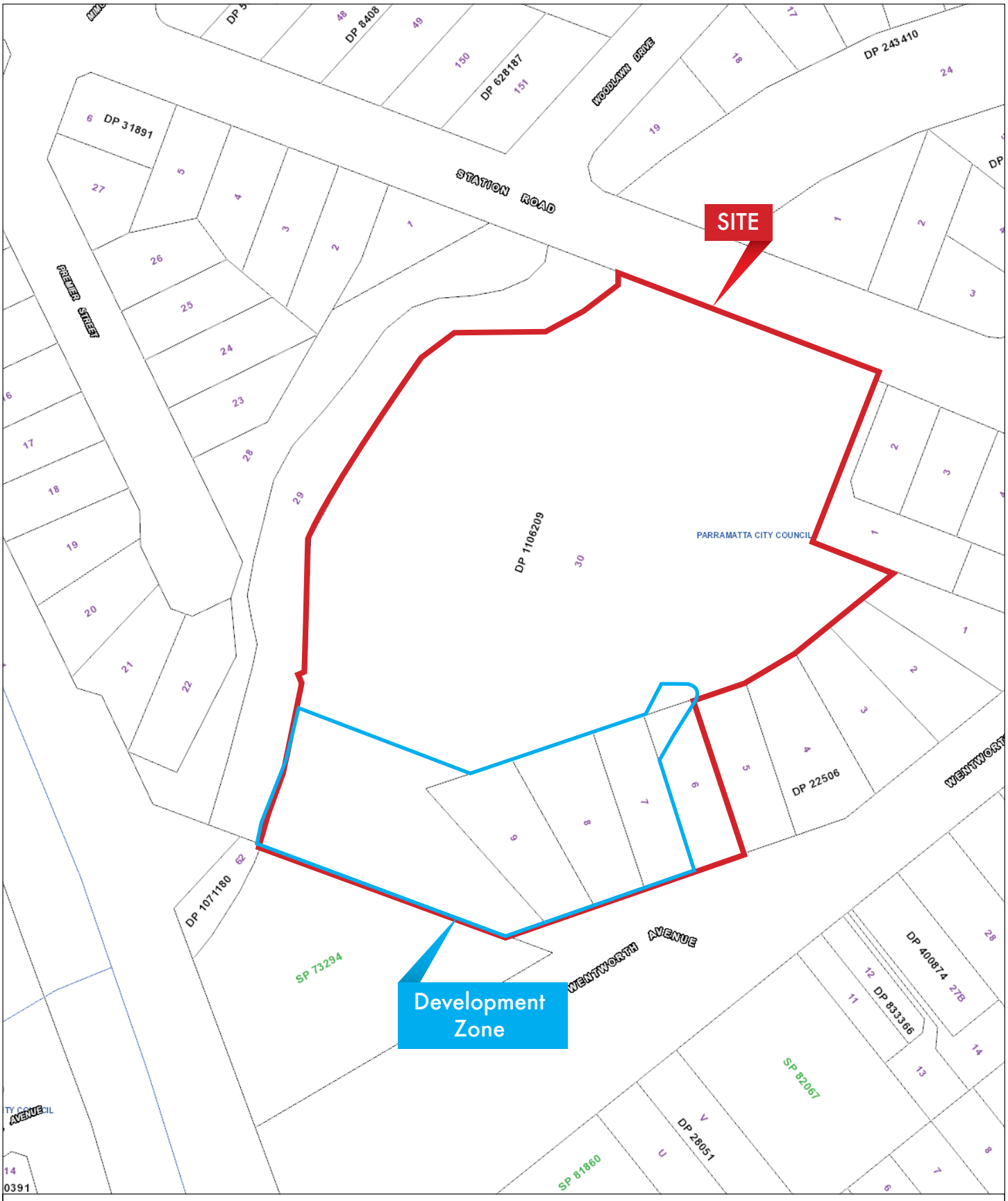
0 500m

STATEMENT OF ENVIRONMENTAL EFFECTS
Opal Aged Care, Wentworth Avenue, Toongabbie

FIGURE 1
Location

Prepared For - Opal Aged Care

BBC CONSULTING PLANNERS



Source: http://maps.six.nsw.gov.au

STATEMENT OF ENVIRONMENTAL EFFECTS
Opal Aged Care, Wentworth Avenue, Toongabbie

FIGURE 2
Site

Prepared For - Opal Aged Care

BBC CONSULTING PLANNERS

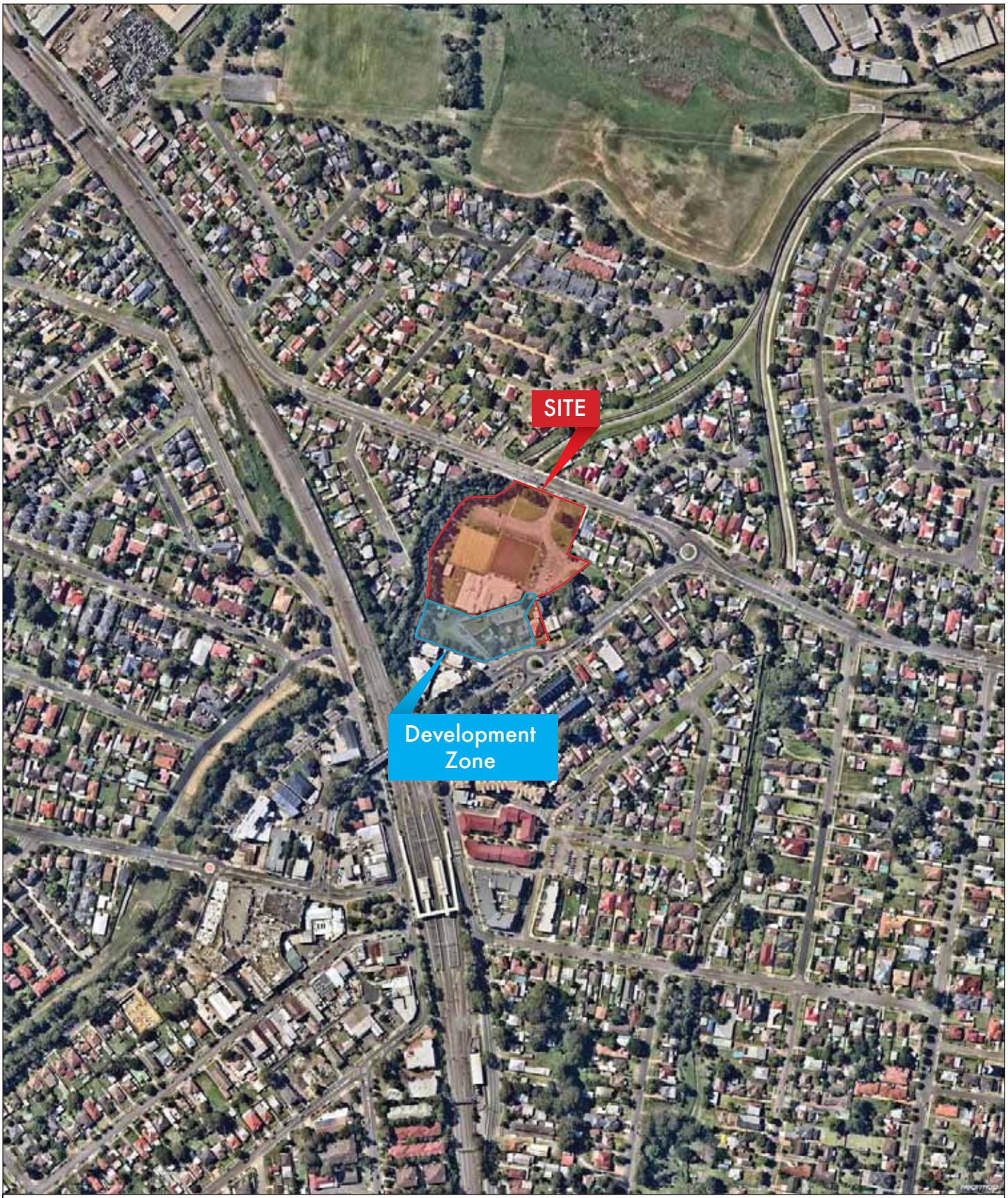
Source: NearMap 2016

STATEMENT OF ENVIRONMENTAL EFFECTS
Opal Aged Care, Wentworth Avenue, Toongabbie

FIGURE 3A
Aerial Photo - Detail

Prepared For - Opal Aged Care

BBC
CONSULTING PLANNERS



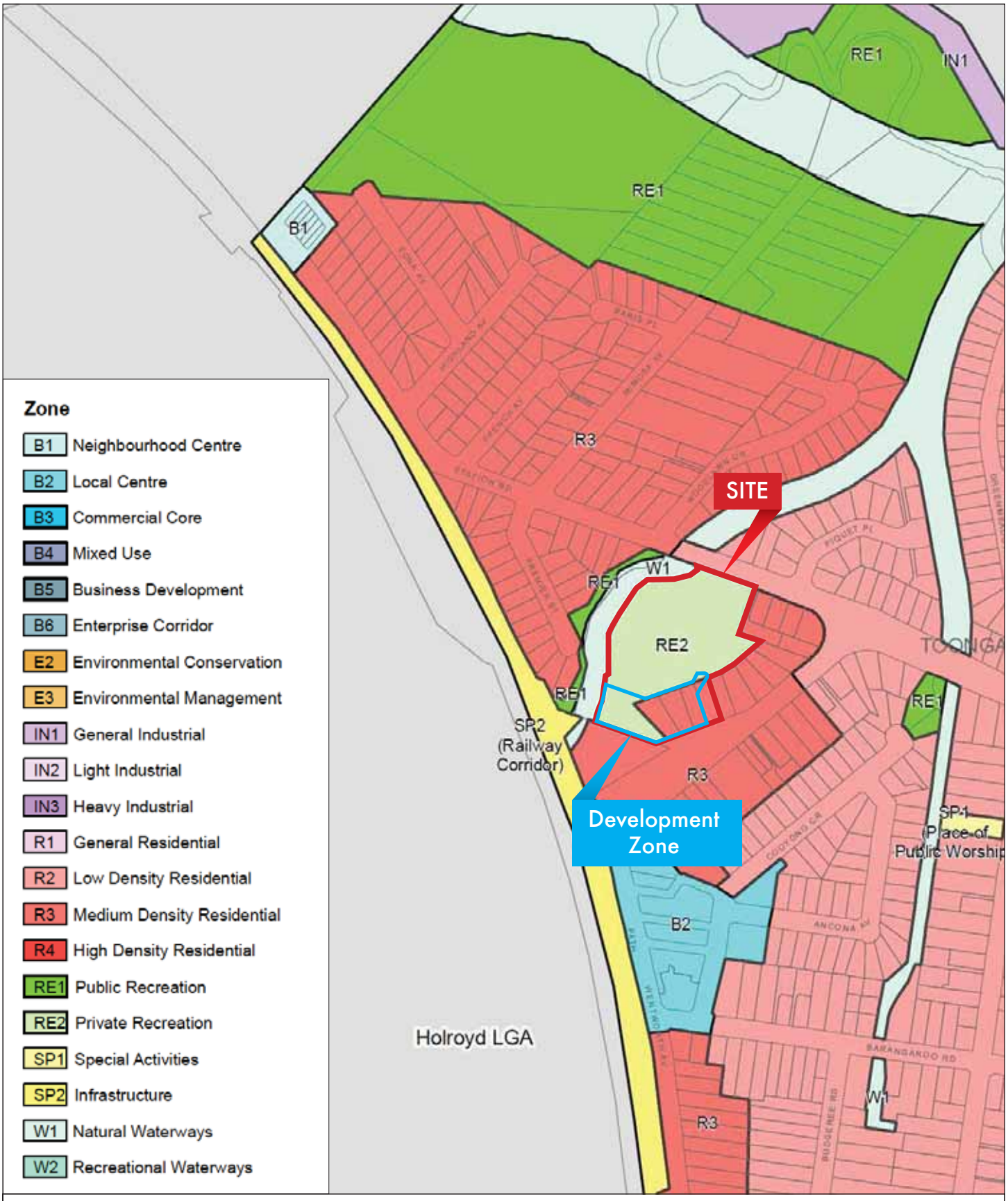
Source: NearMap 2016

STATEMENT OF ENVIRONMENTAL EFFECTS
Opal Aged Care, Wentworth Avenue, Toongabbie

FIGURE 3B
Aerial Photo - Wider Area

Prepared For - Opal Aged Care

BBC CONSULTING PLANNERS



STATEMENT OF ENVIRONMENTAL EFFECTS
Opal Aged Care, Wentworth Avenue, Toongabbie

FIGURE 4A
Zoning Map - Parramatta LEP 2011

Prepared For - Opal Aged Care

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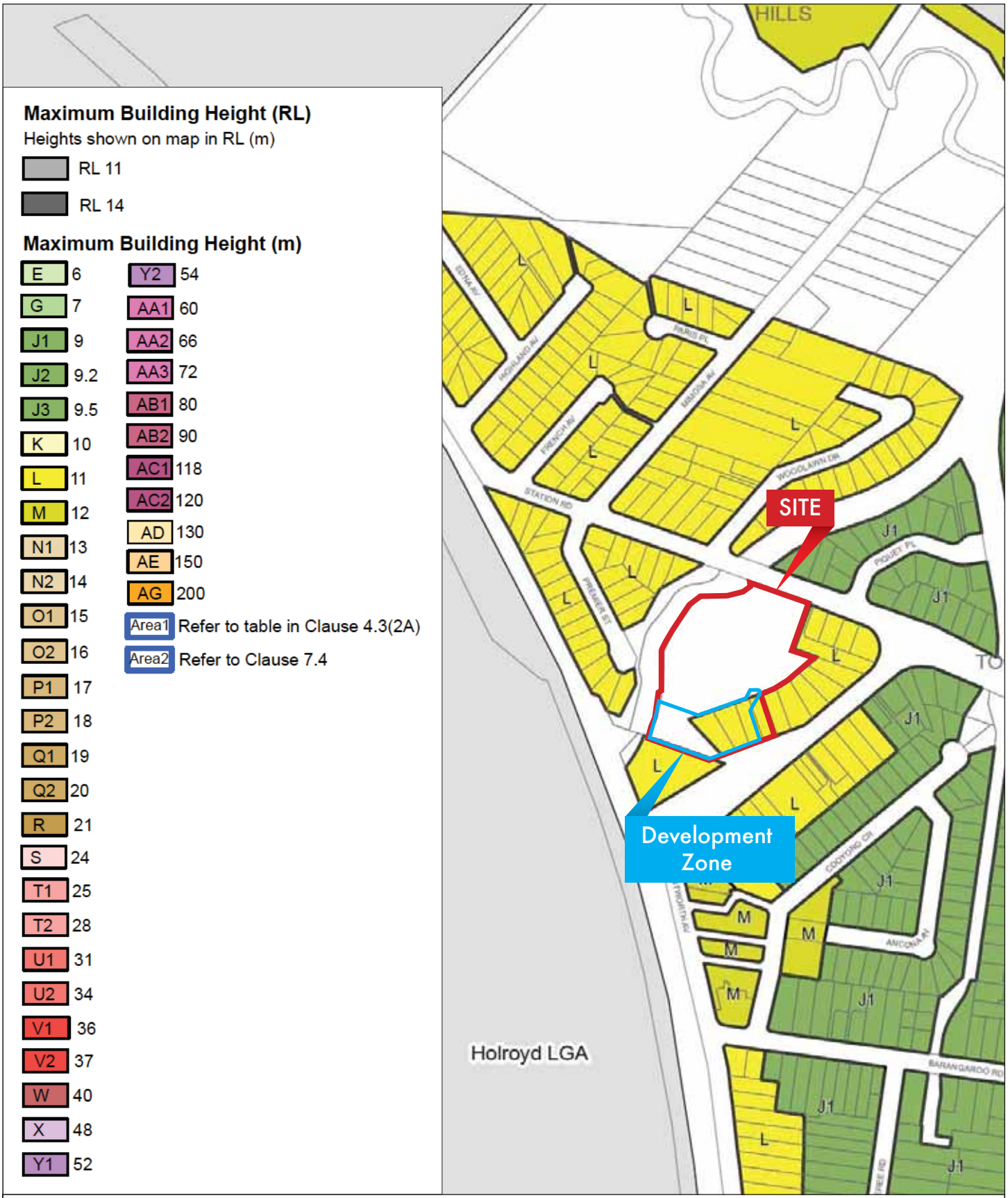

STATEMENT OF ENVIRONMENTAL EFFECTS
Opal Aged Care, Wentworth Avenue, Toongabbie

FIGURE 4B
Height of Buildings Map - Parramatta LEP 2011

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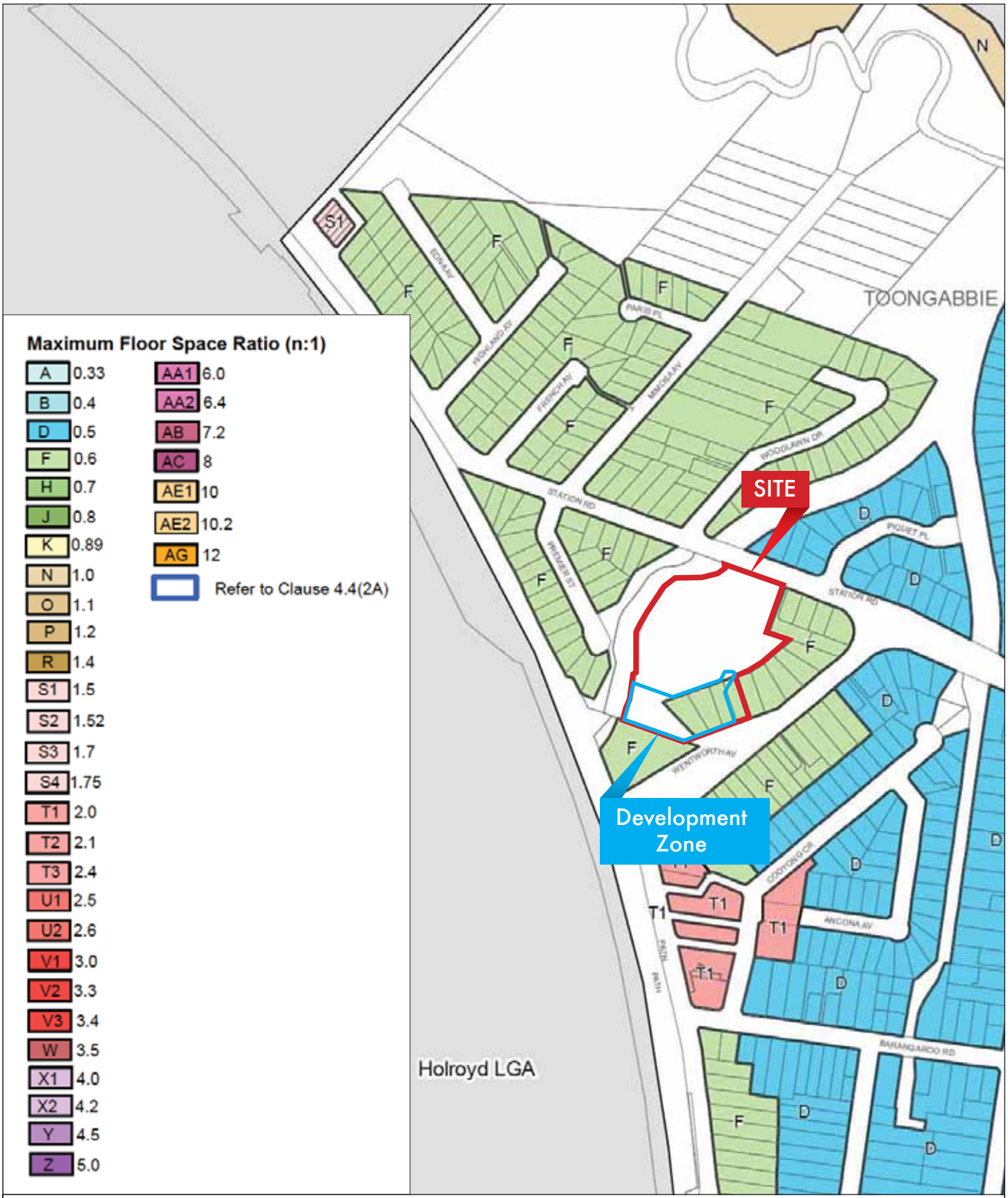

STATEMENT OF ENVIRONMENTAL EFFECTS
Opal Aged Care, Wentworth Avenue, Toongabbie

FIGURE 4C
Floor Space Ratio Map - Parramatta LEP 2011

Prepared For - Opal Aged Care

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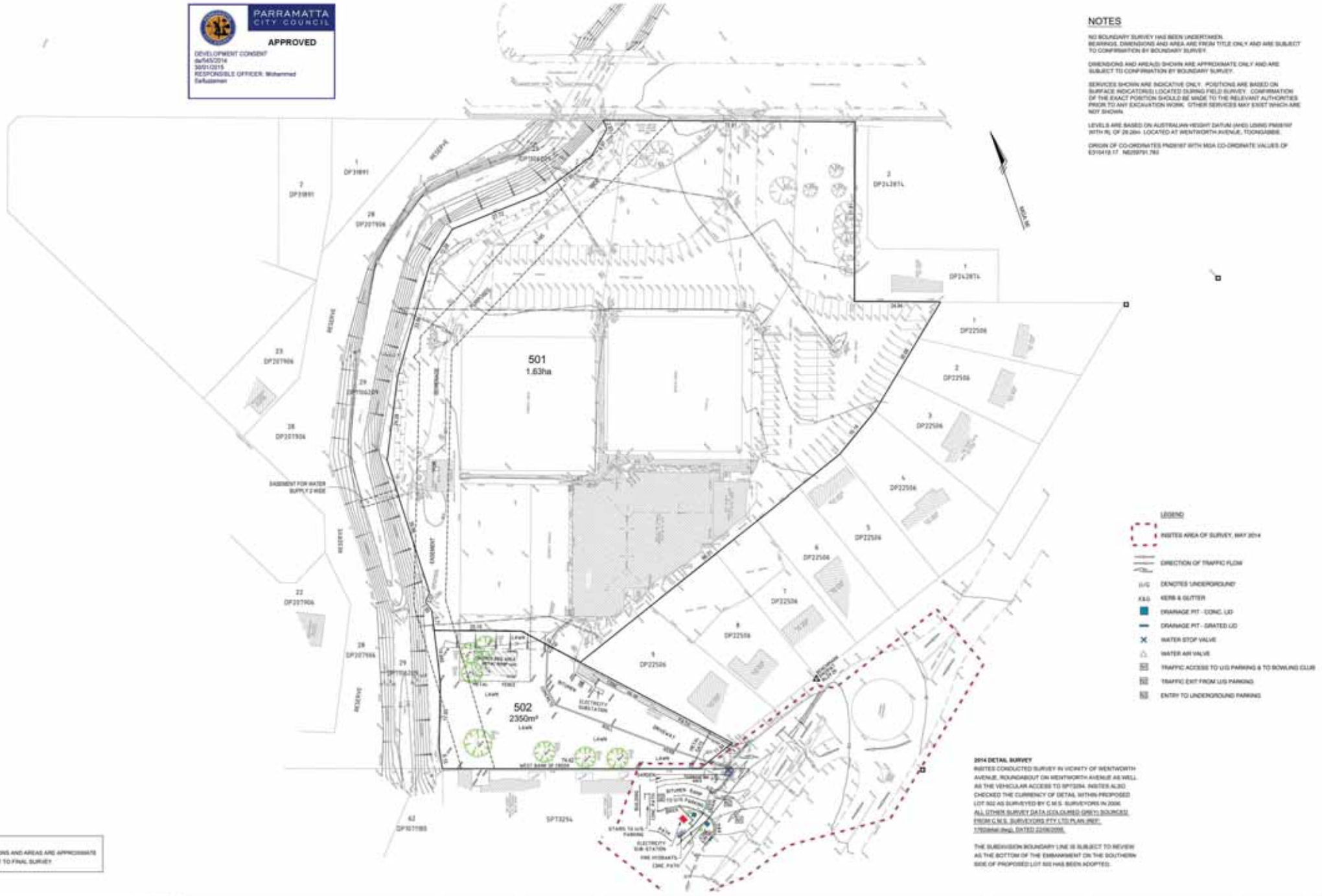
APPENDICES

APPENDIX 1

Subdivision Consent



B	10.06.2014	Lot 501 area revised, Lot 503 deleted, easement for sewerage deleted, detail within Lot 502 displayed more prominently	DFM	SJF	SJF
ISS	DATE	REVISION DETAILS	DRAWN	CHK	APP

ORIG. SCALE	1:500 @ A1
VERTICAL SCALE	N/A @ A1
DATUM	AHD
PROJECTION	MGA

PROCESSED BY: INSITES SURVEYS — A member of the ADW JOHNSON group

CLIENT: Toongabbie Sports Club

SURVEY	SJF	DATE OF SURVEY 12.05.2014
DRAWN	DFM	DATE OF PLAN 21.05.2014
CHECKED	SJF	DATE LAST MODIFIED 05.06.2014
APPROVED	SJF	DATE APPROVED 05.06.2014

TITLE: Proposed Subdivision Layout
Lot 30 in DP1106209
Wentworth Ave & Station Rd,
Toongabbie

PROJECTION FILE: B974SW_D010.dwg

JOB NO: I974SW
DIALTONE SURVEYING

ISSUE: B

SHEET 1 OF 1 SHEETS

SIZE: A1

J:\I974 Toongabbie Sports Club\I974SW\CAD Files\Detail Surveys (03)\B974SW_D010.dwg 05.06.2014 4:14 PM

APPENDIX 2

Traffic Report

GTAconsultants

Aged Care Facility
Wentworth Avenue, Toongabbie
Transport Assessment

Client //	Opal Aged Care
Office //	NSW
Reference //	15S1573100
Date //	04/05/16

Aged Care Facility

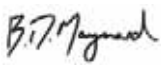
Wentworth Avenue, Toongabbie

Transport Assessment

Issue: B 04/05/16

Client: Opal Aged Care
Reference: 15S1573100
GTA Consultants Office: NSW

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	22/04/16	Final	Dean Rance Ashish Modessa	Brett Maynard	Brett Maynard	Brett Maynard
B	04/05/16	Incorporating client comments	Dean Rance Ashish Modessa	Brett Maynard	Brett Maynard	

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Gold Coast | Townsville

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Appendices

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Tables

1. Introduction

1.1 Background

It is understood that Opal Aged Care is to submit a Development Application under the State Environmental Planning Policy Housing for Seniors or People with a Disability (SEPP HSPD) for a proposed 130-bed residential aged care facility located on Cornelia Road, Toongabbie. The SEPP HSPD has a requirement that a Site Compatibility Certificate be approved prior to the submission of the Development Application. The site is located at the rear of Toongabbie Sports and Bowling Club and would also incorporate three existing residential blocks.

Align Projects commissioned GTA Consultants to undertake a transport assessment for the proposed development to accompany the Site Compatibility Certificate application.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

i existing traffic and parking conditions surrounding the site
ii suitability of the proposed parking in terms of supply (quantum) and layout
iii service vehicle requirements
iv pedestrian and bicycle requirements
v the traffic generating characteristics of the proposed development
vi suitability of the proposed access arrangements for the site
vii the transport impact of the development proposal on the surrounding road network.

1.3 References

In preparing this report, reference has been made to the following:

- an inspection of the site and its surrounds
- Parramatta Council Development Control Plan 2011 (DCP)
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Guide to Traffic Generating Developments, Roads and Maritime Services (RMS), 2002
- traffic and car parking surveys undertaken by GTA Consultants as referenced in the context of this report
- other documents and data as referenced in this report.

2. Existing Conditions

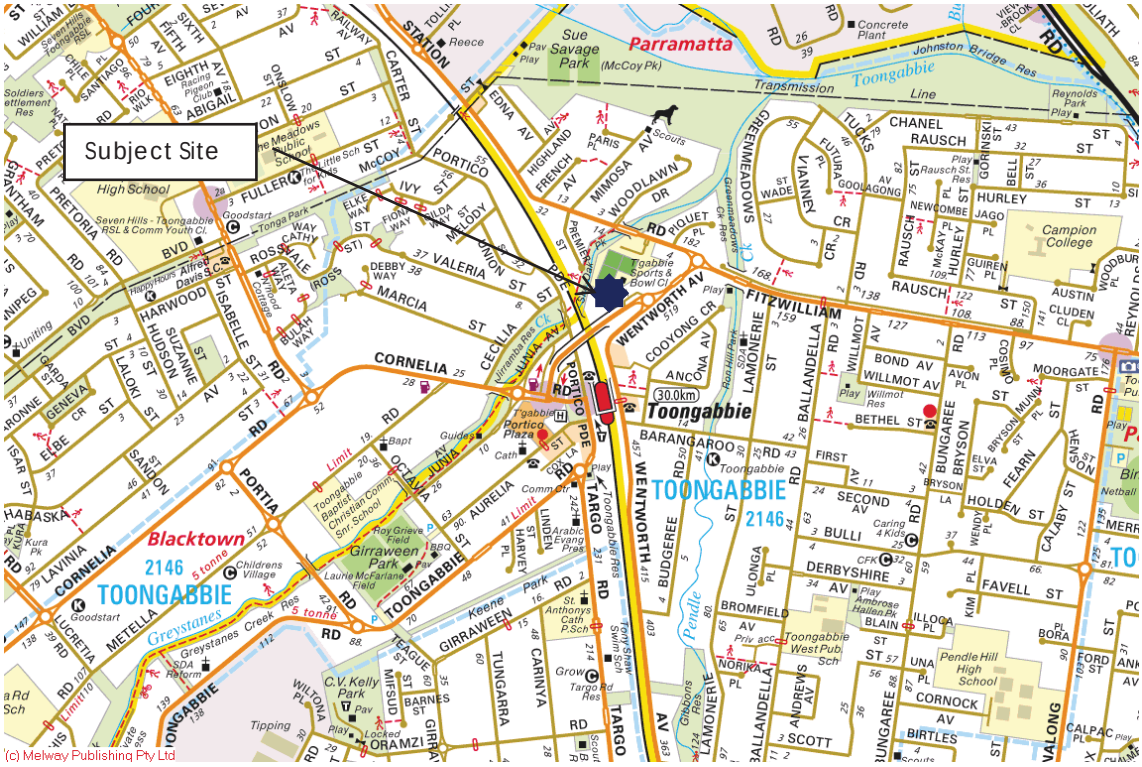
The development site consists of four adjacent lots located at 12 Station Road and 4-8 Wentworth Avenue, Toongabbie. The site of approximately 4900m^2 and has a frontage of approximately 50m to Cornelia Road and right of way access driveway from Station Street.

