# 52 Golf Road, Oakleigh South

**DEVELOPMENT PLAN** - VOLUME 1

MARCH 2021 - REVISION 6

Tract

OAKMONT

OAKLEIGH SOUTH

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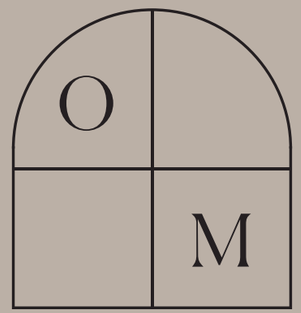


# OAKMONT

OAKLEIGH SOUTH

# Contents.

# Introduction.

‘The Development Plan will facilitate the creation of a high quality, dynamic and sustainable residential community that will seamlessly integrate with and complement the existing urban environment of Oakleigh South.’

# 1 INTRODUCTION

## 1.1 OVERVIEW

This Development Plan applies to the former Oakleigh South Primary School at 52 Golf Road, Oakleigh South.

It is noted that 1 Beryl Avenue, Oakleigh South was the former address of the Site and it is now identified as 52 Golf Road, Oakleigh South.

The Development Plan has been prepared on behalf of Golf Road Project Development Pty Ltd to provide a land use and development framework for the redevelopment of the Site in accordance with Schedule 5 to the Development Plan Overlay and other relevant policies and provisions of the Monash Planning Scheme.

Specifically, this Development Plan seeks to:

- Provide for the use, development and subdivision of the former Oakleigh South Primary School that is responsive to its unique characteristics and its surrounds.
- Provide opportunities for a range of medium density housing typologies and open spaces. Specifically, the provision of 9 townhouse typologies ranging from 2 to 4 bedrooms, catering for a wide variety of housing needs.
- Apply best practice Environmentally Sustainable Development initiatives in all aspects of the Site's design and development.
- Provide for a high quality of internal amenity for future residents.
- Create a composition of varied building forms and heights across the Site.
- Respect the amenity of adjoining sensitive interfaces including existing properties to the north, east, south and west, and the Metropolitan Golf Course through appropriate buffer treatments and respectful building envelopes.
- Encourage high quality architectural, urban design and landscape outcomes that are responsive to the Site's features and characteristics, as well as the wider Oakleigh South area.
- Promote permeability in the layout of buildings, open spaces and the design of the vehicle and pedestrian access network.
- Incorporate significant vegetation into the design of the development where possible.

The land represents a significant opportunity for infill residential development and this Development Plan will facilitate the coordinated redevelopment of the land to enable appropriate development to occur. The proposed development promotes varied, engaging and high architectural quality building forms, a balance of two and three storey townhouses and a pedestrian and cyclist focused environment.

## 1.2 DEVELOPMENT PLAN STRUCTURE

The Development Plan implements the objectives and requirements of Schedule 5 to the Development Plan Overlay and it is structured as follows:

- Planning Context - **Section 2**
- Site and Urban Context Analysis - **Section 3**
- The Development Plan - **Section 4**
- Landscape Design Report - **Section 5**
- Traffic Management - **Section 6**
- Ecological sustainable development. - **Section 7**
- Stormwater Management Plan - **Section 8**
- Waste Management - **Section 9**
- Site and Environmental Considerations - **Section 10**
- Conclusion - **Section 11**

## 1.3 DEVELOPMENT PLAN CONTENT

This Development Plan comprises two volumes being:

- Volume 1 - as described in section 1.2
- Volume 2 - supporting specialist reports.

The specialist reports contained within Volume 2 have been prepared to respond to the requirements of Section 3 of Schedule 5 to the Development Plan Overlay.

In particular, the specialist reports address the following planning matters:

- Architectural Submission.
- Traffic management.
- Contamination assessment.
- Landscape Design Response.
- Sustainable Management Plan.
- Physical services and infrastructure.
- Stormwater Management Plan.
- Waste Management Plan.
- Arboricultural Report.
- Site Development Management Plan.

Extracts of these reports (usually the executive summary and key findings) are included in the text of this document. Where relevant, this should be read in conjunction with the addenda provided with the amended Development Plan. In addition, Volume 2 should be read in conjunction with this document.

## 1.4 PROJECT TEAM

The following consultants were involved in the preparation of Volume 1 and Volume 2 of the Development Plan:

- Tract Consultants
- Plus Architecture
- TraffixGroup
- Sustainability House
- FMG Engineering
- Landscape DEPT
- Prensa

## 1.5 PROJECT HISTORY

A previous revision of this Development Plan (Revision 3 dated February 2020) was subject to a hearing at the Victorian Civil and Admnistrative Tribunal (VCAT) in March 2020. Refer *Golf Road Project Development Pty Ltd v Monash CC [2020] VCAT 488.*

The Tribunal subsequently ordered Revision 3 of the Development Plan not be approved on 5 May 2020 based on the following main reasons:

- The presentation to Beryl Avenue lacked sufficient separation. The Tribunal suggested that an acceptable outcome would be achieved if a minimum 5 metre ground floor separation is provided between each of the building modules.
- The fencing proposed in front of the secluded private open spaces along the street frontages would visually segregate the development from the footpath and not provide an acceptable response. The Tribunal acknowledged that a reverse living arrangement may be acceptable, so long as the dwellings provided direct and clear access to the street in the form of a typical entry front door.
- Linked to the above, the Tribunal was also not comfortable with the extent of overshadowing to the secluded private open spaces proposed along the southern side of dwellings front Beryl Avenue.. The Tribunal suggested that an acceptable outcome would be achieved if secluded private open space was provided at the rear or the side of the dwellings.
- A perceived dominance of garages in areas of the development, particular the row of dwellings interfacing the golf course and the northern boundary. The Tribunal suggested that this could be rectified by including more dwellings with habitable room windows on ground floor facing the internal streets.

In addition to this, the Tribunal made the following favourable findings:

- There is scope for attached dwellings on the site.
- The modules of four attached dwellings along Golf Road and three attached dwellings along Bakers Road are appropriate.
- The diversity of dwellings is appropriate and the development will suitably provide for the needs of the City of Monash in that regard.
- The interface to the northern boundary is appropriate in terms of the visual impact it will have on the properties to the north. The Tribunal referred to the northern boundary setback, ability to landscape and upper level separation between the rows of dwellings in this regard.
- There will be no unreasonable offsite overshadowing.
- Overlooking can be appropriately addressed with screening measures.
- The Tribunal did not raise any concerns with the removal of trees, and found that tree 29 should also be removed and replaced. The Tribunal also made a comment suggesting that it might be better to remove and replace tree 30.

Based on these findings, an amended Revision 5 of the Development Plan (dated June 2020) was submitted to Monash City Council for approval.

An application for review was made to VCAT on 20 July 2020 under Section 149 of the *Planning and Environment Act 1987.*

The current revision of the Development Plan (Revision 6, dated March 2021) has been circulated to the relevant parties prior to the VCAT hearing as an amended development plan. It focuses on addressing the issues raised in the Tribunal's Order, while further enhancing its favourable findings.

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# Planning framework.

# 2 PLANNING FRAMEWORK

## 2.1 AMENDMENT GC5 TO THE MONASH PLANNING SCHEME

Amendment GC5 (**Amendment**) was prepared by the Minister for Planning at the request of the Department of Education and Early Childhood Development.

The Amendment was approved on 18 February 2014 and it rezoned a number of surplus school sites to enable their sale and redevelopment for residential use.

The Amendment changed the Monash Planning Scheme by:

- Rezoning the Site from Public Use Zone to the General Residential Zone (**GRZ**).
- Applying Schedule 5 to the Development Plan Overlay (**DPO5**) over the Land.

Refer to Figures 1 and 2.

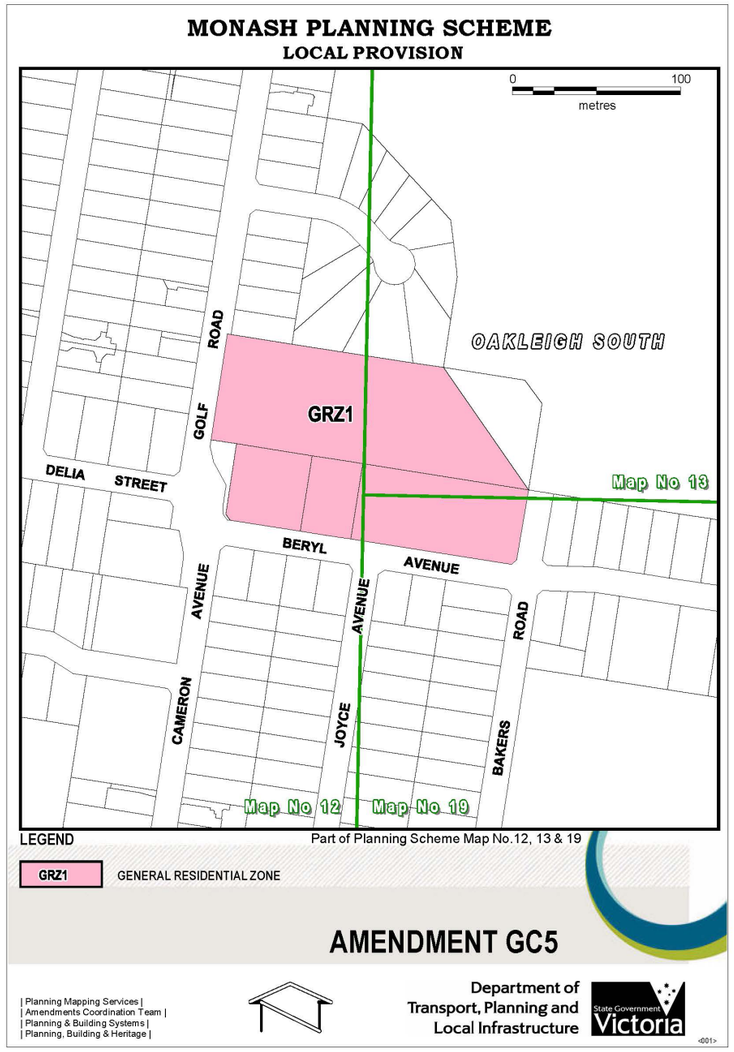


Figure 1. Amendment GC5 Zoning Plan

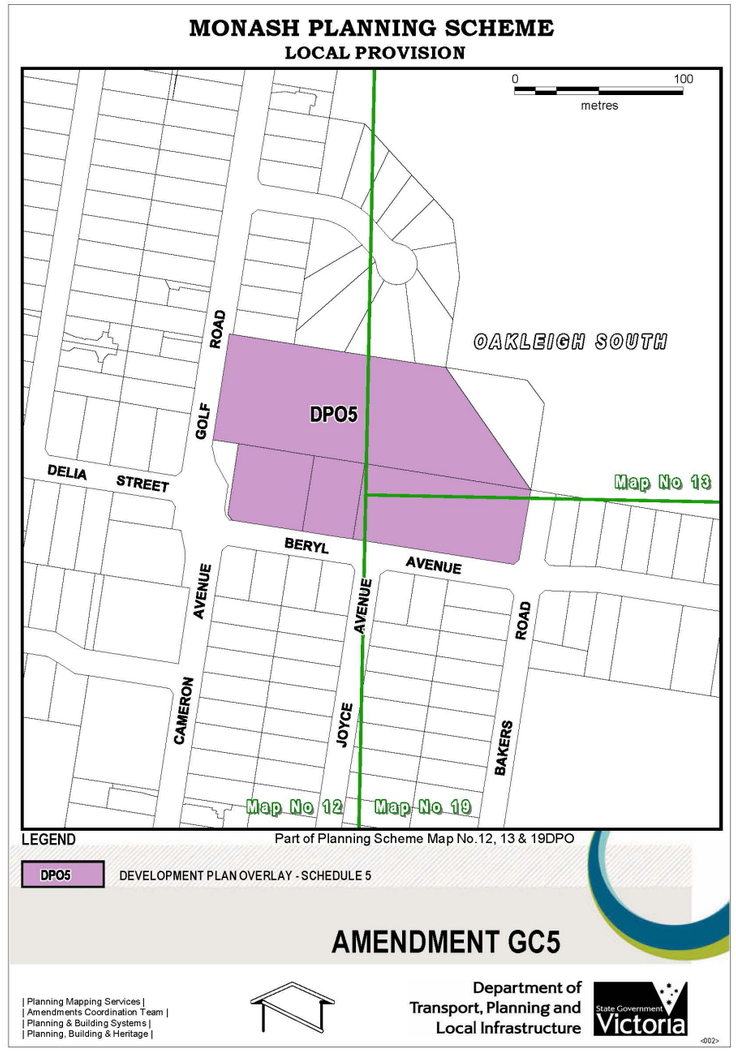


Figure 2. Amendment GC5 Overlay Plan

## 2.2 KEY PLANNING POLICY

The Development Plan has been prepared in accordance with the various policy provisions outlined in the Monash Planning Scheme, including Plan Melbourne and the PPF. The Development Plan has also had regard to the intent of both the land use zoning that affects the Site and relevant particular provisions.

More particularly, it is noted that the Development Plan is supported by:

- The GRZ as it identifies the use of land for 'dwelling' as a Section 1 (permit not required) use. The GRZ encourages diversity in housing and seeks outcomes which respect the existing neighbourhood character and can satisfy the requirements of Clause 55, and the Schedule to the zone.
- Plan Melbourne as it provides for an increase in housing close to jobs, education facilities and transport. Further, the Development Plan will support the objectives of Plan Melbourne by promoting increased affordability, inclusiveness, sustainable housing and integration between land use and transport planning.
- The various housing and liveability related provisions of the PPF of the Monash Planning Scheme (and as set out in the Monash Housing Strategy 2014) as it provides housing opportunities for a variety of lifestyle options in a location that is serviced well by retail, community, public transport and public open space services. This directly responds to Clauses 15.01-1S, 15.01-2S, 15.01-3S, 15.01-4S, 15.01-4R, 16.01-1S, 16.01-2S, 16.01-2R, 16.01-3S, 16.01-3R, 18.01-1S and 21.04-3.
- The various built form related provisions of the PPF and particular provisions of the Monash Planning Scheme as it provides for a high quality architecturally-designed framework that has taken a cue from the existing and emerging neighbourhood character of the area as well as the medium density aspirations set out in the DPO5. This directly responds to Clauses 15.01-1S, 15.01-2S, 15.01-3S, 22.01 and 55.
- The PPF and particular provisions regarding environmental sustainability as it will provide for an energy and water efficient community. This directly responds to Clause 15.02-1S, 19.03-3S, 21.13, 22.04 and 22.13.
- Clause 52.06 of the Monash Planning Scheme as it includes car parking and access design that is consistent with the required statutory provisions.
- The Monash Housing Strategy 2014, which identifies the Site as being within a 'Category 2 - Accessible Area' (refer to Figure 3). A 'Category 2 - Accessible Area' applies to residential areas that are within reasonable walking distance from an Activity Centre, Neighbourhood Centre, railway station public transport interchange or medium to large scale supermarkets. They are considered as area with future development potential. The relevant residential outcomes identified for a 'Category 2 - Accessible Area' includes:
  - 'Transition in residential density from the interface with surrounding residential areas to the boundary of the Activity Centre;
  - Lower density unit and townhouse style developments at the interface with surrounding residential areas; and
  - On larger sites, in suitable locations, increased density may be appropriate, subject to careful design and the provision of appropriate landscaped setbacks'.

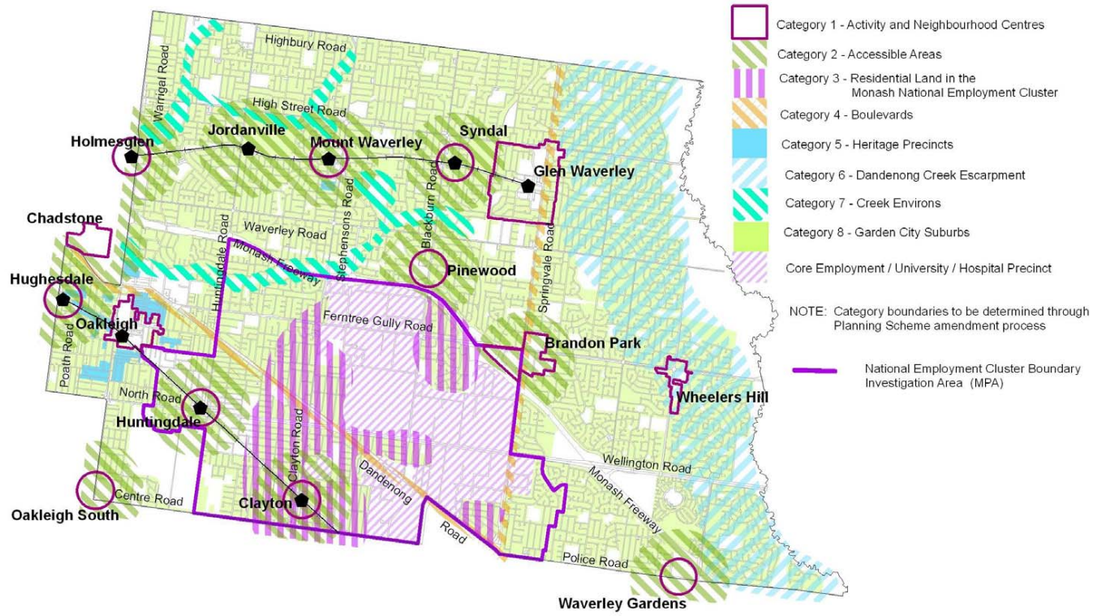


Figure 3. Monash Housing Strategy Residential Development Framework Map (Source: Monash Housing Strategy)

## 2.3 GENERAL RESIDENTIAL ZONE

The purpose of the GRZ is:

- *'To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To encourage development that respects the neighbourhood character of the area.*
- *To encourage a diversity of housing types and housing growth particularly in locations offering good access to services and transport.*
- *To allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.'*

Schedule 1 to the GRZ does not vary any requirements of Clause 54/55 and does not specify a maximum build height.

The provisions of the GRZ that are most relevant to the Development Plan include:

- **Clause 32.08-3 (Subdivision)**. This clause specifies that a planning permit is required to subdivide land.
- **Clause 32.08-4 (Construction or extension of a dwelling or residential building: Minimum garden area requirement)**. This clause states that any application to construct or extend a dwelling or residential building on a Site above 650 square metres must provide a minimum of 35% garden area at ground level. This does not apply to:
  - An application to construct or extend a dwelling or residential building on a lot if the lot is designated as a medium density housing Site in an incorporated plan or approved development plan.

This Development Plan designates the Site as a medium density housing Site, therefore the garden area requirement will not be applicable to any future planning permit application under this clause.

- **Clause 32.08-6 (Construction and extension of two or more dwellings on a lot, dwellings on common property and residential buildings)** states that a permit is required to construct two or more dwellings on a lot. The clause also states that a development must meet the requirements of Clause 55.
- **Clause 32.08-9 (Maximum building height requirement for a dwelling or residential building)** - Schedule 1 does not specify a maximum building height, and the provision therefore defaults to the relevant standard of Clause 55.
- **Clause 32.08-12 (Decision Guidelines)** states that before deciding on an application the Responsible Authority must consider the requirements of Clause 55.

Refer to Figure 4 - Zone Plan.


**Figure 4.** Zone Plan

## 2.4 OVERLAYS

### 2.4.1 Clause 43.04 - Development Plan Overlay - Schedule 5

The DPO5 specifies that a Development Plan must be prepared for the whole Site, and should:

- Where residential uses are proposed, provide a range of dwelling types to cater for a variety of housing needs.
- Where non-residential uses are proposed, details of the nature of the proposed use, including hours of operation, stall and visitor numbers, and traffic and parking management plan.
- Incorporate sustainable design features to address water and waste management, solar access and energy saving initiatives, to deliver lower living costs for future residents.
- Create a composition of varied building forms and heights across the Site.
- Provide for a high quality of internal amenity for future residents
- Respect the amenity of adjoining interfaces for providing for a maximum of 2 storey built form adjacent to or opposite any existing single storey residential development.
- Any taller buildings across the balance of the Site should be carefully graduated with reference to analysis of shadow, visual amenity impacts and the character of the area.
- Apply appropriate buffer treatments at the interface with any non-residential uses on adjoining properties.
- Create opportunities for improved local permeability through provision of new pedestrian/cycle pathways or new local street networks where appropriate.
- Incorporate any significant native vegetation into the design of the development.