The site currently has a land use classification as R3 Residential and RE2 Private Recreation, and is occupied by private residential dwellings and the Toongabbie Sports and Bowling Club (the Club).

With the exception of the Club, the surrounding properties predominantly include residential dwellings in a mix of low to medium densities. A high density residential development is located immediately to the west of the site. Toongabbie Town Centre and Railway Station is located within approximately 300m to the south-west of the site.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and Its Environs



Basemap source: Reproduced with permission from Sydway Publishing Pty Ltd

2.1 Road Network

2.1.1 Adjoining Roads

Wentworth Avenue

Wentworth Avenue is a classified Regional Road (7279), and in the vicinity of the site is aligned in a north-south direction. The southern extent of Wentworth Avenue links to the Cumberland Highway (State Road 13).

In the vicinity of the site, unrestricted kerbside parking is permitted on both sides of the road. However, due to traffic calming measures (pedestrian refuge islands) parking is restricted on sections of the road. On-site observations indicate that cars park on the verge area within these areas.

Wentworth Avenue is shown in Figure 2.2 and Figure 2.3 and carries approximately 18,000 vehicles per day[1].

Figure 2.2: Wentworth Avenue (looking east)

Figure 2.3: Wentworth Avenue (looking west)

Cornelia Road

Cornelia Road is a classified Regional Road (7256), and in the vicinity of the site is aligned in an east-west direction. The southern extent of Regional Road 7256 links to the Great Western Highway (State Road 5).

It is a two-way road configured with a 2-lane, 7.3 metre wide carriageway. Due to Cornelia Road being a single lane carriageway in each direction, no parking is permitted in the vicinity of the site. Cornelia Road does provide a slip lane for access to underground parking for the residential complex at Lot 2 Wentworth Avenue, adjacent detached dwellings and rear access to the Toongabbie Bowling and Sports Club.

Cornelia Road is shown in Figure 2.4 and Figure 2.5 and carries approximately 18,000 vehicles per day[1].

1 Based on the peak hour traffic counts undertaken by GTA in May 2015 and assuming a peak-to-daily ratio of 8% for arterial roads and 10% for local roads.

Figure 2.4: Cornelia Road (looking east)

Figure 2.5: Cornelia Road (looking west)

2.2 Traffic Volumes

GTA Consultants undertook traffic movement counts at the intersection of Wentworth Avenue and Cornelia Avenue on 21 May 2015 during the following peak periods:

- 7:00am and 9:00am
- 4:00pm and 6:30pm.

The AM and PM peak hour traffic volumes are summarised in Figure 2.4 and Figure 2.5, with full results contained in Appendix A.

In addition, a week-long tube count was carried out between May 21 and May 27 on the rear access to the Club. This access is currently used as an alternative exit only, with an induction loop automatically opening the gate for exiting vehicles. The average hourly traffic volumes are detailed in Figure 2.6.

An average of 55 vehicles per day was recorded, with hourly usage skewed to the early afternoon and early evening (consistent with club operation) and typically not exceeding 10 vehicles per hour. The maximum hourly traffic volume for the duration of the tube count occurred between 7pm and 8pm on Friday, with 17 vehicles counted.

Figure 2.4: Existing AM Peak Hour Traffic Volumes

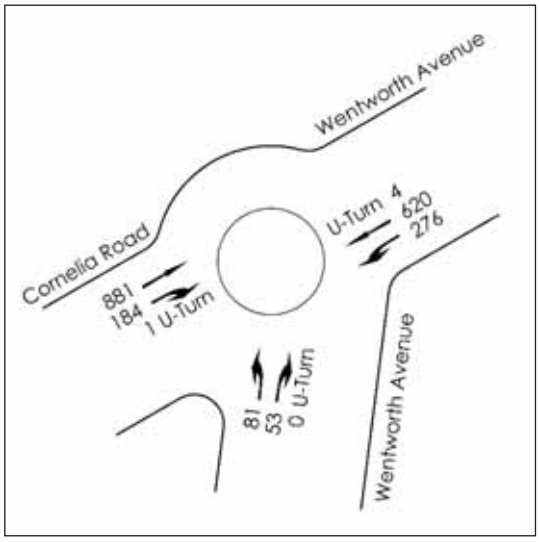


Figure 2.5: Existing PM Peak Hour Traffic Volumes

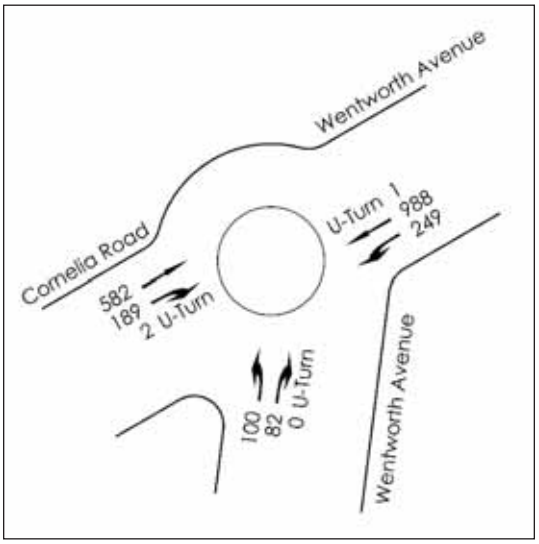
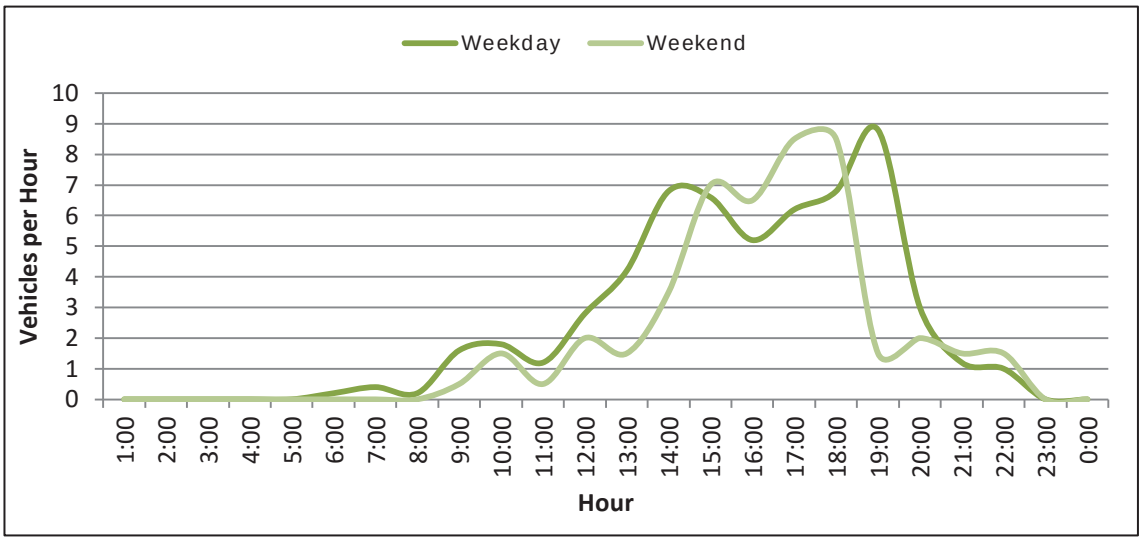


Figure 2.6: Sports Club Access - Tube Count



2.3 Intersection Operation

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION[2], a computer based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the RMS, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service.

[2] Program used under license from Akcelik & Associates Pty Ltd.

Table 2.1 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service.

Table 2.1: SIDRA INTERSECTION Level of Service Criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 2.2 presents a summary of the existing operation of the intersection, with full results presented in Appendix B of this report.

Table 2.2: Wentworth Avenue/ Cornelia Road Roundabout - Existing Operating Conditions

Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
AM	Wentworth Avenue (North-east)	0.68	12	55	A
	Cornelia Road	0.72	11	74	A
	Wentworth Avenue (South-west)	0.21	15	10	B
	Overall	**0.72**	**15**	**74**	**B**
PM	Wentworth Avenue (North-east)	0.88	15	143	B
	Cornelia Road	0.56	11	40	A
	Wentworth Avenue (South-west)	0.57	30	38	C
	Overall	**0.88**	**30**	**143**	**C**

On the basis of the above assessment, the roundabout located at intersection of Wentworth Avenue and Cornelia Road currently operates satisfactorily, however is approaching capacity during the PM peak. During the PM peak period, queues on Wentworth Avenue (North-east) were observed to extend to Station Road, and Cornelia Road queues extended onto the rail overbridge at times. This is consistent with the modelling, which approximates a 95th percentile queue of 143m on Wentworth Avenue.

2.4 Car Parking

On-street car parking in the vicinity of the proposed site is unrestricted, and demand was observed to be generally high during the time of the site visits. It is assumed that this is due to the proximity of the site to Toongabbie railway station which is 200 metres south along Wentworth Avenue.

The Toongabbie Bowling and Sports Club has a car park with a capacity of 125 spaces, incorporating disabled parking spaces.

2.5 Public Transport

2.5.1 Trains

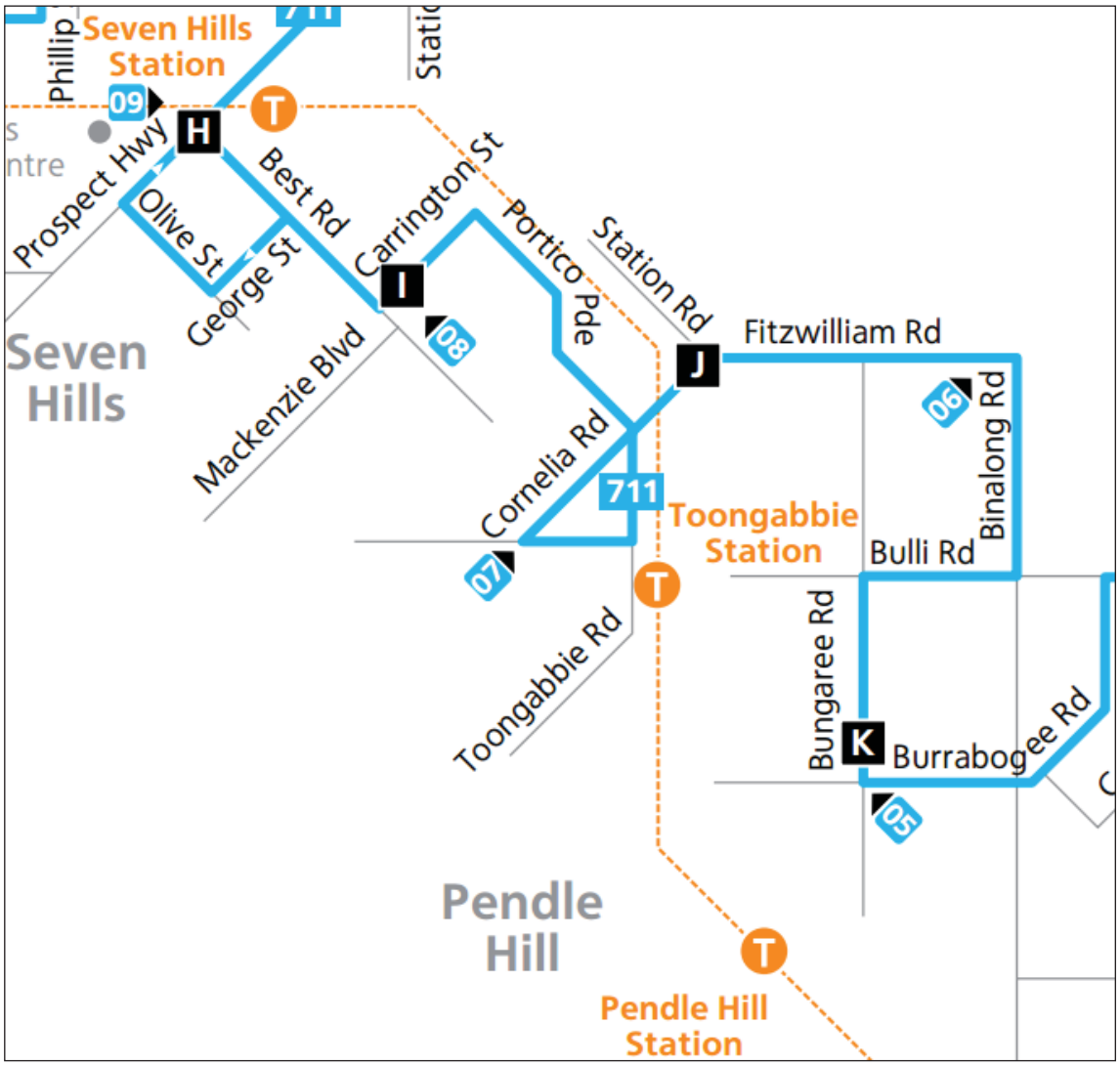
The site is well served by rail, and well within the standard 800 metre catchment radius of a train station. Toongabbie station is primarily serviced by the Western Line (T1), and there are also additional services provided by the Cumberland Line (T5).

2.5.2 Buses

The site is serviced by one bus route (route 711) which connects with Blacktown and Parramatta. The majority of 711 buses are timetabled as wheelchair accessible. Bus stops are located on Wentworth Avenue approximately 175 metres north-east of the site.

A review of the public transport available in the vicinity of the site is illustrated in Figure 2.7.

Figure 2.7: Public Transport Map



Source: http://www.cdcbus.com.au/IgnitionSuite/uploads/docs/711_timetable__1August2014.pdf, accessed 22 June 2015

2.6 Pedestrian and Cycling Infrastructure

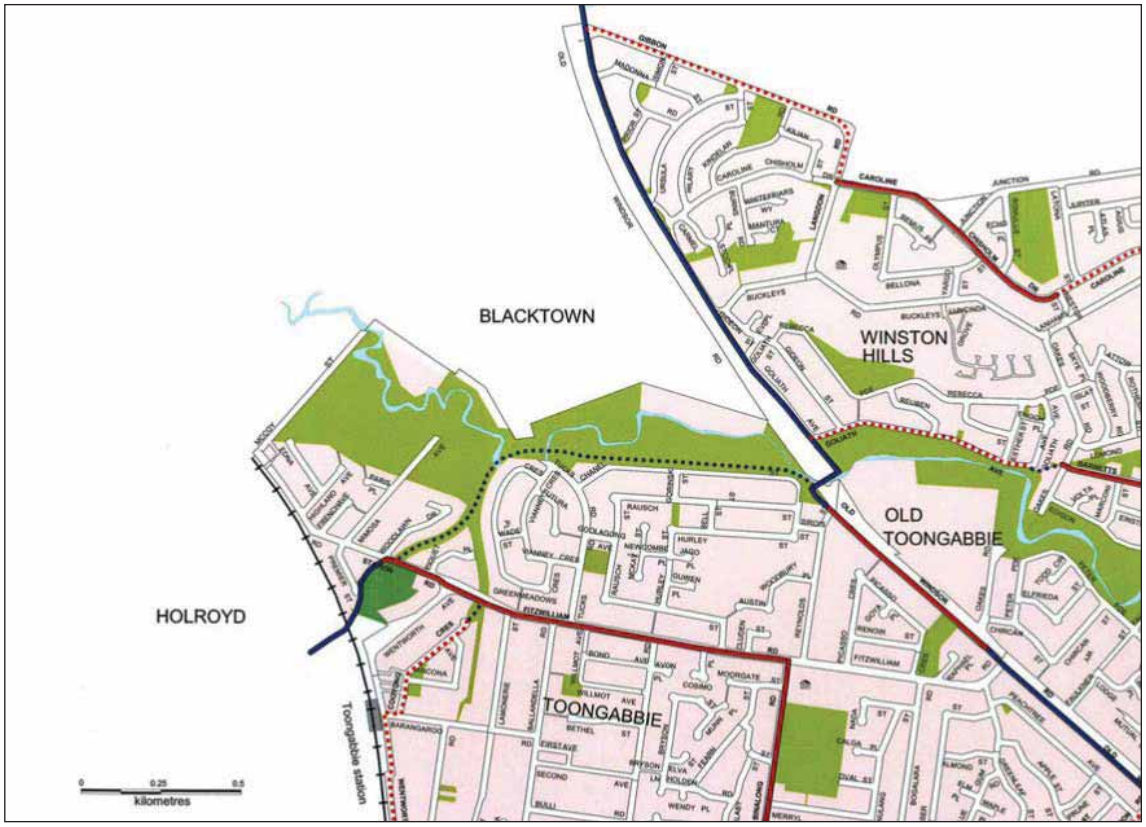
Pedestrian footpaths are located on the southern side of Wentworth Avenue and Cornelia Road. However, there is currently no footpath along the frontage of the subject site.

A pedestrian refuge island is located within Cornelia Avenue, adjacent to the subject site. This allows safe access across Cornelia Avenue and to the Toongabbie Station during higher traffic volume periods.

A shared path runs along the northern bank of Greystanes Creek, north of the site. This provides a connection between Station Road and Portico Parade, and across the rail corridor. The path continues south along the western side of Station Road.

An extract of the Parramatta City Council Bike Map is shown in Figure 2.8.

Figure 2.8: Parramatta Council Bike Map



Source: http://www.parracity.nsw.gov.au/__data/assets/pdf_file/0004/34843/ParramattaBikePlan.pdf, accessed 24 June 2015

3. Development Proposal

3.1 Land Uses

The Site Compatibility Certificate (SCC) application is required prior to the lodgement of a Development Application to allow for the construction of an aged care facility on land zoned RE2 private recreation.

The SSC is being sought with a view to constructing a 130-bed residential aged car facility, over 3-4 levels on the site. It is anticipated that at full operation the facility would have up to 30 staff on-site during daytime shifts. The proposed development layout is shown in Figure 3.1.

Figure 3.1: Development Proposal

Source: Calder Flower Architects – Drawing No. 15280-SCC 09 (Ground Floor Plan) dated 01 May 2016.

3.2 Vehicle Access

Vehicle access to the development site is proposed via the construction of a new leg at the Wentworth Avenue/ Cornelia Road roundabout. This will link to the on-site at-grade car parking facility, porte cochère and loading dock areas for both the site and Toongabbie Bowling and Sports Club. This access road would also satisfy planning restrictions on the site that require the provision of a future path of egress for vehicles from Toongabbie Bowling and Sports Club.

The proposed modifications to the roundabout incorporates the following key design features.

- The new leg has been designed in accordance with Austroads and RMS guidelines, providing a 6 metre wide carriageway with barrier kerbs and suitable for access by vehicles up to 12.5m large rigid vehicles.

- The leg has been designed as a road with mountable pedestrian refuge island so as to avoid potential safety risks associated with the provision of driveways within a roundabout, including rear-end crashes as a result of slower exit speeds.
- The alignment of the Cornelia Road approach to the roundabout could be adjusted to reduce approach speeds and provide a standard roundabout entry layout.
- The existing pedestrian refuge island on Cornelia Road would be modified as a result of the realigned approach to the roundabout.
- The existing access road to the north of Cornelia Road would be removed, allowing for a wide verge area.

The proposed access arrangements via the existing roundabout represent an improvement on the existing access arrangements for the site.

3.3 Parking Supply

The on-site car parking facility provides 31 car spaces for use by staff and visitors. It is not anticipated that residents would have the need to store a vehicle on-site.

The Parramatta Council DCP has no specifications for parking requirements for an aged care facility. As such, car parking requirements for age care facilities can be determined via application of the rates set out in the Guide to Traffic Generating Developments (RMS, 2002). A review of the car parking rates and the anticipated number of beds and staff results in a parking requirement for the proposal as summarised in Table 3.1. It is noted that the SEPP HSPD also identifies appropriate parking rates, which in some instances are lower the RMS rates. On this basis the RMS rates have been used as a conservative approach.

Table 3.1: Parking Requirement

Land Use	Type	Quantum	RMS Rate	Parking Requirement
Housing for aged and disabled persons, specifically hostel, nursing and convalescent homes	Beds	130	1 space per 10 beds	13 spaces
	Employees	30	1 space per 2 employees	15 spaces
			1 Ambulance Bay	1 space
			Total	**29**

Table 3.1 indicates that the development requires 28 car parking spaces, with 13 allocated for use by the visitors for the site. In addition, an appropriately designed ambulance bay should also be provided.

In addition, the Building Code of Australia (BCA) 2013 requires 1 disabled space per 100 parking spaces provided for Class 3 (b) residential land use. As such, the disabled parking requirements for the proposal would include 1 disabled space designed in accordance with AS 2890.6:2009. Given the standard disabled parking module and nature of the development, 2 disabled spaces are provided.

As discussed, the proposed development provides 31 car parking spaces, which complies with the RMS requirements. It is recommended that the visitor spaces are marked to ensure appropriate allocation of spaces.

3.4 Motorcycle and Bicycle Parking

The Parramatta Council DCP has no specifications for motorcycle or bicycle parking requirements for an aged care facility. However in acknowledgement of general changing travel

patterns and the increased use of active modes of travel, the potential to incorporate these facilities should be reviewed at the Development Application stage.

3.5 Loading Areas

The Parramatta Council DCP has no specifications for loading facility requirements for an aged care facility. It is anticipated that the development would require the regular delivery of supplies (food/ medicines/ goods) and linen. As such, a dedicated loading area is provided that consists of one loading bay, designed for use by vehicles up to and including a 9.8m rear lift waste collection vehicle.

3.6 Site Layout Review

The car parks and loading dock layout has been reviewed against the requirements of the Australian Standard for Off Street Car Parking and Commercial Vehicle Facilities (AS2890.1:2004, AS2890.2:2002 and AS2890.6:2009). This assessment included a review of the following:

- bay and aisle width
- circulation roads
- internal queuing
- parking for persons with disabilities
- loading vehicle access and facilities.

It is noted that the car parking spaces will be provided in accordance with the Australian Standards requirements. These spaces are accessed from 5.8m wide two-way aisles.

The porte cochère has been designed to allow a mini bus to park, without impacting on the movement of a 99th percentile vehicle to pass by.

4. Traffic Impact Assessment

4.1 Traffic Generation

Traffic generation estimates for the planning proposal have been sourced from the *Guide to Traffic Generating Developments* (RMS, 2002).

Estimates of peak hour and daily traffic volumes resulting from the proposal are set out in Table 4.1.

Table 4.1: Traffic Generation Estimates

Land Use	Quantum	Peak Hour Traffic Generation Rate	Peak Hour Traffic Generation Estimate (vehicles)
Housing for aged and disabled persons	130-beds	0.1-0.2 per dwelling (bed)	13-26
		Total	**26 vehicle movements/ hour**

Table 4.1 indicates that the site could potentially generate up to 26 vehicle movements in a peak hour.

4.2 Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the:

i configuration of the arterial road network in the immediate vicinity of the site
ii existing operation of intersections providing access between the local and arterial road network
iii distribution of households in the vicinity of the site
iv likely distribution of employee's residences in relation to the site
v configuration of access points to the site.

Having consideration for the above, for the purposes of estimating vehicle movements, the following directional distributions have been assumed:

- Cornelia Road: 45%
- Wentworth Avenue (north-east): 45%
- Wentworth Avenue (south-west): 10%

In addition, the directional split of traffic (i.e. the ratio between the inbound and outbound traffic movements) is assumed to be 75/25 with key traffic movements associated with the arrival of staff/ visitors in the morning and departure in the afternoon.

Based on the above, Figure 4.1 and Figure 4.2 have been prepared to show the estimated marginal increase in turning movements in the vicinity of the subject property following full site development.

It is noted that as the access road would continue to provide a secondary egress path for the Toongabbie Bowling and Sports Club. Vehicles exiting the site have been considered as part of this assessment.

Figure 4.1: AM Peak Hour Post Development Traffic Volumes

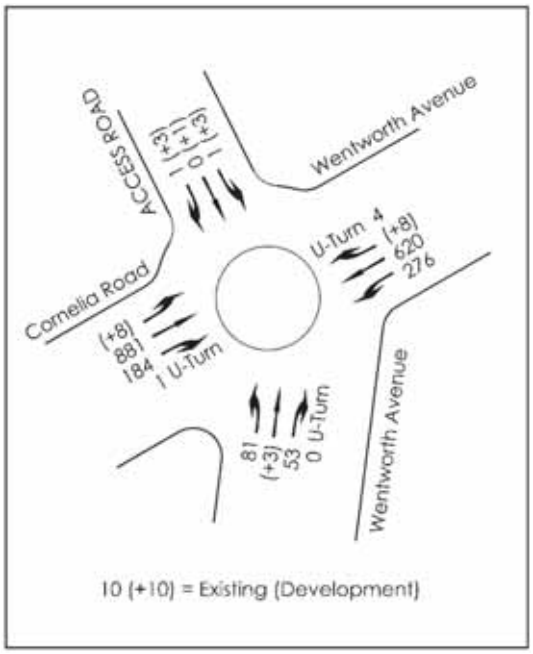
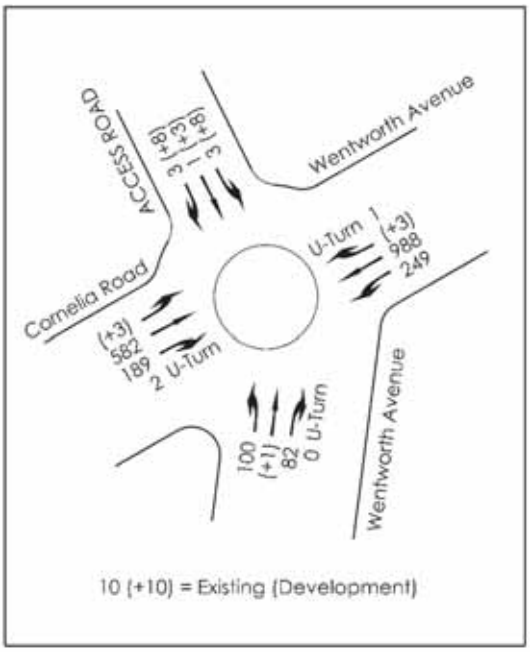


Figure 4.2: PM Peak Hour Post Development Traffic Volumes



4.3 Traffic Impact

An assessment of the impacts that future traffic would have on the surrounding road network can be made by comparing intersection performance prior to and following full site development assuming planning approvals.

The impact of this additional traffic on the intersections in the vicinity of the site has been assessed using SIDRA INTERSECTION. Table 4.2 presents a summary of the anticipated future operation of the intersections following the development of the site, with full results included in Appendix B.

Table 4.2: Wentworth Avenue/ Cornelia Road Roundabout - Future Operating Conditions

Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
AM	Wentworth Avenue (North-east)	0.69	22	58	B
	Access Road	0.02	17	2	B
	Cornelia Road	0.79	12	96	A
	Wentworth Avenue (South-west)	0.22	15	11	B
	Overall	**0.79**	**22**	**96**	**B**
PM	Wentworth Avenue (North-east)	0.90	27	161	B
	Access Road	0.05	8	3	A
	Cornelia Road	0.61	11	47	A
	Wentworth Avenue (South-west)	0.60	32	42	C
	Overall	**0.90**	**32**	**161**	**C**

Against existing traffic volumes in the vicinity of the site, the additional traffic generated by the proposal could not be expected to compromise the safety or function of the surrounding road network. Overall, the intersection would continue to operate at the same levels of service as existing conditions with the introduction of the new leg.

5. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

i The development of a 130-bed residential aged care facility is proposed on Cornelia Road, Toongabbie under the *State Environment Planning Policy Housing for Seniors or People with a Disability*.

ii The provision of bicycle and motorcycle facilities is not required for this development.

iii A loading dock would be provided to accommodate up to and including a 9.8m rear lift waste collection vehicle.

iv The proposed development generates a RMS parking requirement of up to 28 car spaces, including 13 car parking spaces for visitors and 1 disabled parking space.

v The Planning Proposal includes on-site car parking for 31 car spaces within an at-grade car park upon entry to the site, which complies with the above requirements.

vi Based on the RMS Guide, the site would be expected to generate in the order of 26 vehicle movements during a typical weekday peak hour, including some minor additional traffic (less than 10 vehicle movements) associated with the path of egress for vehicles from Toongabbie Bowling and Sports Club (required by site planning restrictions and largely consistent with existing arrangements).

vii Vehicle access to the development site is proposed via the construction of a new leg at the Wentworth Avenue/ Cornelia Road roundabout. This will link to the on-site at-grade car parking facility, porte cochère and loading dock areas for both the site and Toongabbie Bowling and Sports Club, representing an improvement on the existing access arrangements for the site.

viii SIDRA INTERSECTION analysis indicates that there is adequate capacity in the surrounding road network to cater for the traffic generated by the proposed development, with the intersection of Cornelia Road and Wentworth Avenue continuing to operate at a similar Level of Service, although approaching capacity.

Appendix A

Survey Results

GTAconsultants

TURNING MOVEMENT SURVEY

Intersection of Wentworth Avenue (s) & Wentworth Avenue (E),

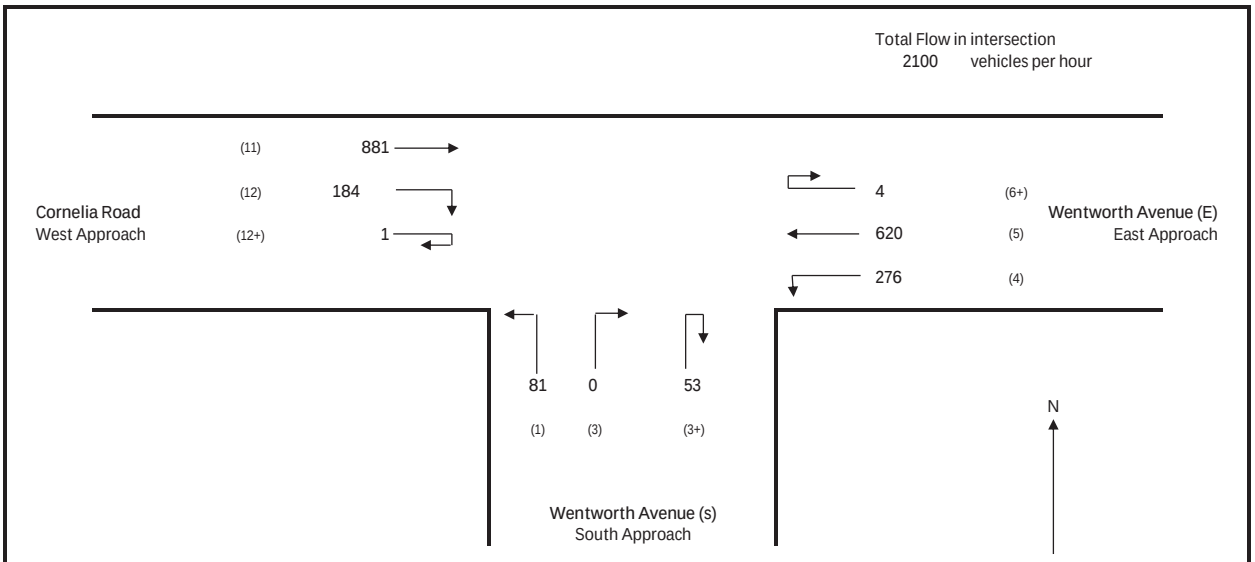
Date: Thursday 21 May 2015

15 minute Data

Time	Movement									Total
	Wentworth Avenue (s) South Approach			Wentworth Avenue (E) East Approach			Cornelia Road West Approach			
	Left 1	Right 3	U Turn 3+	Left 4	Through 5	U Turn 6+	Through 11	Right 12	U Turn 12+	
6:00-6:15										
6:15-6:30										
6:30-6:45										
6:45-7:00										
7:00-7:15	6	0	13	67	97	3	232	39	0	457
7:15-7:30	15	0	18	79	105	1	187	35	0	440
7:30-7:45	20	0	19	74	98	0	199	33	1	444
7:45-8:00	15	0	13	94	138	1	207	41	1	510
8:00-8:15	16	0	17	80	150	0	223	49	0	535
8:15-8:30	25	0	14	46	171	1	224	49	0	530
8:30-8:45	25	0	9	56	161	2	227	45	0	525
8:45-9:00	21	0	8	34	128	0	202	35	0	428
9:00-9:15										
9:15-9:30										
9:30-9:45										
9:45-10:00										
Total	143	0	111	530	1048	8	1701	326	2	3869

Hourly flows

	Time	Movement									Total	
		Wentworth Avenue (s) South Approach			Wentworth Avenue (E) East Approach			Cornelia Road West Approach				
		Left 1	Right 3	U Turn 3+	Left 4	Through 5	U Turn 6+	Through 11	Right 12	U Turn 12+		
	6:00-7:00											
	6:15-7:15											
	6:30-7:30											
	6:45-7:45											
	7:00-8:00	56	0	63	314	438	5	825	148	2	1851	
	7:15-8:15	66	0	67	327	491	2	816	158	2	1929	
	7:30-8:30	76	0	63	294	557	2	853	172	2	2019	
Peak	7:45-8:45	81	0	53	276	620	4	881	184	1	2100	Peak
	8:00-9:00	87	0	48	216	610	3	876	178	0	2018	
	8:15-9:15											
	8:30-9:30											
	8:45-9:45											
	9:00-10:00											
	Peak Hour	81	0	53	276	620	4	881	184	1	2100	



AM PEAK HOUR FLOW

Intersection of Cornelia Road & Wentworth Avenue (s)

Date: Thursday 21 May 2015

Time: 7:45-8:45

GTAconsultants

TURNING MOVEMENT SURVEY

Intersection of Wentworth Avenue (s) & Wentworth Avenue (E),

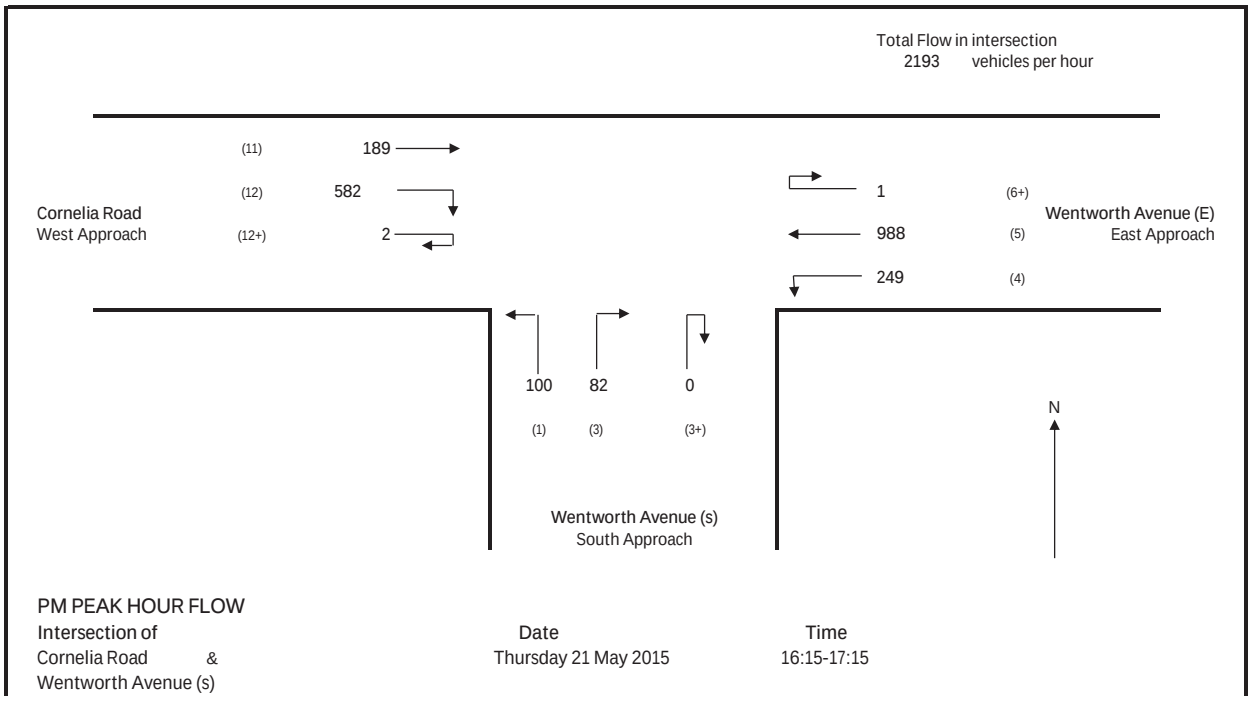
Date: Thursday 21 May 2015

15 minute Data

Time	Movement									
	Wentworth Avenue (s) South Approach			Wentworth Avenue (E) East Approach			Cornelia Road West Approach			
	Left 1	Right 3	U Turn 3+	Left 4	Through 5	U Turn 6+	Through 11	Right 12	U Turn 12+	
15:00-15:15										
15:15-15:30										
15:30-15:45										
15:45-16:00	0	0	0	0	0	0	0	0	0	
16:00-16:15	17	8	1	76	220	2	37	133	0	494
16:15-16:30	27	19	0	70	231	0	48	139	1	535
16:30-16:45	14	25	0	56	234	1	29	133	0	492
16:45-17:00	36	20	0	53	253	0	66	131	0	559
17:00-17:15	23	18	0	70	270	0	46	179	1	607
17:15-17:30	29	19	0	31	172	0	36	140	0	427
17:30-17:45	34	30	0	46	214	0	42	148	0	514
17:45-18:00	22	26	0	46	217	0	34	148	1	494
18:00-18:15	36	41	0	41	193	0	43	121	0	475
18:15-18:30	45	48	0	39	174	0	42	136	0	484
18:30-18:45										
18:45-19:00										
Total	283	254	1	528	2178	3	423	1408	3	5081

Hourly flows

	Time	Movement									Total	
		Wentworth Avenue (s) South Approach			Wentworth Avenue (E) East Approach			Cornelia Road West Approach				
		Left 1	Right 3	U Turn 3+	Left 4	Through 5	U Turn 6+	Through 11	Right 12	U Turn 12+		
	15:00-16:00											
	15:15-16:15											
	15:30-16:30											
	15:45-16:45	58	52	1	202	685	3	114	405	1	1521	
	16:00-17:00	94	72	1	255	938	3	180	536	1	2080	
Peak	16:15-17:15	100	82	0	249	988	1	189	582	2	2193	Peak
	16:30-17:30	102	82	0	210	929	1	177	583	1	2085	
	16:45-17:45	122	87	0	200	909	0	190	598	1	2107	
	17:00-18:00	108	93	0	193	873	0	158	615	2	2042	
	17:15-18:15	121	116	0	164	796	0	155	557	1	1910	
	17:30-18:30	137	145	0	172	798	0	161	553	1	1967	
	17:45-18:45											
	18:00-19:00											
	Peak Hour	100	82	0	249	988	1	189	582	2	2193	



PM PEAK HOUR FLOW

Intersection of Cornelia Road & Wentworth Avenue (s)

Date: Thursday 21 May 2015

Time: 16:15-17:15

CfeIT bob.white@cfeit.com (02) 9740 8600

Traffic Count Summary Report

Count Number	**2130**	Ref : **GTA**	**Lat/Long : S33 47.094 / E150 57.106**	**UBD 189 P-6**
Street	**CORNELIA ROAD, TOONBABBIE : From ELLAM DRIVE to FITZWILLAM ROAD : NORTH BOUND**			
Location	On service road to Club, on Integral Energy Power Box 13881			*Carriageway*

TOTAL COUNT MATRIX

Start Date	21-MAY-15
Start Time	100
Duration	7 DAYS
Interval	1 HOUR

Weekly 50th Percentile Speed	16
Weekly 85th Percentile Speed	20
Five Day AADT	58
Seven Day AADT	55

	MON *25TH*	TUE *26TH*	WED *27TH*	THU *21ST*	FRI *22ND*	SAT *23RD*	SUN *24TH*	5 Day Total	5 Day Average	7 Day Total	7 Day Average
Midnight - 1am	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**
1am - 2am	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**
2am - 3am	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**
3am - 4am	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**
4am - 5am	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**
5am - 6am	0	0	0	0	1	0	0	**1**	**0**	**1**	**0**
6am - 7am	1	1	0	0	0	0	0	**2**	**0**	**2**	**0**
7am - 8am	0	1	0	0	0	0	0	**1**	**0**	**1**	**0**
8am - 9am	2	1	2	1	2	1	0	**8**	**2**	**9**	**1**
9am - 10am	**3**	**2**	2	0	2	**2**	1	**9**	**2**	**12**	**2**
10am - 11am	1	0	**4**	0	1	1	0	**6**	**1**	**7**	**1**
11am - Midday	2	1	1	**6**	**4**	1	**3**	**14**	**3**	**18**	**3**
Midday - 1pm	5	2	5	6	3	0	3	**21**	**4**	**24**	**3**
1pm - 2pm	3	5	**7**	13	6	2	5	**34**	**7**	**41**	**6**
2pm - 3pm	4	4	6	**14**	5	6	8	**33**	**7**	**47**	**7**
3pm - 4pm	2	6	4	8	6	7	6	**26**	**5**	**39**	**6**
4pm - 5pm	5	5	**7**	6	8	**9**	8	**31**	**6**	**48**	**7**
5pm - 6pm	5	7	5	8	9	8	**9**	**34**	**7**	**51**	**7**
6pm - 7pm	**6**	**9**	5	7	**17**	1	2	**44**	**9**	**47**	**7**
7pm - 8pm	2	2	6	1	4	1	3	**15**	**3**	**19**	**3**
8pm - 9pm	0	0	1	3	2	1	2	**6**	**1**	**9**	**1**
9pm - 10pm	1	1		0	3	3	0	**5**	**1**	**8**	**1**
10pm - 11pm	0	0		0	0	0	0	**0**	**0**	**0**	**0**
11pm - Midnight	0	0		0	0	0	0	**0**	**0**	**0**	**0**
Total	**42**	**47**	**55**	**73**	**73**	**43**	**50**	**290**	**58**	**383**	**54**

 CFE Information Technologies

Data displayed has been compiled from pneumatic traffic count processes and is subject to the documented limitations

CfeIT bob.white@cfeit.com (02) 9740 8600

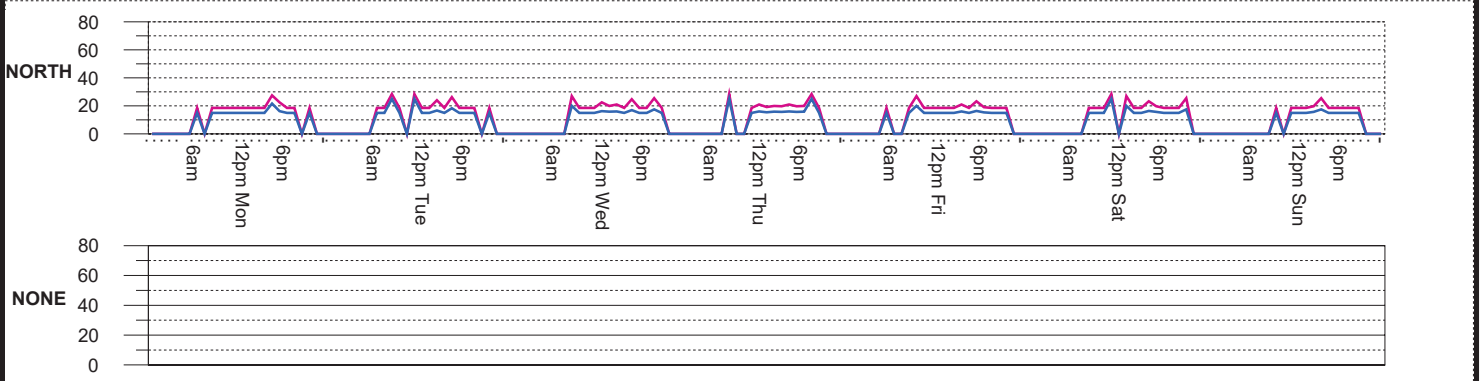
One Page Summary

Count Number	**2130** **Lat/Long : S33 47.094 / E150 57.106** **UBD 189 P-6**
Street	**CORNELIA ROAD, TOONBABBIE : Between ELLAM DRIVE & FITZWILLAM ROAD (bidirectional)**
Location	On service road to Club, on Integral Energy Power Box 13881

Start Date	21-MAY-15
Start Time	100
Duration	7 DAYS
Interval	1 HOUR

Speed Limit 0	NORTH	NONE	COMBINED
Weekly 50th Percentile Speed	**16**	**16**	**16**
Weekly 85th Percentile Speed	**20**	**20**	**20**
Five Day AADT	**58**		**58**
Seven Day AADT	**55**		**55**

	MON 25-MAY-15			TUE 26-MAY-15			WED 27-MAY-15			THU 21-MAY-15			FRI 22-MAY-15			SAT 23-MAY-15			SUN 24-MAY-15			SEVENDAY AVERAGE		
	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir
85%ile	19.4		19.4	19.5		19.5	19.9		19.9	19.8		19.8	19.1		19.1	19.9		19.9	19.0		19.0	19.5		19.5
50%ile	15.5		15.5	15.6		15.6	15.9		15.9	15.8		15.8	15.4		15.4	15.8		15.8	15.3		15.3	15.6		15.6
> 10 k	42		42	47		47	55		55	73		73	73		73	43		43	50		50	54.71		54.71
%age	99.4		99.4	99.5		99.5	99.6		99.6	99.7		99.7	99.7		99.7	99.4		99.4	99.5		99.5	99.6		99.6
> 20 k	4		4	5		5	8		8	10		10	5		5	6		6	3		3	5.857		5.857
%age	9.5		9.5	10.6		10.6	14.5		14.5	13.7		13.7	6.8		6.8	13.9		13.9	6.0		6.0	10.7		10.7



	MON 25-MAY-15			TUE 26-MAY-15			WED 27-MAY-15			THU 21-MAY-15			FRI 22-MAY-15			SAT 23-MAY-15			SUN 24-MAY-15			SEVENDAY AVERAGE		
	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir	NORTH	NONE	BiDir
Short %	92.9		92.9	95.7		95.7	92.7		92.7	93.2		93.2	91.8		91.8	97.7		97.7	98.0		98.0	94.3		94.3
Med %	7.1		7.1	4.3		4.3	7.3		7.3	6.8		6.8	8.2		8.2	2.3		2.3	2.0		2.0	5.7		5.7
Long %	.0		.0	.0		.0	.0		.0	.0		.0	.0		.0	.0		.0	.0		.0	.0		.0
AM Pk Vo	3		3	2		2	4		4	6		6	4		4	2		2	3		3	3		3
PM Pk Vo	6		6	9		9	7		7	14		14	17		17	9		9	9		9	10		10
7-7pm	38		38	43		43	48		48	69		69	63		63	38		38	45		45	49		49
24Hr Tot	42		42	47		47	55		55	73		73	73		73	43		43	50		50	55		55
Class 0	2		2	0		0	3		3	1		1	1		1	2		2	1		1	1		1
Class 1	37		37	45		45	46		46	67		67	66		66	40		40	48		48	50		50
Class 2	0		0	0		0	2		2	0		0	0		0	0		0	0		0			
Class 3	2		2	1		1	3		3	5		5	4		4	1		1	0		0	2		2
Class 4	1		1	0		0	0		0	0		0	2		2	0		0	1		1	1		1
Class 5	0		0	1		1	1		1	0		0	0		0	0		0	0		0			
Class 6	0		0	0		0	0		0	0		0	0		0	0		0	0		0			
Class 7	0		0	0		0	0		0	0		0	0		0	0		0	0		0			
Class 8	0		0	0		0	0		0	0		0	0		0	0		0	0		0			
Class 9	0		0	0		0	0		0	0		0	0		0	0		0	0		0			
Class 10	0		0	0		0	0		0	0		0	0		0	0		0	0		0			
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Class 12	0		0	0		0	0		0	0		0	0		0	0		0	0		0			
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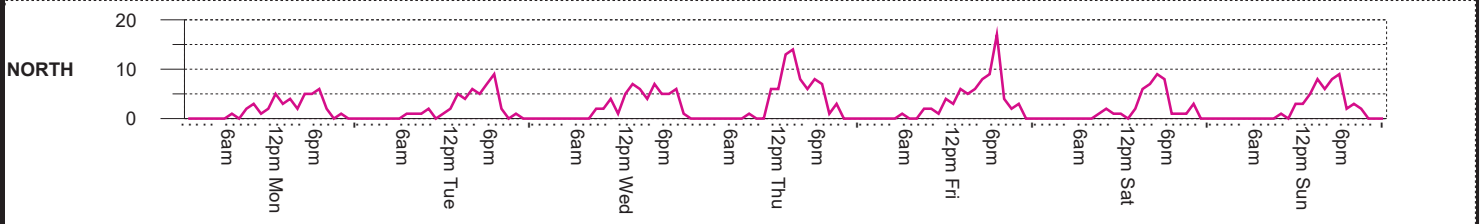

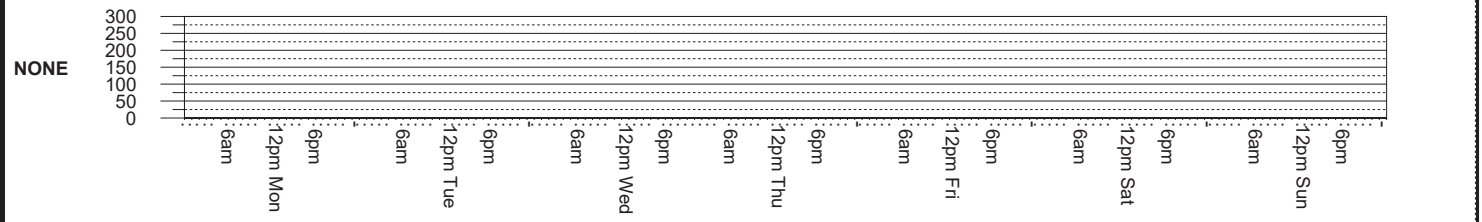

Data displayed has been compiled from pneumatic traffic count processes and is subject to the documented limitations

Appendix B

SIDRA INTERSECTION Results

MOVEMENT SUMMARY

Site: Wentworth Ave/ Cornelia Road - Existing AM Peak

Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Wentworth Ave											
25	T1	291	5.0	0.675	5.9	LOS A	7.6	55.1	0.66	0.62	52.3
26a	R1	653	5.0	0.675	9.3	LOS A	7.6	55.1	0.66	0.62	51.7
26u	U	4	5.0	0.675	12.2	LOS A	7.6	55.1	0.66	0.62	52.9
Approach		947	5.0	0.675	8.2	LOS A	7.6	55.1	0.66	0.62	51.9
West: Cornelia Rd											
10a	L1	927	5.0	0.719	4.5	LOS A	10.2	74.3	0.39	0.47	54.1
12b	R3	194	5.0	0.719	10.2	LOS A	10.2	74.3	0.39	0.47	54.7
12u	U	1	5.0	0.719	11.2	LOS A	10.2	74.3	0.39	0.47	55.1
Approach		1122	5.0	0.719	5.5	LOS A	10.2	74.3	0.39	0.47	54.2
SouthWest: Wentworth Ave											
30b	L3	85	5.0	0.210	8.8	LOS A	1.3	9.8	0.77	0.79	51.2
31	T1	56	5.0	0.210	8.6	LOS A	1.3	9.8	0.77	0.79	52.7
32u	U	1	5.0	0.210	15.0	LOS B	1.3	9.8	0.77	0.79	53.3
Approach		142	5.0	0.210	8.8	LOS A	1.3	9.8	0.77	0.79	51.8
All Vehicles		2212	5.0	0.719	6.9	LOS A	10.2	74.3	0.53	0.55	53.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Wentworth Ave/ Cornelia Road - Existing PM Peak

Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Wentworth Ave											
25	T1	262	5.0	0.882	8.7	LOS A	19.6	142.7	0.95	0.68	50.8
26a	R1	1040	5.0	0.882	12.1	LOS A	19.6	142.7	0.95	0.68	50.2
26u	U	1	5.0	0.882	15.1	LOS B	19.6	142.7	0.95	0.68	51.3
Approach		1303	5.0	0.882	11.4	LOS A	19.6	142.7	0.95	0.68	50.3
West: Cornelia Rd											
10a	L1	613	5.0	0.555	4.5	LOS A	5.5	39.9	0.38	0.51	53.9
12b	R3	199	5.0	0.555	10.2	LOS A	5.5	39.9	0.38	0.51	54.5
12u	U	2	5.0	0.555	11.2	LOS A	5.5	39.9	0.38	0.51	54.9
Approach		814	5.0	0.555	5.9	LOS A	5.5	39.9	0.38	0.51	54.0
SouthWest: Wentworth Ave											
30b	L3	105	5.0	0.572	23.3	LOS B	5.3	38.4	1.00	1.12	42.6
31	T1	86	5.0	0.572	23.1	LOS B	5.3	38.4	1.00	1.12	43.6
32u	U	1	5.0	0.572	29.5	LOS C	5.3	38.4	1.00	1.12	44.1
Approach		193	5.0	0.572	23.2	LOS B	5.3	38.4	1.00	1.12	43.0
All Vehicles		2309	5.0	0.882	10.5	LOS A	19.6	142.7	0.75	0.66	50.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Wentworth Ave/ Cornelia Road - PD AM Peak

Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Wentworth Ave											
25	T1	291	5.0	0.689	5.9	LOS A	7.9	57.4	0.69	0.63	52.1
26a	R1	653	5.0	0.689	9.3	LOS A	7.9	57.4	0.69	0.63	51.5
26b	R3	8	0.0	0.689	22.3	LOS B	7.9	57.4	0.69	0.63	16.8
26u	U	4	5.0	0.689	12.3	LOS A	7.9	57.4	0.69	0.63	52.7
Approach		956	5.0	0.689	8.4	LOS A	7.9	57.4	0.69	0.63	50.8
North: Site Access											
7b	L3	4	0.0	0.024	16.8	LOS B	0.2	1.7	1.00	0.65	15.4
9a	R1	1	0.0	0.024	16.8	LOS B	0.2	1.7	1.00	0.65	15.5
9	R2	4	0.0	0.024	16.8	LOS B	0.2	1.7	1.00	0.65	15.6
Approach		9	0.0	0.024	16.8	LOS B	0.2	1.7	1.00	0.65	15.5
West: Cornelia Rd											
10	L2	8	0.0	0.793	8.9	LOS A	13.1	95.9	0.52	0.49	16.9
10a	L1	927	5.0	0.793	4.9	LOS A	13.1	95.9	0.52	0.49	53.6
12b	R3	194	5.0	0.793	10.7	LOS A	13.1	95.9	0.52	0.49	54.2
12u	U	1	5.0	0.793	11.6	LOS A	13.1	95.9	0.52	0.49	54.6
Approach		1131	5.0	0.793	5.9	LOS A	13.1	95.9	0.52	0.49	52.9
SouthWest: Wentworth Ave											
30b	L3	85	5.0	0.220	8.9	LOS A	1.4	10.4	0.78	0.80	51.0
30a	L1	3	0.0	0.220	15.1	LOS B	1.4	10.4	0.78	0.80	16.7
31	T1	56	5.0	0.220	8.8	LOS A	1.4	10.4	0.78	0.80	52.5
32u	U	1	5.0	0.220	15.2	LOS B	1.4	10.4	0.78	0.80	53.1
Approach		145	4.9	0.220	9.0	LOS A	1.4	10.4	0.78	0.80	49.3
All Vehicles		2241	4.9	0.793	7.2	LOS A	13.1	95.9	0.61	0.57	51.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Wentworth Ave/ Cornelia Road - PD PM Peak

Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Wentworth Ave											
25	T1	262	5.0	0.898	10.1	LOS A	22.0	160.9	0.99	0.73	49.9
26a	R1	1040	5.0	0.898	13.5	LOS A	22.0	160.9	0.99	0.73	49.3
26b	R3	3	0.0	0.898	26.5	LOS B	22.0	160.9	0.99	0.73	49.4
26u	U	1	5.0	0.898	16.5	LOS B	22.0	160.9	0.99	0.73	50.4
Approach		1306	5.0	0.898	12.9	LOS A	22.0	160.9	0.99	0.73	49.4
North: Site Access											
7b	L3	12	0.0	0.045	7.5	LOS A	0.4	2.5	0.87	0.62	16.0
9a	R1	4	0.0	0.045	7.5	LOS A	0.4	2.5	0.87	0.62	16.1
9	R2	12	0.0	0.045	7.5	LOS A	0.4	2.5	0.87	0.62	16.2
Approach		27	0.0	0.045	7.5	LOS A	0.4	2.5	0.87	0.62	16.1
West: Cornelia Rd											
10	L2	3	0.0	0.610	8.7	LOS A	6.4	46.5	0.43	0.52	51.6
10a	L1	613	5.0	0.610	4.7	LOS A	6.4	46.5	0.43	0.52	53.6
12b	R3	199	5.0	0.610	10.4	LOS A	6.4	46.5	0.43	0.52	54.2
12u	U	2	5.0	0.610	11.4	LOS A	6.4	46.5	0.43	0.52	54.6
Approach		817	5.0	0.610	6.1	LOS A	6.4	46.5	0.43	0.52	53.8
SouthWest: Wentworth Ave											
30b	L3	105	5.0	0.604	26.1	LOS B	5.7	41.7	1.00	1.13	41.1
30a	L1	1	0.0	0.604	32.2	LOS C	5.7	41.7	1.00	1.13	40.9
31	T1	86	5.0	0.604	26.0	LOS B	5.7	41.7	1.00	1.13	42.1
32u	U	1	5.0	0.604	32.4	LOS C	5.7	41.7	1.00	1.13	42.5
Approach		194	5.0	0.604	26.2	LOS B	5.7	41.7	1.00	1.13	41.5
All Vehicles		2344	4.9	0.898	11.5	LOS A	22.0	160.9	0.80	0.69	48.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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APPENDIX 3

Flood Study

Opal Aged Care

Flood Impact Report and Draft Flood Risk and Emergency Response Plan: 12 Station Road, Toongabbie, NSW

P1605655JR01V04
December 2016

Limitations Statement

The sole purpose of this report and the associated services performed by Martens & Associates Pty Ltd is to prepare a Draft Flood Risk Emergency Response Plan in accordance with the scope of services set out in the contract / quotation between Martens & Associates Pty Ltd and Opal Aged Care (hereafter known as the Client). That scope of works and services were defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the site.

Martens & Associates Pty Ltd derived the data in this report primarily from a number of sources which may include for example site inspections, correspondence regarding the proposal, examination of records in the public domain, interviews with individuals with information about the site or the project, and field explorations conducted on the dates indicated. The passage of time, manifestation of latent conditions or impacts of future events may require further examination / exploration of the site and subsequent data analyses, together with a re-evaluation of the findings, observations and conclusions expressed in this report.

In preparing this report, Martens & Associates Pty Ltd may have relied upon and presumed accurate certain information (or absence thereof) relative to the site. Except as otherwise stated in the report, Martens & Associates Pty Ltd has not attempted to verify the accuracy of completeness of any such information (including for example survey data supplied by others).