This Development Plan implements the objectives and provisions of Schedule 5 to the Development Plan Overlay and the policy statements which apply to the land.

Refer to Figure 5 - Overlay Plan

Table 1. Required Development Plan Components

| DPO5 Component | Volume 1 of DP | Volume 2 of DP |
|---|---|---|
| Existing conditions plan, showing surrounding land uses and development, adjoining roads and pedestrian links, public transport routes, topography, and infrastructure provision. | Section 3 | DPO Architectural Submission prepared by Plus Architecture |
| Concept plans for the Site | Section 4 | DPO Architectural Submission prepared by Plus Architecture |
| A traffic management report and car parking plan | Section 6 | Traffic Engineering Assessment prepared by TraffixGroup |
| For the former Oakleigh South Primary School Site, plans to implement the Site Development Management Plan developed by Prensa in their report dated August 2013. | Section 10 | Updated Site Development Management Plan prepared by Prensa |
| A landscaping plan | Section 5 | Landscape Design Report prepared by Tract Consultants |


Figure 5. Overlay Plan

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# Site &
# urban context
# analysis.

# 3 SITE & URBAN CONTEXT ANALYSIS

This section of Development Plan addresses the following requirement of the DPO5:

'Existing conditions plan, showing surrounding land uses and development, adjoining roads and pedestrian links, public transport routes, topography, and infrastructure provision'

## 3.1 SITE LOCALITY

The Site is located in Oakleigh South, within the City of Monash.

It lies approximately 3 kilometres west of the Monash National Employment and Innovation Cluster and approximately 17.59 kilometres south-east of Melbourne's Central Business District.

The Site is described on Certificate of Title as:

- Lot 41 LP13217
- Lot 42 LP13217
- Lot 43 LP13217
- Lot 44 LP13217
- Lot 45 LP13217
- Lot 46 LP13217
- Lot 47 LP13217
- Lot 48 LP13217
- Lot 49 LP13217
- Lot 50 LP13217
- Lot 51 LP13217
- Lot 52 LP13217
- PARISH OF MORDIALLOC Allot. 2030

Apart from a drainage and sewerage easement that runs through the Site, there are no other restrictions or covenants placed over the land.

Refer to Figure 6 - Site Locality Plan.

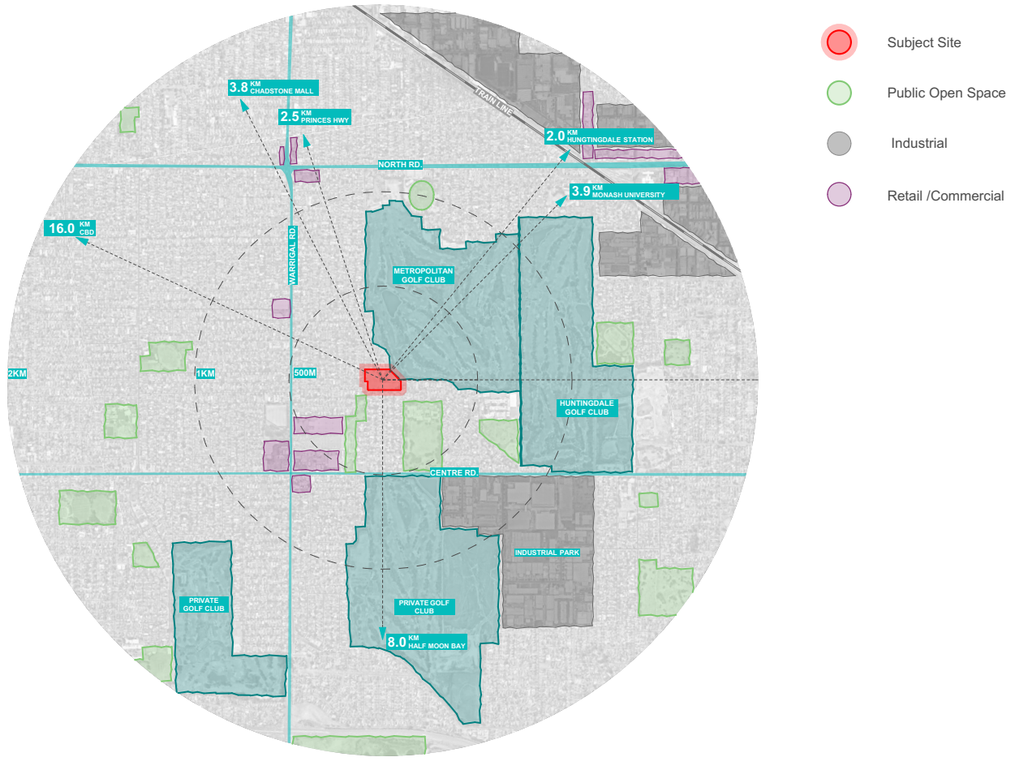



**Figure 6.** Site Locality Plan (Source: Plus Architecture)

## 3.2 SITE ANALYSIS

The Site is irregular in shape and it is bound by Golf Road and a vacant parcel of land owned by Monash City Council to the west, Beryl Avenue to the south, Bakers Road to the east, the Metropolitan Golf Club to the north-east and an existing residential interface to the north. The Site comprises 13 land parcels, which together total 1.83 hectares in area.

The Site's topographical profile features a gentle fall of approximately 1.5 metre from the south to the north-west.

Vehicular access is provided to the Site currently from an existing single-width crossover on Beryl Avenue (west of Joyce Avenue) and from a double-width crossover on Bakers Road.

Apart from some existing hard-paved areas, the Site is vacant.

There are a number of existing native and exotic trees scattered throughout the Site. An Arboricultural Assessment of the Site was initially undertaken by TreeLogic to accompany the Site's rezoning. This report was published in 2013 and it has been referenced in the DPO5.

The 2013 TreeLogic report recommended that trees of 'High' and 'Moderate' arboricultural value be considered for retention and protection over trees of 'Low' or 'No' arboricultural value during any redevelopment of the Site.

The 2013 TreeLogic report considered 55 individual trees and 1 tree group comprising 12 smaller trees within the Site. Of these trees surveyed, 18 were attributed a 'Moderate' arboricultural rating, 33 were attributed a 'Low' arboricultural rating and five were attributed 'No' arboricultural rating.

Due to the age of the TreeLogic report, a new Arboricultural Assessment of the Site was undertaken by Landscape DEPT in December 2018 and later revised in June 2020. This report concluded that of the 55 trees assessed, 42 were allocated a low arboricultural value and 13 were allocated an arboricultural rating of moderate.

Refer to Figures 7-9 for Site Details.

**1** INTERFACE GOLF RD

**2** INTERFACE BERYL AVE / BAKERS RD

**3** CORNER BAKERS RD / METROPOLITAN GOLF COURSE

**4** INTERFACE BAKERS RD

**5** CORNER BAKERS RD / BERYL AVE

**6** INTERFACE TO METROPOLITAN GOLF COURSE

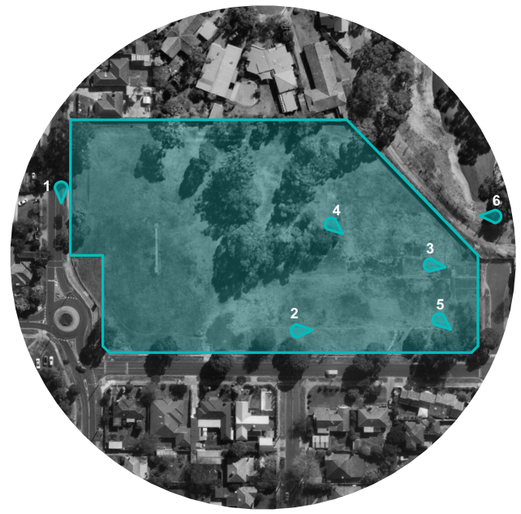



Figure 7. Site Photos (Source: Plus Architecture)

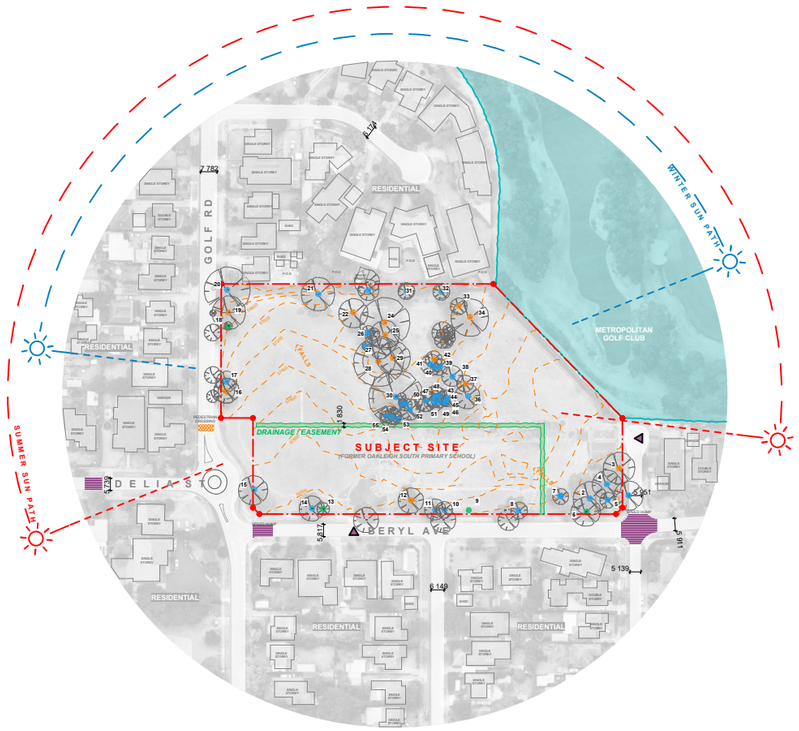



Figure 8. Site Analysis Plan (Source: Plus Architecture)

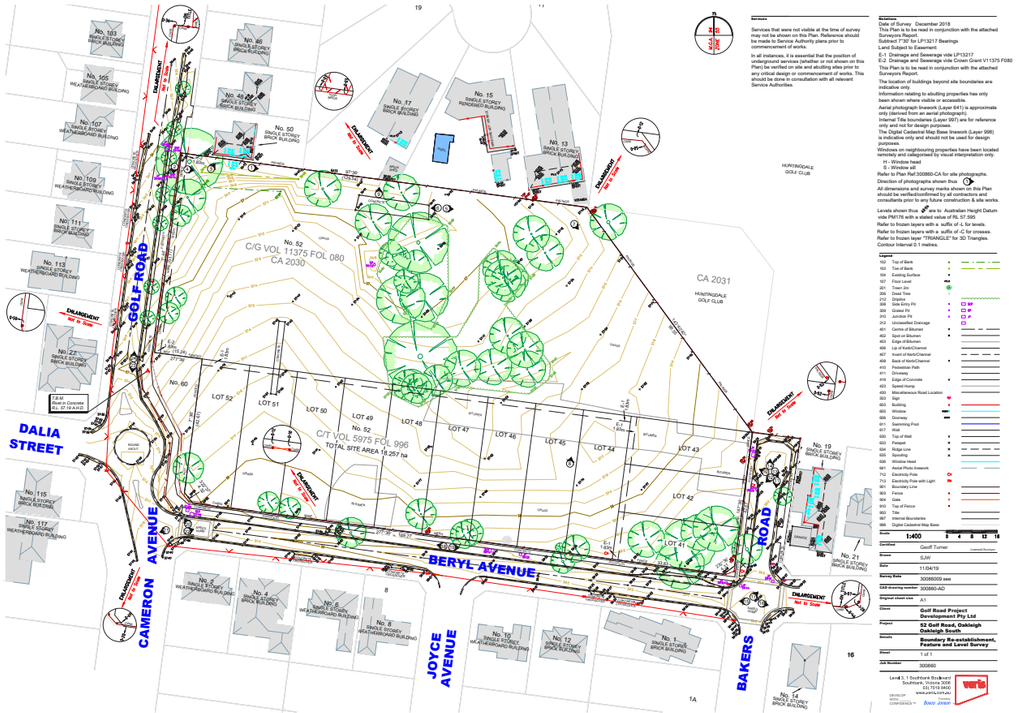



Figure 9. Site Survey (Source: Veris)

## 3.3 IMMEDIATE CONTEXT

### 3.3.1 North

The Site adjoins four residential properties to the north. These are the rear of 13, 15 and 17 Barholme Court and the side of 50 Golf Road. The existing condition of each of these properties is described below.

| Property | Existing Condition | Figure |
|---|---|---|
| 13 Barholme Court | The property at 13 Barholme Court is located within the GRZ2 and it is not affected by any Overlays.<br>Schedule 2 to the GRZ varies Standards A3/B6 (Minimum Front Setbacks) by requiring a minimum setback of at least 7.6m, and Standards B28 (Private Open Space) by requiring larger at-grade open space.<br>The property is currently occupied by a single storey brick dwelling with a gable roof. The dwelling that extends deep within its lot and within 4 metre to the shared boundary with the Site.<br>The unique shape of this property and the elongated nature of the existing dwelling results in two private open space areas, with one being located along the eastern edge of the existing dwelling and the other being located along the southern edge of the existing dwelling.<br>The private open space area located along the southern edge of the existing dwelling is partly covered by a pergola structure (eastern side). The balance is uncovered and informally landscaped with a clothes line centrally sited.<br>There are three habitable room windows facing the Site.<br>Refer to Figure 10. |  |
| 15 Barholme Court | The property at 15 Barholme Court is located within the GRZ2 and it is not affected by any Overlays.<br>The property is currently occupied by a single storey dwelling that is rendered with a part flat and part hip roof. The dwelling extends deep within the eastern side of its lot. This portion of the dwelling is set back approximately 5 metres from the shared boundary with the Site.<br>The balance of the property's rear yard features a swimming pool (set back approximately 9 metres from the shared boundary with the Site), open grassed area and landscape screen along the shared fence line.<br>Refer to Figure 11. |  |

**Figure 10.** 13 Barholme Court (Source: NearMap)

**Figure 11.** 15 Barholme Court (Source: NearMap)

| Property | Existing Condition | Figure |
|---|---|---|
| 17 Barholme Court | The property at 17 Barholme Court is located within the GRZ2 and it is not affected by any Overlays.<br>The property is currently occupied by a single storey dwelling that is sited centrally within its lot. The dwelling is constructed from brick with a slight gable steel roof. It is set back approximately 12 metres from the shared boundary with the Site.<br>Located within the area between the existing dwelling and the shared boundary with the Site is a landscaped rear yard that comprises a variety of canopy trees. An outbuilding is also constructed in the south-east corner of this property and on the shared boundary with the Site.<br>There is one habitable room window facing the Site.<br>Refer to Figure 12. |  |
| 50 Golf Road | The property at 50 Golf Road is located within the GRZ2 and it is not affected by any Overlays is set back 7 metres from the Golf Road.<br>Vehicular access to this dwelling provided via a crossover on the northern side of the property.<br>The single storey dwelling that occupies this property is constructed from brick with a terracotta tiled hip roof.<br>The dwelling is set back approximately 1.6 metres from the shared boundary with the Site and there are three habitable room windows facing the Site.<br>The rear of this property comprises outbuildings along its northern boundary and a hard-paved area throughout its balance. There is minimal landscaping within the property.<br>Refer to Figure 13. |  |

**Figure 12.** 17 Barhome Court (Source: NearMap)

**Figure 13.** 50 Golf Road (Source: NearMap)

### 3.3.2 East

More than half of the Site's eastern boundary abuts the Metropolitan Golf Club and the balance of this boundary interfaces with the northern end of Bakers Road.

With respect to the Metropolitan Golf Club interface, this area of the golf course comprises an access vehicle maintenance track along the shared boundary of the Site, a landscaped berm and tee area beyond for 17th Hole. The edge of the tee area for 17th Hole is approximately 16 metres from the shared boundary with the Site.

With respect to the Bakers Road interface, Bakers Road is a Council owned road that provides vehicle access to the Site and 19 Beryl Avenue. The property at 19 Beryl Avenue is constructed from brick with a terracotta tiled hip roof. The dwelling is set back approximately 8 metres from Beryl Avenue and 4 metres from Bakers Road. This property's interface with Beryl Avenue comprises a front yard, a double car port (towards Beryl Avenue) and a 1.8m solid fence extending across the balance of the interface.

Beyond this dwelling are further examples of residential dwellings that are predominately detached, single storey and double storey in height and constructed of brick with hip and gabled roof forms. These dwellings all have landscaped front setbacks to Beryl Avenue with no front fences.

### 3.3.3 South

Immediately south of the Site is Beryl Avenue. Beryl Avenue is a Council owned road which provides vehicular access to the Site and properties facing it along its southern side.

There are a number of street trees along the frontage of the Site and there is a constructed pedestrian path along the whole frontage of the Site. Further south, across Beryl Avenue, are residential dwellings fronting Beryl Avenue with outlook towards the Site. These dwellings are detached and single storey in form. Dwellings are constructed of brick and weatherboard and feature either hip or gabled roof forms.

Landscaping within the front setbacks of these dwellings is informal. These dwellings predominantly have no or low front fencing. A few dwellings, such as 8 Beryl Avenue and 1 Bakers Road, have medium fences along Beryl Avenue.

### 3.3.4 West

Immediately west of the Site is Golf road and a Council owned piece of land.

Golf Road is a Council owned road that connects North Road in the north and Centre Road in the south. The road is set within an approximately 15 metre wide reservation. It comprises a two-way carriageway with sufficient space for on street car parking. On either side of the carriageway is a pedestrian path and a landscaped verge with some street trees.

The Council owned piece of land is known as 60 Golf Road. This parcel of land is located within the GRZ2 and it is not affected by any Overlays. It is approximately 315sqm in area and irregularly shaped. Its size and configuration makes it difficult to redevelop for residential purposes. This Development Plan suggests a public benefit type use is a more appropriate use and development of the land.

Beyond Golf Road and the Council owned piece of land are four dwellings, three of which front Golf Road with an outlook towards the Site. These dwellings are detached and constructed from brick and weatherboard. The dwellings are set back between 7 and 10 metres from Golf Road and they are single storey in height with either hip or gabled roof forms constructed from steel or terracotta tiles. These dwellings feature low to medium front fences with informal landscaping in behind.

**Figure 14.** Aerial photo of the Site looking north

**Figure 15.** Aerial photo of the Site looking north west onto Golf Road

Figure 16. Aerial photo of the Site

Figure 17. Aerial photo of the Site looking east

01 GOLF ROAD WEST STREETSCAPE


02 BERYL AVE SOUTH STREETSCAPE


03 BAKERS RD EAST STREETSCAPE

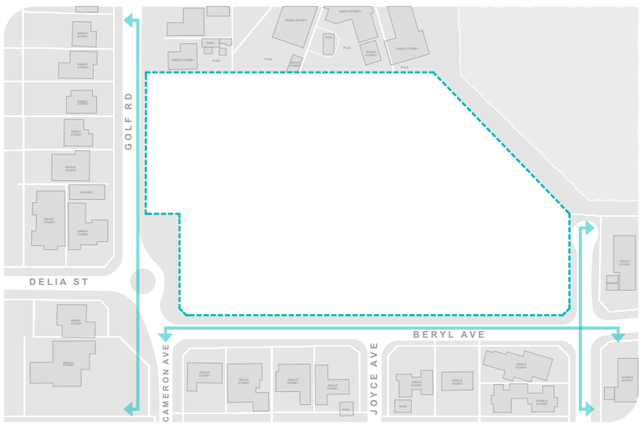




Figure 18. Public Realm Interfaces (Source: Plus Architecture)

## 3.4 WIDER CONTEXT

### 3.4.1 Neighbourhood Character

The neighbourhood surrounding the Site is predominately residential interspersed with large areas of both public and private recreational facilities.

Monash City Council's Neighbourhood Character Study identifies five residential character types within the Municipality which generally relate to their period in which they were constructed.

While the Site itself has not been nominated a preferred Neighbourhood Character Type, the surrounding land is within the preferred character type: **Garden City Suburbs Southern Areas.**

The preferred character for **Garden City Suburbs Southern Areas** is described as follows:

'Modest dwellings with simple pitched rooflines and articulated facades will continue the prevailing development themes. On larger sites, low rise apartment development may be appropriate, provided the development is sited within generous open space, is well landscaped, retains the 'open landscape character' of the garden suburban setting and tapers down in scale closer to the boundaries of the site.

While the housing mix within this area will continue to evolve to meet the changing needs of the community, new development will complement the scale and siting of the original housing within the area. In doing so, it will enhance the generous spacious, open, landscaped character of the area.

This character area will be notable for its spacious garden settings, tall canopy trees, consistency in front setbacks and the maintenance of setbacks from at least one boundary and from the rear of the site. New dwellings will address the street and upper levels will be recessed and/or articulated to minimise the impression of building scale.

Front fences will be low to enable vegetation to be visible from the street, allow clear views of buildings and give the street an open quality. Fencing will complement the architecture of the building in design, colour and materials.

Existing mature trees and shrubs within properties should be retained and additional tree planting proposed to gradually create a tree canopy in the private domain, including at the rear of properties. This will create a visually permeable buffer between the house and street. The soft quality of the street that is derived from the wide nature strips and street tree planting will be maintained by ensuring that there is only one crossover per lot frontage.

Expanses of blank, or continuous, walls will be avoided, particularly when adjacent to public parks or creating the appearance of a continuous building mass. The character of existing public open space within the area will be protected by ensuring that buildings directly adjacent are set back and buffered with planting that complements that within the public open space.

Sympathetically designed architecture is encouraged in preference to imitations of historic styles.'

Refer to Figures 19 and 20.

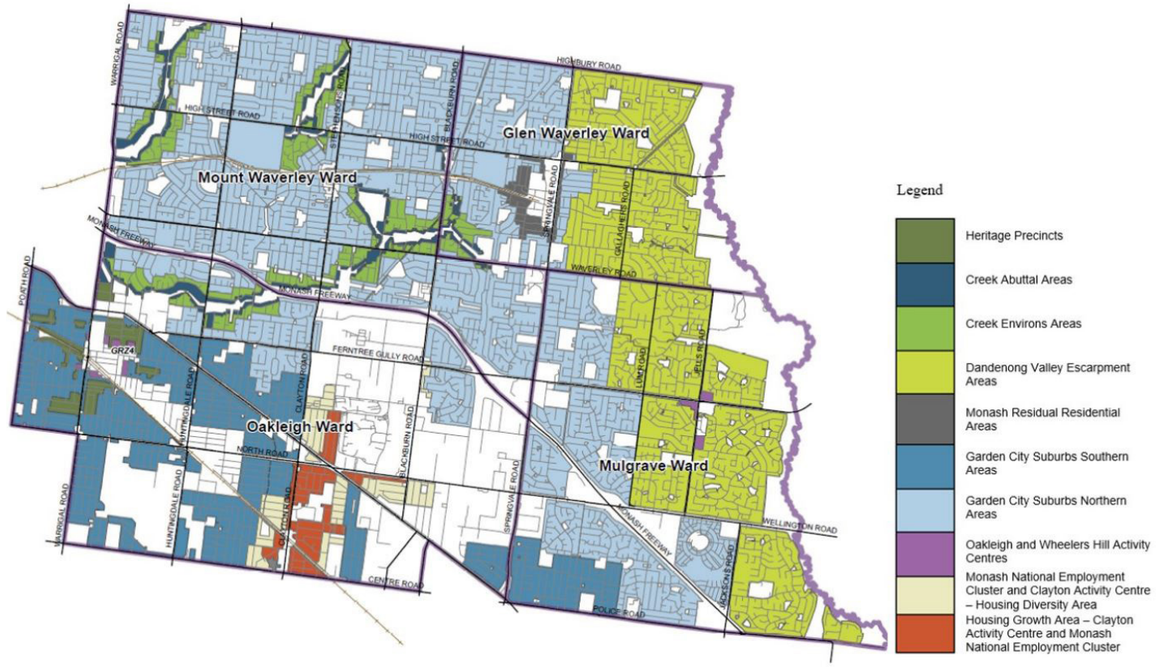



Figure 19. Residential Character Types (Source: Monash Neighnourhood Character Review)

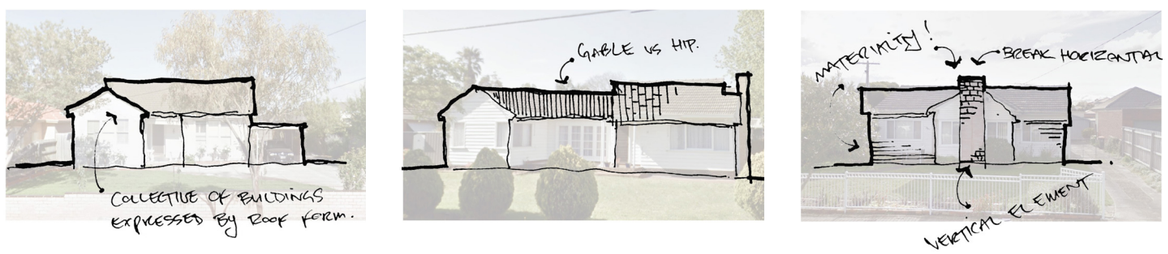



Figure 20. Key Character Elements (Source: Plus Architecture)


Figure 21. Local Context (Source: Plus Architecture)

### 3.4.2 Key Services and Facilities

The Site is proximate to a number of employment opportunities, transport facilities, open space amenities, education facilities and retail centres.

Key sites and land uses in the region close to the Site include:

- The Metropolitan Golf Club (adjacent).
- South Oakleigh College (300 metres).
- Oakleigh South Primary School (650 metres).
- Bright Beginnings Child Care Centre (20 metres)
- Monash Medical and Research Precinct (4.8 kilometres).
- Monash University (5 kilometres).
- Chadstone Shopping Centre (4.4 kilometres).
- Southland Shopping Centre (6.8 kilometres).

It is located centrally between the Oakleigh Activity Centre (2.5km north of Site) and Clayton Activity Centres (3.2km east of Site), both accessible via bus route 733, with stops located 50m from the Site on Golf Road. It is also proximate to the Monash National Employment and Innovation Cluster.

The closest neighbourhood centre is Oakleigh South Neighbourhood Centre, located 550m southwest of the site, which is anchored by a Woolworths Supermarket and contains retail services and food and drink premises. A larger neighbourhood centre in Huntingdale is located approximately 2.3 kilometres north-east of the Site. This centre includes a wider range of retail and commercial uses and a variety of food and drink premises.

The Site is well serviced by public open space. Of particular note is Progress Play Park located approximately 50 metres south of the Site; Stan Riley Reserve located approximately 110 metres south of the Site; Murumba Drive reserve located 400 metres south-east of the Site; and Mackie Road Reserve located 900 metres west of the Site.

Refer to Figure 21 - Local Context Plan

## 3.5 PUBLIC TRANSPORT

The Site is serviced by a range of transport options located within close proximity. Importantly, the Site is located within Melbourne's Principal Public Transport Network. The main arterial routes connecting the region of Oakleigh South to Melbourne's CBD are Warrigal Road and Centre Road which connect to the Princes Highway. These transport options are easily accessed from the Site and provide a direct and effective link in and out of the city. The Monash Freeway is also located to the north of the Site.

The Site is approximately 2.4 kilometres from the Huntingdale Train Station and 3.8 kilometres from the Clayton Train Station.

The following bus routes are located within walking distance of the Site:

- 733 - Oakleigh to Box Hill via Clayton, Monash University and Mt Waverley which is routed along Golf Road;
- 703 - Middle Brighton to Blackburn via Bentleigh, Clayton and Monash University (SMARTBUS Service) which is routed along Centre Road; and
- 903 - Altona to Mordialloc (SMARTBUS Service) which is routed along Warrigal Road.

Refer to Figure 22.

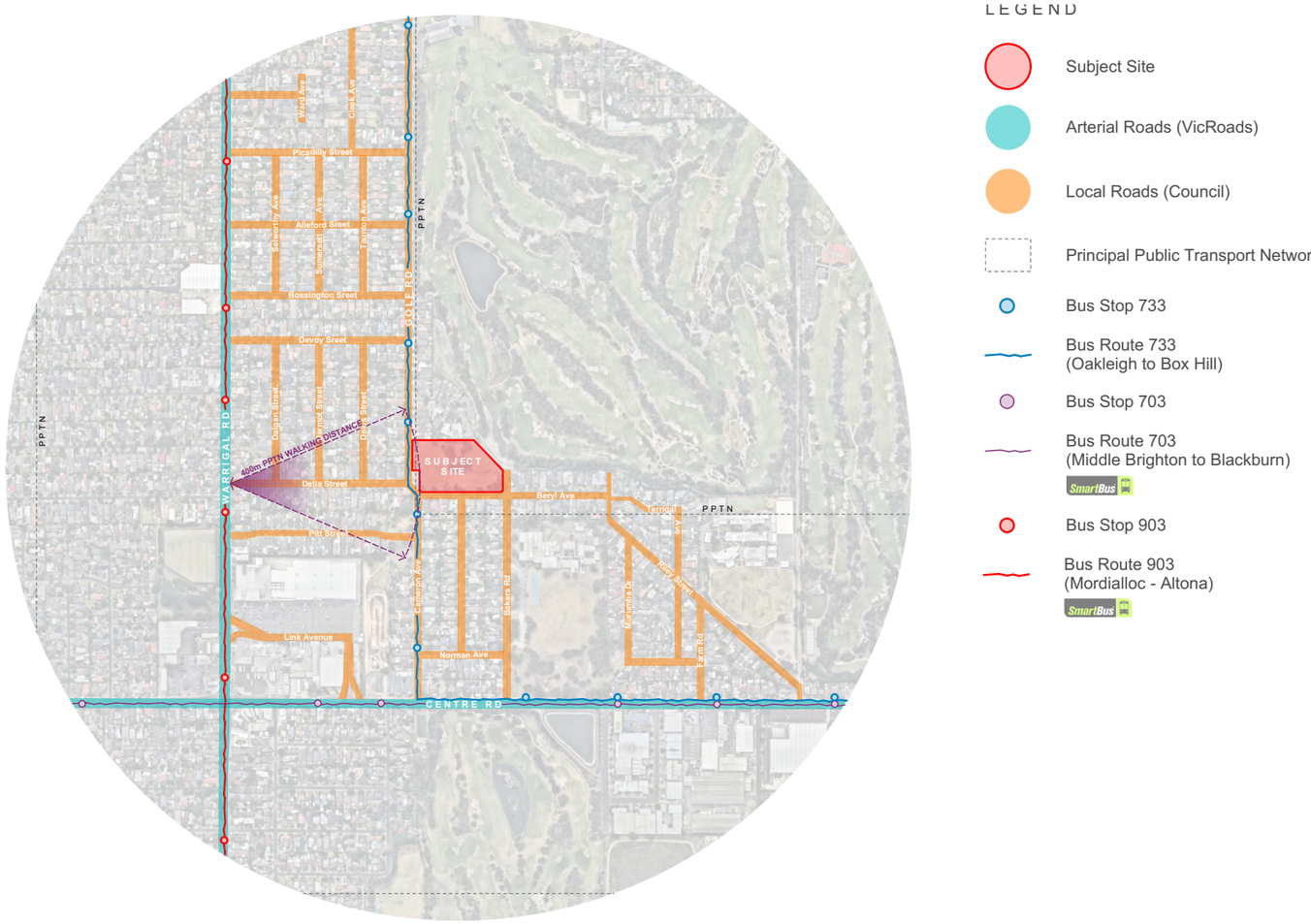



**Figure 22.** Public Transport Plan (Source: Plus Architecture)

## 3.6 INFRASTRUCTURE PROVISION

FMG Engineering has investigated Infrastructure Capacity within the existing area. The assessment has found the following.

### 3.6.4 Sewerage

South East Water is the authority responsible for the provision of sewerage facilities in this area.

The Authority's records show that the Site has a 150mm diameter sewer along Beryl Avenue. The depth of this sewer should enable the development of the Site to be controlled back to this point. The sewer drains run to the west towards Cameron Avenue.

It is assumed sewer outfall can be provided with minimum external construction works due to proximity of the existing sewer main.

The capacity of this existing sewer needs to be confirmed with South East Water prior to any development works.

### 3.6.5 Water

South East Water is the authority responsible for the provision of water supply in this area.

The Authority's records show that there is a 225mm diameter reticulation main along Golf Road. It is assumed a property branch comes off this main which previously serviced the Site.

It is assumed that the water main will have enough capacity to service the development of the Site. The capacity of this main will need to be confirmed with South East Water prior to any development works.

### 3.6.1 Drainage

The City of Monash is the authority responsible for the provision of local drainage facilities surrounding the Site, Main drainage infrastructure is managed by Melbourne Water.

The following Council pit and pipe drainage infrastructure surrounds the Site:

- A 150mm diameter drain in an easement on the northern boundary which drains to Barholme Court
- 2 x 225mm diameter pipes located in the north-west corner of the lot which discharges to a 450mm diameter pipe in Golf Rd and drains north.
- A combination of 300mm diameter, 375mm diameter and 450mm diameter pipes along Beryl Avenue which drains west to a 525mm diameter at the intersection of Cameron and Beryl Avenue.
- This drainage will be able to cater for this development to some extent. It assumed that detention will be required as impervious areas will increase. Assessment of the existing drainage design would be required. City of Monash typically require detention on 1 in 10-year ARI event post development flows back to existing 1 in 5-year ARI event pre-development flows.
- It is assumed connection will be to the 225mm diameter drain in the north/west corner of the Site
- Overland Flow for events greater than 1 in 10 year ARI would need to be contained to development roadways and conveyed through the Site.
- It is assumed that council would impose stormwater treatment requirements on the development, which requires the inclusion of Water Sensitive Urban Design (WSUD) measures. This requirement would be assessed at time of permit.

### 3.6.2 Communications

Telstra is the authority responsible for the provision of telecommunication infrastructure surrounding the Site.

Telecommunication assets exist along the western and southern boundaries of the Site. It appears that non-telecommunications feed into the Site. No reticulation of telecommunicators currently exists throughout the Site.

It is assumed that telecommunications connection can be provided with some external construction works required as all Telstra pits are located on the opposite side of the road to the development.

### 3.6.3 Electricity

United Energy manages the surrounding electricity assets.

Overhead Low Voltage (LV) electricity infrastructure exists along Golf Road and Beryl Avenue. An overhead High Voltage (HV) exists on Cameron Avenue near the intersection of Beryl and Cameron Avenue.

The existing electrical supply will not have the capacity to service the proposed development. The existing LV pole at the intersection of Cameron and Beryl Avenue will need to be upgraded to a HV pole. A new pole on Golf Road will be required for overhead supply from the new upgraded HV with underground into a new kiosk.

There will be a requirement for new infrastructure including main switchboards and distribution metering cabinets to service the density of the proposed development.

### Gas

Gas assets are managed by Multinet Gas and exist within Golf Road and Beryl Avenue. Some external construction works will be required to connect to the existing gas assets to the Site.

It is assumed gas capacity is available within the existing network, however this will need to be confirmed prior to any development works.

Refer to Figure 9 - Site Survey.

# Design response.

# 4 DESIGN RESPONSE

This section of Development Plan addresses the following requirement of the DPO5:

## 'Concept Plans for the Site'

### 4.1 DESIGN PHILOSOPHY

The design philosophy and built form rationale for the Site has been influenced by its physical attributes, its interfaces and surrounds, the objectives and requirements of the DPO5 and other relevant planning scheme provisions.

In particular, the philosophy and rational behind the Development Plan has been driven by the following key design principles.

**Establish a new residential community set within a strong landscaped environment that complements the garden character of Oakleigh South**

The Development Plan provides for a new residential community that respects and complements the garden character of Oakleigh South through integrated landscaping across the Site and the provision of areas of public open space.

The Development Plan includes areas of open space for use by all residents of the development and the broader Oakleigh South community.

The Development Plan is centred upon a large publicly accessible open space area of approximately 1,191 square metres. This area of local open space provides for a range of activities for residents and the broader community. These include:

- Play space.
- Lawn Area.
- Barbeque and picnic area.
- A hierarchy of soft landscaping including existing canopy trees retained as part of the development which will offer shade.

The Site is easily accessible for the broader Oakleigh South community through a series of green links provided at each of the existing street frontages. The provision of the central 10.3m wide (approximately) pedestrian walkway to Beryl Avenue will act as a visual invitation to the broader community to utilise the central open space.

A public open space of approximately 204 square metres is to be provided in the eastern portion of the Site and a further 336 square metres (approximately) is provided along the Bakers Road interface.

Landscaping is integrated across the overall Site with larger planted areas and opportunities for tree planning. Together this will create an attractive and high quality environment that will set a new standard for amenity.

Figures 23 and 24 demonstrate the proposed indicative landscaping for the Development.