The findings, observations and conclusions expressed by Martens & Associates Pty Ltd in this report are not, and should not be considered an opinion concerning the completeness and accuracy of information supplied by others. No warranty or guarantee, whether express or implied, is made with respect to the data reported or to the findings, observations and conclusions expressed in this report. Further, such data, findings and conclusions are based solely upon site conditions, information and drawings supplied by the Client *etc*. in existence at the time of the investigation.

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the provisions of the agreement between Martens & Associates Pty Ltd and the Client. Martens & Associates Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

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All enquiries regarding this project are to be directed to the Project Manager.

Executive Summary

This report has been prepared to assess the impact of the proposed development at 12 Station Road, Toongabbie on flooding behaviour, prepare a risk assessment and a flood emergency response plan for the development.

Flooding behaviour was analysed using a DRAINS hydrological model and 20 year ARI, 100 year ARI and PMF flood levels from flood maps provided by council. Risk assessments for the 100 year ARI event and PMF event were undertaken to identify the potential hazards affecting the development due to flooding.

Results indicate that the site grounds are generally unaffected by flooding up to the 100 year ARI event. Site grounds are inundated in PMF events, however all habitable levels are located at or above the PMF event flood level. Risk assessments indicate that the risk levels caused by hazards to persons, structures, services and vehicles up to the PMF event are generally low to very low.

Based on the expected flooding behaviour and risk levels, this report provides and describes several flood risk mitigation measures, including:

- Features incorporated into design of the proposed development.
- A proposed on-site flood warning system.
- Preliminary flood emergency response plan which will form part of the development's overall emergency management plan.

Contents

1 Introduction

1.1 Overview

Martens & Associates have been engaged to provide a Flood Impact Report and Draft Flood Risk and Emergency Response Plan for the proposed development at 12 Station Road, Toongabbie, NSW (the "site").

1.2 Site Details

Table 1 summarises general site details.

Table 1: Site details.

Element	Site Details
Site Address	12 Station Road, Toongabbie, NSW
Lot/DP	Lots 7, 8, 9, DP22506, and Lot 30 DP 1106209. Proposed to subdivide to form Lot 502
Site Area	4,887 m^2
Neighbouring Environment	The site is bounded by Girraween Creek to the west, Toongabbie Sports and Bowling Club to the north, Wentworth Avenue to the east and residential apartment buildings to the south
Site Elevation	Approximately 29.3 mAHD
LGA	Parramatta City Council

1.3 Relevant Guidelines

This report has been prepared with reference to the following guidelines:

- Department of Infrastructure, Planning and Natural Resources (2005) *Floodplain Development Manual: The management of flood liable land.*
- Parramatta Local Emergency Management Committee (2009) *Parramatta Local Disaster Plan (DISPLAN).*
- Parramatta City Council (2006) *Local Floodplain Risk Management Policy.*
- Parramatta City Council (2011) *Parramatta Development Control Plan.*

2 Proposed Development

2.1 Overview

This section provides a description of the proposed development.

2.2 Proposed Development Details

The proposed development comprises a 128 bed residential care facility providing 24-hour nursing and personal care for seniors who are less independent or frail and have been assessed by the Aged Care Assessment Service. The facility will provide four habitable levels in total, and will be owned and operated by the Client. The facility also incorporates several design features which act as flood risk mitigation measures, which are described in Section 6. Proposed uses for each level of the site are summarised in Table 2.

Table 2: Proposed uses.

Level	Proposed Uses
Ground Floor	• 18 single-bed rooms (dementia units) with ensuite bathrooms; • staff amenities, staff lockers; staff lounge, staff offices; • utility rooms and bulk store rooms; • lounge/activities room and multi-purpose room; • nurses stations; • dining area and servery; • hair salon; • cafe and seating; • reception and office; • hot desk; • lift access; • laundry facilities and garbage rooms; • an external courtyard and outdoor seating; and • at grade parking
Level 1	• 40 single-bed rooms with ensuite bathrooms; • Lounge rooms and terrace areas, • dining area and servery; • nurses station; • staff amenities, • treatment room; • linen cupboards and store rooms; • garbage rooms; and • lift access
Level 2	• 40 single-bed rooms with ensuite bathrooms; • Lounge rooms and terrace areas, • dining area and servery;

Level	Proposed Uses
	• nurses station; • staff amenities, • treatment room; • quiet room; • linen cupboards and store rooms; • garbage rooms; and • lift access
Level 3	• 30 single-bed rooms with ensuite bathrooms; • lounge/activity rooms; • terrace areas including one large landscaped terrace area; • dining area and servery; • nurses station; • staff amenities, • treatment room; • quiet room; • linen cupboards and store rooms; • garbage rooms; and • lift access
Roof Level	• Hydraulic plant room; and • Mechanical plant room

3 Flooding Behaviour

3.1 Overview

This section describes existing flood behaviour in the vicinity of the site and compares flood levels to proposed habitable floor levels of the proposed development.

3.2 Flooding Behaviour

The dominant feature controlling flood behaviour on the site is Girraween Creek located directly adjacent and to the West of the site. Girraween Creek is a heavily vegetated channel with a catchment area of over 900 hectares. The *Parramatta City Council Flood Map* (refer to Attachment A) and the survey plan (RPS Australia East Pty Ltd, March 2016, refer to Attachment B) were used to approximate the flood behaviour at the site.

Flooding is contained within the Girraween Creek channel adjacent to site up to the 20 year ARI event. North of the site on Station road, flood waters begin to back up although access to site via Cornelia Road is unimpeded.

Flooding is generally contained in the Girraween Creek channel adjacent to the site between the 20 and 100 year ARI event. North of the site on Station Road, flood water continues to back up however access to site is still not impeded via Cornelia Road.

Flood water overtops the creek banks and rises to a depth on site of approximately 0.9 m from the 100 year ARI to the PMF event. The *Parramatta City Council Flood Hazard Map* (refer to Attachment A) indicates that the hydraulic hazard (velocity and depth product) for this site is classified as low.

3.3 Flood Hydrographs

Approximate creek hydrographs at the site were produced using preliminary DRAINS hydrological modelling of the upslope catchment. The 20 and 100 year ARI and PMF events of varying durations were modelled. The peak flow hydrographs are presented in Figure 1.

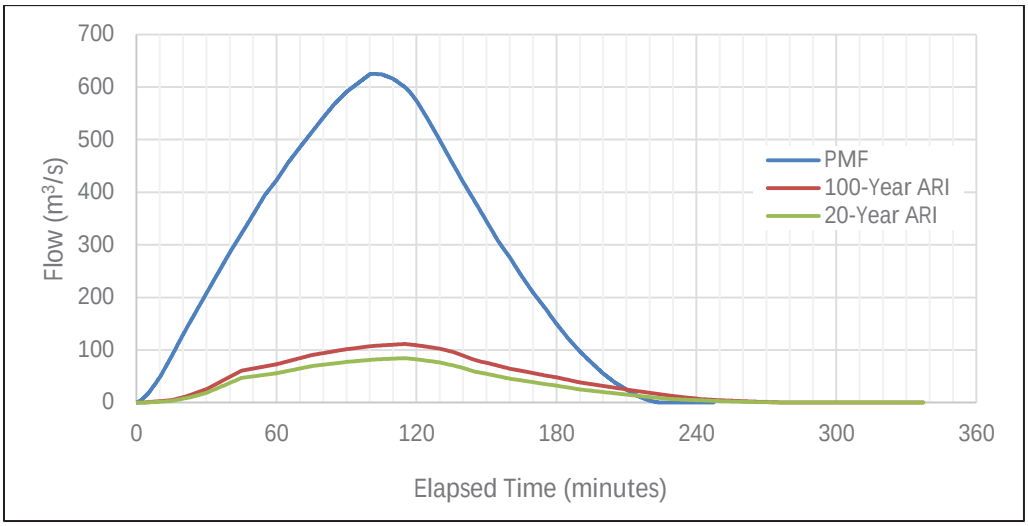


Figure 1: Approximate flood hydrographs for the 20 and 100 year ARI and PMF storm events.

The initial water level adjacent to the site was inferred to be 26.50 mAHD, and flood levels for the 20 and 100 year ARI and the peak PMF event are approximately 28.38 mAHD, 28.61 mAHD and 30.17 mAHD respectively based on *Parramatta City Council Flood Map*. Resulting flood level hydrographs were then created based on these levels and peak flows obtained from DRAINS, and are shown on Figure 2. Various duration PMF events have been included to assess different flooding scenarios.

Figure 2 indicates that the egress road is not inundated in the 20 year ARI and 100 year ARI event. The egress road is inundated in all PMF events; however the ground floor FFL is higher than the PMF flood level which indicates that all residents and staff will be able to shelter in place in the facility for the duration of the storm. For the shorter duration PMF events (1.5 hour to 3 hour), the flood level is expected to rise to the egress road level in 30 to 45 minutes, and will take between 2 hours and 3 hours for the flood level to fall below the egress road level. For the longer duration PMF event (6 hour), the flood level is expected to rise to the egress road level in 70 minutes, and will take 4 hours for the flood level to fall below the egress road level. As a result all persons in the site could have only 30 minutes to evacuate the site in a PMF event. In contrast, all persons would need to shelter in place for up to 5 hours in a longer duration PMF event.

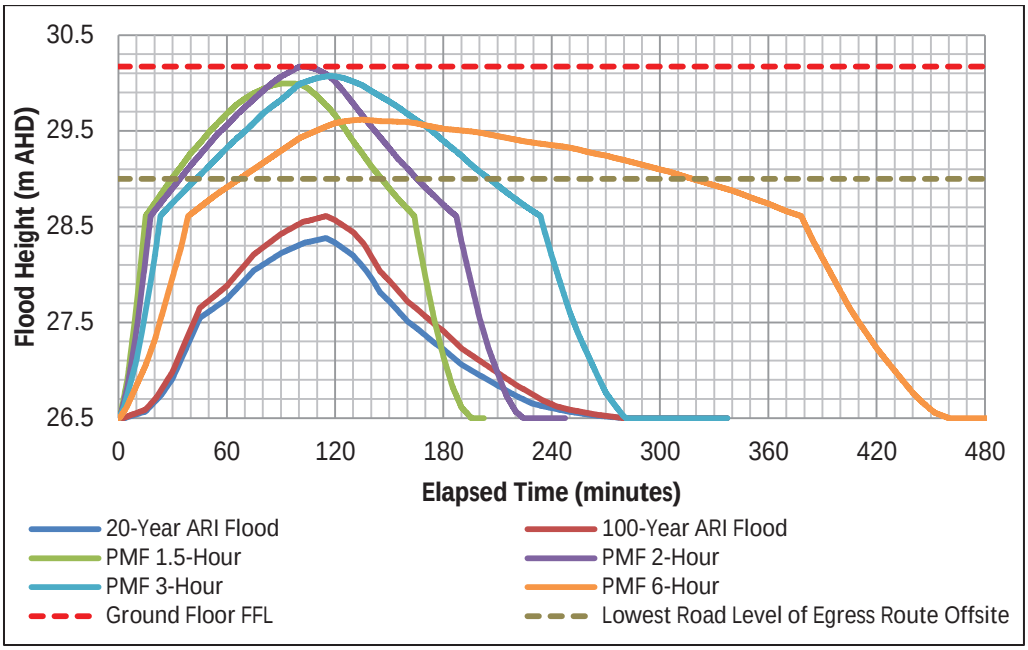


Figure 2: Approximate flood level hydrographs for the 20 and 100 year ARI and PMF events.

3.4 Minimum ARI for Inundation

As the ground floor level is at the PMF event flood level, no habitable levels will be inundated in any storm event. The probability of the flood level reaching the ground floor level has been estimated from Figure 3 at approximately 1 in 1,000,000 years.

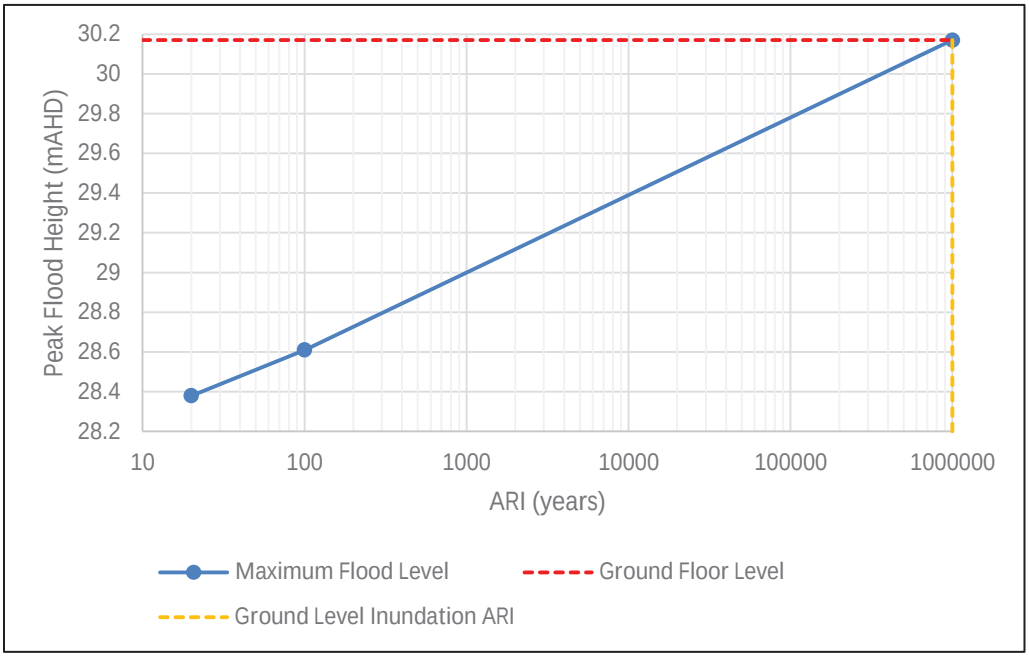


Figure 3: Approximate flood levels for 20 year ARI to PMF storm events.

4 Planning Considerations

4.1 Overview

This section will address the controls and objectives set out in *Parramatta Development Control Plan* (2011) in the context of the site and proposed development.

4.2 Site Compatibility Certificate

A *Certificate of Site Compatibility* (May 2016) issued by the Department of Planning and Environment (refer to Attachment C) has certified that the site is suitable for a residential care facility, subject to a flood evacuation plan being prepared to "demonstrate how people dependent on care can be evacuated in case of an emergency". In compliance with the certificate, this report provides flood risk mitigation measures and a shelter in place evacuation strategy in Section 6, which addresses measures such as flood warning systems, educating staff and residents about flood risks and training staff to perform evacuations.

In this regard it is noted that all habitable floor levels are at or above the PMF event. As outlined in this report, it is safer for residents to shelter in the building during the PMF event compared to evacuating to another place or walking to the streets.

4.3 Flooding Objectives

The proposed development is located in flood liable land and is categorized as a "Low Flood Risk" precinct (low hydraulic hazard and affected by storm events between the 100 year ARI event and PMF event). The proposed development is also classified as "Sensitive Uses and Facilities". Therefore under the Floodplain Matrix or Table 2.7 in *Parramatta Development Control Plan* (2011), the proposed development is classified as an unsuitable land use. A review of the flooding objectives in Section 2.4.2 of *Parramatta Development Control Plan* is provided in Table 3, and is further elaborated upon in the following sections.

Table 3: *Parramatta Development Control Plan* (2011) objectives.

Objective	Description	Response
1	Developers and community are aware of the potential flood hazard and risk	Education and training of staff and residents
2	Manage flood liable land in an economically, environmentally and socially sustainable manner	NA/OS

Objective	Description	Response
3	High flood sensitivity developments are sited and designed to provide reliable access and minimise risk of flooding	Residential levels are situated above the PMF event flood level to eliminate risk of flooding
4	Allow development with a lower sensitivity to flood risk to be located in the flood plain	NA/OS
5	Prevent intensification of the development and use of High Flood Risk Precincts	NA/OS
6	Ensure the proposed development does not expose existing development to increased flood risks	NA/OS
7	Ensure building design and location address flood hazard without having an adverse flood impact on the amenity or ecology of an area	NA/OS
8	Minimise the risk to life by ensuring provision of appropriate access from areas affected by flooding	Flood warning system to be installed and shelter in place evacuation strategy to be implemented, refer to Section 6.
9	Minimise damage to property, including motor vehicles from flooding	Flood resistant materials to be used, adequate warning time given to move vehicles, refer to Section 6.
10	Incorporate the principles of Ecologically Sustainable Development	NA/OS

Notes:

1. NA = Not Applicable.
2. OS = Outside the scope of this report.

4.4 Other Permissible Uses

Based on the Floodplain Matrix or Table 2.7 in *Parramatta Development Control Plan*, other development types permissible with consent in a "Low Flood Risk" precinct are described in Table 4.

Table 4: Development permissible with consent

Land Use Type	Development permissible with consent
Critical Uses and Facilities	Telecommunication facilities; waste management facilities
Residential	Health consulting rooms; home based child care
Commercial and Industrial	Function centres; medical centres

Other development types such as telecommunication facilities are critical for the entire LGA are permissible with consent in "Low Flood Risk" precincts. Similar development types which accommodate a large number of people, such as function centres, or developments which accommodate less mobile people or children are also permissible with consent. These development types carry a comparable risk profile with the proposed development.

4.5 Preliminary Flood Impact Analysis

The site has a minimum elevation of 29 mAHD, approximately 400 mm above the 100 year ARI event flood level. Therefore, the proposed development will not impact the behaviour of floods up to and including the 100 year ARI event.

The proposed development has the potential to marginally impact flood levels (subject to flood modelling) once flood levels reach 29.4 mAHD which correlates to the 1 in 10,000 year event. However, these impacts, which are well above the flood planning level, are not considered significant and are not expected to materially affect flood risk on adjoining properties.

5 Risk Assessment

5.1 Overview

This section describes the method used to assess the risk of various hazards identified that could occur due to a flood event, and the subsequent level of risk that each hazard poses.

5.2 Risk Assessment Method

Table 5 provides risk scores based on the combination of the likelihood and consequence of an event occurring. The definitions used to assess likelihood and consequence are described below.

5.2.1 Likelihood of Occurrence

Broad definitions adopted for each of the likelihood terms are based on the following:

1. Almost certain – Expected to occur regularly.
2. Likely – Will probably occur regularly.
3. Possible – Could occur under adverse circumstances.
4. Unlikely – May occur under very adverse circumstances.
5. Rare – Conceivably could occur under exceptional circumstances.
6. Barely Credible – The event is inconceivable or fanciful.

5.2.2 Consequence

Broad definitions adopted for the consequence terms are based on the following:

1. Consequences to person

   Broadly, consequences to person are rated according to the range of injury that would be expected should exposure to the hazard occur. These range from situations where no injury is expected (insignificant consequence) to possible death or major trauma (major consequence) or likely death (severe consequence).

2. Consequence to chattels and property

   Broadly, consequence to chattels and property are rated according to the range of damage that would be expected should exposure to the hazard occur. These range from situations where no damage is expected (insignificant consequence) to substantive damage (major consequence) or complete destruction (severe consequence).

Table 5: Risk Scores Matrix.

		Consequence				
		Insignificant	**Minor**	**Moderate**	**Major**	**Severe**
Likelihood	**Almost certain**	Moderate	Moderate	High	High	High
	Likely	Low	Moderate	Moderate	High	High
	Possible	Very Low	Low	Moderate	High	High
	Unlikely	Very Low	Very Low	Low	Moderate	High
	Rare	Very Low	Very Low	Low	Moderate	Moderate
	Barely Credible	Very Low	Very Low	Very Low	Very Low	Very Low

5.3 Potential Hazards due to Flooding

5.3.1 Hazards to Persons

There are several ways for persons to become exposed to flood hazards, including:

1. Residents exposed to flood waters within site grounds – this is considered rare to barely credible because the site has a minimum level of 29 mAHD which is higher than the 100 year ARI event flood level of 28.61 mAHD; residents will need to be outside during an event approaching the PMF event for this to occur.

2. Residents exposed to flood waters within building – this is considered rare to barely credible because all habitable floor levels are at or above the PMF event flood level.

3. Residents exposed to flood waters while accessing or leaving the site – this is considered rare because the level of the roundabout on Cornelia Road (approximately 29.0 – 29.5 mAHD) is greater than the 100 year ARI event (28.61 mAHD); residents would need to be trying to access the site during an event approaching the PMF event for this to occur.

Residents in the building may also experience concern during the course of a major flooding event, as vehicular access to and from the site and services may be impacted for approximately 3 to 5 hours in a PMF event. However through the implementation of flood risk mitigation measures, such as educating residents on flood risks and evacuation strategy and having trained staff to assist, resident concerns can be adequately mitigated.

5.3.2 Hazards to Structures

We expect the building to be designed to be resistant to flood forces and make the following assessment:

1. During the 100 year ARI event, all habitable floor levels are not impacted by flood water and therefore the risk is very low.

2. During the PMF event, all habitable floor levels are not impacted by flood water and therefore the risk is very low.

5.3.3 Hazards to Services

Flood waters have the potential to affect services when above the 100 year ARI event flood level and approaching the PMF level. Potential impacts are:

1. Building utilities disrupted.

2. Building lifts disrupted.

3. Medical services disrupted.

4. Food supply disrupted.

The duration of services disruption may be in the order of 3 to 5 hours in a PMF event.

5.3.4 Hazards to Vehicles

Floods can damage cars by: water entering the car components and interior; damage by floating debris; or cars being floated and carried away. The following assessment is made:

1. During the 100 year ARI event, the carpark and the road accessing the site is not affected and therefore the risk is very low.

2. During the PMF event, water depths in the carpark are in the order of 0.5 m and will affect vehicle trafficablity, however the

velocity is expected to be low and therefore the hydraulic hazard and associated risk is low.

5.3.5 Summary

Table 6 and Table 7 summarise the likelihood, consequence and resulting risk score for each hazard described above, for the 100 year ARI and PMF events. It was determined that for all hazards, without implementation of risk mitigation measures, the risk was either low or very low.

Table 6: Risk assessment for the 100 year ARI event.

Hazard	Likelihood	Consequence	Risk Level
Risk to Persons	Barely credible	Insignificant	Very low
Risks to Structure	Barely credible	Insignificant	Very low
Risk to Services	Barely credible	Insignificant	Very low
Risk to Vehicles	Barely credible	Insignificant	Very low

Table 7: Risk assessment for the PMF event.

Hazard	Likelihood	Consequence	Risk Level
Risk to Persons	Rare – Barely credible	Minor	Very low
Risks to Structure	Rare – Barely credible	Minor	Very low
Risk to Services	Rare	Minor	Very low
Risk to Vehicles	Rare – Barely credible	Moderate	Low - very low

6 Flood Risk Mitigation Measures

6.1 Overview

The following section outlines various measures that have been, to be, or are implemented in order to reduce the risk of a flood event to people, structures, services and vehicles. Where applicable, these have been devised with reference to *Parramatta Development Control Plan* (2011) design standards for flood affected developments and the *Parramatta Local Disaster Plan* (DISPLAN) (Parramatta Local Emergency Management Committee, 2009).

6.2 Currently Designed Mitigation Measures

The proposed development is designed to manage evacuation onsite, specifically through a shelter in place evacuation strategy. This strategy is considered to be more effective than evacuating from the site due to the following flood risk mitigation measures:

1. Ground floor level of 30.17 mAHD is at the PMF event flood level. This indicates that all habitable floor levels will not be inundated in any storm event.

2. Switch room, communications room equipment, genset electricity generator and electricity substation are to be installed above the level of the PMF to minimise the disruption to services during any storm event.

3. Buildings are to be constructed using flood-compatible materials up to the PMF event flood level.

4. Flood warning system to be implemented.

All residents, visitors and staff can shelter in place on the ground floor or higher floors during flooding events. As noted in Section 5.3, there will likely be disruption to vehicular access and some services for between 3 and 5 hours in the PMF event, however these risks can be mitigated through the recommended measures in Section 6.3.

In contrast, evacuating from the site in storm events between the 100 year and PMF event will carry a larger risk as people could only have 30 minutes to evacuate from the site in a PMF event before the access roads surrounding the site are inundated, as discussed in Section 2.2. This report recommends shelter in place as the primary evacuation strategy, with site evacuation only occurring following orders received from the NSW State Emergency Service (SES).

6.3 Risk Mitigation Measures

Table 8 summarises risk mitigation measures to be implemented to reduce the risk of floods to people, structures, services, and vehicles. It is noted that several risk mitigation measures have been incorporated into the design of the facility.

Table 8: Risk mitigation measures.

Risk	Mitigation Measure
To persons	• Shelter in place evacuation strategy for all residents to remain on ground floor or higher levels. • Flood evacuation information to be provided in suitable locations. • Staff training in flood hazards and evacuation plans. • Education of residents of the risk of floods and the evacuation plan. • On-site flood warning system. • Flood depth indicator to be installed at the lowest point on Cornelia Road access route.
To structures	• Ground floor to be located above the PMF event flood level to ensure facility is not flooded in any storm event. [1] • Flood resistant materials to be installed in areas affected by the PMF event. [1] • Structural elements to be designed to withstand likely forces from flood water, debris and buoyancy. [1]
To services	• Critical service infrastructure and equipment to be installed above the PMF level. [1] • Genset electricity generator to be located above the PMF level and to be capable of providing emergency electricity supply to the facility in the event that electricity is cut off during a flood or as a result of any other disruption to electricity supply. [1] • Electricity substation to be constructed above the PMF storm event. [1] • Ground floor electrical circuits below the PMF to be isolated during a flood event. • Lifts to be parked above ground level and isolated during a flood event which inundates the building. • Adequate medical equipment to be on level 1 and higher at all times to cater for the facility for up to 4-6 hours of isolation. • Adequate numbers of medical staff to be on site at all times to manage the facility for up to 4-6 hours of isolation. • Adequate food and water to be kept on level 1 and higher to cater for the facility for up to 4-6 hours of isolation.
To vehicles	• Vehicles to be moved off-site to higher ground when flood warning received.

Notes:

1. Incorporated into design of facility.

6.5 On-Site Flood Warning System

An on-site flood warning system is proposed to warn facility management of a flood emergency. This is to be installed in a pit on-site, hydraulically connected to Girraween Creek (refer to Figure 4). Proposed trigger conditions are summarised in Table 9, to be formalised with further analysis at Construction Certificate phase.

Figure 4: Nominal proposed location of flood warning system pit.

Table 9: Flood warning system trigger levels.

Alarm	Condition	Response
1	Creek rises from natural state to 27.5mAHD in less than 30 minutes	Audible and visual alarm to notify residents to evacuate from ground floor to higher floors.
2	Creek rises to 29.6m AHD	Audible and visual alarm to notify residents that inundation of ground level is imminent or possible

6.6 Preliminary Flood Emergency Response Plan

Table 10 describes the actions to be taken by staff to prepare for, and respond to, a flood event. Note that the primary response is to shelter in place; evacuating from the site should only be undertaken if the NSW SES issues the order to evacuate from the site. These measures are to form part of the Client's Emergency Management Plan for the facility.

Table 10: Flood emergency response plan.

PREPARE PHASE
• Staff to be alert to the threat posed by flooding. • Duty Manager to monitor weather warning services: Bureau of Meteorology, NSW SES, Local Emergency Operations Controller (LEOCon). • Staff to be trained in evacuation procedure, and refreshed annually. • Local SES and LEOCon to be advised of shelter in place evacuation strategy. • Install permanent signage in appropriate locations describing flood risk and evacuation route. • Residents to be educated of the hazard posed by floods and the shelter in place evacuation strategy and procedure. • Regular maintenance and testing of flood warning system to be carried out.
RESPOND PHASE
Weather Warning Received: • Staff, visitors and residents to be notified of a potential risk of flood. • Any residents, visitors or staff in external areas to be brought inside. • Duty manager to stay in contact with LEOCon and NSW SES to monitor the situation. • Non-essential electrical equipment on ground floor to be unplugged.
Evacuation Alarm Signalled: • All residents and visitors to shelter at ground floor or higher floors by staff. • Duty Manager to inform NSW SES and LEOCon of shelter in place. • Vehicles to be moved to higher ground if practicable. • Lifts to be parked on level 1 or higher and isolated to prevent accidental use or persons becoming trapped. • All ground-floor electrical circuits to be isolated. • All ground floor electrical equipment to be unplugged. • Staff to reassure residents and visitors to stay calm and prevent any persons from moving out of the building.
If Evacuate from Site Order Issued by NSW SES: • If NSW SES issues the order to evacuate from the site, Duty Manager to remain in communication with NSW SES. • Duty Manager to confirm location of evacuation site, method of evacuation and safest evacuation route with NSW SES, and then inform staff of details. • Staff to lead organised groups of residents, visitors and other staff (all persons) to the evacuation site following the selected evacuation route. • After moving to evacuation site, staff to perform headcount to account for all persons. • Staff to remain with all persons until the NSW SES advises the situation is all clear.
RECOVER PHASE
• Residents to be moved off-site if necessary in consultation with NSW SES and LEOCon. • Required cleaning and repairs to be carried out. • Testing of services and equipment to be conducted by qualified tradesmen before being re-instated. • Review effectiveness of flood response and update response plan if required.

7 Conclusion

This report has found that the site is generally unaffected by flooding up to the 100 year ARI event, however the site is inundated in PMF events. All habitable levels are located at or above the PMF event flood level.

Risk assessments conducted for the development indicate that flooding impact as a result of the development and the risks posed by flooding to the proposed development are very low, with the exception of the risk to vehicles in the PMF event which is considered to be low to very low.

The risks can be further reduced through implementation of the flood risk mitigation measures provided in this report.

8 References

Department of Infrastructure, Planning and Natural Resources (2005) *Floodplain Development Manual: The management of flood liable land.*

Parramatta City Council (2006) *Local Floodplain Risk Management Policy*.