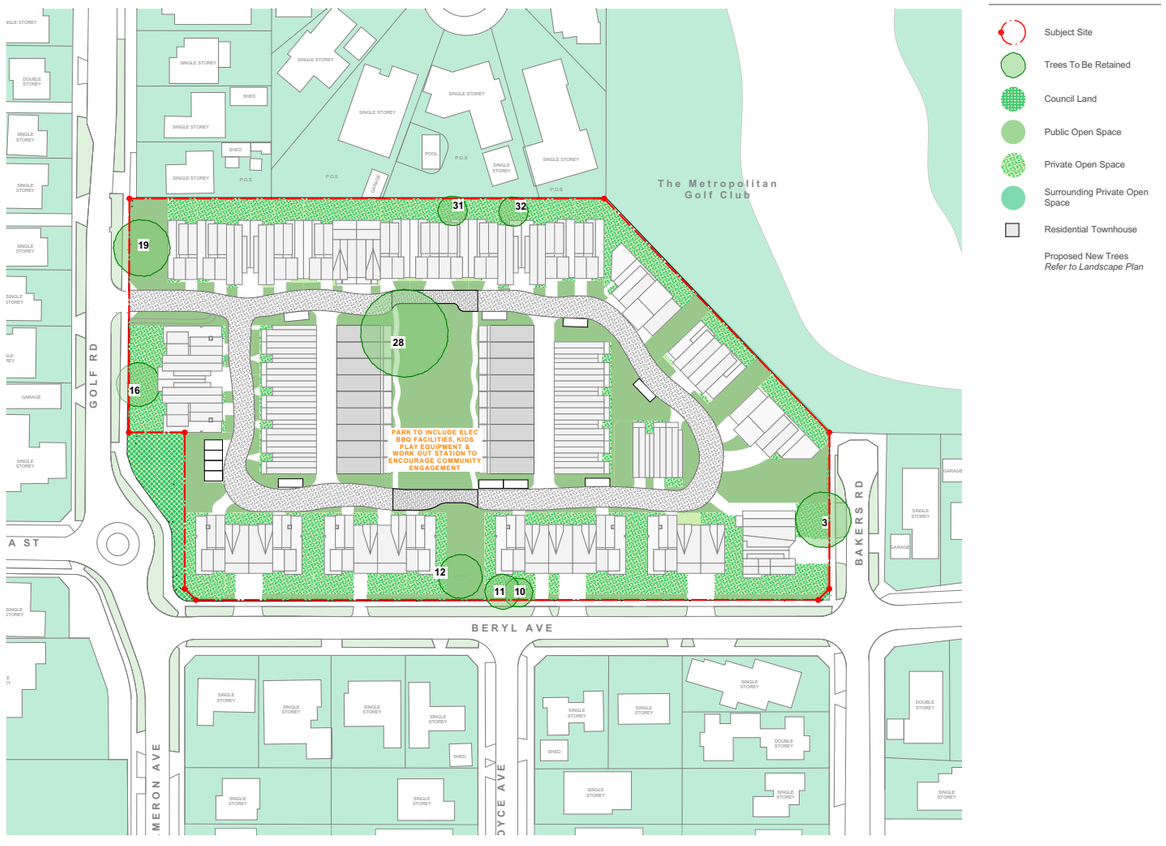



**Figure 23.** Indicative Landscaping and Open Space (Source: Plus Architecture)

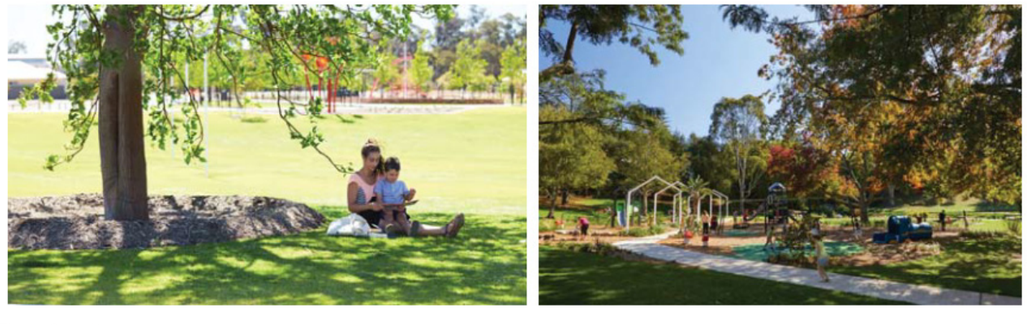


**Figure 24.** Precedent Images

**Create clear and identifiable pedestrian and cyclist connections through the Site to improve local permeability and engagement with the surrounding neighbourhood.**

The Development Plan provides for a highly permeable pedestrian and cycling network which links to the surrounding established neighbourhood and to the broader pedestrian and bicycle networks.

This is achieved via the proposed road network which acts as a shared space that prioritises pedestrian and cycling travel over vehicles. Substantial investments in quality landscaping will make this a high quality, high amenity community. Refer to Figure 25 which provides precedent images of the intended landscape treatments.

In addition to providing an internal road network which priorities cycling and pedestrian travel, the pedestrian network shown in this Development Plan will link the Site with the local network through a series of green links connecting the Site to Beryl Avenue and Bakers Road. Low planting treatments are intended to be provided along these links, contributing to a safe and pleasant pedestrian environment. These links are also designed as way-finding links to the central public open space area, thereby increasing permeability across the Site and encouraging the wider community to utilise the open space.

Refer to Figure 26 which demonstrate the proposed pedestrian and cyclist links.

Figure 25. Precedent Images

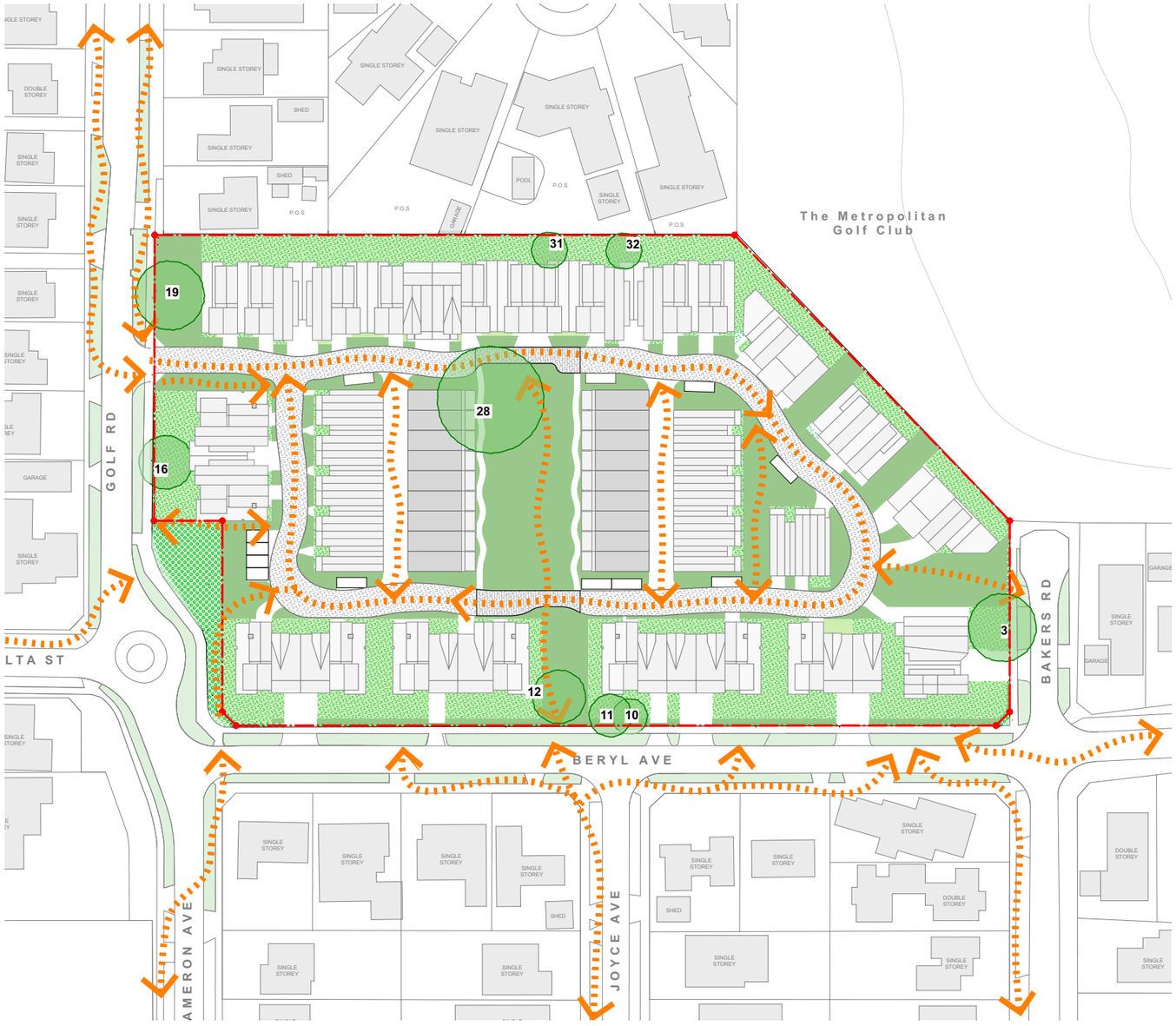



Figure 26. Indicative Pedestrian Connectivity and Amenity (Source: Plus Architecture)

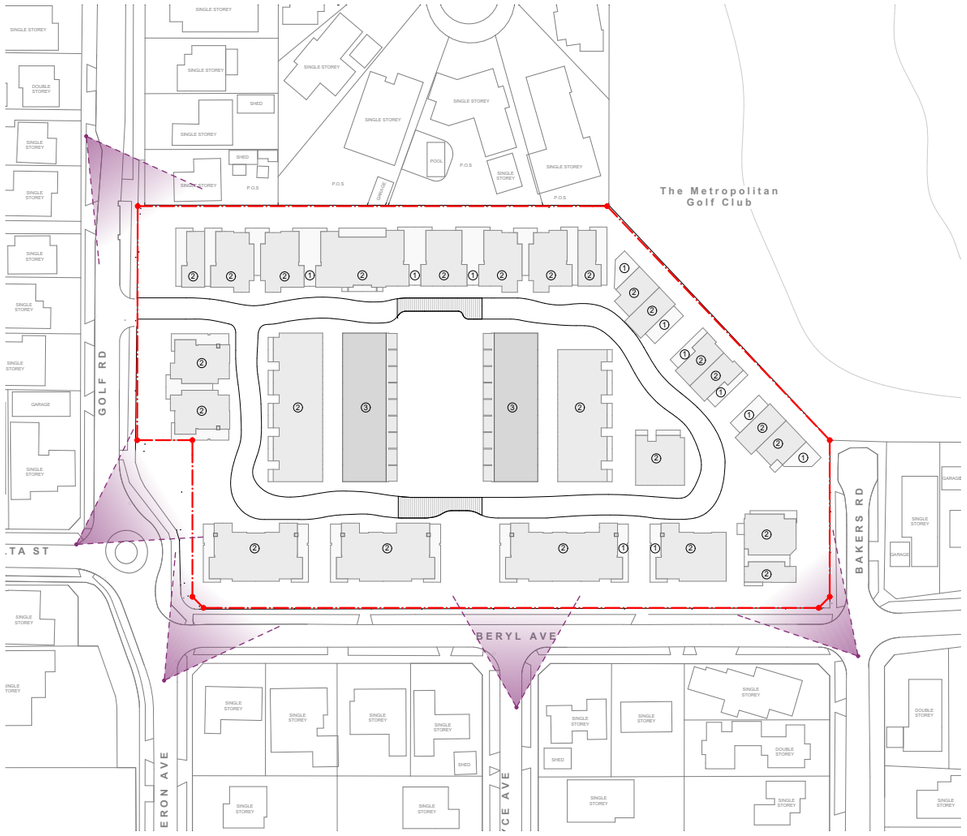



Figure 27. Indicative Building Heights (Source: Plus Architecture)

**Provide a high quality architecturally-designed built form outcome that appropriately balances the character values of the neighbourhood with the medium density development aspirations sought under DPO5.**

The Development Plan provides for a high quality, architecturally-designed built form outcome to be delivered that positively responds to and integrates with the existing neighbourhood character of the surrounding area. This has been achieved through an architectural analysis on the surrounding built form and character which has in turn, shaped the design of the development. Contextual design elements of surrounding dwellings have been reflected in the development plan, including the roof form, materiality, built form breaks and setbacks (demonstrated in Figures 28-30).

The indicative architectural design response contained within this Development Plan will allow for the ultimate townhouses are read as singular detached dwellings rather than a series of distinctly different townhouse dwellings. This is achieved through using contextual design elements to merge the visual appearance of the townhouses. The 10.3m wide communal open space and a series of landscaped breaks between each building module, intended to be a minimum of 6m in width, will also assist in breaking down the mass of the townhouses while maintaining the existing streetscape rhythm.

Building materials and form shown within this Development Plan have also taken cues from the surrounding context.

Brickwork and weatherboard all feature heavily in the area's housing topologies and are proposed to be reinterpreted in a contemporary fashion within the Development plan. The material schedule provides sample of the various materials that are proposed for the townhouses.

Further articulation to the built form is provided by way of variation in fence material and style along Golf Road. This includes a mix of vertical and horizontal palisade fencing, and a mix of straight and angled verical fence battens. The design of the fences complement the architectural form and style of the existing fences along Golf Road (refer to Figure 31). Fences along Beryl Avenue are intended to be low and permeable to respect the neighbourhood character south of the Site (refer to Figure 32).

In accordance with DPO5 of the Monash Planning Scheme, the Development Plan seeks to create a composition of varied built form and heights across the Site with the higher built form sited along the central public open space and the golf course interface (Figure 27). These building types will bring the added benefit of passive surveillance of the proposed public spaces.

The townhouses will be designed to provide a high level of internal amenity for future residents, including habitable room windows and private open space located on the north-side, where possible; and the orientation of buildings layouts to minimise overlooking into habitable room windows.

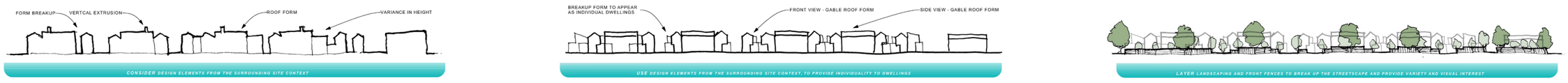



Figure 28. External Street Scape Diagrams (Source: Plus Architecture)

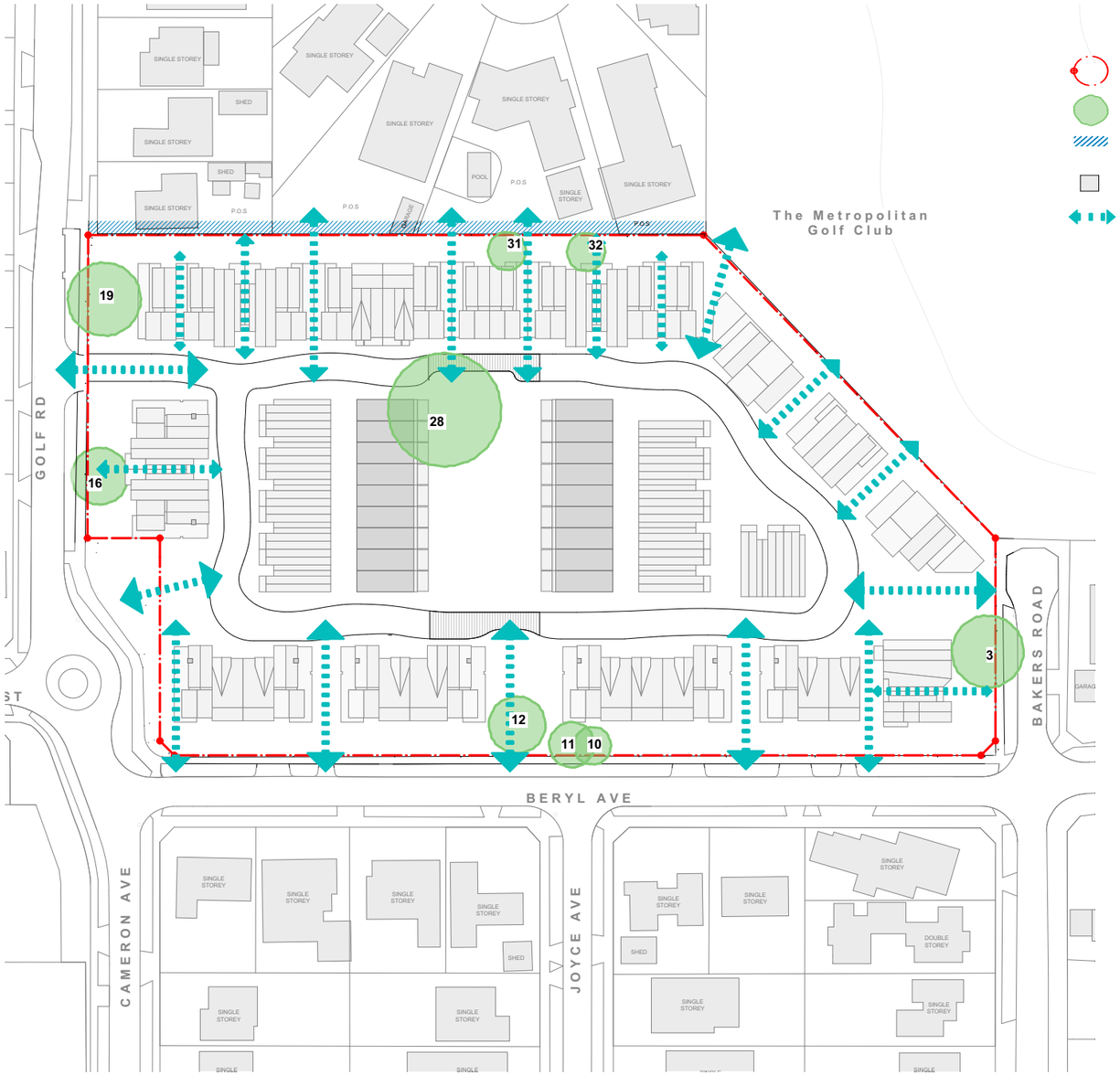



Figure 29. Urban Integration Plan (Source: Plus Architecture)

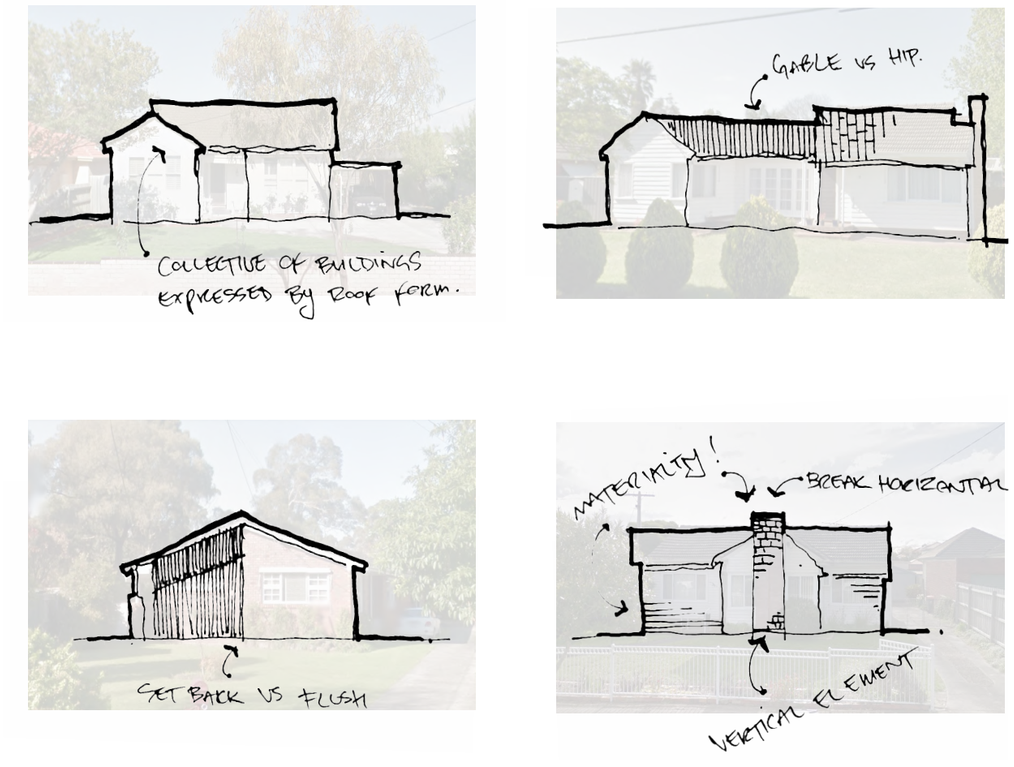



Figure 30. Contextual Design Application (Source: Plus Architecture)


Figure 31. Indicative West Elevation - Golf Road (Source: Plus Architecture)


Figure 32. Indicative South Elevation - Beryl Avenue (Source: Plus Architecture)

## Respect the amenity of adjoining residential interfaces by adopting a two storey built form envelope.

The Development Plan aims to sensitively integrate future development into the existing urban environment and respect the amenity of adjoining residential interfaces.

A number of key interface treatments help enable this integration and provide an appropriate transition between new and existing development.

Refer to Figure 33 - Urban Integration Plan

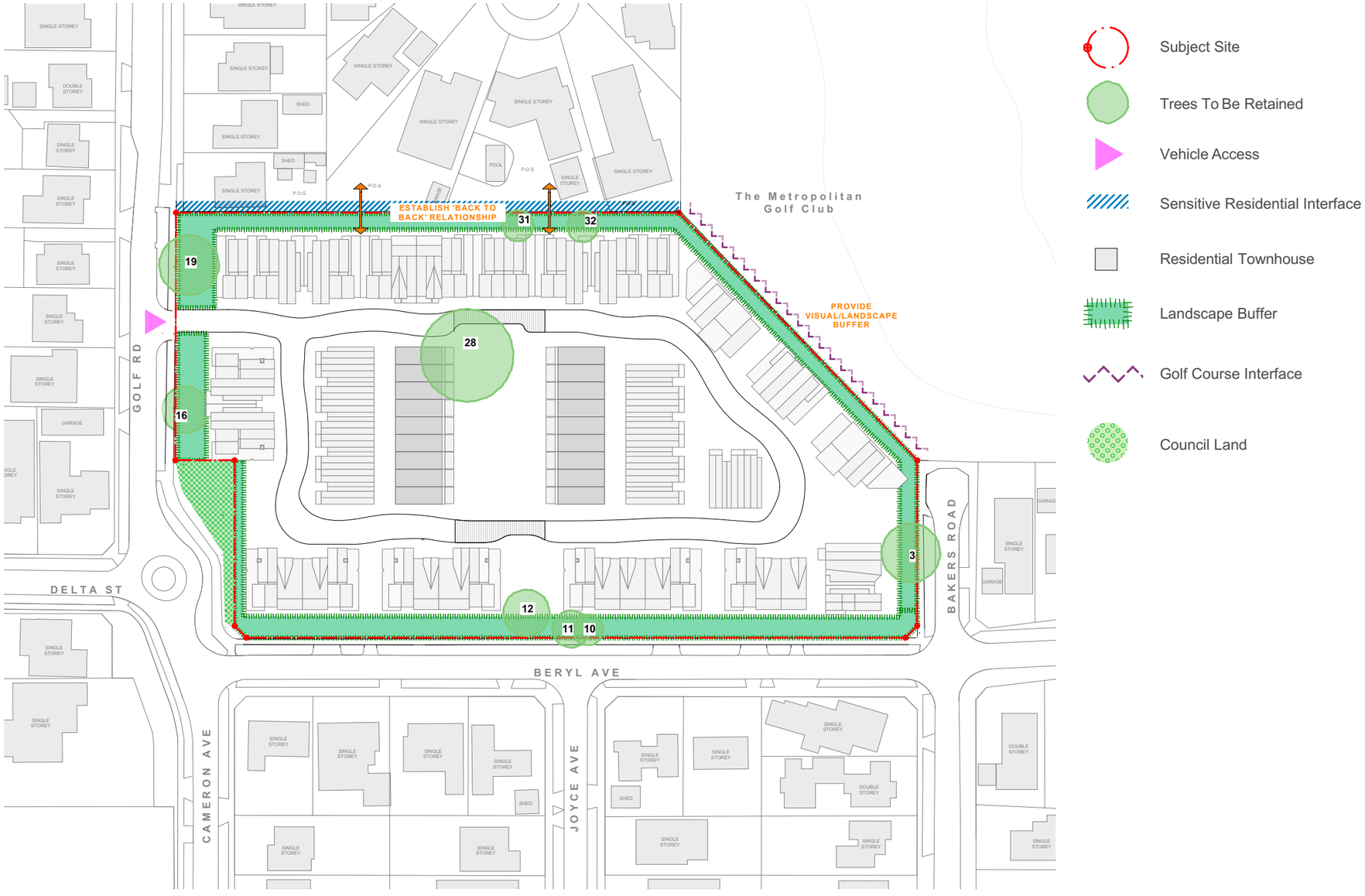



Figure 33. Urban Integration Plan (Source: Plus Architecture)

## Northern Interface

To the north of the Site, new dwellings that back onto the established residential allotments will have adequate separation between buildings and existing back yards. In accordance with DPO5, the amenity of the existing dwellings is maintained through the provision of a two storey built form envelope along the perimeter of the Site (refer to Figure 34).

The Development Plan ensures that the amenity of the existing dwellings is maintained, particularly in regard to overlooking and shadowing. The siting, orientation and internal layout of the indicative townhouses will be designed to minimise overlooking, as demonstrated in Figure 36.

While the dwellings are attached at ground floor, this is not perceptible from adjoining land. Physical breaks have been provided between the first floor of the townhouses to avoid the presentation of a continuous built form. This will minimise any visual bulk and the appearance of the dwellings at the rear of each lot (refer to Figure 35). Furthermore, the provision of large setbacks will enable planting of canopy trees along the northern boundary.

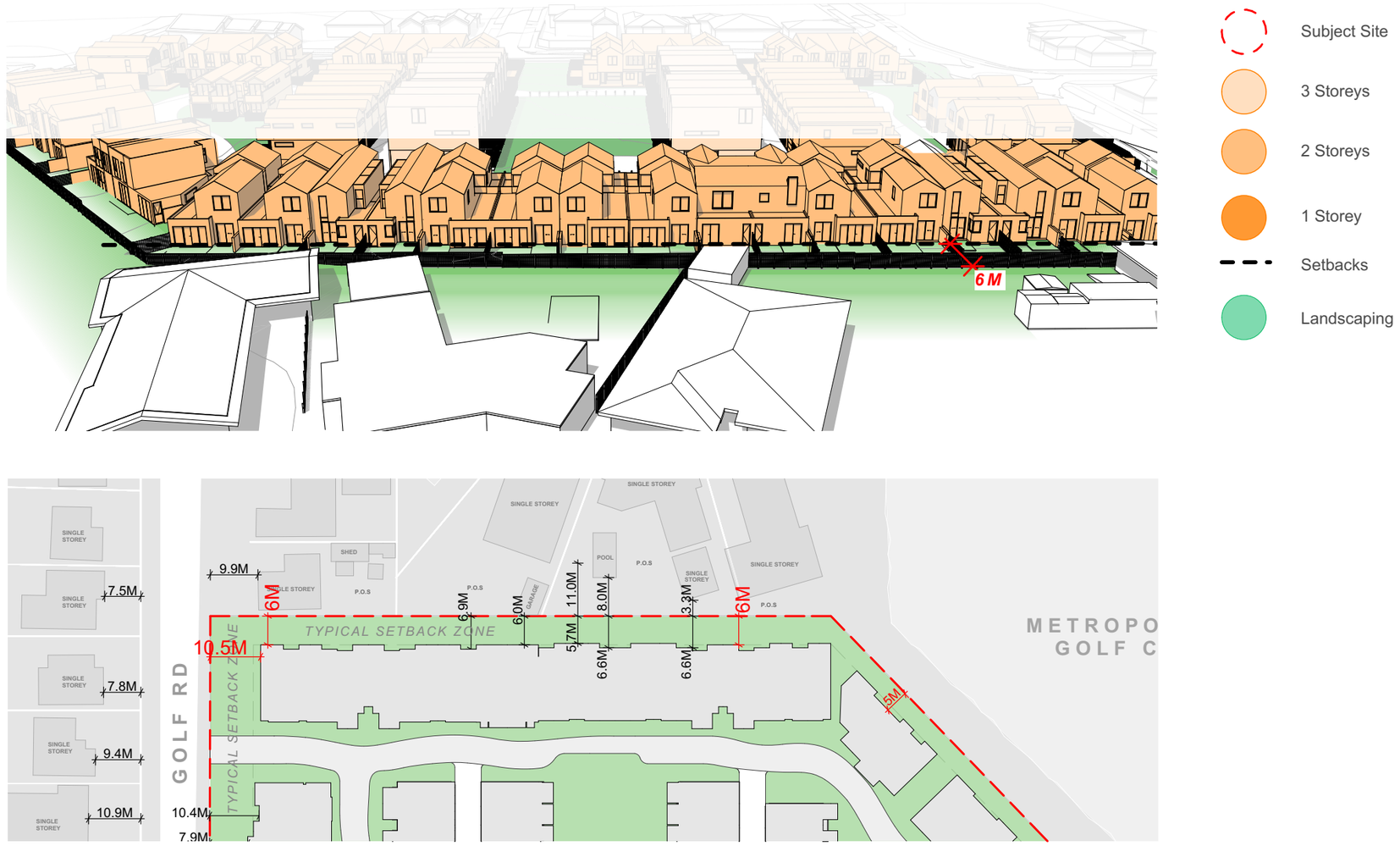



Figure 34. Indicative Northern Interface 3D Building Envelopes (Source: Plus Architecture)

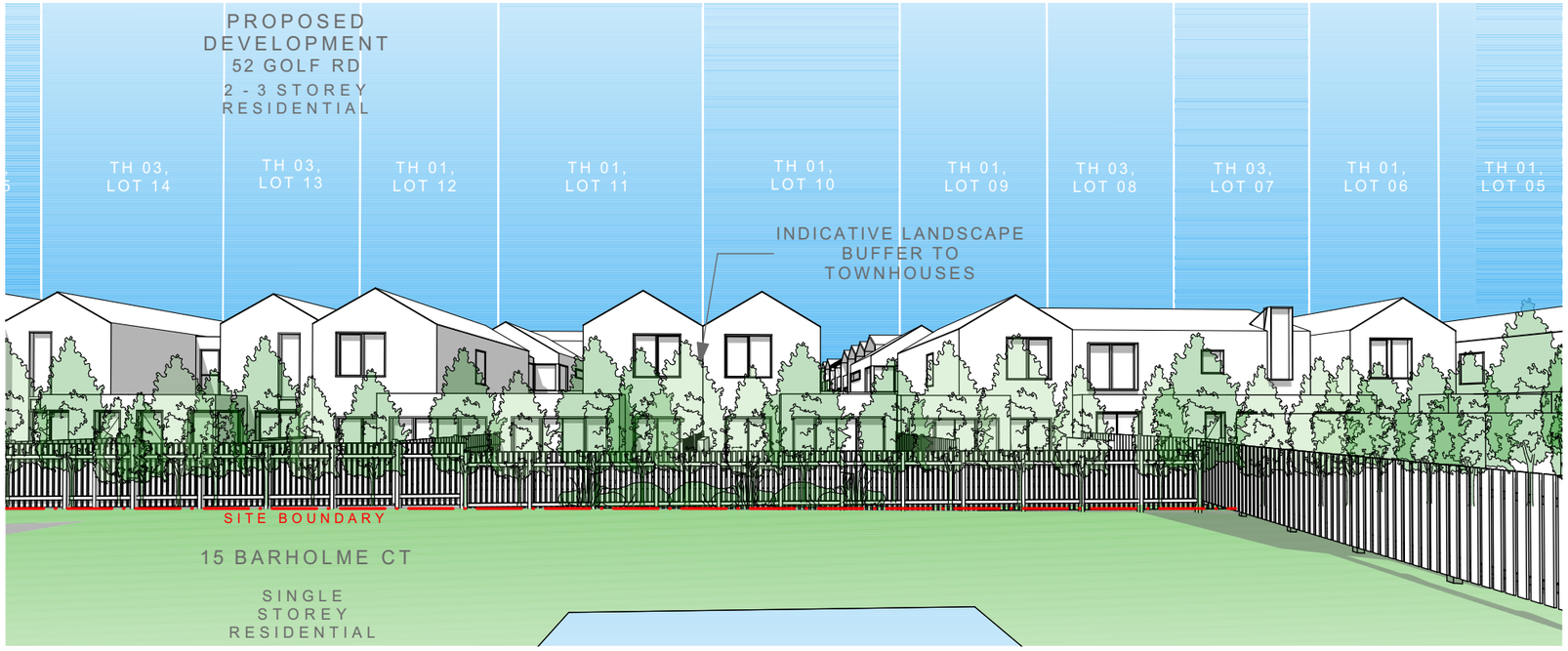
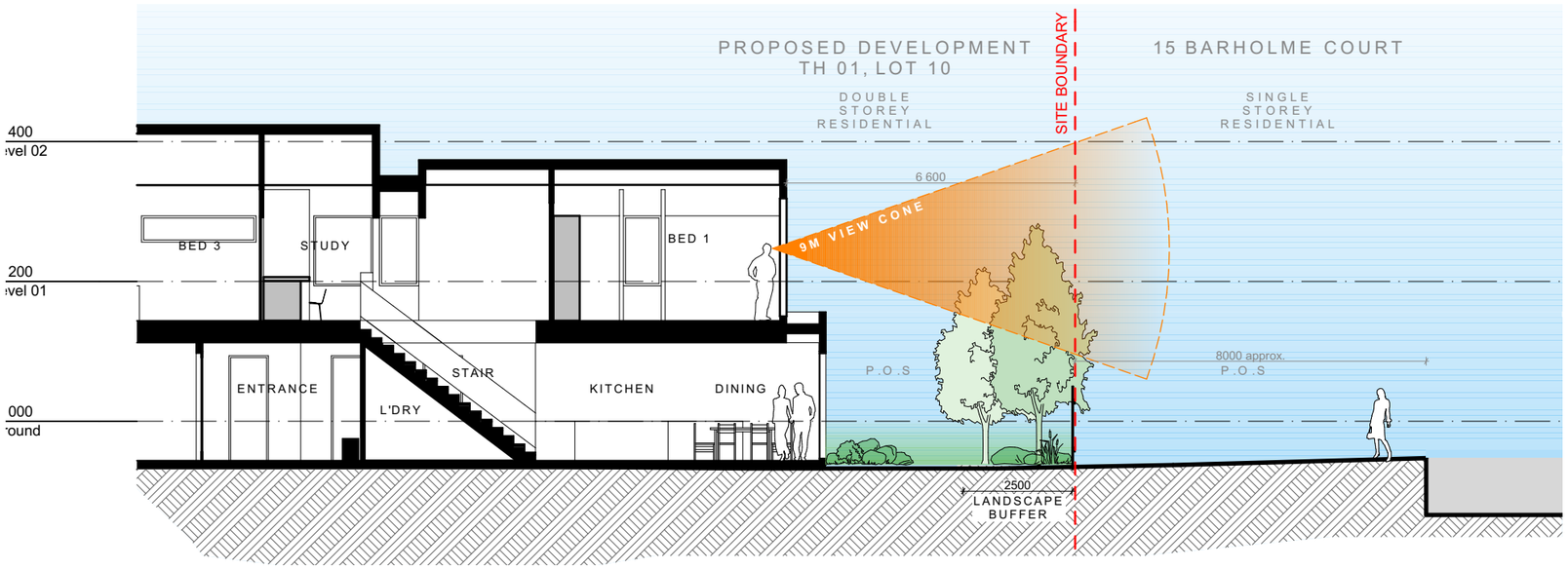




Figure 35. View of the indicative townhouses from 15 Barholme Court (Source: Plus Architecture)



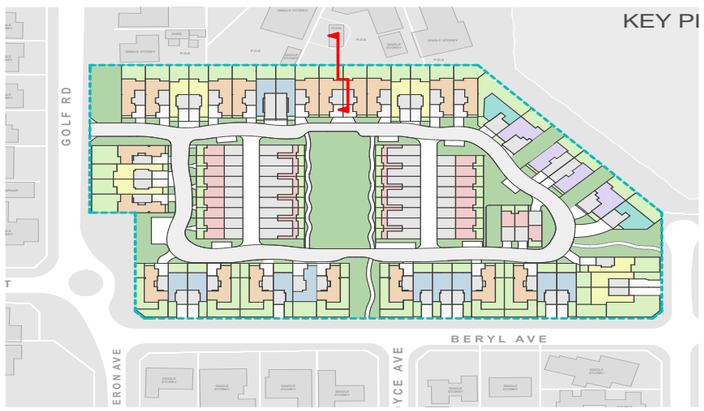
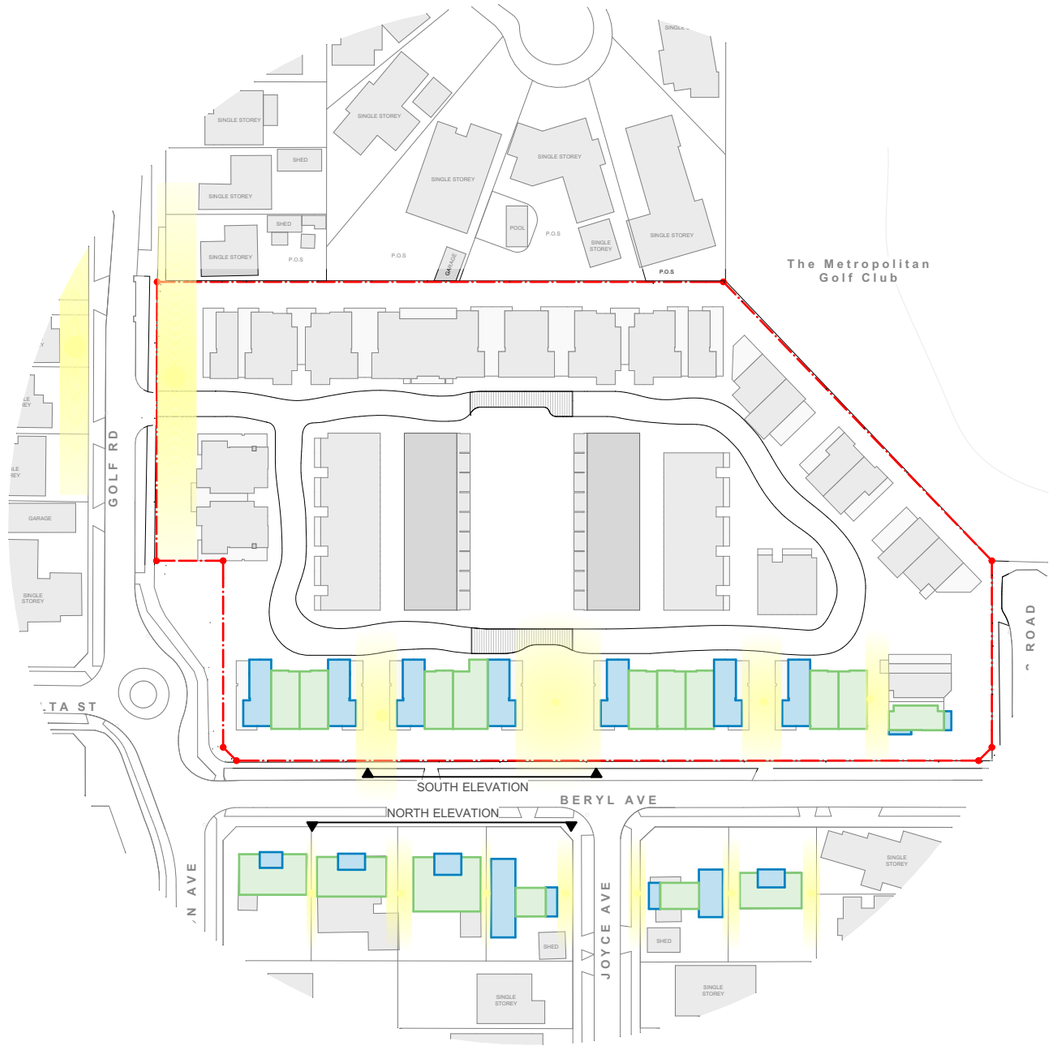




Figure 36. Indicative Overlooking Diagram (Source: Plus Architecture)




A Feature element of vernacular house form presented to street as gable or hip roof

B Recessive house form presented as side/secondary aspect with recessive roof form

Massing breaks

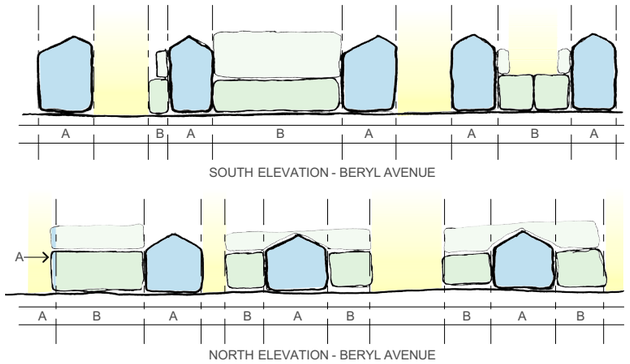



Figure 37. Indicative Streetscape Massing (Source: Plus Architecture)

## Public Realm Interfaces

The townhouses facing the street have been designed to respect and respond to the existing rhythm, spacing, scale, and the character of the surrounding conventional housing stock The siting and built form of the indicative architectural design response reflects the scale and character of the housing stock along Golf Road and Beryl Avenue. Specifically, a two storey height limit has been adopted and visual breaks and variation in setbacks have been adopted. The setbacks from Golf Road, Beryl Avenue and Bakers Road have been designed to adhere to the established street pattern of large, well planted setbacks.