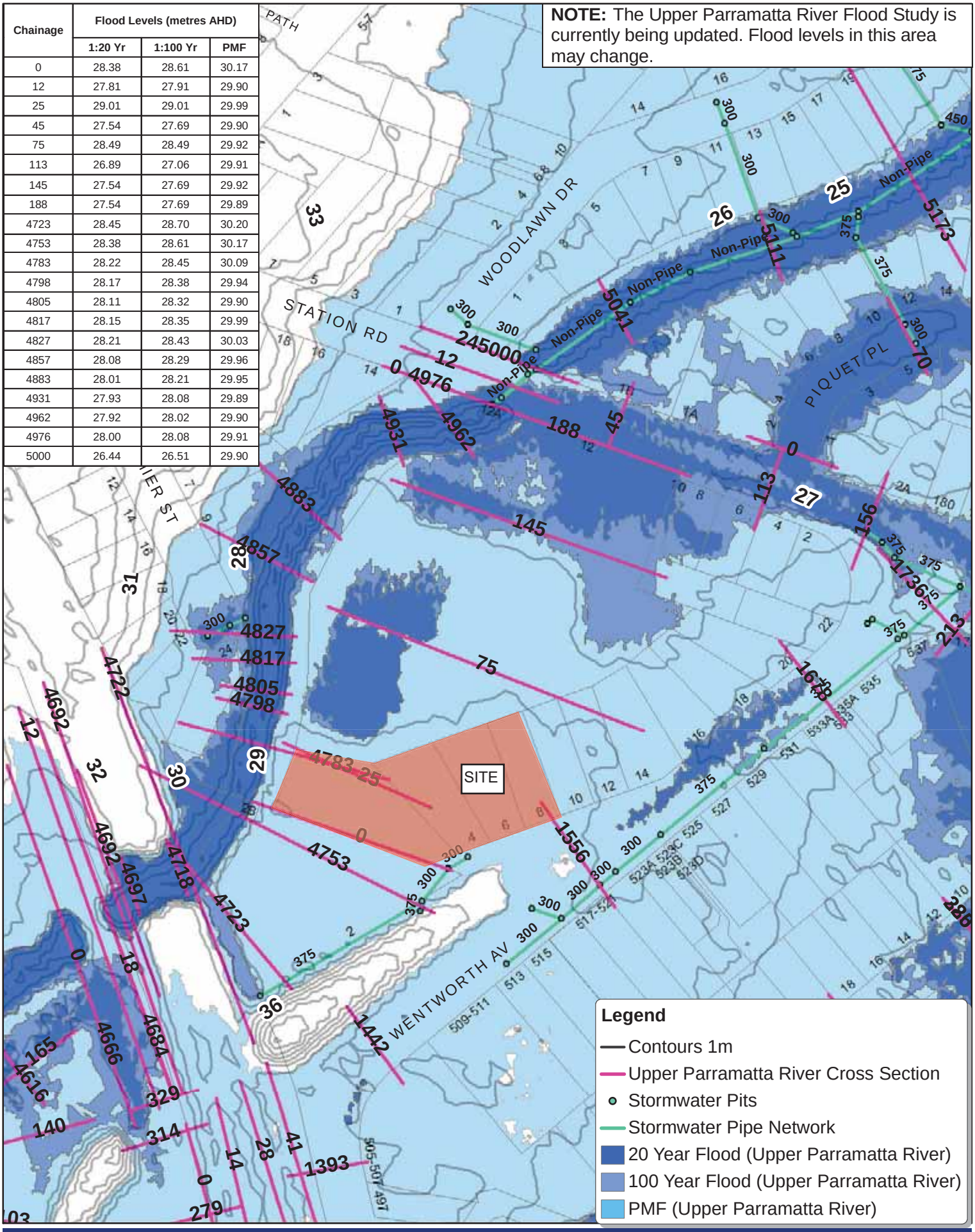
Parramatta City Council (2011) *Parramatta Development Control Plan.*

Parramatta Local Emergency Management Committee (2009) *Parramatta Local Disaster Plan (DISPLAN).*

9 Attachment A – Parramatta City Council Flood Map and Flood Hazard Map

Chainage	Flood Levels (metres AHD)		
	1:20 Yr	1:100 Yr	PMF
0	28.38	28.61	30.17
12	27.81	27.91	29.90
25	29.01	29.01	29.99
45	27.54	27.69	29.90
75	28.49	28.49	29.92
113	26.89	27.06	29.91
145	27.54	27.69	29.92
188	27.54	27.69	29.89
4723	28.45	28.70	30.20
4753	28.38	28.61	30.17
4783	28.22	28.45	30.09
4798	28.17	28.38	29.94
4805	28.11	28.32	29.90
4817	28.15	28.35	29.99
4827	28.21	28.43	30.03
4857	28.08	28.29	29.96
4883	28.01	28.21	29.95
4931	27.93	28.08	29.89
4962	27.92	28.02	29.90
4976	28.00	28.08	29.91
5000	26.44	26.51	29.90

NOTE: The Upper Parramatta River Flood Study is currently being updated. Flood levels in this area may change.



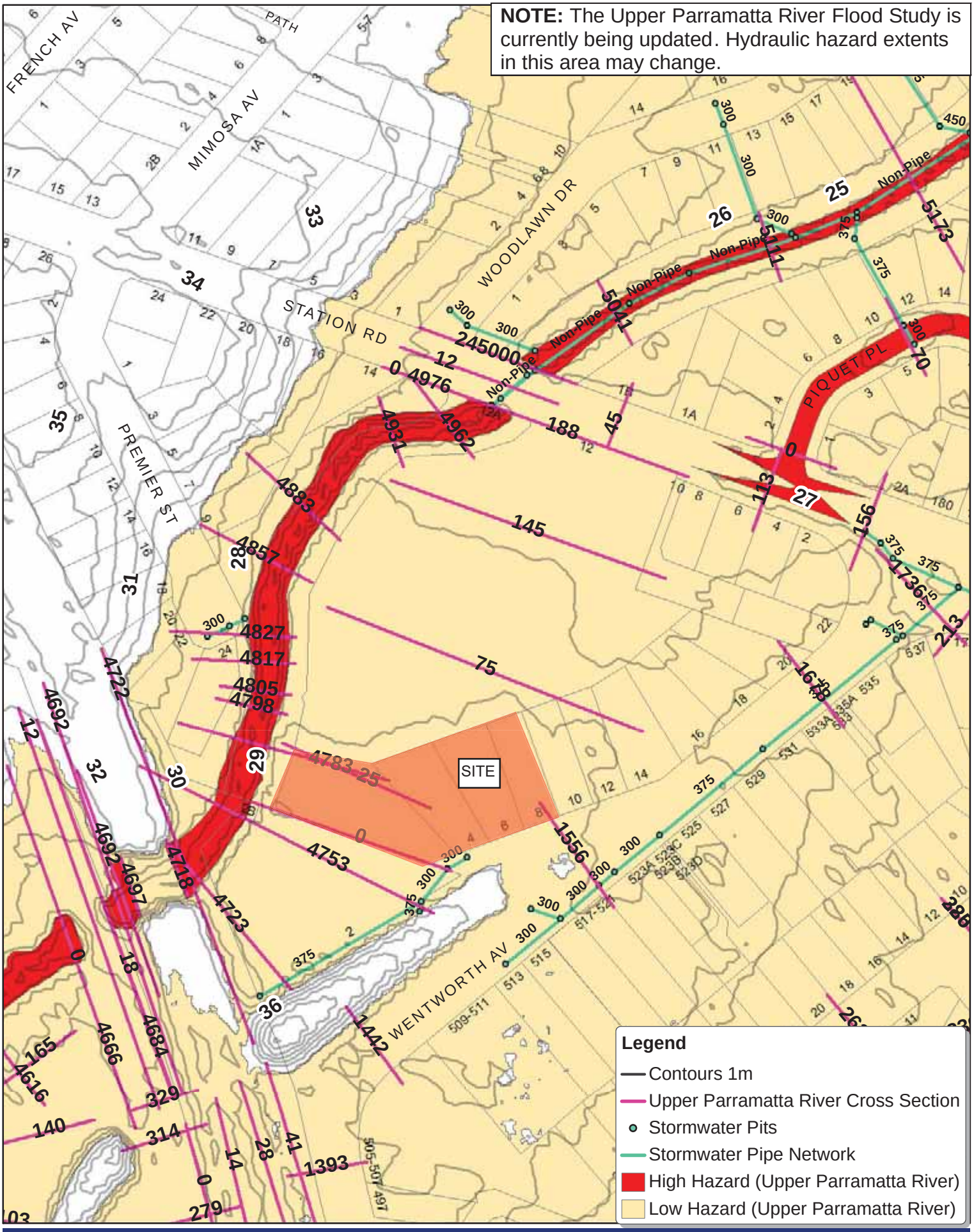
Parramatta City Council Flood Map

1:2,000

N

Printed 28/07/2014

NOTE: The Upper Parramatta River Flood Study is currently being updated. Hydraulic hazard extents in this area may change.



Parramatta City Council Flood Hazard Map

1:2,000

N

Printed 28/07/2014

10 Attachment B – Survey Plan (prepared by RPS Australia East Pty Ltd, March 2016)

NOTES

ANY ELECTRONIC FILE IS PROVIDED WITHOUT WARRANTY AND SHOULD BE USED ONLY IN CONJUNCTION WITH THE SUPPLIED PDF/PAPER COPY OF THIS PLAN.

NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN. BEARINGS, DIMENSIONS AND AREA ARE FROM TITLE ONLY AND ARE SUBJECT TO CONFIRMATION BY BOUNDARY SURVEY.

SERVICES SHOWN ARE INDICATIVE ONLY. POSITIONS ARE BASED ON SURFACE INDICATOR(S) LOCATED DURING FIELD SURVEY. CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE TO THE RELEVANT AUTHORITIES PRIOR TO ANY EXCAVATION WORK. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN.

LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) USING PM29167 WITH RL OF 29.26m, LOCATED AT WENTWORTH AVENUE.

ORIGIN OF CO-ORDINATES PM29167 WITH MGA CO-ORDINATE VALUES OF E310419.712 N6259791.784.

RIDGE, EAVE & GUTTER HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE TO ± 0.05m.

ADJOINING DWELLING, BUILDING HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY.

CONTOURS ARE AN INDICATION OF LANDFORM AND SHOULD NOT BE TAKEN IN PREFERENCE TO SPOT LEVELS SHOWN.

CONTOUR INTERVAL 0.25m.

LEGEND

- SIGN - DOUBLE POST
- SIGN - SINGLE POST
- FLOOR LEVEL (A.H.D.)
- BORE HOLE
- BOLLARD
- BLOCK RETAINING WALL
- EAVE LINE - AWNINGS
- EDGE OF GARDEN
- 30.25 CONTOUR (0.25m)
- POWER AND LIGHT POLE
- OVERHEAD ELECTRICITY CABLE
- COMMUNICATIONS PIT
- WATER METER
- WATER AIR VALVE
- WATER HYDRANT
- WATER STOP VALVE
- FIRE HYDRANT
- GAS METER
- GAS VALVE BOX
- INV. RL. 28.77 GRATED SURFACE INLET PIT, WITH INVERT
- SEWER LAMP HOLE
- SEWER VENT PIPE
- UNIDENTIFIED ACCESS CHAMBER
- TREE
- 0.3/5 CANOPY SPREAD/TRUNK DIAMETER

A.H.D. DENOTES AUSTRALIAN HEIGHT DATUM
CONC. DENOTES CONCRETE
DIA. DENOTES DIAMETER
F.L. DENOTES FLOOR LEVEL

REFER TO SHEET 2 FOR LONG SECTION OF PEDESTRIAN ACCESS TO BUS STOP

PRELIMINARY ISSUE

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REVISIONS					
B	08.03.2016	LONGITUDINAL SECTION DETAILS ADDED - DRAFT ISSUE	CFW	-	-
A	08.03.2016	PRELIMINARY ISSUE	CFW	GDS	-
No.	DATE	REVISION DETAILS	DRAWN	CHK	APP.

HORIZ. SCALE: 1:200 | VERT. SCALE: N/A @ A1
COORDINATES: MGA | DATUM: AHD
ORIGIN: PM29167 | ORIGIN: PM29167
4 2 0 4 8 12
SCALE IN METRES AT ORIGINAL REDUCTION RATIO

NOTES: VIDE PLAN SHEET

CLIENT: Align Projects

SURVEY:	GDS	DATE OF SURVEY:	23.02.2016
DRAWN:	CFW	DATE OF PLAN:	02.03.2016
CHECKED:	GDS	DATE LAST SAVED:	09.03.2016
APPROVED:	-	DATE APPROVED:	-

TITLE: Detail Survey
Lots 6-9 DP22506 and Part Lot 30 DP1106209
Wentworth Avenue, Toongabbie

PROJECT No: PR127201SU | ISSUE: B
PLAN REF: DS01
SHEET 1 OF 3 SHEETS | SIZE: A1

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11 Attachment C – Site Capability Statement

COPY

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
Certificate of Site Compatibility

I, the Executive Director, Regions as delegate of the Secretary of the Department of Planning and Environment determine the application made by BBC Consulting Planners on behalf of Toongabbie Sports Club on 5 May 2016, by issuing this certificate under clause 25(4)(a) of the *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*.

I certify that in my opinion:

- the site described in Schedule 1 is suitable for more intensive development;
- the development described in Schedule 1 is compatible with the surrounding environment having had regard to the criteria specified in clause 25(5)(b); and
- that development for the purposes of seniors housing of the kind proposed in the development application is compatible with the surrounding land uses only if it satisfies certain requirements specified in Schedule 2 of this certificate.

Stephen Murray
Executive Director, Regions

Date certificate issued: 16 August 2016

Please note: This certificate will remain current for 24 months from the date of this certificate (clause 25(9)).

SCHEDULE 1

Site description: Part Lot 30 in DP 1106209, 12 Station Road, Toongabbie.

Local Government Area: City of Parramatta

Project description: Toongabbie Sports Club - Demolition of existing buildings on the site and the construction of a residential care facility.

SCHEDULE 2

Application made by: BBC Consulting Planners on behalf of Toongabbie Sports Club.

Requirements imposed on determination:

1. The final development layout and number of beds in the residential care facility will be subject to the consent authority being satisfied with the form, height, bulk, scale and setbacks and shall be determined through the assessment of the development application under section 79C of the *Environmental Planning and Assessment Act 1979*; and
2. A flood evacuation plan is to be prepared with the development application to demonstrate how people dependent on care can be evacuated in case of an emergency.

NSW GOVERNMENT | Planning & Environment

COPY

Mr Dan Brindle
Director
BBC Consulting Planners
PO BOX 438
Broadway NSW 2007

Our Ref: 16/08265

Dear Mr Brindle

Determination of application for a site compatibility certificate for Part Lot 30, DP 1106209, No.12 Station Road, Toongabbie

I refer to your application for a site compatibility certificate under clause 25(1) of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* (the SEPP) in relation to the proposed seniors housing development over part Lot 30, DP 1106209 (Toongabbie Sports Club).

As the Secretary's delegate, I have determined the application for a site compatibility certificate under clause 25(4)(a) of the SEPP by issuing a site compatibility certificate subject to satisfaction of certain requirements specified in the certificate (clause 25(7)). I have attached the Certificate of Site Compatibility.

The final development layout and number of beds in the residential care facility shall be determined by Council through the assessment of the development application under section 79C of the *Environmental Planning and Assessment Act 1979*.

The City of Parramatta Council has made various comments about the suitability of the site for a residential care facility, including flooding and evacuation, stormwater disposal, water sensitive urban design and traffic impacts. In the circumstances, I encourage you to contact Council to discuss the development design and what additional studies are required, prior to the lodgement of the development application.

If you have any questions in relation to this matter, please contact Mr Martin Cooper, Acting Team Leader, Sydney East Region of the Department of Planning and Environment on (02) 9228 6582.

Yours sincerely

16 August 2016

Stephen Murray
Executive Director, Regions
Department of Planning and Environment

Encl: Certificate of Site Compatibility

APPENDIX 4

Emergency Response Plan

Opal specialist aged care		Version:	1.00
		Date:	16 December 2016
		Author:	Opal / H&H
		Approved:	
		December 2016	

FLOOD EMERGENCY RESPONSE PLAN	
Issue:	In the event of an extreme flood, evacuation from the site may not be possible, and all residents, staff and visitors (the occupants) may be required to remain on site until such stage as the flood recedes, or until directed to leave the site by emergency services personnel. The reason that evacuation from site may not be possible is because the roads surrounding the site will also be flooded. For this reason, the Flood Emergency Response Plan for the site will be to Shelter in Place, whereby the occupants can remain in the building and be safe from rising flood waters. The site is only affected by flooding in extremely rare storm events. Flooding will generally be caused by rising flood waters from Girraween Creek located along the western boundary of the site. To put this in perspective, the flood level for a 1 in 100 year storm will be 1.56m below the ground floor level and will be largely contained within the banks of Girraween Creek. For the Probable Maximum Flood (PMF) which is the largest flood possible, the flood level will be at the floor level. The likelihood of this flood occurring is estimated to be 1 in 1 million years. Despite the unlikelihood of this flood occurring, for the safety of the occupants, procedures and actions must be put in place for managing such a flood. These will include preparation prior to flooding, during flooding and after the flood recedes. The following are identified issues in which occupants become exposed to flood hazards: 1. Occupants exposed to flood waters within site grounds (outside building); 2. Occupants exposed to flood waters within building which is unlikely given that the floor level has been set at the PMF; 3. Occupants exposed to flood waters while accessing or leaving site. Whilst the above present issues in which occupants are exposed to flood hazards, they are considered low risk and as such do not pose a significant risk. Prior to the flood reaching its peak, procedures and actions should have already been implemented to prevent further exposure to occupants within the site.

FLOOD EMERGENCY RESPONSE PLAN continued	
Documentation / Forms	All events and actions to be documented. Mandatory Forms: Riskman/Riskman Incident Register (IT system down) Optional Forms: Injury Report Property Damage Report Media Contact Report Fatality Report

Where there is a possibility that the building may be exposed to a flood, staff members should consider the following action:

(a) Immediately advise the Duty Manager, their workplace manager, immediate Supervisor or warden who will notify the Emergency Coordinator;

(b) Ensure that they do not use any property services such as lifts; the operation of which may be affect by the flood.

(c) Remain in their normal area unless it is unsafe to do so as leaving may expose them to possible risk. If individual residents do depart it may also create difficulties in accounting for them;

(d) Follow the directions of Wardens if there is a need to evacuate the building;

(e) Move to a designated assembly area or such other location as directed; and

(f) Remain at the evacuation assembly area until it is unsafe to do so or directed to return by the Emergency Coordinator or the officer in charge of the responding Emergency Service.

FLOOD EMERGENCY RESPONSE PLAN		
1.1 Preparation Phase:	Action	Time
Staff to be made aware of the threat posed by flooding - New staff to be made aware of the risk of flooding. - New staff to be trained in the procedures and actions to implement in the event of a flood. - Existing staff to undergo refresher training on an annual basis.		
During heavy rainfall events, Duty Manager to monitor weather warning services: Bureau of Meteorology, NSW SES, Local Emergency Operations Controller (LEOCon). The following web sites should be monitored:		

http://www.bom.gov.au/australia/warnings/ http://www.ses.nsw.gov.au/ https://www.emergency.nsw.gov.au/		
All staff to be trained in shelter in place evacuation procedures and refreshed annually.		
Local SES and LEOCon to be advised of shelter in place flood evacuation strategy. The Emergency Coordinator is to ensure that the details of the relevant contacts (SES and LEOCon) are located in a prominent location in the Duty Manager's office. The SES contact number is 132 500.		
Install permanent signage in appropriate locations describing flood risk and evacuation routes within the building and assembly point.		
Residents to be educated of the hazard posed by floods and the shelter in place evacuation strategy and procedure. This should be undertaken for all new residents and on an ongoing basis thereafter.		
Regular maintenance and testing of flood warning system and emergency power supply to be carried out. Maintenance and testing should be made in accordance with the manufacturer's, supplier's and legislative requirements.		
Visitor books and staff and resident list should be maintained at all times to ensure that all occupants are able to be accounted for.		
1.2 Respond Phase	Action	Time
1.2.1 Respond Phase - Weather Warning Received		
Upon receipt of a severe weather warning, the Emergency Coordinator shall notify all staff, visitors and residents of a potential risk of flood. The warning should be broadcast through the PA system and via door knocking of resident's rooms. A role call/ head count should be taken to ensure all residents and staff are accounted for. The visitor book should also be checked to ensure all visitors are accounted for. More specifically:		

Emergency Coordinator: - Responsible for all other Supervisors and Duty Manager. - Make initial contact with all Supervisors and Duty Manager. - Stay in regular contact with Supervisors and Duty Manager during flood event. Duty Manager - Make initial contact with relevant emergency services and maintain contact during flood event. - Liaise with Emergency Coordinator and act on their instructions. Kitchen/Catering Supervisor: - Responsible for remaining in contact with Emergency Coordinator and acting on their instructions. - Undertake head count of kitchen and catering staff. - Ensure kitchen and catering staff are accounted for. - Advise Nursing Supervisor of residents that are currently using kitchen facilities and ensure that they are returned to the Nursing Supervisor. - Begin preparation of food and water supply for a six hour meal cycle. The specific menu requirements will depend on the time of the day that the flood occurs. Nursing Supervisor: - Responsible for remaining in contact with Emergency Coordinator and acting on their instructions. - Undertake head count of residents and nursing staff. - Ensure residents and nursing staff are accounted for. - Begin preparation of medical and first aid supplies for a six hour cycle. The specific medical requirements will depend on the time of the day that the flood occurs. Maintenance Supervisor: - Responsible for remaining in contact with Emergency Coordinator and acting on their instructions. - Undertake head count of maintenance staff. - Ensure maintenance staff are accounted for. - Undertake a patrol of the grounds external to the building with a member of the nursing staff and ensure all residents, staff and visitors are returned to the building. - Begin preparation of maintenance equipment to ensure the building can operate for six hours.		
Any residents, visitors or staff in external areas are to be brought inside (see above).		

Duty Manager to stay in contact with LEOCon and NSW SES to monitor the situation. The SES contact number is 132 500.		
Non-essential electrical equipment on ground floor to be unplugged by Maintenance Supervisor and team.		
In the event of a blackout or loss of power, power supply will automatically switch to the emergency power supply (Genset) for shelter in place requirements. Maintenance staff should monitor the power supply to ensure that it is remains operational. The Genset (diesel generator) has a 600L fuel tank that should have capacity to operate for eight hours) so there should be no need for the tank to be refilled during the PMF.		
Staff responsible for medical equipment shall prepare the equipment and ensure it is functional and connected to the emergency power supply if required.		
1.2.2 Respond Phase - Evacuation Alarm Signalled		
All residents and visitors to shelter at ground floor or on higher floors or designated assembly point.		
Duty Manager to inform NSW SES and LEOCon that shelter in place flood evacuation strategy has been implemented.		
If possible, vehicles parked on site shall be moved to the Porte Cochere which is the highest vehicular trafficable location.		
Lifts to be parked on level 1 or higher and isolated to prevent accidental use or persons becoming trapped. Barriers placed across lift doors at ground level.		
All ground-floor electrical circuits to be isolated.		
All ground floor electrical equipment to be unplugged.		

Staff to reassure residents and visitors to stay calm and prevent any persons from moving out of the building by reminding them that the floor level is higher than the highest possible flood level.		
Staff to remain with all persons until the flood level recedes and NSW SES advises the situation is all clear.		
1.2.3 Respond Phase - Issued by SES to evacuate site		
If NSW SES issues the order to evacuate from the site, Duty Manager to remain in constant communication with NSW SES. The Duty Manager shall convey all information and instructions to the Emergency Coordinator. The Emergency Coordinator in consultation with the Duty Manager to confirm location of evacuation site, method of evacuation and safest evacuation route with NSW SES, and then inform Supervisors of details.		
Supervisors to lead organised groups of residents, visitors and other staff (all persons) to the evacuation site following the selected evacuation route.		
Prior to moving to evacuation site, Supervisors to perform role call/ headcount to account for all persons. This role call/ headcount should be undertaken again upon the arrival of the evacuated site.		
Staff to remain with all persons until the NSW SES advises the situation is all clear.		
1.3 Recover Phase	Action	Time
In the event that the building is damaged by the flood and the building is unable to be resided in, residents are to be moved off-site to another OPAL facility if necessary in consultation with NSW SES and LEOCon.		
Cleaning and repairs to be carried out as required depending on the extent of flood damage. This may include property within the building or outside including services. This process should be managed by the relevant OPAL maintenance team.		

The Genset shall be tested and refuelled as required to ensure that it is able to be used in the event of the next blackout or loss of power. Testing of services and equipment to be conducted by qualified tradesmen before being re-instated.		
Review effectiveness of flood evacuation plan and update if required. If flood evacuation plan is update, inform NSW SES and LEOCon of amendments to the plan.		
All staff are to be informed of updated flood evacuation plan and retrained as required.		

APPENDIX 5

Acoustic Report

Opal Aged Care, Toongabbie

Acoustic Report for Site Compatibility Certificate for a Residential Aged Care Facility

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1 INTRODUCTION

Acoustic Logic Consultancy has been engaged by Opal Aged Care to conduct an acoustic assessment to be included in a Site Compatibility Certificate application for a proposed Residential Aged Care Facility at Wentworth Ave, Toongabbie.

In this report we will:

- Identify noise sources which may impact on the site and determine whether there are feasible building treatments to ensure that these impacts can be reduced to suitable levels (compliant with relevant state and Australian Standard acoustic guidelines).

- Identify noise sources generated by the site and determine whether noise emissions from the site are capable of complying with relevant EPA and Council noise emission guidelines.

In the event that compliance with the relevant noise impact and noise emission guidelines referred to above can be achieved, the site would be considered suitable for its intended use with respect to acoustics.

2 SITE DESCRIPTION

The site is located on Wentworth Ave, Toongabbie on Part Lot 30, DP1106209 and Lots 6 (part), 7, 8 and 9 in DP 22506

The proposed development involves the construction of a three-four storey aged care facility for approximately 130 beds.

The proposed development will be sited on land currently owned by the Toongabbie Sports Club, and involves the demolition of three existing residential dwellings.

Significant noise sources at the site consist of:

- Noise from Wentworth Ave, to the south of the site. Wentworth Ave carries medium traffic flows.

- The Western Rail Line, located to the west of the site (with the site approximately 50m from the rail corridor).

- Noise from the Toongabbie Sports Club (car park and operational noise).

Noise sensitive development in the vicinity of the site consists of:

- Residential dwellings adjoining the site to the east and

- Residential Apartments, adjoining the site to the west.

Figure 1 shows the site and the noise measurements conducted as part of a site survey.

Rail Noise and Vibration Measurement

Site

Traffic Noise Measurement

Long Term Noise Monitor

3 NOISE DESCRIPTORS

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

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

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

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

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

Current practice favours the L_{eq} parameter as a means of measuring traffic noise, whereas the L_{10} parameter has been used in the past and is still incorporated in some codes. For the reasons outlined above, the L_{90} parameter is not used to assess traffic noise intrusion.

4 EXTERNAL NOISE INTRUSION ASSESSMENT

4.1 NOISE INTRUSION CRITERIA

The assessment of external noise is conducted with reference to the following documents:

- The Parramatta Council DCP 2011
- NSW State Environmental Planning Policy Infrastructure (2007).
- NSW Planning *Development Near Rail Corridors and Busy Roads Interim Guidelines*.
- Australian Standard 2107

4.1.1 Parramatta Council DCP 2011

Section 3.3.4 of the Parramatta DCP 2011 sets out acoustic performance requirements applicable to development. In addition to stating an overall objective to ensure that building siting and design minimises noise impacts from roads, rail corridors and other noise sources, the DCP identifies the following planning controls:

- The acoustic requirements of SEPP (Infrastructure) and the NSW Planning *Development Near Rail Corridors and Busy Roads Interim Guidelines* are to be achieved.
- Internal Habitable Rooms of dwellings effected by high external noise levels are to be designed to achieved internal noise levels of no greater than 50dB(A).

4.1.2 SEPP (Infrastructure) and Development Near Rail Corridors and Busy Roads (Interim Guideline)

The NSW Department of Planning's policy, Development Near Rail Corridors And Busy Roads – Interim Guideline, sets out internal noise level criteria adapted from the State Environmental Planning Policy (Infrastructure) 2007 (the 'Infrastructure SEPP') for developments with the potential to be impacted by traffic or rail noise and vibration.

The Infrastructure SEPP defines busy roads that are subject to an acoustic assessment as:

> *"Clause 102: development for any of the following purposes that is on land in or adjacent to a road corridor for a freeway, a tollway or a transit way or any other road with an annual average daily traffic volume of more than 40,000 vehicles (based on the traffic volume data available on the website of the RTA) and that the consent authority considers is likely to be adversely affected by road noise or vibration:*
>
> - *building for residential use*
> - *a place of public worship*
> - *a hospital*
> - *an educational establishment or childcare."*

The Infrastructure SEPP sets out the following criteria for internal noise levels from airborne traffic noise:

"For Clauses 87 (Rail) and 102 (Road):

"If the development is for the purpose of a building for residential use, the consent authority must be satisfied that appropriate measures will be taken to ensure that the following L_{Aeq} levels are not exceeded:

in any bedroom in the building : 35dB(A) at any time 10pm–7am

anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time."

Internal requirements are for residential spaces and are measured internally with windows closed.