In terms of street setbacks, the Development Plan allows for a minimum of 6 metres along Beryl Avenue, 9.2 metres along Bakers Road and 7.9 metres along Golf Road.

Low front fences (0.9m tall) are to be provided along Beryl Avenue to respect the existing low front fence character of the dwellings south of the Site and enable vegetation and landscaping to be viewed from the street. Physical breaks, at least 6 metres in width, are intended to be provided between each building module along Beryl Avenue, at both ground and first levels, to create a streetscape that matches and addresses the existing context (as demonstrated in Figure 37). These physical breaks will allow for the dwellings read as singular detached dwellings rather than distinctly different townhouse dwellings.

The building module along Golf Road is flanked by substantial space comprising the accessway and the 10.5 metre setback to the proposed dwelling to the north, and vacant Council land to the south. This building module allows for a rear loaded dwelling type to reduce the number of crossovers proposed along the road. Fencing along this building module varies in height and design, and is set back 600mm from the footpath to allow for the planting of a landscape buffer in front of the fence to provide a level of privacy to the SPOS, while maintaining a degree of openness to the street.

The building module fronting Bakers Road consists of three townhouses. It abuts a communal open space to the north and consists of a 7m setback from Beryl Avenue, further enhancing the open landscaped character of the area.

## Respect the Metropolitan Golf Club interface through appropriate setbacks and landscape treatments.

The Develoment Plan ensures that dwellings along the Metropolitan Golf Course are designed to appropriately respond to the golf course interface through large setbacks and the provision of landscaping.

The Development Plan ensures that the built form of the dwellings, as viewed from the golf course, respects the interface through a minimum 4 metre setback at ground floor and a minimum 5m set back at first floor from the shared boundary.

The dwellings are split into three building modules that are separated by two sizeable landscaped breaks so they appear as three separate dettached dwellings. The landscaped breaks between the building modules minimise any visual bulk and the dominance of car parking structures and driveways when viewed from the internal street.

The proposed building setback from the boundary provides opportunities for significant vegetation and canopy trees along the interface, further mitigating potential overlooking into the Golf Course.

Refer to Figure 38.


**Figure 38.** Indicative Golf Course Interface 3D Building Envelopes (Source: Plus Architecture)

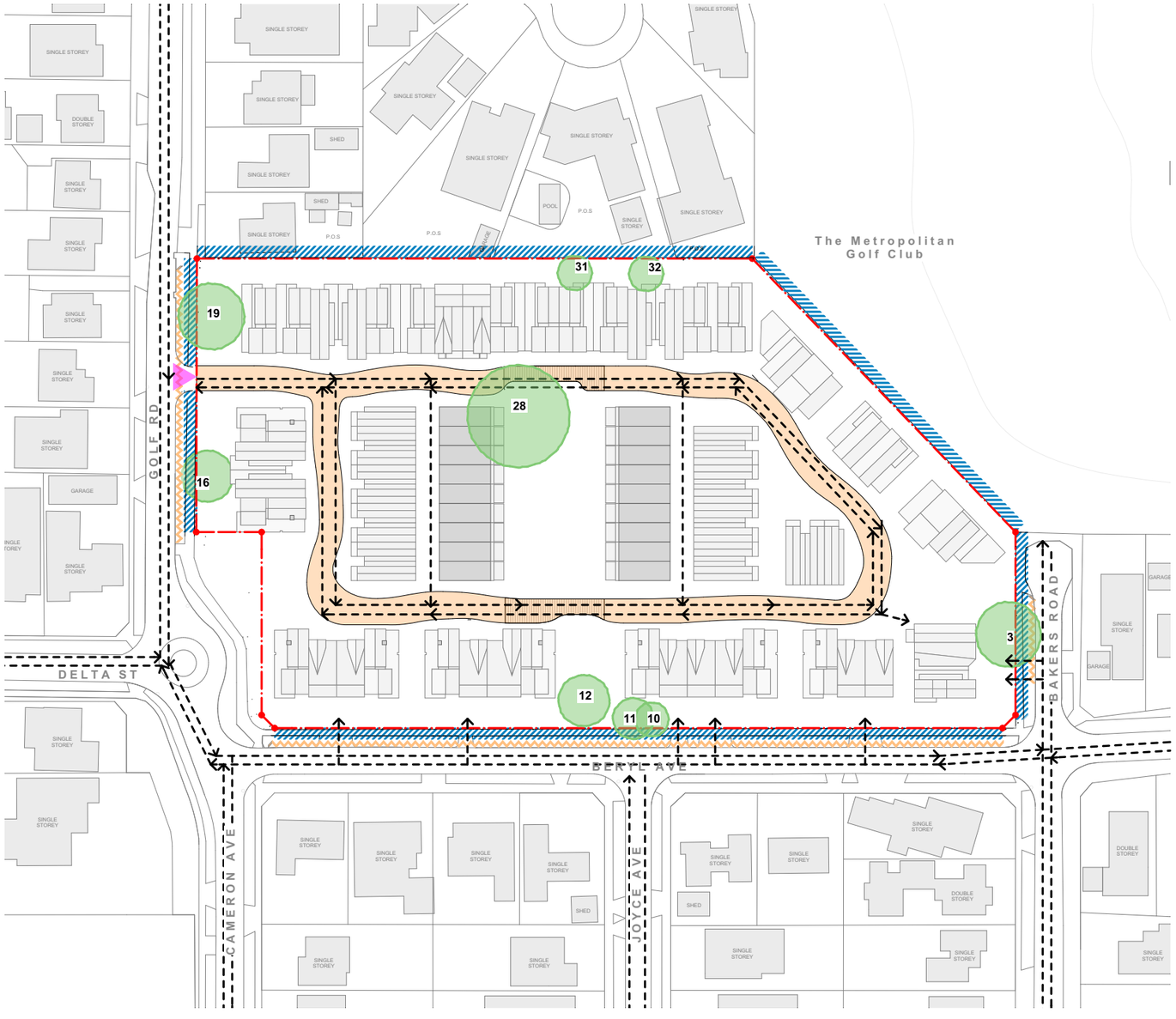



Figure 39. Indicative Internal Street Network (Source: Plus Architecture)

Subject Site

Trees To Be Retained

Potential Streetfront Vehicular Access to TH's

Vehicle Entry/Exit

Minor Townhouse Crossover

Shared Access

Sensitive Residential Interface

Residential Townhouse

## Provide for a safe and convenient vehicular access and car parking arrangement throughout the Site.

The Development Plan provides a highly permeable neighbourhood that encourages slow moving vehicle traffic, walking and cycling.

The internal road network has been carefully considered to promote pedestrian and cycling travel through the provision of a shared internal laneway which priorities pedestrian and cycling movements. Sensible traffic movement and speeds into and within the Site will be required. Adverse traffic mitigation measures include a meandering road layout to discourage speeding. Landscaping and a reduced carriageway adjacent to the central open space will also ensure that safe and appropriate vehicle movement is achieved within and surrounding the neighbourhood.

A combination of off-street car parking and front and rear loaded garages will be integrated into the development for residents and visitors. While the Site is located within the PPTN, it will accommodate a sufficient number of car parking spaces (in accordance with statutory planning requirements) to avoid any adverse off-street parking and traffic management issues.

Refer to Figure 39.

## Provide a range of dwelling types to cater for a variety of housing needs.

The careful delivery of a variety of housing types will ensure this neighbourhood is sensitive to its surrounds, while encouraging a diverse population, acknowledging changing demographics in the Melbourne context and responding to the existing demand for housing in the Oakleigh South area.

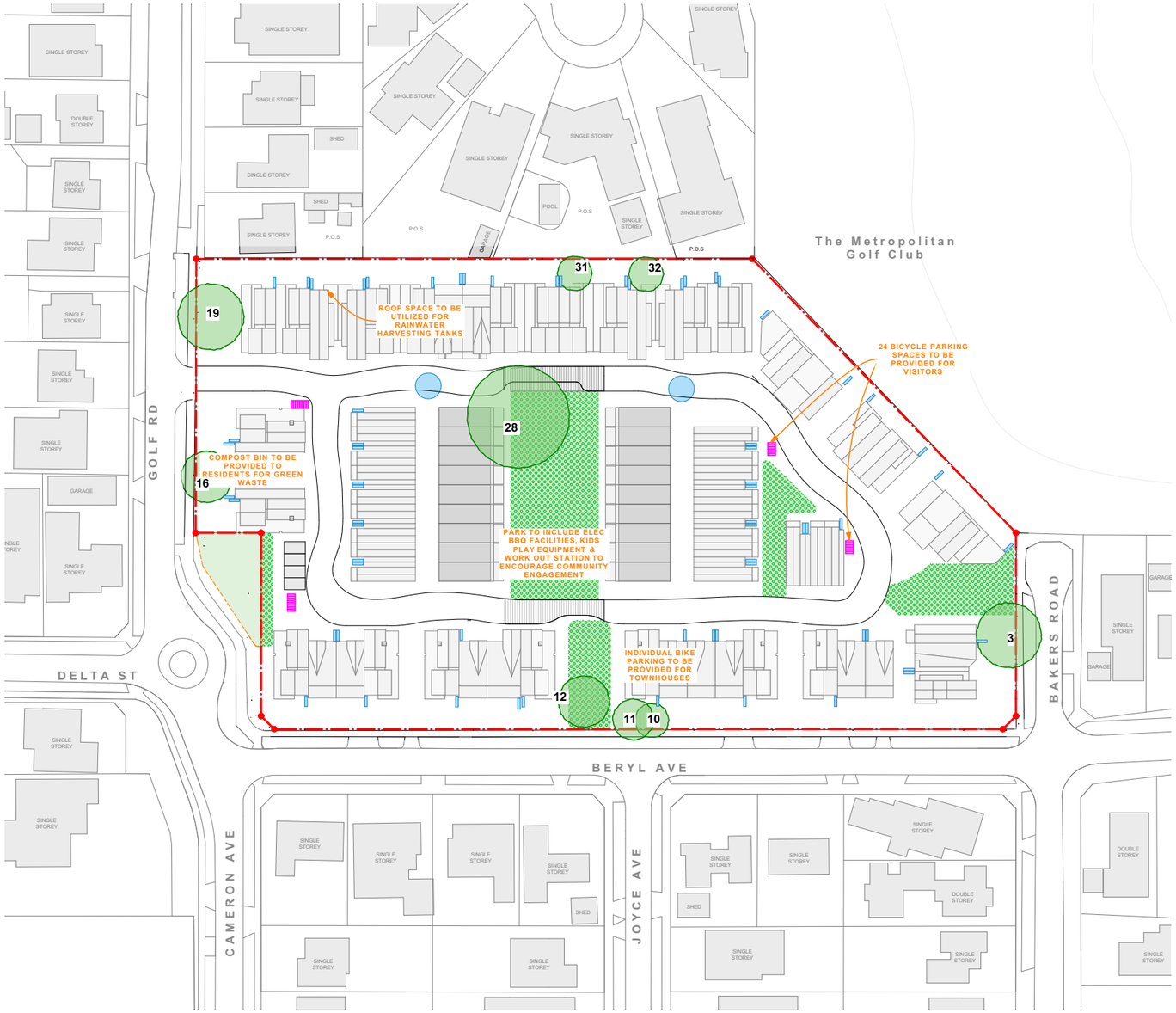
The Development Plan offers a selection of housing choices for diverse sectors of the community. Housing types will vary from two bedroom townhouses to four bedroom townhouses with a concomitant range of dwelling styles catering for various sectors of the housing market such as first time home buyers and downsizer households.

Each housing type is carefully located to acknowledge existing residential land uses and to assist in framing streets and areas of public open space.

Dwelling types will include the capacity for flexible layouts and internal rearrangement to accommodate changes in household structure and the requirements of people with additional needs. Importantly, the Development Plan allows for 25 of the 83 proposed townhouses to feature ground floor bedrooms, living, dining and kitchen spaces with access to ground floor secluded private open space.

Figure 40 shows the indicative dwelling typology arrangement.


Figure 40. Indicative Dwelling Typology Arrangement




Subject Site

Trees To Be Retained

Visitor Bike Parking

Rainwater Collection Tanks

Communal Open Space (Publicly Accessible)

Council Land

Residential Townhouse

Proposed New Trees
*Refer to Landscape Plan*

## Incorporate sustainable design features.

Key sustainable design strategies considered in the Development Plan include:

- Gas instantaneous hot water systems to all dwellings.
- 3 star rated efficient reverse cycle air conditioning.
- Installation of efficient water fixtures to minimise potable water consumption.
- A 2,000L rainwater harvesting tank for each dwelling, with the exception of Townhouse Type TH04 and TH07, plumbed to all WC's for toilet flushing and landscape irrigation.
- Communal rainwater tanks (Minimum 36,000L and 34,000L) shared by Townhouse Type TH04 and TH07, plumbed to all WCs for toilet flushing and landscape irrigation.
- A series of stormwater pits providing treatment equivalent to 12 square metres of 300 mm deep rain gardens to treat the rainwater collected from the main driveway in the development.
- Low/ultra-low VOC paints, adhesives and sealants, and low formaldehyde wood products (e.g. E0/Super E0 MDF and plywood).
- Resident and visitor bicycle parking spaces, and shared electric bicycle facilities, charging stations, and a public bike repair station (including pump, tire lever, Allen keys and screw drivers).
- Electric vehicle charging bays for residents and the broader community.

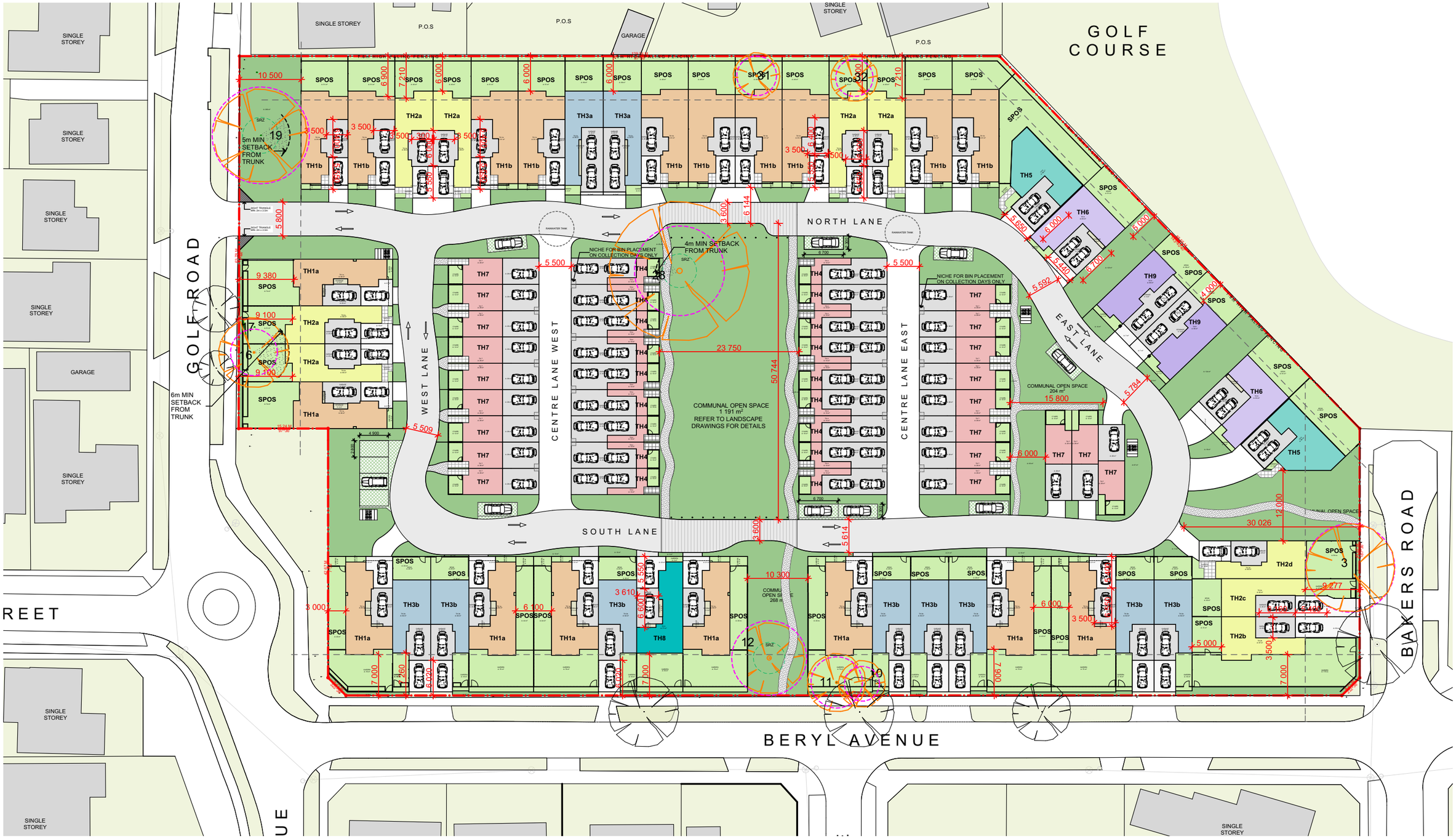
These sustainable design strategies are shown in Figure 41.

Figure 41. Indicative ESD Principles (Source: Plus Architecture)

## 4.2 DEVELOPMENT PLAN

Figure 42 demonstrates the land use and development framework for the Site, encapsulating the key elements of the development:

- Townhouse Typologies
- Landscaping
- Open Space
- Setbacks
- Internal road network




MODERATE TREES TO BE RETAINED

OTHER EXISTING TREES TO BE RETAINED

RECOMMENDED BUILDING SETBACK FROM TREE AS PER ARBORIST'S ADVICE

TH 1a
TH 1b

TH 2a
TH 2b
TH 2c
TH 2d

TH 3a
TH 3b

TH 4

TH 5

TH 6

TH 7

TH 8

TH 9

Figure 42. Indicative Overall Development Plan (Source: Plus Architecture)

## 4.3 INDICATIVE TOWNHOUSE TYPOLOGIES

The Development Plan seeks to provide a range of dwelling types to cater for a variety of housing needs.

The indicative architectural plans contained within the Development Plan demonstrate that a range of two to four bedroom dwellings can be delivered at the Site with usual living, dining, kitchen, open space and car parking arrangements.

Particular emphasis is placed on ensuring the provision of  wide first floor breaks between dwellings in strategic locations to allow for space required for the adequate growth of canopy trees.

Where possible, building layouts have been designed to include a ground floor bedroom in the facade to provide active frontages, passive surveillance, and an enhanced sense of address, particularly for dwellings facing the internal road.

Services have been located and designed to reduce thier appearance and maximise the quality of secluded private open space for each dwelling.

Table 2 provides an overview of the indicative townhouse typologies included in the Development Plan.

Please note the details contained below are indicative only and may be subject to change in a future planning permit application.

**Figure 43.** Proposed internal townhouses (Source: Plus Architecture)

Table 2. Development Summary

| Typology | Typical Area | No. of Storeys | No. of Bedrooms | Indicative Private Open Space | Indicative No. of Dwellings |
|---|---|---|---|---|---|
| Type 1a | 192sqm | Two | Four | 102sqm | 9 |
| Type 1b | 191sqm | Two | Four | 57sqm | 10 |
| Type 2a | 174sqm | Two | Four | 37sqm | 6 |
| Type 2b | 166sqm | Two | Four | 45sqm | 1 |
| Type 2c | 164sqm | Two | Three | 140sqm | 1 |
| Type 2d | 167sqm | Two | Three | 68sqm | 1 |
| Type 3a | 197sqm | Two | Four | 38sqm | 2 |
| Type 3b | 172sqm | Two | Four | 44sqm | 8 |
| Type 4 | 178sqm | Three | Three | 20sqm | 18 |
| Type 5 | 198sqm | Two | Four | 113sqm | 2 |
| Type 6 | 207sqm | Two | Four | 56sqm | 2 |
| Type 7 | 121sqm | Two | Two | 20sqm | 20 |
| Type 8 | 209sqm | Two | Three | 56sqm | 1 |
| Type 9 | 188sqm | Two | Two | 45sqm | 2 |
| Indicative Total | | | | | 83 |

Figure 44. Proposed dwellings fronting Beryl Avenue (Source: Plus Architecture)

## 4.3.1 Townhouse Type 1a & 1b

This townhouse type proposes a two storey built form with recessed side and street setbacks on the first floor. It has been designed and sited to respect the existing interfaces along Beryl Avenue, Golf Road and the existing dwellings to the north.

The dwellings are set back 7 metres from Beryl Avenue, 9.3 metres from Golf Road and 6 metres from the northern boundary of the Site, ensuring adequate areas are provided for sufficient and meaningful planting and appropriate visual separation to occur.

Access is provided via the internal street. The dwellings include a ground floor bedroom window at the building facade fronting the internal street to enhance its sense of address, provide active frontages and passive surveillance, while minimising the visual dominance of garages along the internal street.

The Type 1a dwellings located along Beryl Avenue include secluded private open space (between 42 and 44 sqm) on the side of the dwelling and additional garden space (between 78 and 84sqm) to respect the landscaped garden character south of the Site.

Dwellings located along Golf Road and Beryl Avenue are provided with pedestrian access to the existing streets, as well as the internal street.

The key elements of this Townhouse Type are:

- A two storey built form with four bedrooms, including one located on ground floor.
- Open planned living, kitchen and dining area at ground with direct access to private open space.
- Ground floor secluded private open space between 42 and 74sqm iocated at the rear or side of the dwelling, with additional garden space between 3 and 84sqm.
- Two car parking spaces provided via a secure single garage and tandem car park behind.

Refer to Figures 45 - 47.

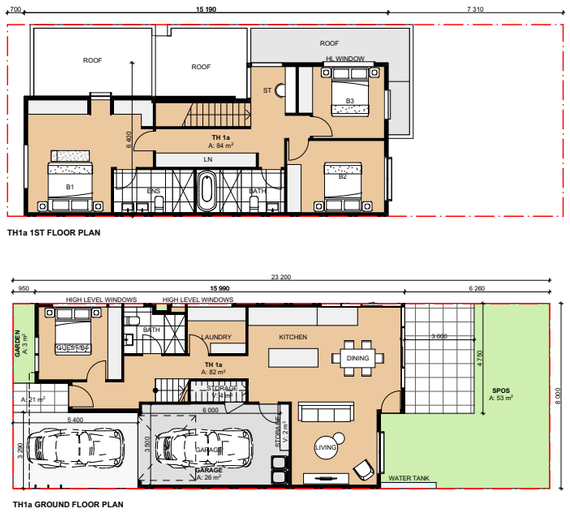



Figure 45. Townhouse Type 1a (Source: Plus Architecture)

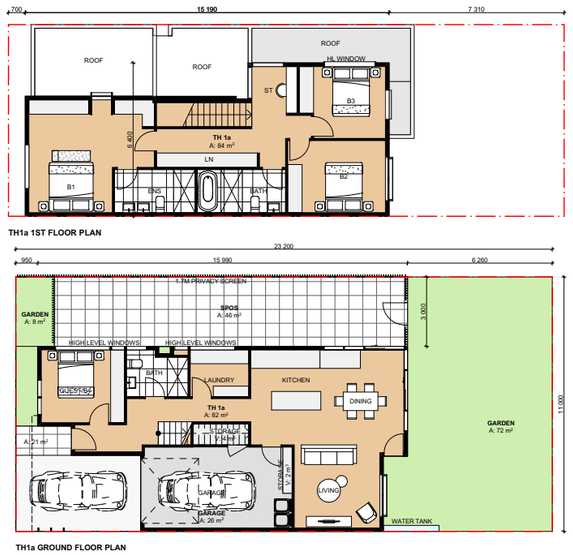



Figure 46. Townhouse Type 1a variation (Source: Plus Architecture)

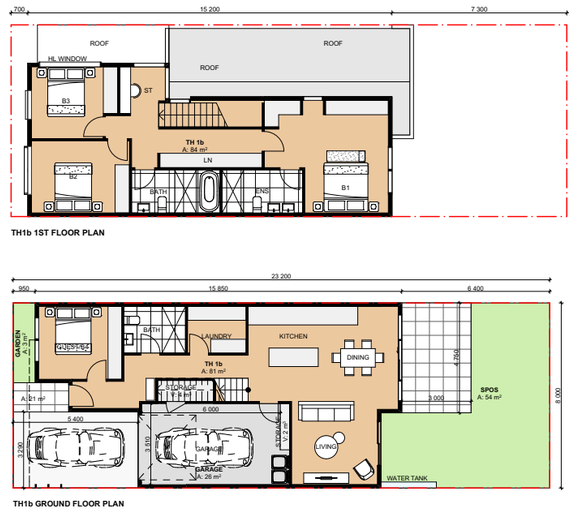



Figure 47. Townhouse Type 1b (Source: Plus Architecture)

### 4.3.2 Townhouse Type 2a, 2b, 2c & 2d

This townhouse type proposes a two storey built form and has been designed and sited to respect the existing interfaces along Beryl Avenue, Golf Road, Bakers Road and the existing dwellings to the north.

The dwellings are set back a minimum 5.5 metres from Beryl Avenue, 9.2m from Bakers Road, 7.9 metres from Golf Road and 6 metres from the northern boundary of the Site ensuring adequate separation from existing dwellings to the north. The first floor side setbacks are recessed in order to reduce the visual prominence of the dwelling.

Dwelling Type 2a presents to the internal street and is located along Golf Road and the northern boundary. Vehicle access will be from the internal street.

Dwelling Type 2b, 2c and 2d are located along Bakers Road. Vehicle access to Dwelling Type 02d will be from the internal street, while vehicle access to Dwelling Type 2b will be from Bakers Road.

Pedestrian entries will be provided from both the existing street and the internal street, where appropriate. It is envisaged that the pedestrian access from existing streets will be the 'front door' for these dwellings.

The key elements of this Townhouse Type are:

- A two storey built form with four bedrooms at first floor for Dwelling Type 2a, and three bedrooms at first floor for Dwelling Type 2b, 02c and 02d;
- Open planned living, kitchen and dining area at ground with direct access to private open space;
- Ground floor private open space ranging between 31 and 56 square metres with additional garden space ranging between 5 and 175 square metres; and
- Two car parking spaces via a secure Garage and tandem car park behind.

Refer to Figures 48 - 51.

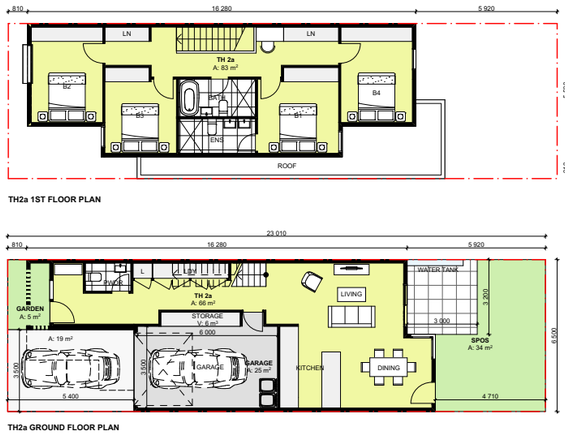



Figure 48. Townhouse Type 2a (Source: Plus Architecture)

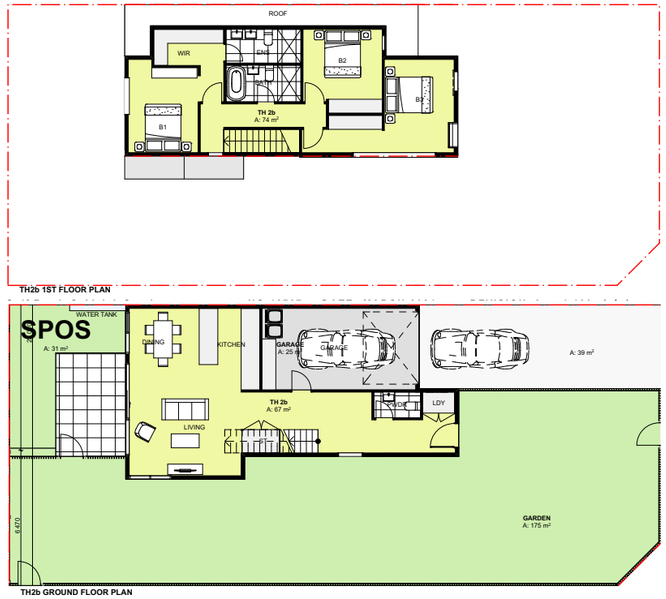



Figure 49. Townhouse Type 2b (Source: Plus Architecture)

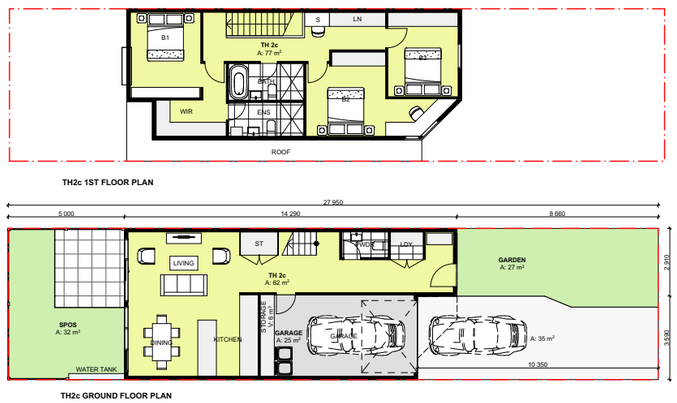



Figure 50. Townhouse Type 2c (Source: Plus Architecture)

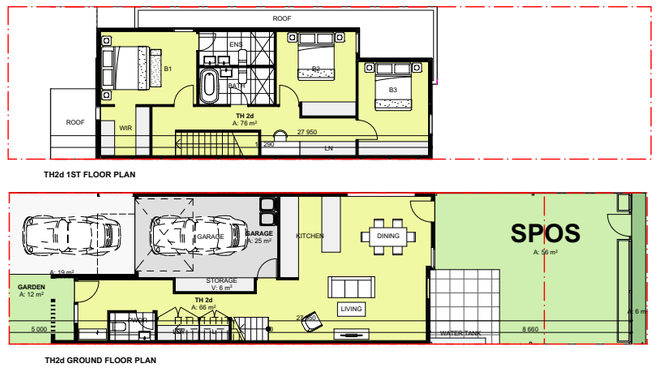



Figure 51. Townhouse Type 2d (Source: Plus Architecture)

## 4.3.3 Townhouse Type 3a & 3b

This townhouse type provides a two storey built form and has been designed and sited to respect the existing interfaces along Beryl Avenue and the existing dwellings to the north.

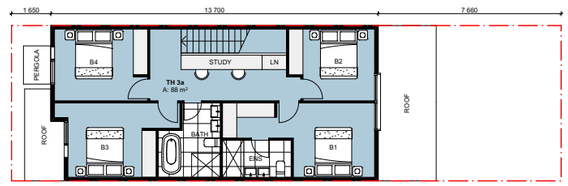
The dwellings are setback 6 metres from Beryl Avenue and the northern boundary, ensuring adequate separation from existing dwellings to the north. The first floor is recessed a further 2.4m from the northern boundary in order to minimise the visual prominence of the dwelling.

Access to Dwelling 3a (located along the northern boundary) is provided via the internal street, on which they front. Dwelling 3b present to Beryl Avenue. Their main vehicular and pedestrian access point is also from Beryl Avenue.

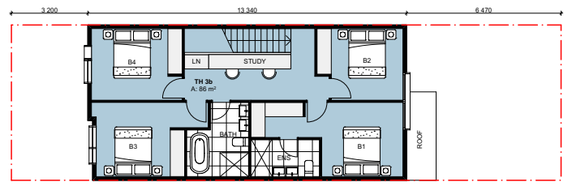
The key elements of this Townhouse Type are:

- A two storey built form with four bedrooms on first floor.
- Open planned living, kitchen and dining area at ground floor with direct access to private open space.
- North facing SPOS for all dwellings.
- Ground floor SPOS measuring 39 square metres for Dwelling 3a and 26sqm for Dwelling 3b; with additional garden space of 4sqm for Dwelling 3a and 18sqm for Dwelling 3b.
- A study area at first floor
- Two tandem car parking spaces, with both spaces located in a secure garage for Dwelling 3a, and one space located in a secure garage for Dwelling 3b.

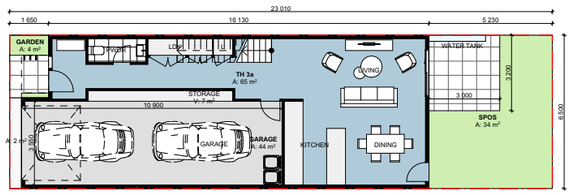
Refer to Figures 52 - 53.



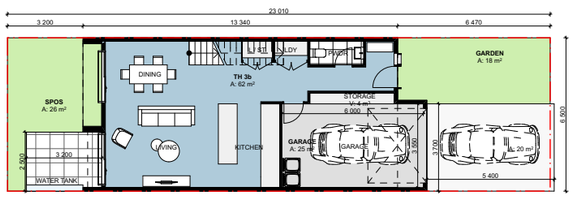

TH3a 1ST FLOOR PLAN




TH3b 1ST FLOOR PLAN




TH3a GROUND FLOOR PLAN




TH3b GROUND FLOOR PLAN

**Figure 52.** Townhouse Type 3a (Source: Plus Architecture)

**Figure 53.** Townhouse Type 3b (Source: Plus Architecture)

## 4.3.4 Townhouse Type 4

This townhouse type provides a three storey built form designed to activate the central open space.

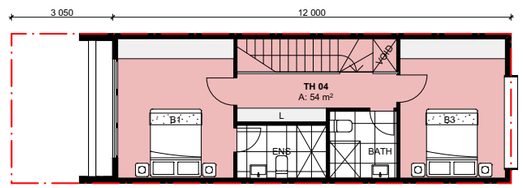
The dwellings are accessed via the internal access lanes (Centre Lane West and Centre Lane East). Dwellings are orientated to front the central open space area to enhance passive surveillance. A sense of address is maintained through landscaped setbacks from the footpaths that run along the open space.

The orientation of garages on Centre Lane West and East relieves the internal street and other more active open spaces from the visual impacts of the garages.

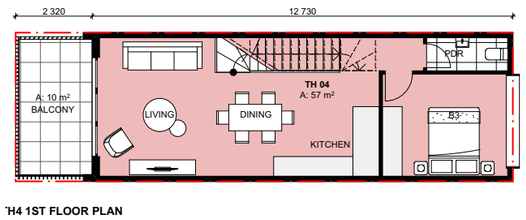
The key elements of this Townhouse Type are:

- A three storey built form with a reverse living arrangement.
- Study on ground floor with direct access to a 10 square metre courtyard that fronts onto the central communal open space area.
- Three bedrooms.
- Open plan living, kitchen and dining area on the first floor with direct access to secluded private open space (balcony) with a minimum area of 10 square metres.
- Two tandem car parking spaces are secured in a garage.

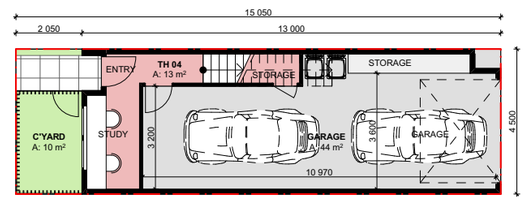
Refer to Figure 54.




H4 2ND FLOOR PLAN




TH4 1ST FLOOR PLAN




TH4 GROUND FLOOR PLAN

Figure 54. Townhouse Type 4 (Source: Plus Architecture)

### 4.3.5 Townhouse Type 5

Townhouse Type 5 provides a two storey built form. They have been located and designed to face the Metropolitan Golf Course. The dwellings are set back 5 metres from the Site boundary.

Access to Townhouse Type 5 will be provided via the internal street.

The key elements of this Townhouse Type are

- A two storey built form.
- Four bedrooms including one on ground floor.
- Open plan living, kitchen and dining area on ground floor with direct access to secluded private open space with an area of 69 or 145 square metres, and additional garden space of 3sqm or 13sqm.
- Two car parking spaces via a secure double garage

Refer to Figure 55-56.

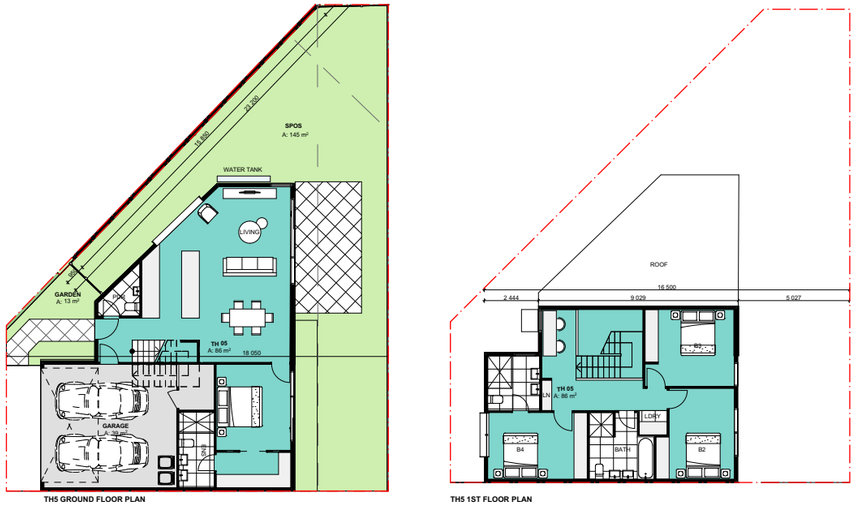



Figure 55. Townhouse Type 5 (Source: Plus Architecture)

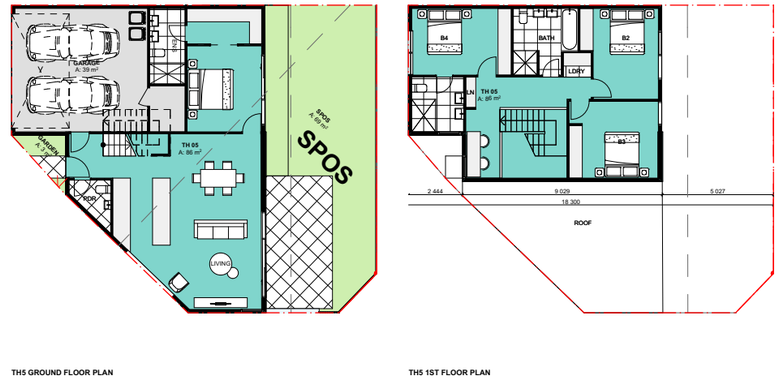



Figure 56. Townhouse Type 5 - SPOS variation (Source: Plus Architecture)

## 4.3.6 Townhouse Type 6

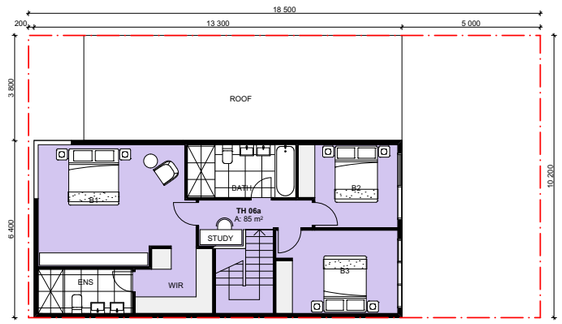
This townhouse type provides a two storey built form, set back a minimum of 4 metres from the eastern interface adjacent to the Metropolitan Golf Course. The dwellings are accessed via the internal street.