The NSW Department of Planning document *Development Near Rail Corridors and Busy Roads Interim Guidelines* adopts the same criteria as SEPP Infrastructure, and the resultant internal noise goals are as follows:

Table 1 – Internal Noise Level Criteria (SEPP Infrastructure and Development Near Rail Corridors and Busy Roads – Interim Guideline)

Room Type	Time of Day	Criteria
Bedroom	10pm-7am	35 dB(A) $L_{eq(9\ hour)}$
Living Area	7pm-10pm	40 dB(A) $L_{eq(15\ hour)}$

4.1.3 Australian Standard 2107-2000

AS2017 will be adopted for those parts of the development which are located away from the rail line and roadway, however are potentially impacted by noise form the Toongabbie Sports Club.

AS2107 recommended noise levels are as follows:

Table 2 – AS2107 Criteria – Houses and Apartments Near Minor Roads

Room Type	Time of Day	Criteria
Bedroom	10pm-7am	35 dB(A) $L_{eq(1\ hour)}$
Living Area	7pm-10pm	40 dB(A) $L_{eq(1\ hour)}$

4.2 EXTERNAL NOISE MEASUREMENTS

Noise measurements of traffic, train and operational noise from the Toongabbie Sports Club were undertaken as part of the assessment.

Measurements were performed generally in accordance with the Australian Standard AS1055 – "Description and measurement of environmental noise – General Procedures".

4.3 NOISE MEAUSREMENTS

A survey of noise levels impacting the site was conducted using a combination of long term noise logging and attended noise measurements.

Noise measurements were conducted at the locations detailed in section 2.

A noise logger was installed on site between 12 and 19 April 2016 in order to measure rail noise and club operational noise impacting the site. Equipment used consisted of an Acoustic Research Laboratories noise logger set to measure in 15 minute intervals on A-weighted fast response mode. Calibration of the logger was checked at the beginning and end of the measurement period, with no significant drift noted.

In addition to the long term noise logging, attended measurements of road traffic (in Wentworth Ave) and rail noise were made. Measurements were undertaken using a Norsonics Type 140 precision sound level analyser, set to A-weighted fast response. The precision sound level analyser was calibrated before and after the measurements using a Norsonics 1251 sound level calibrator. No significant drift was recorded. See figure 1 above for location of attended noise measurements.

The results of the noise survey are presented below:

Table 3 – External Noise Levels

Location	Noise Source	Noise Level	
		Daytime (7am-10pm)	Evening (7am-10pm)
Wentworth Ave (7m from kerb)	Road Traffic	66dB(A)$L_{eq(15hr)}$	62dB(A)$L_{eq(9hr)}$
Western Property Boundary (50m from Rail Corridor)	Rail Noise	<55dB(A)$L_{eq(15hr)}$ and 65dB(A)L_{max} during train passby	<55dB(A)$L_{eq(15hr)}$ and 65dB(A)L_{max} during train passby
Club Car Park (porposed northern boundary of site)	Club Operational Noise	Up to 64dB(A)L_{eq} during peak periods	Up to 64dB(A)L_{eq} during peak periods

4.4 EVALUATION OF NOISE INTRUSION AND RECOMMENDATIONS

Internal noise levels will primarily be as a result of noise transfer through the windows and doors and roof, as these are relatively light building elements that offer less resistance to the transmission of sound.

Analysis indicates that through appropriate building shell design, external noise impacts can be reduced such that suitable internal noise levels can be achieved.

Indicative building shell systems are outlined below. Final acoustic design of the building shell should be conducted once all window sizes and building shell materials are finalised.

In determining these acoustic treatments we have taken into account the measured noise level and spectral characteristics of the external noise, the area of building elements exposed to the noise, the absorption characteristics of the rooms and the noise reduction performance of the building elements.

4.4.1 Glazing Constructions

Indicative glazing assemblies are shown below. The glazing thicknesses recommended are those needed to satisfy acoustic requirements and do not take into account other requirements such as structural, safety or other considerations. These additional considerations may require the glazing thickness to be increased beyond the acoustic requirement.

Table 4 – Indicative Glazing Requirements

Façade	Room Type	Glazing Thickness	Acoustic Seals
Northern	Bedrooms	6.38mm laminated	Yes
	Dining, Quiet Room	6mm	Yes
Western	Bedrooms	10.38mm laminated	Yes
	Quiet Room , Dining	6mm	Yes
Southern and Eastern	Bedrooms, Quiet Room	6mm	Yes
	Dining	6mm	Yes

In addition to complying with the minimum scheduled glazing thickness, the STC/R_w rating of the glazing fitted into operable frames and fixed into the building opening should not be lower than the values listed in the Table below.

Where nominated, this will require the use of acoustic seals equal to Schlegel Q-lon series *(acoustic bulb seal)* around the full perimeter of operable frames. The frame will need to be sealed into the building opening using a flexible 100% polyurethane sealant equal to Selley's Proseries Fireblock. Note that mohair seals and/or mohair/plastic fin combination seals in windows and doors are **not** acceptable where acoustic seals are required.

It is recommended that only window systems have test results indicating compliance with the required ratings obtained in a certified laboratory be used where windows with acoustic seals have been recommended.

Table 5 – Minimum STC/R_w of Glazing Requirements

Glazing Assembly	Acoustic Seals	Minimum STC/R_w of Installed Window
6mm float	Yes	29
6.38mm laminated	Yes	31
10.38mm laminated	Yes	35

4.4.2 External Walls and Roof/Ceiling

Any external wall or roof element constructed of masonry will not require additional upgrading for acoustic purposes.

In the event that light weight external wall/roof elements are adopted, detailed acoustic review should be conducted once material selections are finalised. Compliant internal noise levels will be capable of being achieved through appropriate using of wall/ceiling insulation and plasterboard internal lining.

4.4.3 Ventilation

The development site is affected by external noise. Due to the fact that the recommended internal noise levels cannot be achieved with windows open it is required that an alternative outside air supply system or air conditioning be installed in accordance with AS 1668.2 requirements. Should a mechanical ventilation system be installed, it should be acoustically designed such that the acoustic performance of the recommended constructions are not reduced by any duct or pipe penetrating the wall/ceiling/roof. Noise emitted to the property boundaries by any ventilation system shall comply with Council requirement.

5 NOISE EMISSION ASSESSMENT

The main noise emitted from the project site will be those from mechanical plant, the carpark and loading dock.

The nearest sensitive receivers are:

- Residential houses to the east of the site (potentially impacted by plant noise, the car park and vehicles moving to and from the loading dock).
- Residential apartments to the west of the site (potentially impacted by plant noise).

5.1 BACKGROUND NOISE MONITORING

A noise logger was installed on site between 12 and 19 April 2016 in order to measure ambient noise at the site. Equipment used consisted of an Acoustic Research Laboratories noise logger set to measure in 15 minute intervals on A-weighted fast response mode. Calibration of the logger was checked at the beginning and end of the measurement period, with no significant drift noted.

Although operational noise (vehicles, patrons) from the Sports Club was intermittently audible at the noise logging location, the logger was positioned away from any constant noise sources (such as refrigeration equipment). By examining the logging periods when the club is not in operation, background noise levels in the vicinity of the site could be determined.

The measured background noise levels have been corrected for meteorological conditions (excessive wind and/or rain), as required by section 3.4 of the EPA Industrial Noise Policy. Exceedances of the 5m/s average wind speed limit of the EPA were noted and corrected for in determining the background noise levels. These areas are highlighted in the logging data in Appendix 2.

The measured background noise levels based on the long term noise monitoring installed on site and are presented in the table below.

Table 6 – Measured Background Noise Levels

Location	Period/Time	Rating Background Noise Level dB(A)L_{90}
Dietrich Close, Rutherford	Day (7am-6pm)	46
	Evening(6pm-10pm)	45
	Night(10pm-7am)	42

5.2 NOISE EMISSION OBJECTIVES

We note that although the Parramatta DCP identifies that noise from non-residential land uses should not adversely impact the amenity of nearby residents, it does not state a numerical noise emission goal.

In the absence of this, the NSW EPA Industrial Nosie Policy will be adopted in order to determine noise emission goals.

Noise sources covered by this code will include vehicle noise (generated on the site) and mechanical services noise. Both the Intrusiveness and the Amenity criteria (as set out below) must be complied with.

5.2.1 INP - Intrusiveness Assessment

Intrusiveness criteria permit noise generation to be no more than 5dB(A) above existing background noise levels. The criteria are as follow:

Table 7 – EPA Industrial Noise Policy – Intrusiveness Criteria

Location	Time of Day	Background noise Level - dB(A)L_{90}	Intrusiveness Noise Objective dB(A)$L_{eq(15min)}$ (Background + 5dB)
Nearby Residences	Day Time (7am - 6pm)	46	51
	Evening (6pm - 10pm)	45	50
	Night (10pm - 7am)	42	47

5.2.2 INP - Amenity Assessment

The Amenity criteria set additional criteria based on the land use of the noise sensitive receivers.

Amenity criteria are as follows:

Table 8 – EPA Industrial Noise Policy – Amenity Criteria

Receiver Location	Land Type	Time of Day	Amenity Noise Objective dB(A)$L_{eq(Period)}$
All Potentially Affected Residential Properties	Suburban	Day Time (7am – 6pm)	55
		Evening (6pm – 10pm)	45
		Night (10pm-7am)	40

5.3 NOISE EMISSION ASSESSMENT

5.3.1 Carpark and Loading Dock Noise

The noise emission from vehicles on the site is predicted and assessed below

The modelling is based on the following assumptions:

- Carpark Movements:
    - Peak hour operation happens during day (7am-6pm) period only
    - The site generates an assumed 76 vehicle movements per hour (equivalent to the entire car park filling, and emptying in a one hour period).
    - The sound power level of a passenger car moving within the car park is 84dB(A).
- Loading Dock Movements:
    - Typical vehicle consists of a large rigid truck (sound power of 95dB(A).
    - No more than one truck movement into or out of the loading dock in any fifteen minute period.

The predicted noise emissions are set out below.

In all cases, noise emissions are predicted on the assumption that the noise control recommendations set out in section 5.4 are adopted.

Table 9 – Predicted Noise Level from Carpark and Loading Dock Movements

Noise Receiver	Noise Source	Predicted Noise Level $dB(A)L_{eq(15min)}$	Comment
Residence to the East	Loading Dock noise, Car park noise	45	Yes – complies with daytime and evening criteria in tables 7 and 8.
	Car park noise	<35	Yes – complies with daytime, evening and night criteria in table 7 and 8.
Apartments to the South/West	Car park noise	<35	Yes – complies with daytime, evening and night criteria in table 7 and 8.

5.3.2 Mechanical Plant and Equipment

Detailed review of all external mechanical plant should be undertaken at construction certificate stage (once plant selections and locations are finalised). Acoustic treatments should be determined in order to control plant noise emissions to the levels set out in section 3 of this report.

While compliance with noise emission requirements will be achievable with appropriate acoustic treatment, it is highly likely that any roof top equipment which operates 24 hours per day (such as refrigeration plant) will require either enclosure in plant rooms or acoustic screens to provide a line of sight break between the equipment and any existing or future residences.

Other equipment external items (fans) would be expected to be capable of compliance through use of internal duct lining and/or in-duct attenuators.

5.4 RECOMMENDATIONS

Analysis indicates that the site is capable of complying with typically adopted noise emission goals.

In order to ensure compliance with noise emission requirements, we recommend:

- Noise management measured may be required for the loading dock in order to mitigate against noise impacts to the residential development to the east. Suitable mitigation measures may include limiting truck delivery times and, if necessary, through use of boundary fencing to act as a noise screen.

- Detailed acoustic review of all external plant items should be undertaken following equipment selection and duct layout design (typically conducted at Construction Certificate Stage).

6 RAILWAY VIBRATION ASSESSMENT

Trains induce ground borne vibration that is transmitted through the subsoil. These vibrations can be perceptible close to railways, as tactile vibrations and as structure borne noise.

6.1 PROJECT VIBRATION OBJECTIVES

6.1.1 Tactile Vibration

Human comfort is typically assessed with reference to the British Standard BS 7385 Part 2 1993 or Australian Standard AS 2670.2 1990.

The Interim Guideline references the NSW EPA document *Assessing Vibration- A technical guideline* which recommends that habitable rooms should comply with the criteria therein which is in line with the requirements of British Standard BS 6472:1992 "Evaluation of Human Exposure to Vibration in Buildings (1Hz to 80Hz)".

British Standard BS 6472:1992 "Evaluation of Human Exposure to Vibration in Buildings (1Hz to 80Hz)" is recommended by the RIC's and SRA's Interim Guidelines for Councils "Consideration of rail noise and vibration in the planning process" as this standard includes guidance for the assessment of human response to building vibration including intermittent vibrations such as that caused by trains.

Human response to vibration has been shown to be biased at particular frequencies, which are related to the orientation of the person. This standard provides curves of equal annoyance for various orientations. These curves are applied as correction filters such that an overall weighted acceleration level is obtained. As the orientation of the resident is unknown or varying the weighting filter used is based on the combined base curve as given in ISO 2631 & Australian Standard 2670 "Evaluation of Human Exposure to Vibration and Shock in

Buildings (1 to 80Hz)" which represents the worst case of the X, Y and Z axes. Filtered measurements are made in all three co-ordinate axes and the highest value axis used.

This standard assesses the annoyance of intermittent vibration by using the Vibration Dose Value (VDV). Alternatively the VDV may be estimated by the eVDV which is derived by a simpler calculation using an empirical factor. The VDV or eVDV is calculated for the two periods of the day being the "Daytime" (6am-10pm) and "Night time" (10pm-6am). The overall value is then compared to the levels in Table 5. For this project the aim will be for a low probability of adverse comment.

Table 1 - Vibration Dose Values ($m/s^{1.75}$) above which various degrees of adverse comment may be expected in residential buildings.

Place	Low Probability of adverse comment	Adverse comment possible	Adverse comment probable
Residential buildings 16hr day (Daytime)	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8hr night (Night time)	0.13	0.26	0.51

6.1.2 Structure Borne Noise

The Department of Planning 'Development Near rail Corridors and Busy Road – Interim Guideline' only requires structure borne noise assessment to be conducted where buildings or adjacent lands are over railway tunnels. Section 3.6.2 of the standard states the following:

"…Where building are constructed over or adjacent to land over tunnels, ground-born noise may be present without the normal masking effects of air born noise. In such cases, residential buildings should be designed so that the 95th percentile of train pass-bys complies with a ground-born LAmax noise limit of 40 dB(A)(daytime and 35 dB(A) (nigh time)measured using the "slow" response time setting on a sound level meter."

6.2 RAIL VIBRATION MEASUREMENTS

Rail noise measurements were conducted in line with the proposed western façade, which is the potentially worst affected façade.

Attended train vibration measurements were conducted on the 19th April 2016, between the hours of 8:00am and 10:00am. A Svan 958 Vibration Analyser was used for the vibration measurements. The analyser was fitted with a Dytran triaxial accelerometer.

The measured vibration levels, duration of train pass by and the number of rail movements per hour were used to determine the overall vibration dose (VDV) at the proposed development for both daytime and night time periods. The results are presented the table below.

Table 2 - Vibration Dose Values

Time Period	Calculated VDV m/s$^{1.75}$	Criteria VDV m/s$^{1.75}$	Complies
Day (7am – 10pm)	<0.1	0.2 to 0.4	Yes
Night (10pm -7am)	<0.05	0.13	Yes

In the event the future train use increases, say by 10%, predicted eVDV will not increase significantly (no more than approximately 0.007 more than the levels predicted in the table above) and will not impact recommended vibration isolation treatments.

The calculated levels comply with the tactile vibration requirements listed in section 6.1.1..

7 CONCLUSION

This report presents an acoustic assessment for inclusion in a Site Compatibility Certificate application for a proposed residential aged care facility at Wentworth Ave, Toongabbie.

Acoustic analysis of the site indicates that:

- Although the site is impacted by external noise (road, rail and the Toongabbie Sports Club), suitable internal noise levels within the proposed development can still be achieved with an appropriately designed building shell (with some degree of acoustic upgrade compared to standard building construction, as outlined in section 4.4).

- The site is not likely to generate significant noise, and the noise sources are in keeping with typical aged care development (plant noise, vehicle noise). Compliance with EPA noise emission controls can be achieved through adoption of the recommendations set out inspection 5.4.

- Although the site lies in the vicinity of a rail corridor, no building vibration isolation is required to ensure that vibration levels in the development are compliant with relevant EPA vibration guidelines.

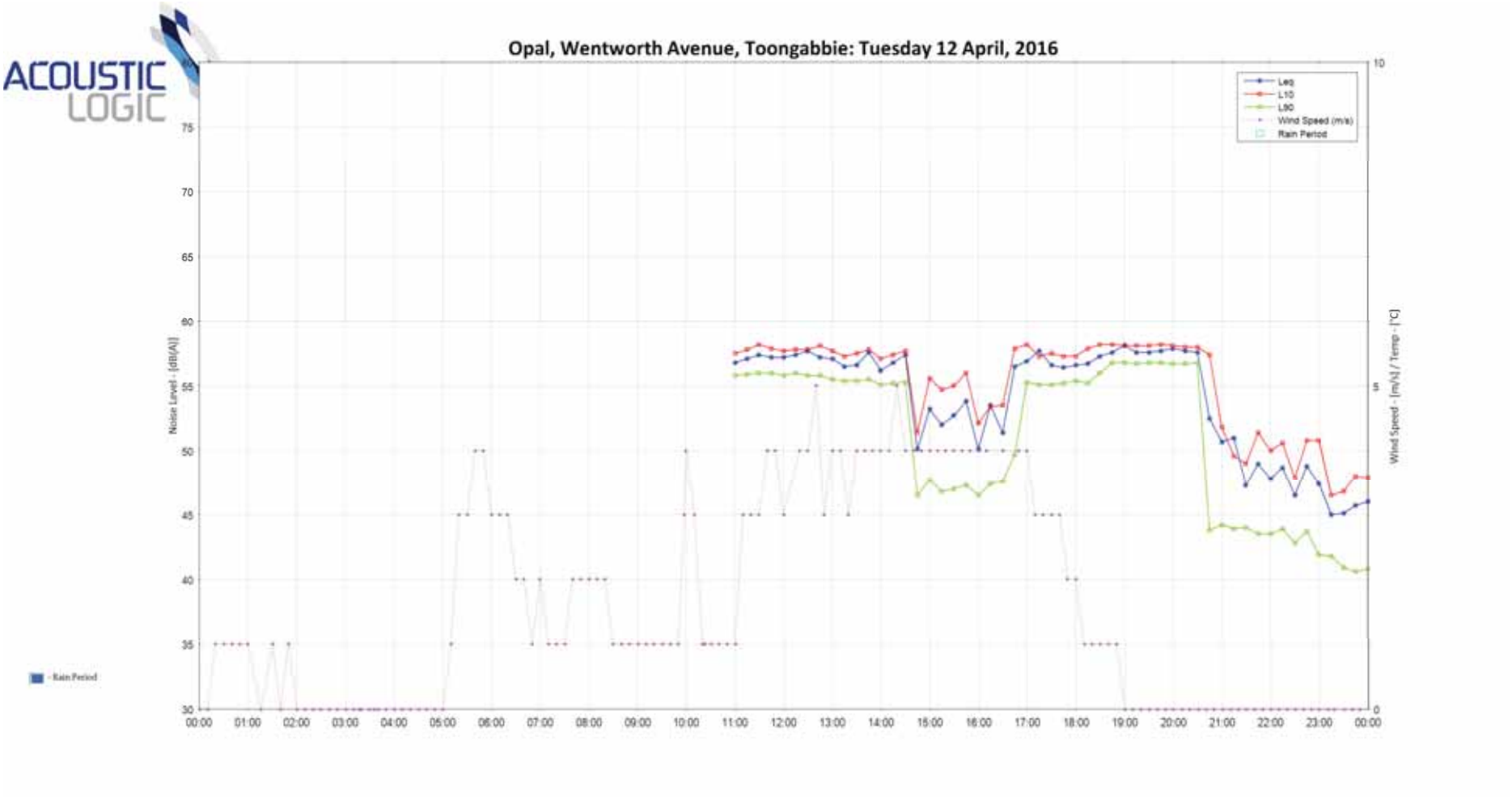
As such, in our opinion the site is suitable for its proposed use as a residential aged care facility with respect to acoustics.

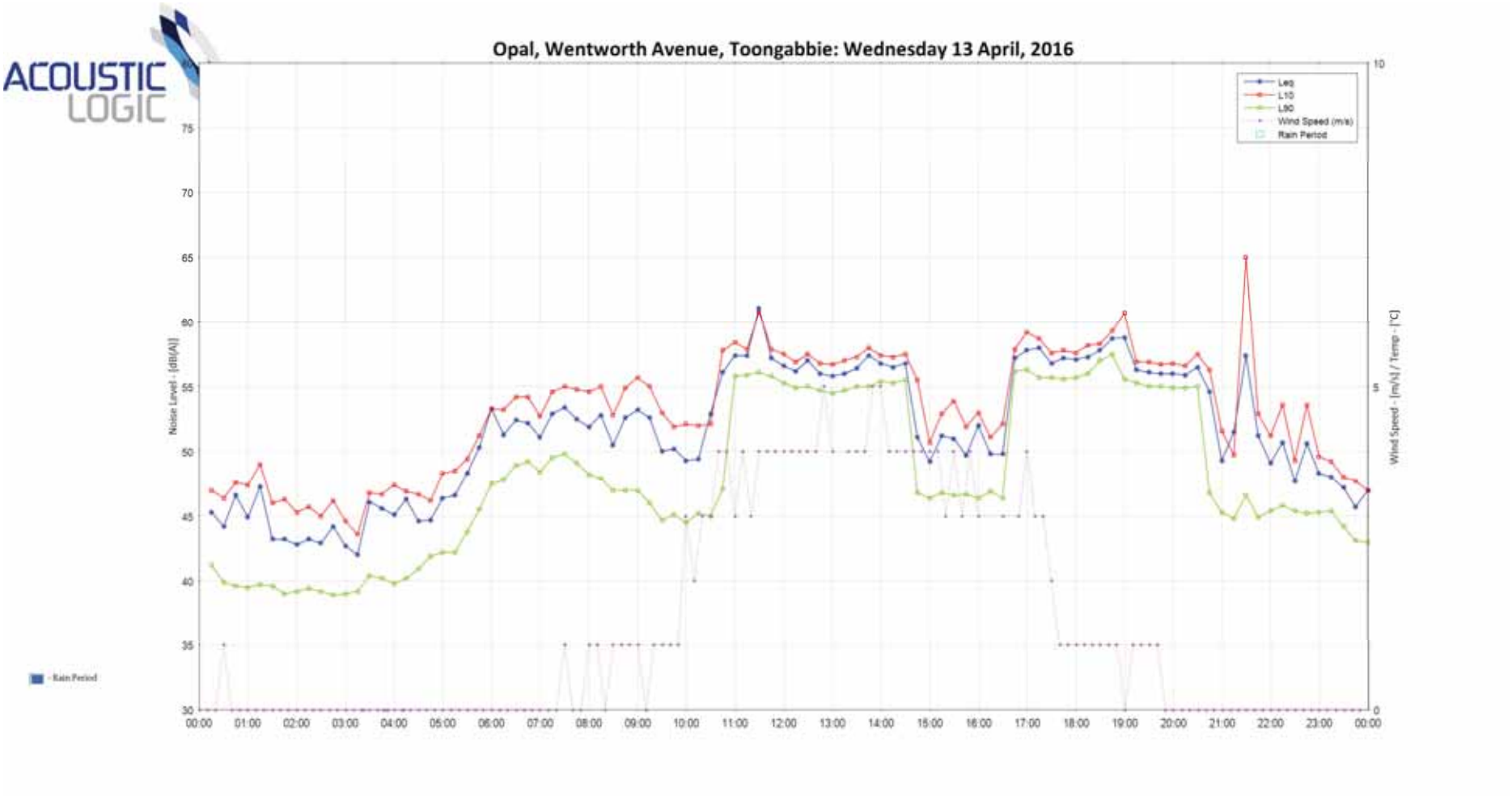
Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Consultancy Pty Ltd
Thomas Taylor

APPENDIX 1: NOISE LOGGING DATA


Opal, Wentworth Avenue, Toongabbie: Tuesday 12 April, 2016
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Rain Period


Opal, Wentworth Avenue, Toongabbie: Wednesday 13 April, 2016
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
75
70
65
60
55
50
45
40
35
30
10
5
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00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
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13:00
14:00
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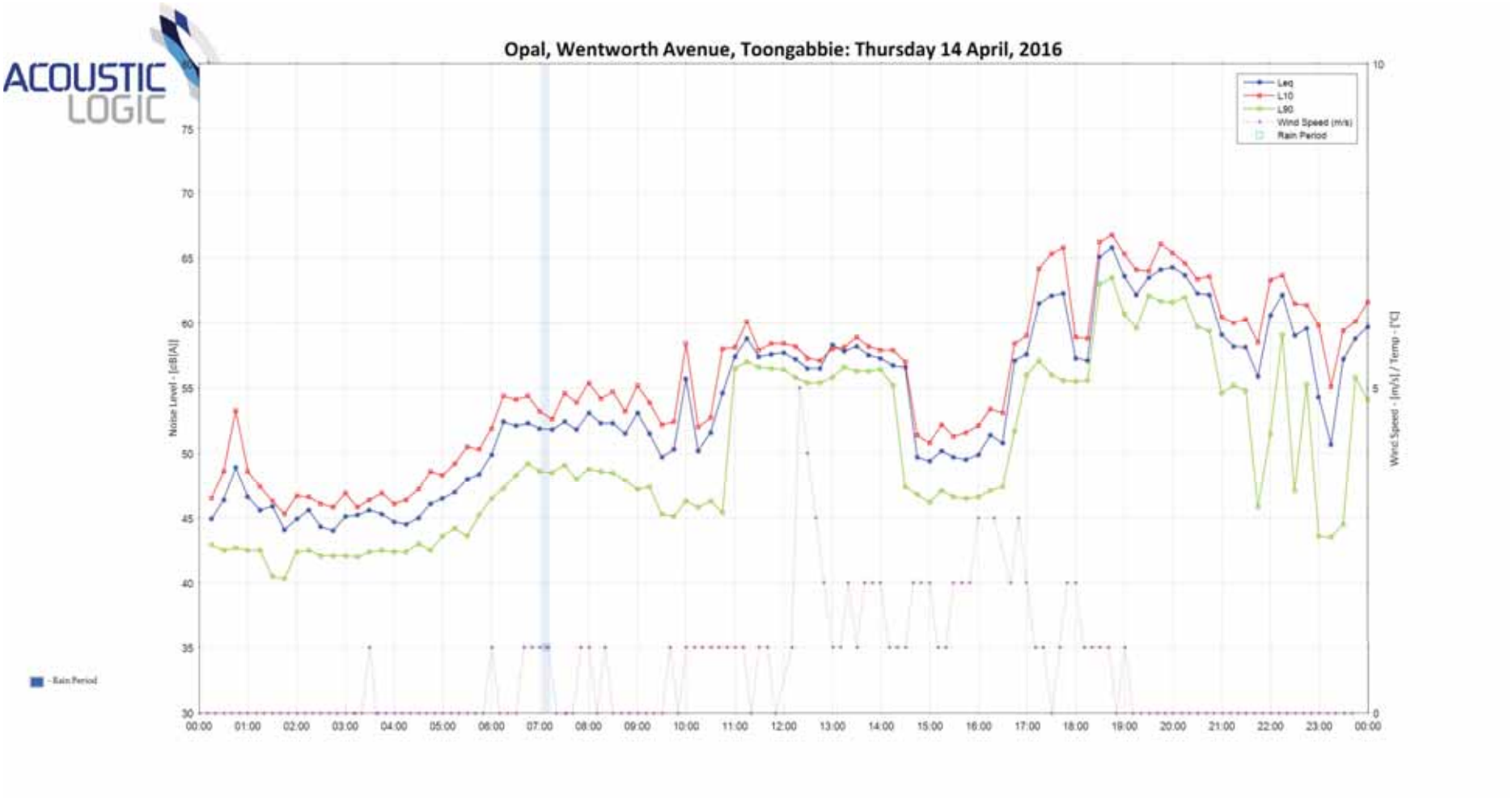
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
- Rain Period


Opal, Wentworth Avenue, Toongabbie: Thursday 14 April, 2016
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
75
70
65
60
55
50
45
40
35
30
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
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15:00
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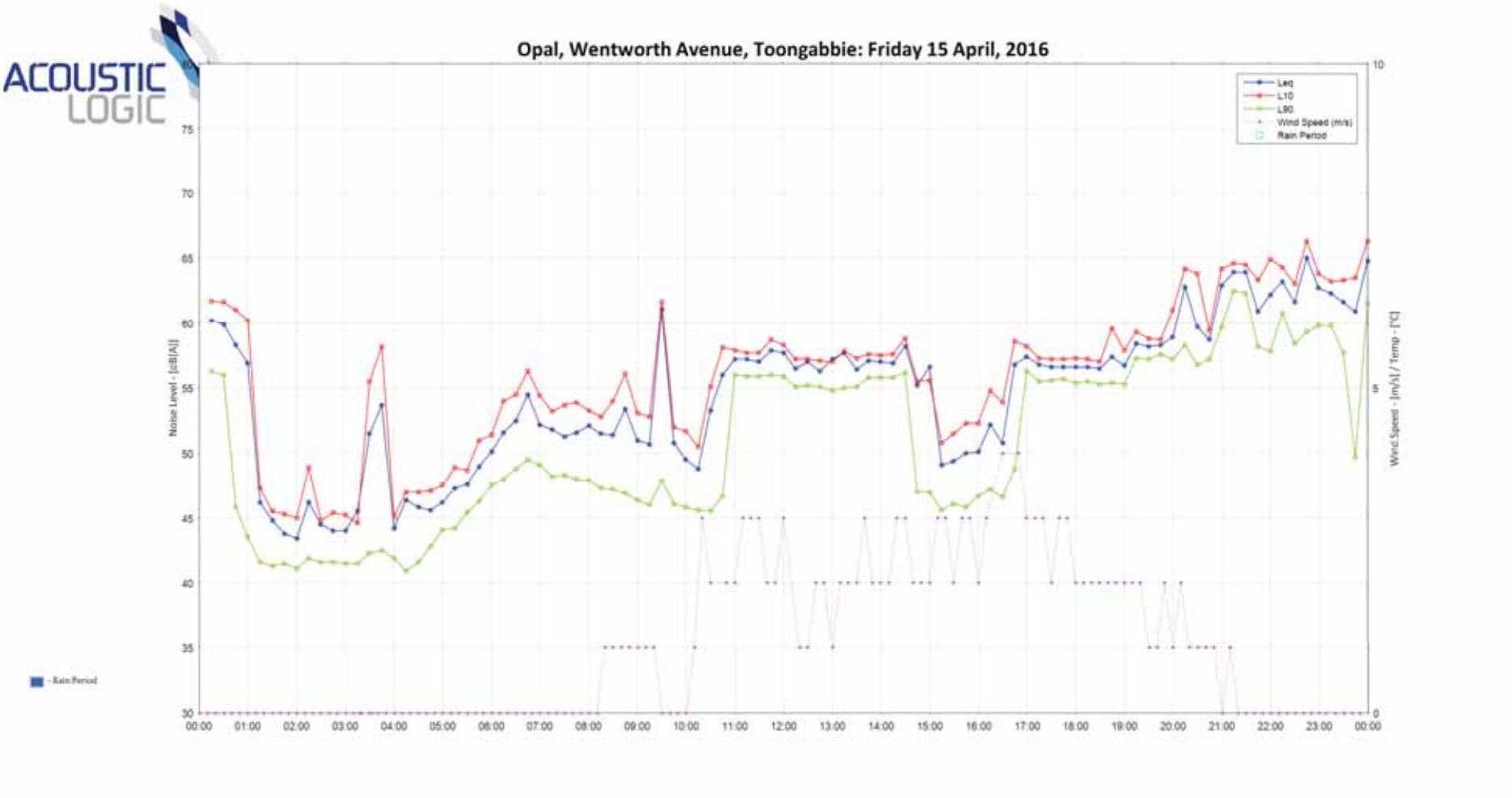
18:00
19:00
20:00
21:00
22:00
23:00
00:00
- Rain Period


Opal, Wentworth Avenue, Toongabbie: Friday 15 April, 2016
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
75
70
65
60
55
50
45
40
35
30
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
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07:00
08:00
09:00
10:00
11:00
12:00
13:00
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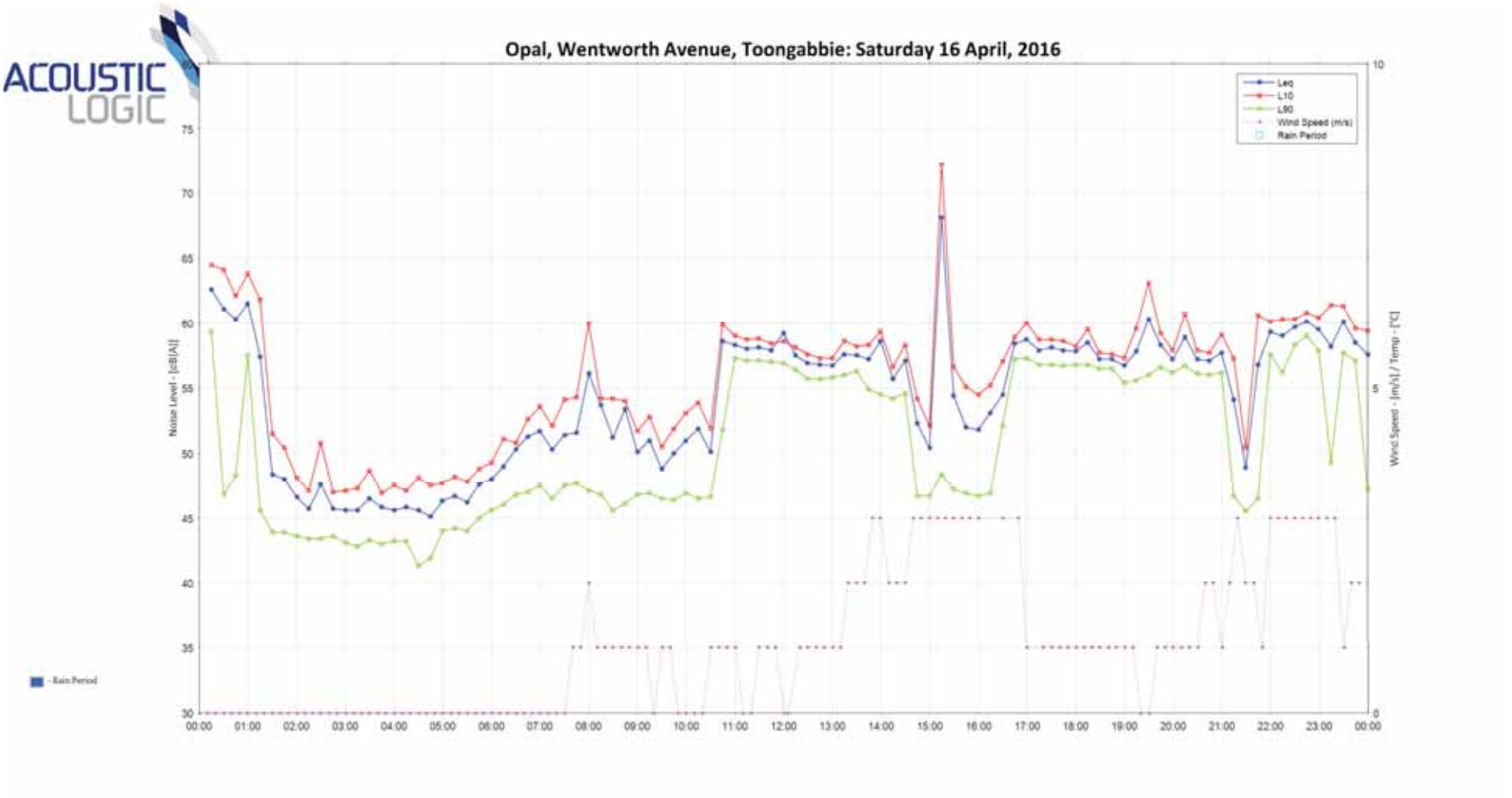
23:00
00:00
- Rain Period


Opal, Wentworth Avenue, Toongabbie: Saturday 16 April, 2016
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Rain Period
75
70
65
60
55
50
45
40
35
30
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
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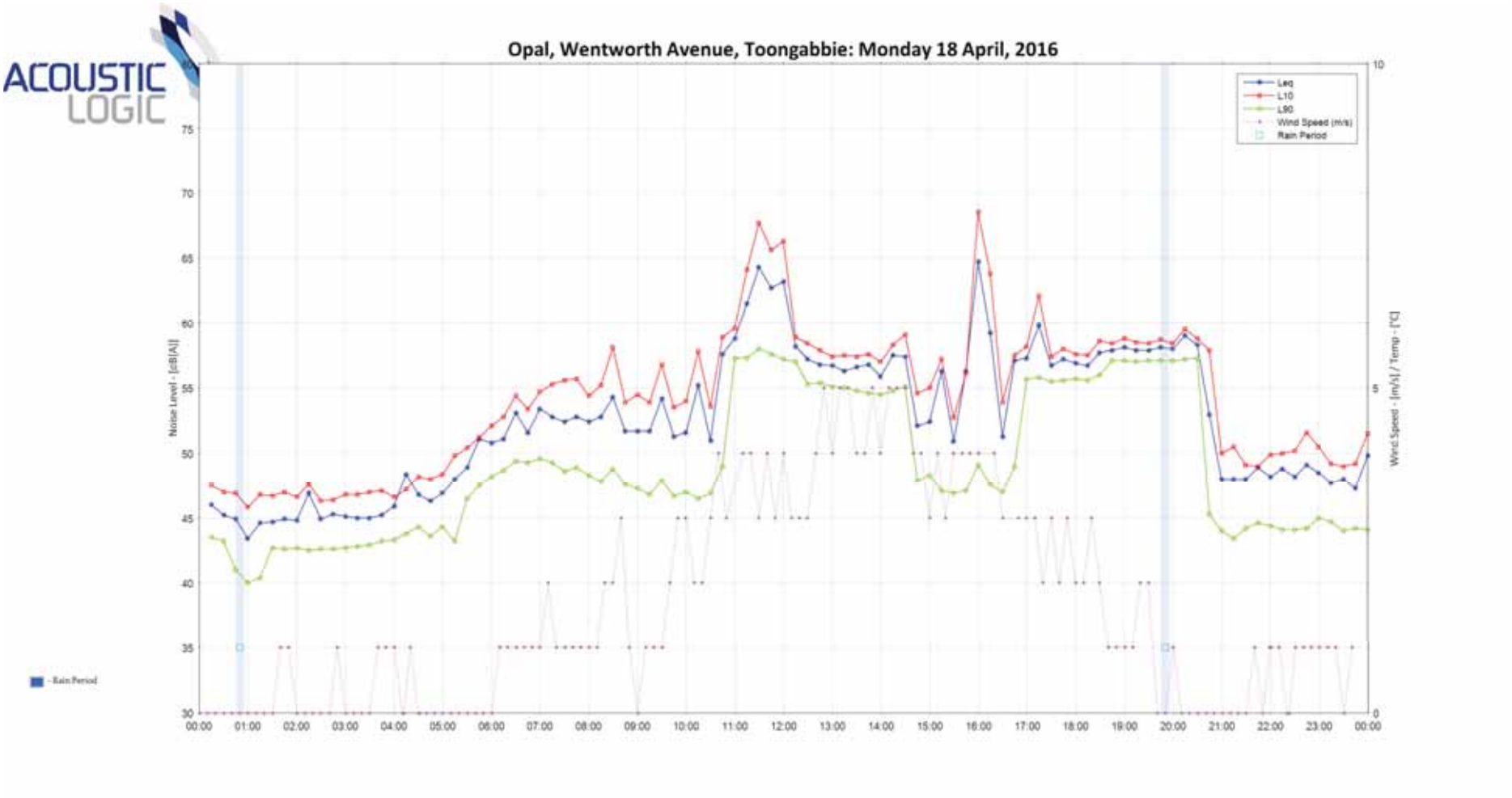
ACOUSTIC LOGIC

Opal, Wentworth Avenue, Toongabbie: Sunday 17 April, 2016


Opal, Wentworth Avenue, Toongabbie: Monday 18 April, 2016
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
75
70
65
60
55
50
45
40
35
30
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
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13:00
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17:00
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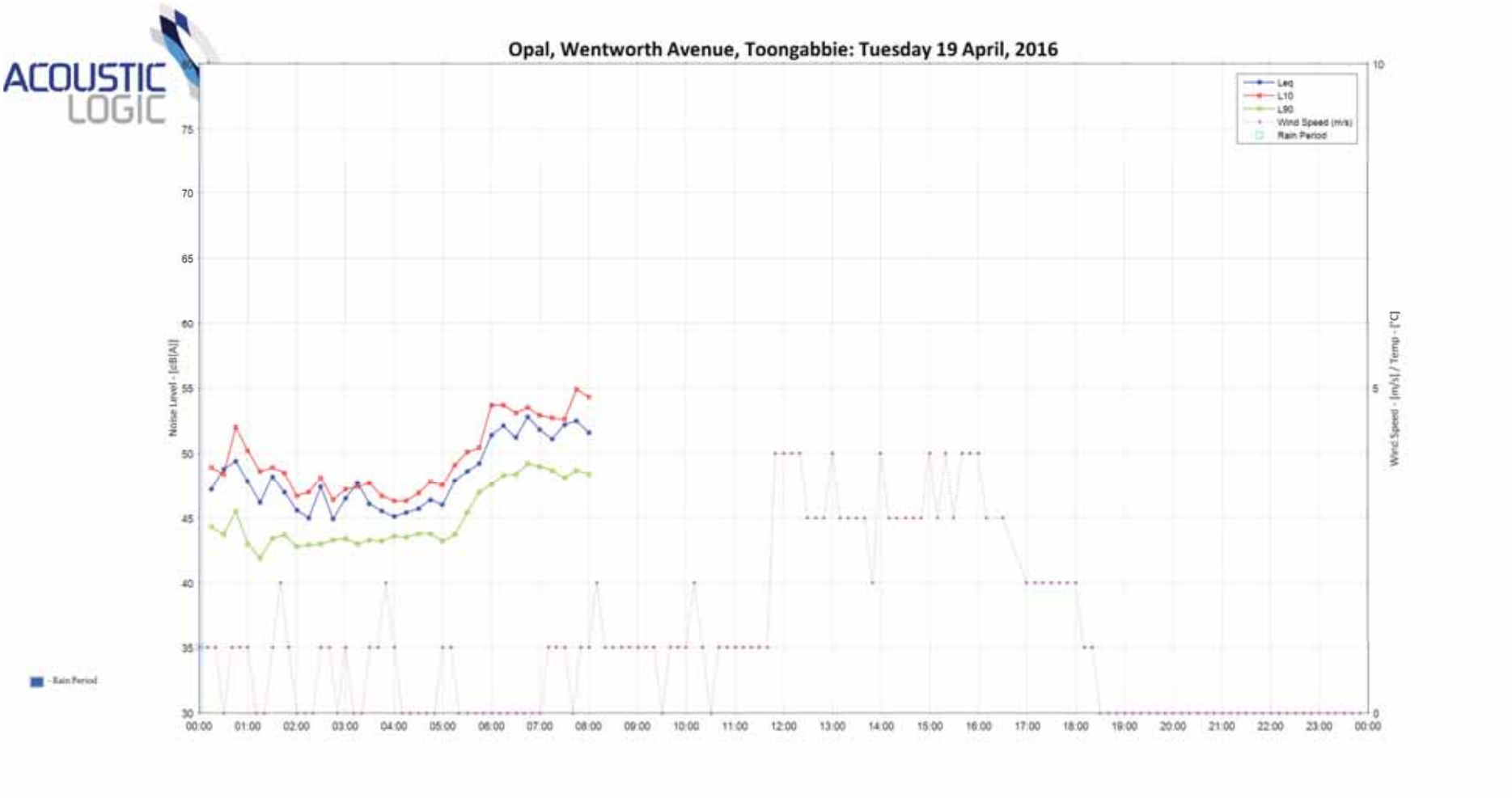
21:00
22:00
23:00
00:00
- Rain Period


Opal, Wentworth Avenue, Toongabbie: Tuesday 19 April, 2016
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Rain Period
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
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11:00
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APPENDIX 6

Development Application Drawings

DESIGN DEVELOPMENT APPLICATION

OPAL AGED CARE
PROPOSED RESIDENTIAL AGED CARE

Wentworth Avenue,Toongabbie NSW

Drawing List

Drawing No:	Drawing Name	Rev
DA 00	Cover Page	A
DA 01	Site Locality Map	A
DA 02	Site Analysis	A
DA 03	Site Plan	A
DA 04	Demolition Plan	A
DA 05	Ground Floor Plan	A
DA 06	Level 1	A
DA 07	Level 2	A
DA 08	Level 3	A
DA 09	Roof Plan	A
DA 10	Smoke Compartment	-
DA 11	Elevations- Sheet 1	A
DA 12	Elevations- Sheet 2	A
DA 13	Sections	A
DA 14	Sun Shadow Diagrams	-
DA 15	Sun Shadow Study-Building A	-
DA 16	Sun Shadow Study-Building B	-
DA 17	Photomontages - Sheet 1	A
DA 18	Photomontages - Sheet 2	A
DA 19	External Finishes & Materials	A
DA 20	External Building Signage	-
DA 21	Notification Plans - Sheet 1	-
DA 22	Street Elevation	A

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Cover Page
Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

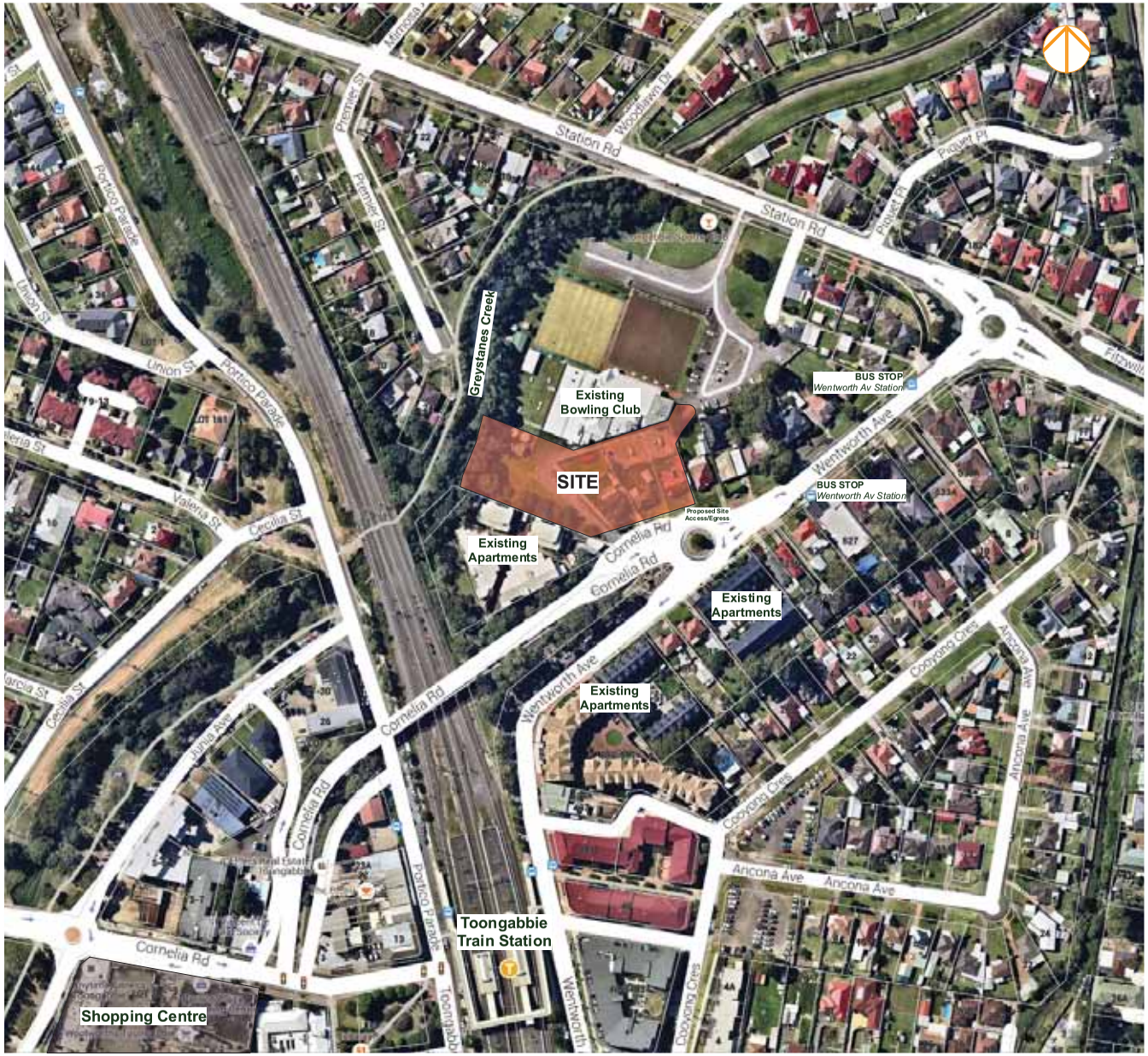
DEVELOPMENT
APPLICATION

Opal specialist aged care

NOTES
·Do not scale from this drawing. Use figured dimensions only.
·Contact the architect for clarifications if required.
·Calder Flower Architects are not liable for any loss, damage, claim, cost demand as a result of the use or receipt of drawings issued in DWG format.

SCALE: NTS
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 00
REV NO: B

DEVELOPMENT APPLICATION



SITE CONTEXT

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Site Locality Map

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

Opal specialist aged care

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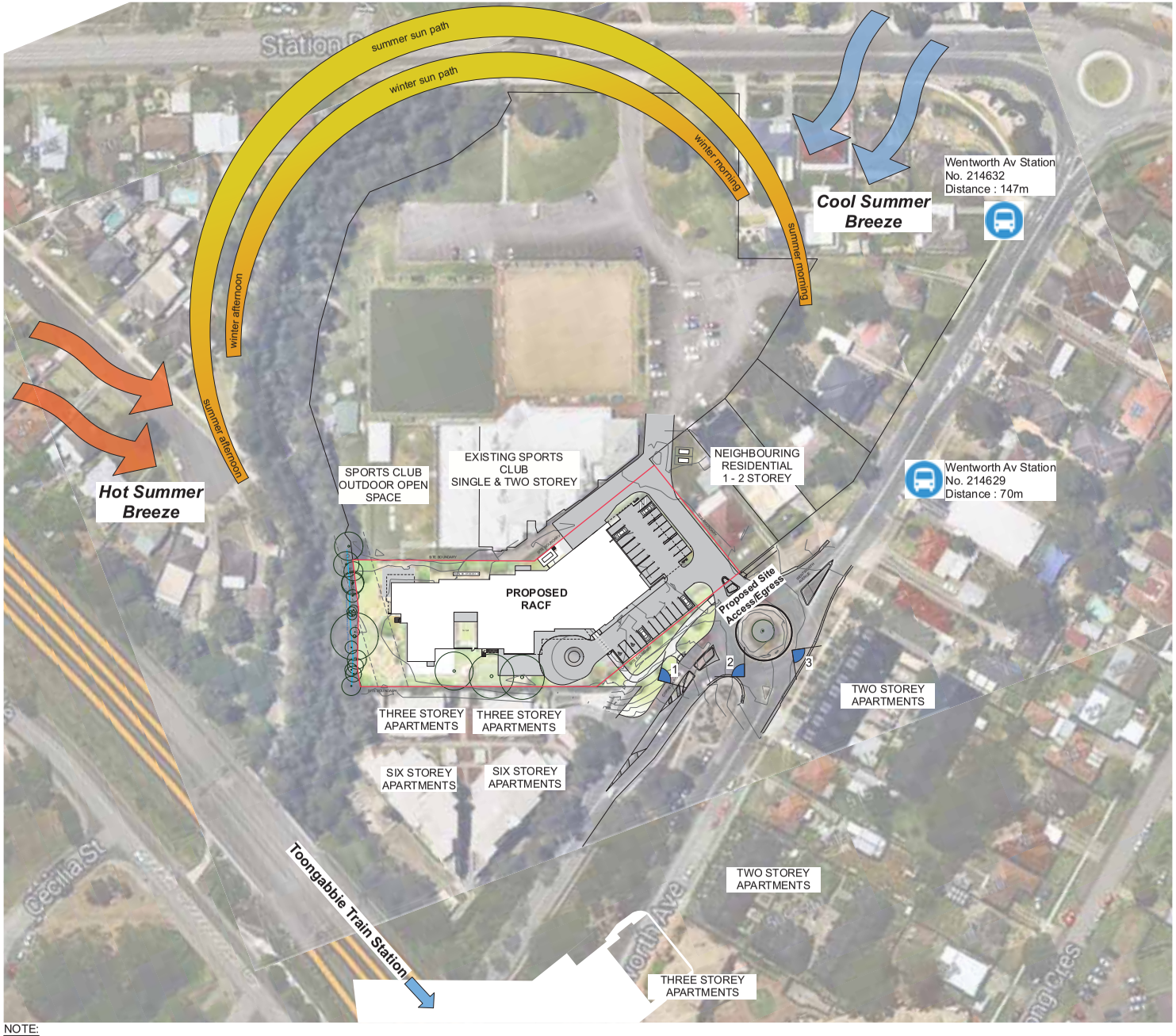
SCALE: NTS
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 01
REV NO: B

DEVELOPMENT APPLICATION

1

2

3



NOTE:
RACF = RESIDENTIAL AGED CARE FACILITY

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Site Analysis

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

Opal specialist aged care

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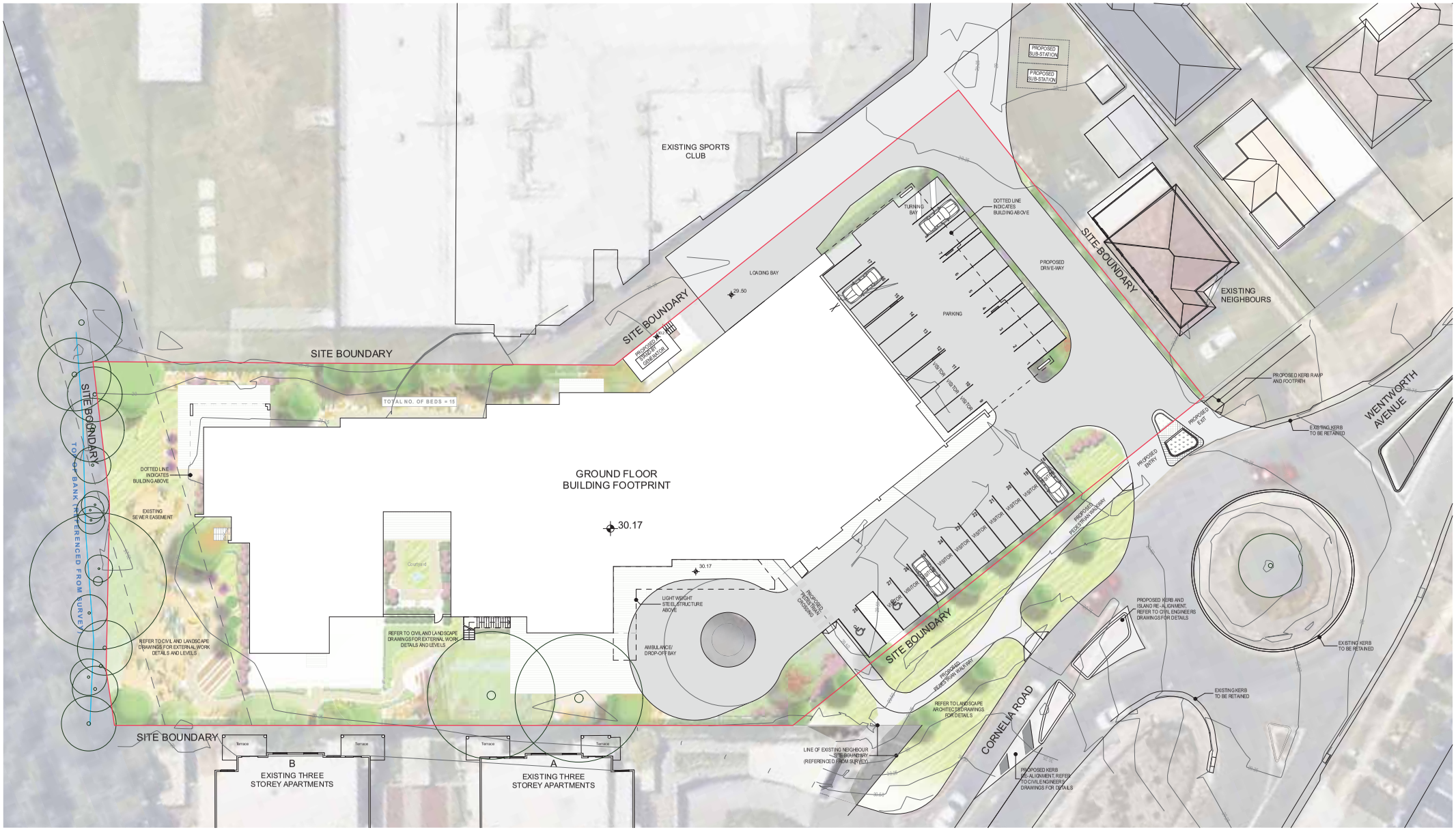
SCALE: NTS
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 02
REV NO: B

DEVELOPMENT APPLICATION



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Site Plan

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

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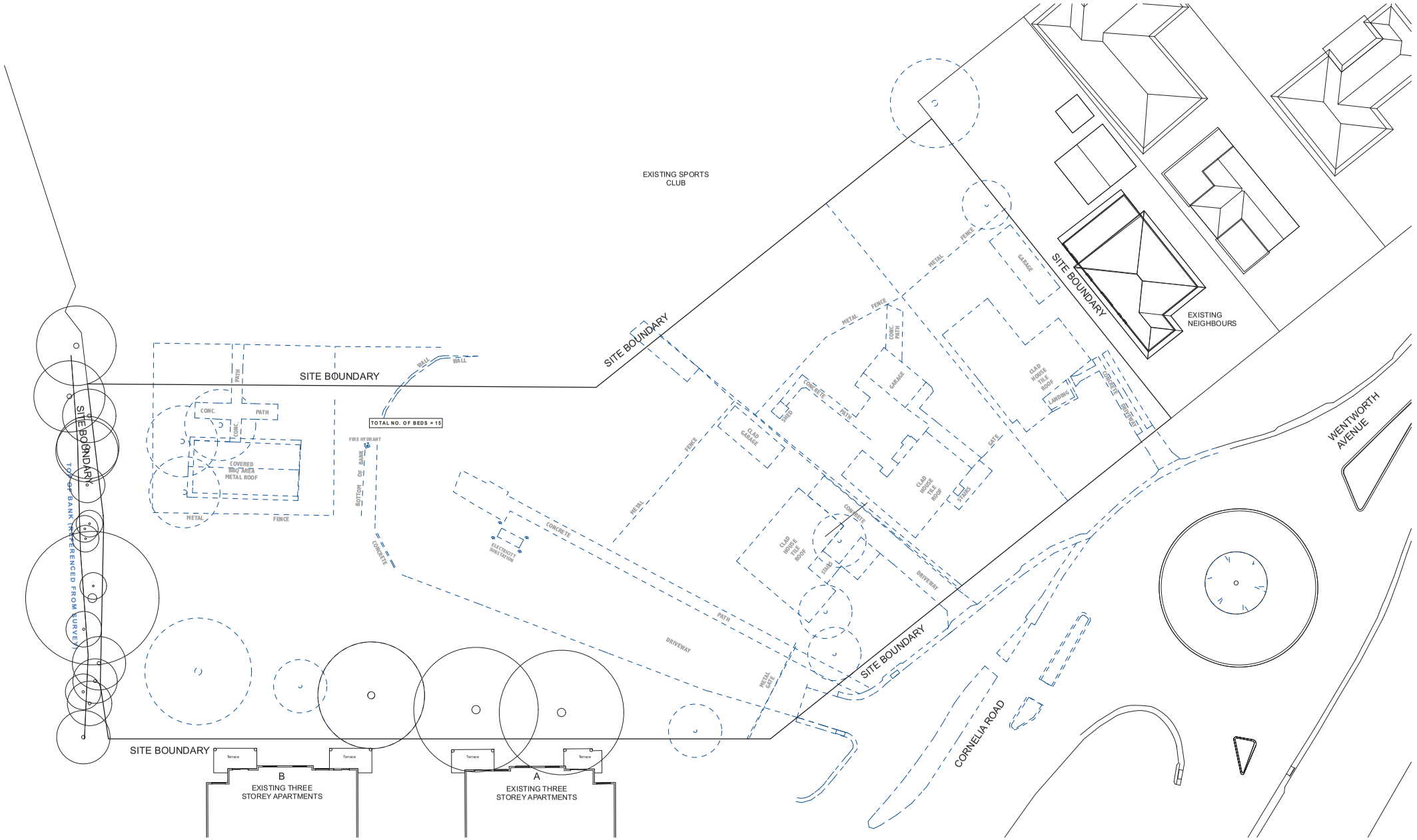
0 1 2 3 4 5 10

SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 03
REV NO: B

DEVELOPMENT APPLICATION



LEGEND

- EXISTING
- TO BE DEMOLISHED

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Demolition Plan

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

Opal specialist aged care

NOTES

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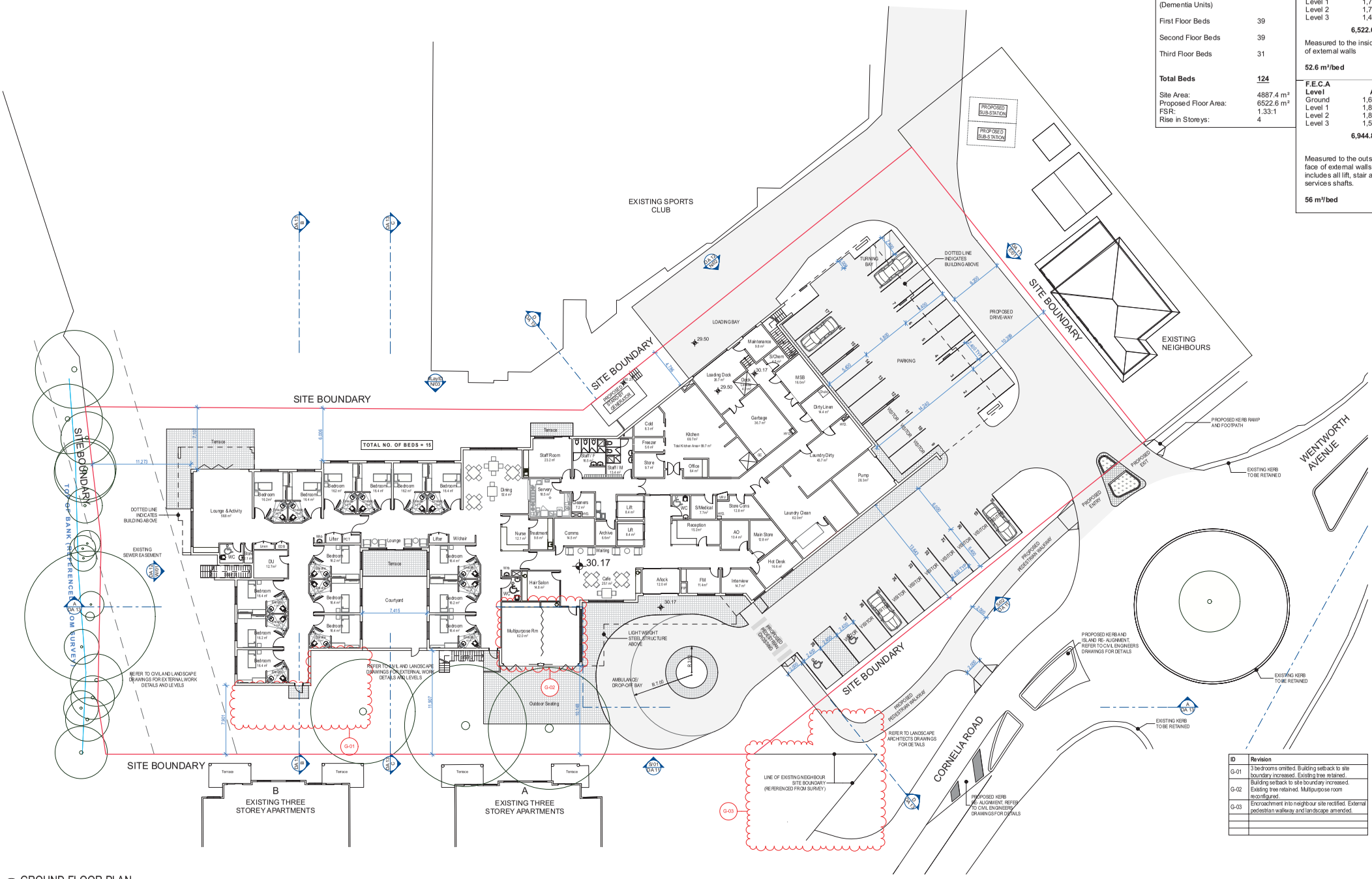
0 1 2 3 4 5 10

SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 04
REV NO: B

DEVELOPMENT APPLICATION



1 GROUND FLOOR PLAN

Summary	
Ground Floor Beds (Dementia Units)	15
First Floor Beds	39
Second Floor Beds	39
Third Floor Beds	31
Total Beds	**124**
Site Area:	4887.4 m²
Proposed Floor Area:	6522.6 m²
FSR:	1.33:1
Rise in Storeys:	4

GFA Floor Areas (FSR)

Level	Area
Ground	1,572.2
Level 1	1,764.7
Level 2	1,768.1
Level 3	1,417.6
	6,522.6 m²

Measured to the inside face of external walls

52.6 m²/bed

F.E.C.A

Level	Area
Ground	1,662.6
Level 1	1,880.2
Level 2	1,883.2
Level 3	1,518.8
	6,944.8 m²

Measured to the outside face of external walls and includes all lift, stair and services shafts.

56 m²/bed

ID	Revision
G-01	3 bedrooms omitted. Building setback to site boundary increased. Existing tree retained.
G-02	Building setback to site boundary increased. Existing tree retained. Multipurpose room reconfigured.
G-03	Encroachment into neighbour site rectified. External pedestrian walkway and landscape amended.

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Ground Floor Plan

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

NOTES
·Do not scale from this drawing. Use figured dimensions only.
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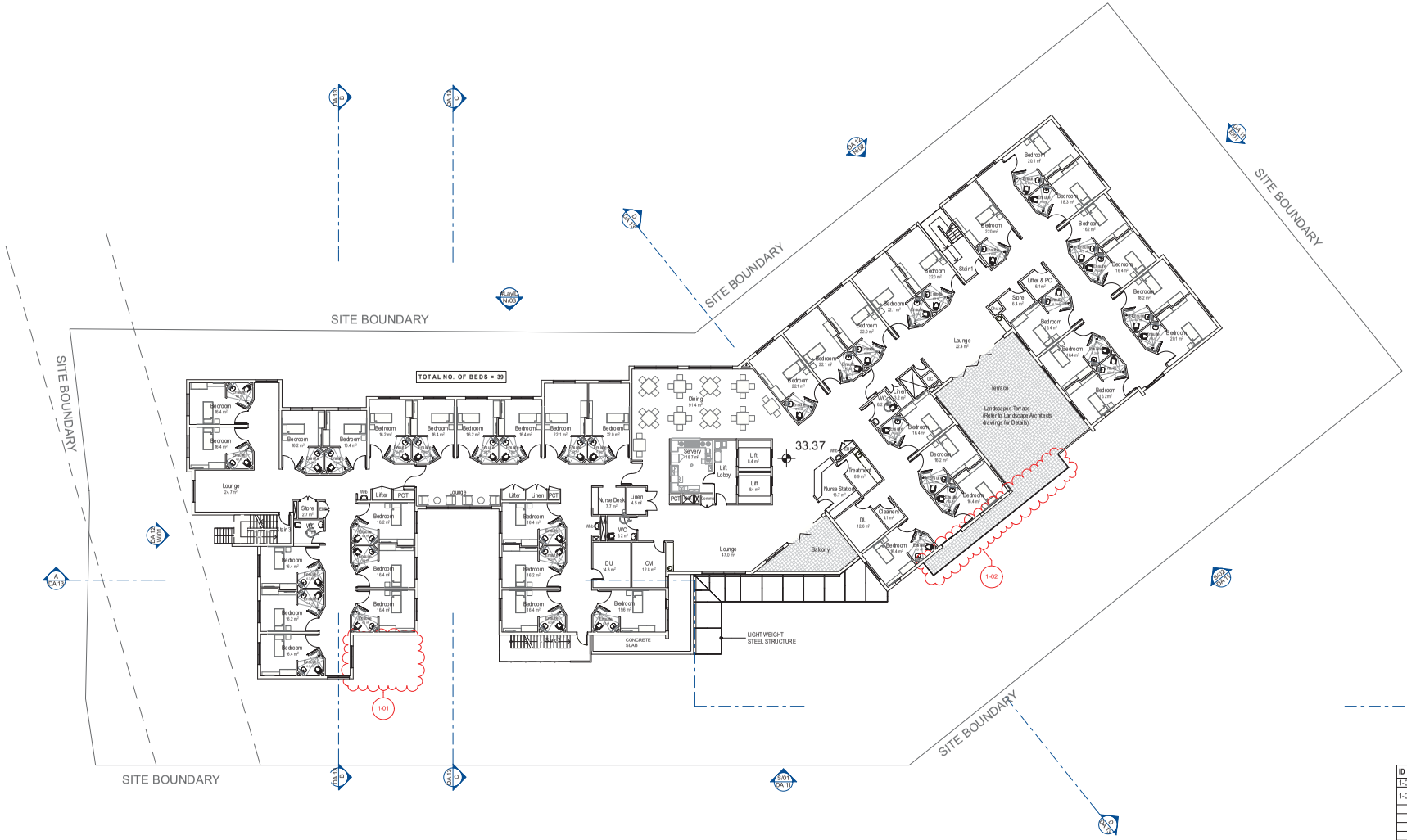
SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 05
REV NO: B

0 1 2 3 4 5 10

DEVELOPMENT APPLICATION



1 FIRST FLOOR

ID	Revision
1-01	Bedroom omitted to retain existing landscape tree.
1-02	Balcony added. Link created to external terrace area.

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Level 1

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

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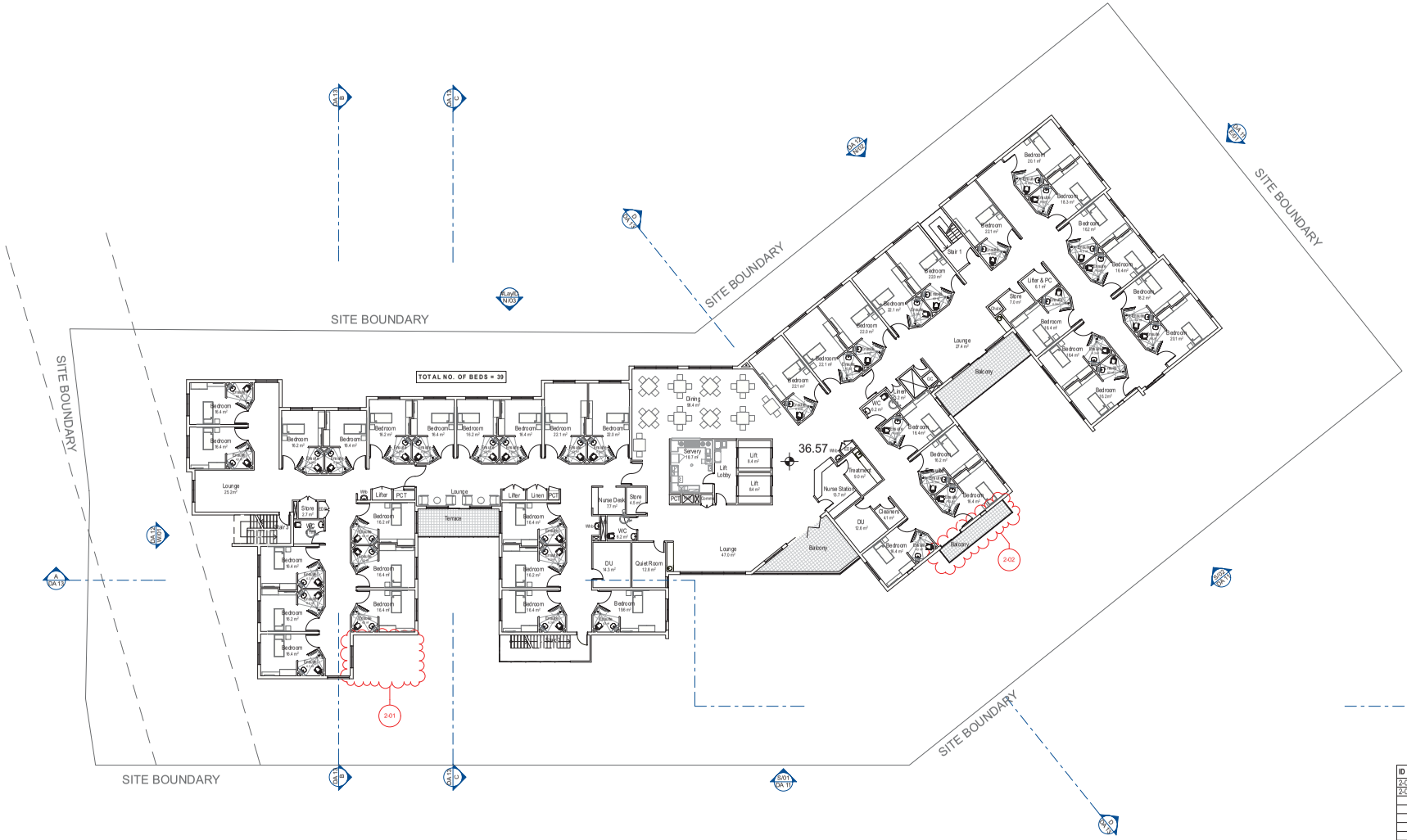
SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 06
REV NO: B

0 1 2 3 4 5 10

DEVELOPMENT APPLICATION



1 SECOND FLOOR PLAN

ID	Revision
2-01	Bedroom omitted to retain existing landscape tree.
2-02	Balcony added.

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Level 2

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

NOTES
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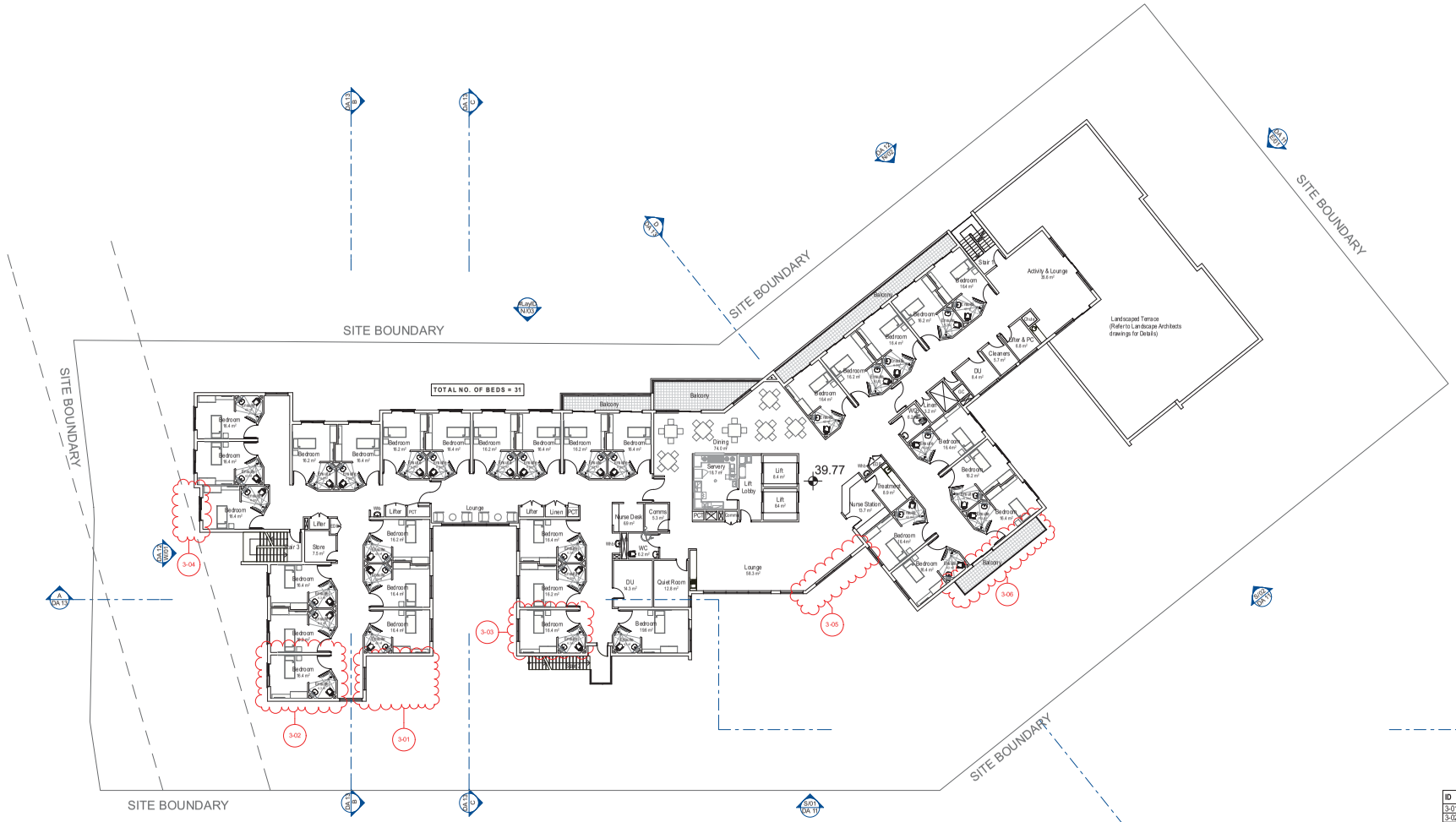
0 1 2 3 4 5 10

SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 07
REV NO: B

DEVELOPMENT APPLICATION



ID	Revision
3-01	Bedroom omitted to retain existing landscape tree.
3-02	Bedroom added.
3-03	Bedroom added.
3-04	Building corner setback from easement
3-05	Wall amended to increase lounge area and articulate facade.
3-06	Balcony added.

1 THIRD FLOOR PLAN

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Level 3
Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT
APPLICATION

NOTES
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·Contact the architect for clarifications if required.
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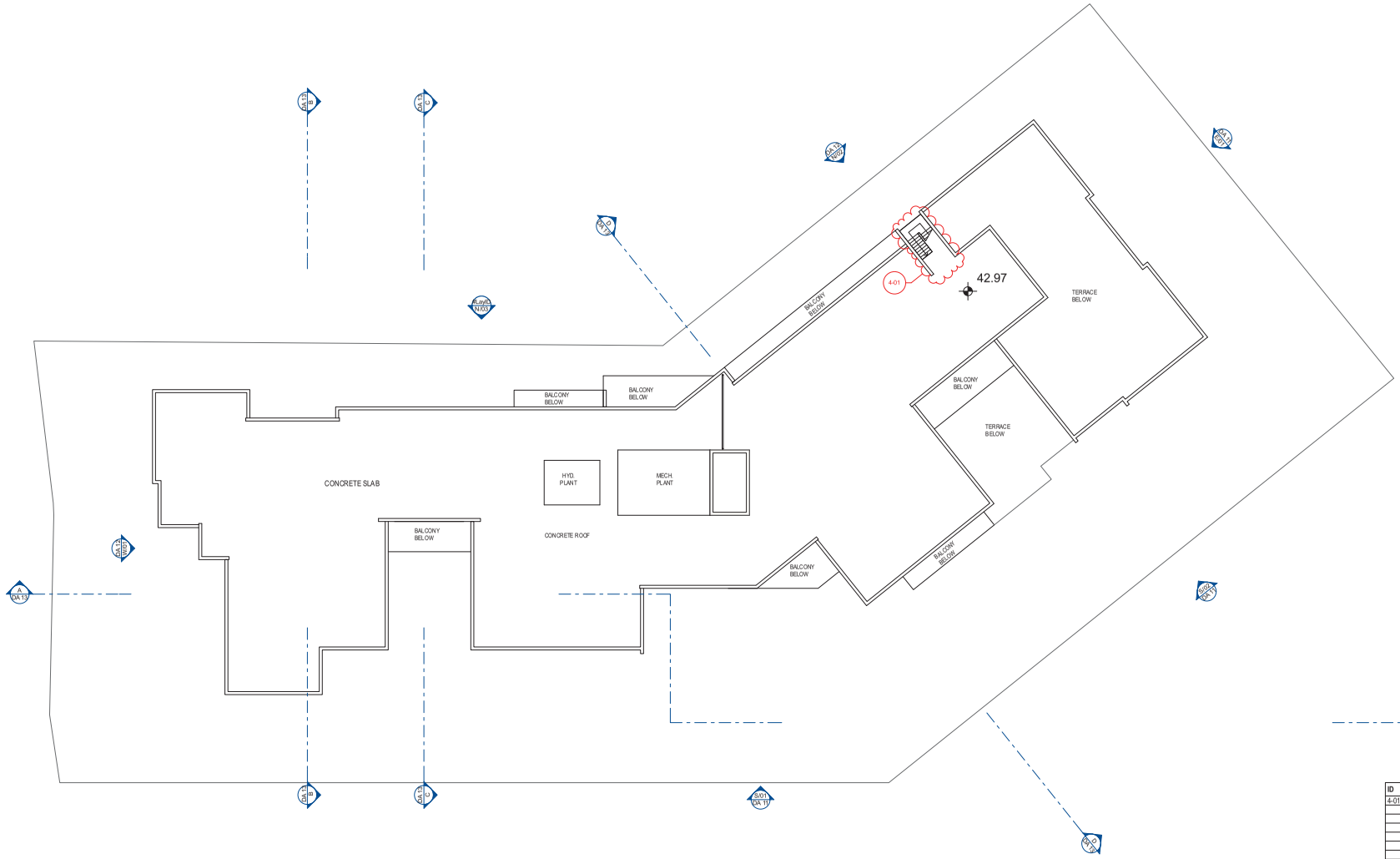
SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 08
REV NO: B

0 1 2 3 4 5 10

DEVELOPMENT APPLICATION



1 ROOF PLAN

ID	Revision
4-01	Roof cover over stair access omitted.

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Roof Plan

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

NOTES
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SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 09
REV NO: B

0 1 2 3 4 5 10

DEVELOPMENT APPLICATION

1 South Elevation

2 South Elevation

3 East Elevation

ID	Revision
E-01	Building facade materials amended. Refer to External Finishes and Material Sheet.
E-02	Window sun-screens amended.

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Elevations- Sheet 1

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

NOTES
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SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 11
REV NO: B

0 1 2 3 4 5 10

DEVELOPMENT APPLICATION

1 North Elevation

2 North Elevation

3 West Elevation

ID	Revision
E-01	Building facade materials amended. Refer to External Finishes and Material Sheet.
E-02	Window sun-screens amended.

CALDER FLOWER
ARCHITECTS

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Elevations- Sheet 2

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

NOTES
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SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 12
REV NO: B

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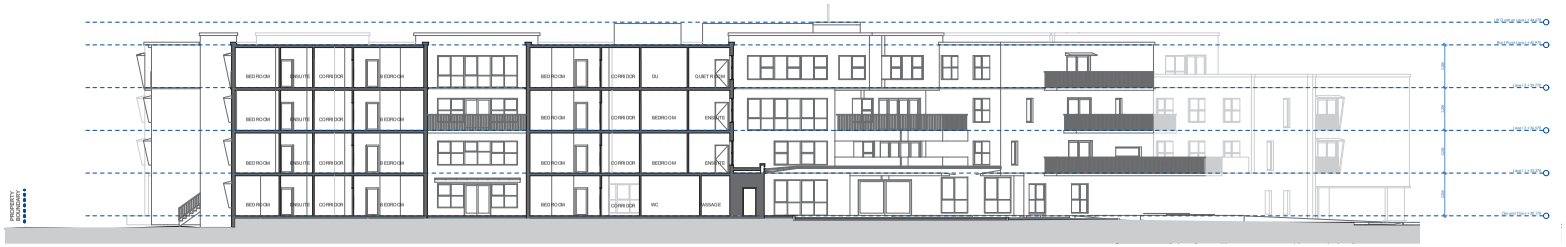
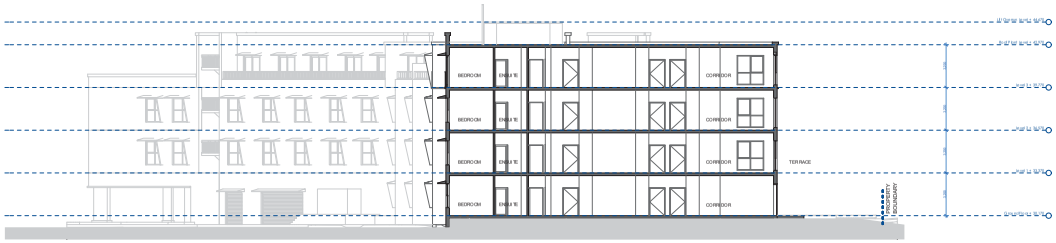
DEVELOPMENT APPLICATION

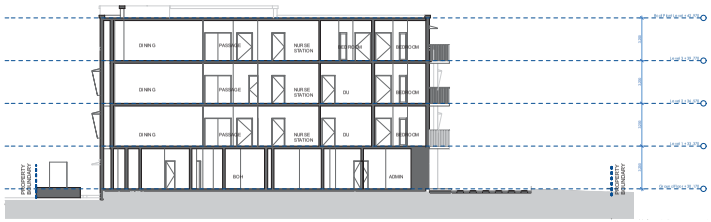


01 Section A



02 Section B

03 Section C



04 Section D

CALDER FLOWER
ARCHITECTS

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Sections

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT
APPLICATION

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SCALE: 1:200 @ A1
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 13
REV NO: B

DEVELOPMENT APPLICATION

STREET VIEW

SOUTH VIEW

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ARCHITECTS

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Photomontages - Sheet 1

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

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SCALE:	NTS
JOB NO:	15280
DATE:	21/02/2018
DWG NO:	DA 17
REV NO:	B

DEVELOPMENT APPLICATION

NORTH WEST VIEW

NORTH EAST VIEW

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ARCHITECTS

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Photomontages - Sheet 2

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT
APPLICATION

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SCALE: NTS
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 18
REV NO: B

DEVELOPMENT APPLICATION

BRICK "TERRACOTTA"

BRICK "URBAN BLUE"

BRICK "MIDNIGHT BLUE"

BRICK "WHITE"

COLORBOND "LYSAGHT LONGLINE" CLADDING.
COLOUR TO BE SPECIFIED.

ALUMINIUM WINDOW & DOORS (TYPICAL)

CALDER FLOWER
ARCHITECTS

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External Finishes & Materials

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

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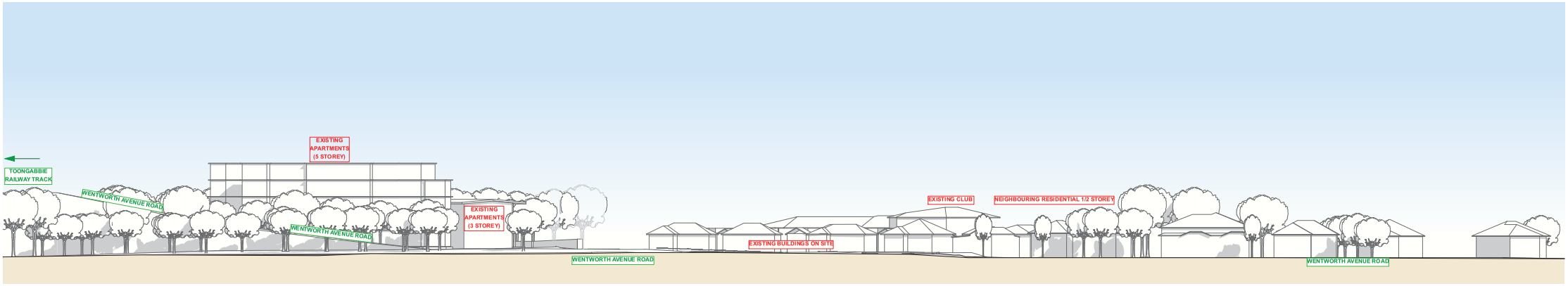
SCALE: NTS
JOB NO: 15280
DATE: 21/02/2018
DWG NO: DA 19
REV NO: B

DEVELOPMENT APPLICATION



EXISTING STREET ELEVATION

PROPOSED STREET ELEVATION

CALDER FLOWER
ARCHITECTS

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Street Elevation

Opal Toongabbie
Opal Specialist Aged Care
Wentworth Avenue
Toongabbie, NSW 2146

DEVELOPMENT APPLICATION

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SCALE: 1:200 @ A1
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DATE: 21/02/2018
DWG NO: DA 22
REV NO: B

DEVELOPMENT APPLICATION