A bedroom is provided on the ground floor at the facade to enhance a sense of address and provide an active frontage and passive surveillance to the internal street.

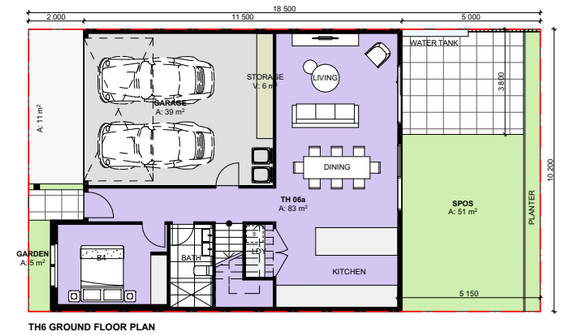
The key elements of this Townhouse Type are:

- A bedroom and an open plan living, kitchen and dining area on ground floor with direct access to secluded private open space with a minimum area of 51 square metres.
- A total of four bedrooms.
- Two car parking spaces provided via a secure double garage

Refer to Figure 57.




TH6 1ST FLOOR PLAN




TH6 GROUND FLOOR PLAN

Figure 57. Townhouse Type 6 (Source: Plus Architecture)

## 4.3.7 Townhouse Type 7

This townhouse type provides a two storey built form designed to activate the internal road network.

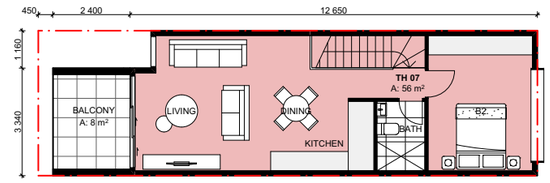
The majority of dwellings are accessed via the internal access/ service lanes (Centre Lane West and Centre Lane East). In doing so, the dwellings are oriented to front the internal street to enhance passive surveillance. The orientation of garages on Centre Lane West and East relieves the internal street from the visual impact of the garages.

Three dwellings, located opposite the eastern open space area, will be accessed from the internal street (one from East Lane and two from South Lane). The dwellings maintain north facing balconies at the first floor that are seperated to allow the adequate growth of canopy trees as part of the proposed landscaping. The orientation of the dwelling accessed from East Lane will reduce the visual impact of garages on South Lane.

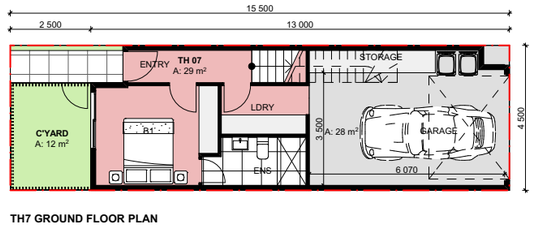
The key elements of this Townhouse Type are:

- A two storey built form with a reverse living arrangement.
- Two bedrooms including one on ground floor.
- A 12 sqm courtyard.
- Open plan living, kitchen and dining area onthe first floor with direct access to a north facing private open space (balcony) with a minimum area of 8 qm.
- One car parking space in a secure single garage.

Refer to Figure 58.




TH7 1ST FLOOR PLAN




TH7 GROUND FLOOR PLAN

Figure 58. Townhouse Type 7 (Source: Plus Architecture)

## 4.3.8 Townhouse Type 8

Townhouse Type 8 provides a two storey built form with reverse living arrangement.

Access is provided via the internal street. It is set back 7 m from Beryl Avenue and includes two ground floor bedrooms fronting onto the avenue to provide active frontages and passive surveillance, while minimising the visual dominance of garages and driveways along Beryl Avenue.

The key elements of this Townhouse Type are:

- A two storey built form with a reverse living arrangement.
- Four bedrooms including two on ground floor.
- Open plan living, kitchen and dining area on the first floor with direct access to a north facing private open space (balcony) with a minimum area of 11 qm.
- Additional garden space of 53 sqm.
- Two car parking spaces provided via a secure single garage and tandem car park behind.

Refer to Figure 59.

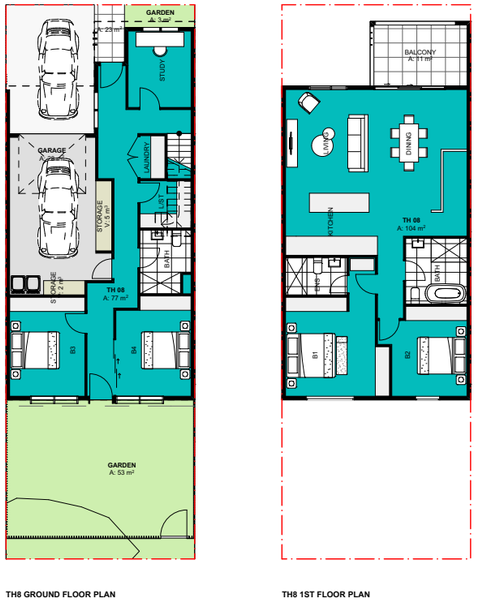



**Figure 59.** Townhouse Type 8 (Source: Plus Architecture)

## 4.3.9 Townhouse Type 9

Townhouse Type 9 provides a two storey built form, set back a minimum 4 metres from the eastern interface adjacent to the Metropolitan Golf Course. The dwellings are accessed via the internal street.

A bedroom is provided on the ground floor at the facade to minimise the dominance of car parking structures and driveways on the streetscape, while enhancing a sense of address and providing an active frontage and passive surveillance to the internal street.

The key elements of this Townhouse Type are:

- A two storey built form with four bedrooms including one on ground floor.
- Open plan living, kitchen and dining area on ground floor with direct access to secluded private open space with an area of 51 sqm, and additional garden space of 5 sqm.
- Two tandem car parking spaces, with both spaces located in a secure garage.

Refer to Figure 60.

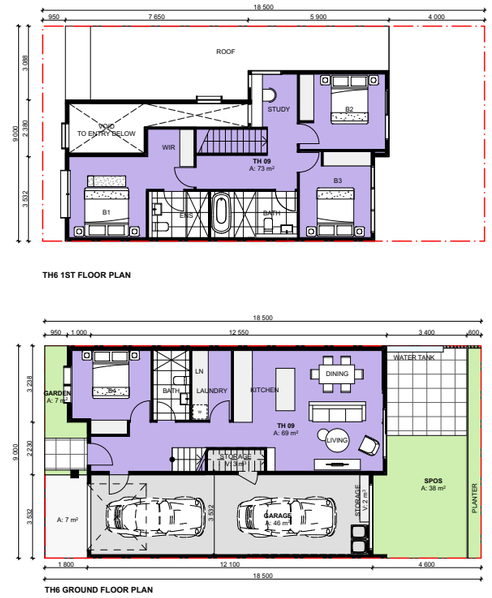



**Figure 60.** Townhouse Type 9 (Source: Plus Architecture)

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## 4.4 SHADOW ANALYSIS

Shadow diagrams depicting shadows at 10am, 12pm and 3pm of the proposed dwelling typologies are provided in this Development Plan in accordance with Section 3.0 of Schedule 5 to the Development Plan Overlay.

Refer to Figures 59 - 61.

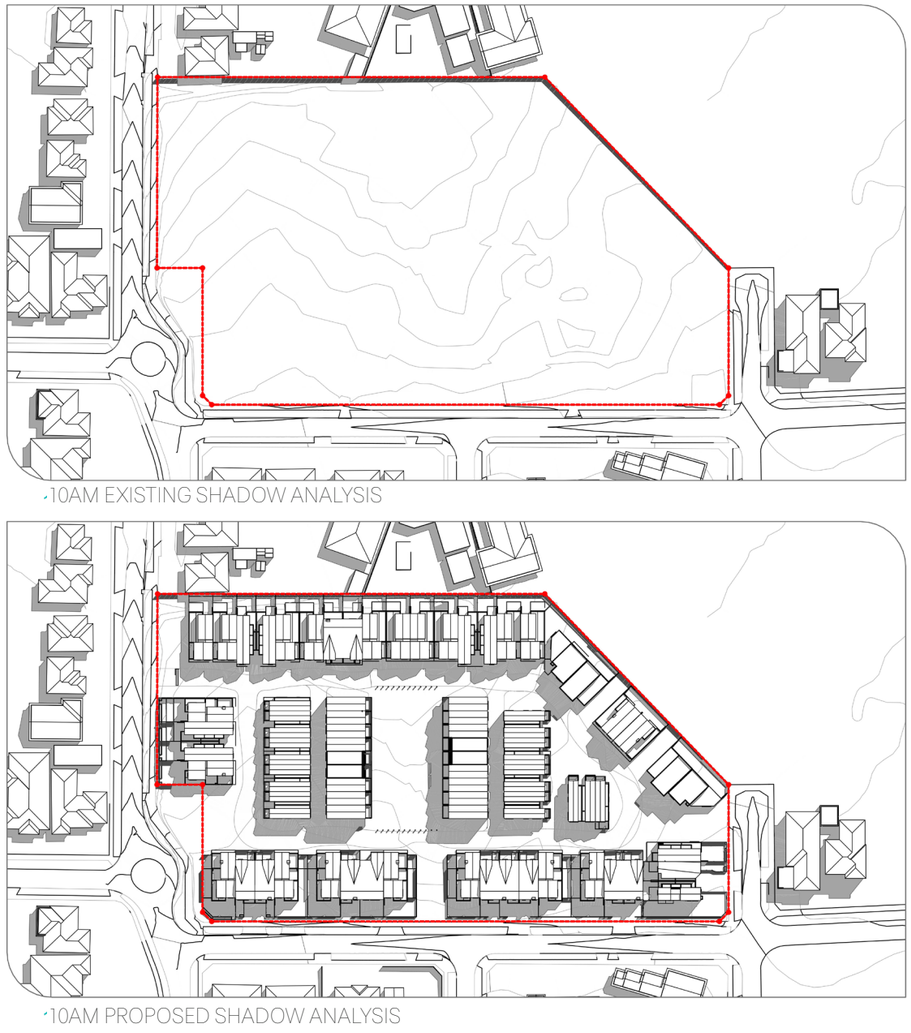
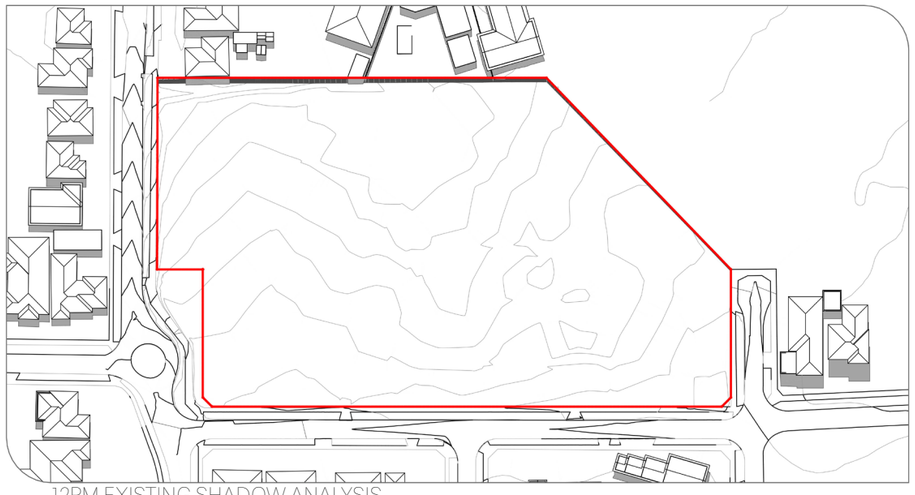



**Figure 61.** Shadow Analysis 10am (Source: Plus Architecture)



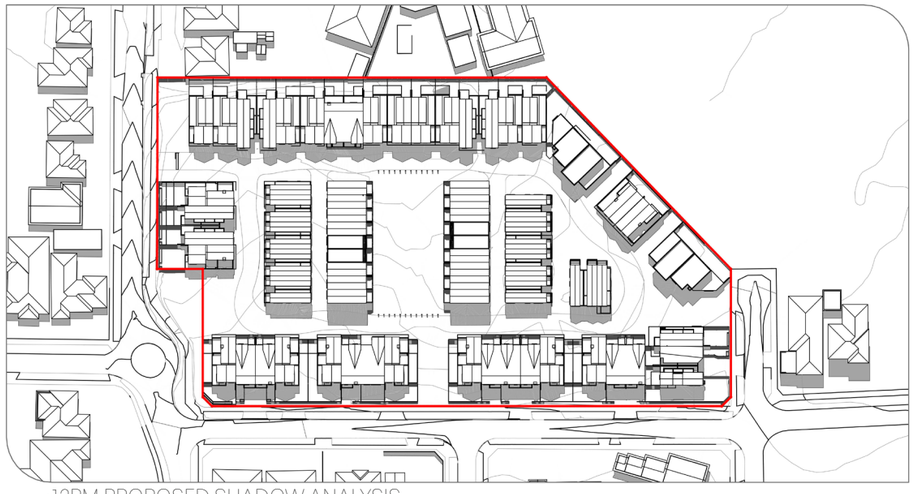
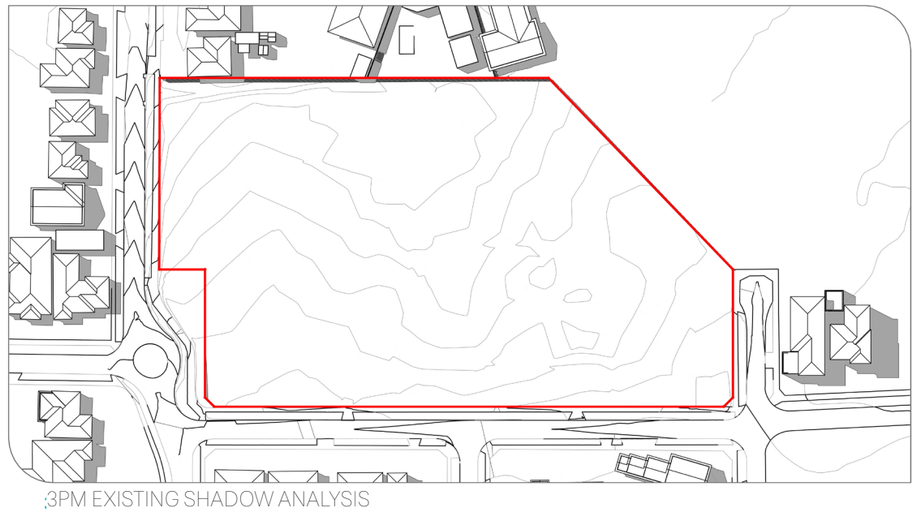




Figure 62. Shadow Analysis 12pm (Source: Plus Architecture)



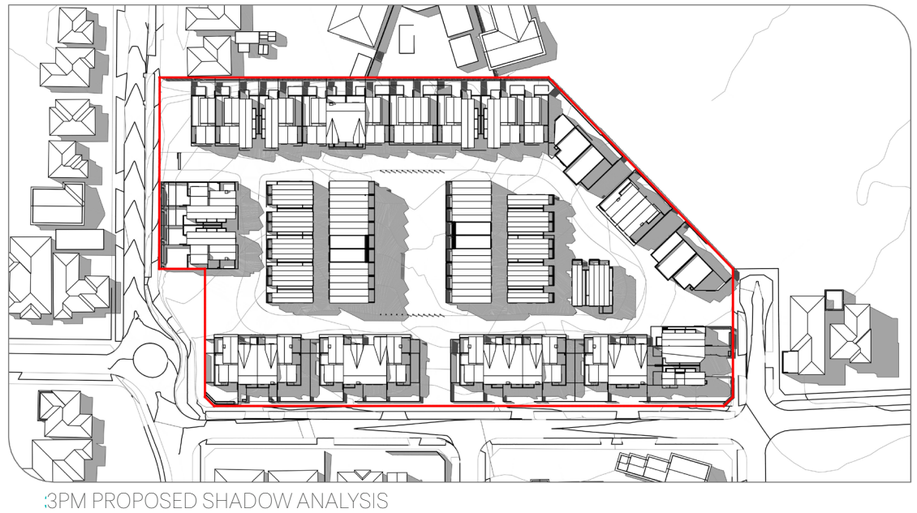




Figure 63. Shadow Analysis 3pm (Source: Plus Architecture)

# Landscape & open space.

# 5 LANDSCAPE & OPEN SPACE

This section of Development Plan addresses the following requirement of the DPO5:

'A landscaping plan which:

- Shows the landscape concept for the Site.
- Incorporates any significant vegetation including trees rated as 'moderate' or 'high' in the 2013 Tree Logic assessment'

## 5.1 ARBORICULTURAL FINDINGS

Given the time that has elapsed since the 2013 Tree Logic Report, Landscape DEPT prepared a review and update on the arboricultural findings. Trees were re-assessed on the 4th July 2018 and 6 December 2018. The report was further revised in June 2020 in response to the 5 May 2020 VCAT decision.

The original Tree Logic report identified 56 trees or groups of trees within the Site. One tree (Tree 1) has been since been removed. 55 trees or groups were re-assessed as part of the 2020 study. Trees with an arboricultural value of 'low' or 'none' were visually inspected but their dimensions were not re - measured. All trees assessed in the 2013 report of moderate arboricultural value have had their dimensions updated. No trees were assessed of high arboricultural value.

The re-assessment generally concurs with the 2013 Tree Logic Report and arboricultural values of the trees have been adopted from the 2013 report. The Landscape DEPT review has found the following:

- No trees within the site were attributed high arboricultural value. Several large trees within the site have a high landscape contribution but have structural and/or health issues that require landscape constraints and ongoing management, limiting their arboricultural value within a general residential context.
- Of the 55 trees or tree groups assessed, 42 were allocated a low arboricultural value. The trees were of poor health and/ or structure with a limited Useful Life Expectancy or were self-sown weeds. 13 Trees were allocated an arboricultural rating of moderate.
- Tree 1 has been removed from the Site and no longer needs to be considered.
- Tree 35, Manna Gum, is now located outside the site boundary but will need to be considered as part of any development.
- Tree 12, Yellow Gum, was identified as being of moderate arboricultural value in the 2013 report. The tree has developed a broad, spreading form with over-extended branches that are prone to failure, which is typical of some specimens of Yellow Gum. Tree 12 also offers a low landscape value. Therefore, the tree was considered to have a low arboricultural value. The loss of amenity resulting from its removal could be easily replaced in the short term with appropriate landscaping.
- Tree 25, Southern Mahogany, is self-seeded and has developed as a suppressed specimen. As an individual specimen the tree was considered to have a low arboricultural value.
- While Trees 2, 22, and 24 are attributed a moderate arboricultural value, it has a high history of branch failure, deadwood and severe lerp infestation.
- Tree 37 and 42 (River She Oaks) are self-seeded specimens that have developed within an area of dense regrowth. Trees that develop within a densely stands are often inter-dependent with surrounding vegetation for structural stability and resources. The trees were considered to have a low arboricultural value.


Figure 64. Arboricultural Plan (Source: Landscape DEPT)

## 5.2 TREE RETENTION

Figure 63 demonstrates the indicative trees proposed to be retained on the Site in accordance with the findings of the 2020 Arboricultural report.

Specifically trees 3, 10, 11, 12, 16, 19, 28, 31 and 32 are proposed to be retained on the Site.

Trees shown to be retained in Figure 63 can be removed at the planning permit application stage should there be arboricultural or site construction circumstances that necessitates the response. In these circumstances, a replacement tree must be provided to the satisfaction of the Responsible Authority.

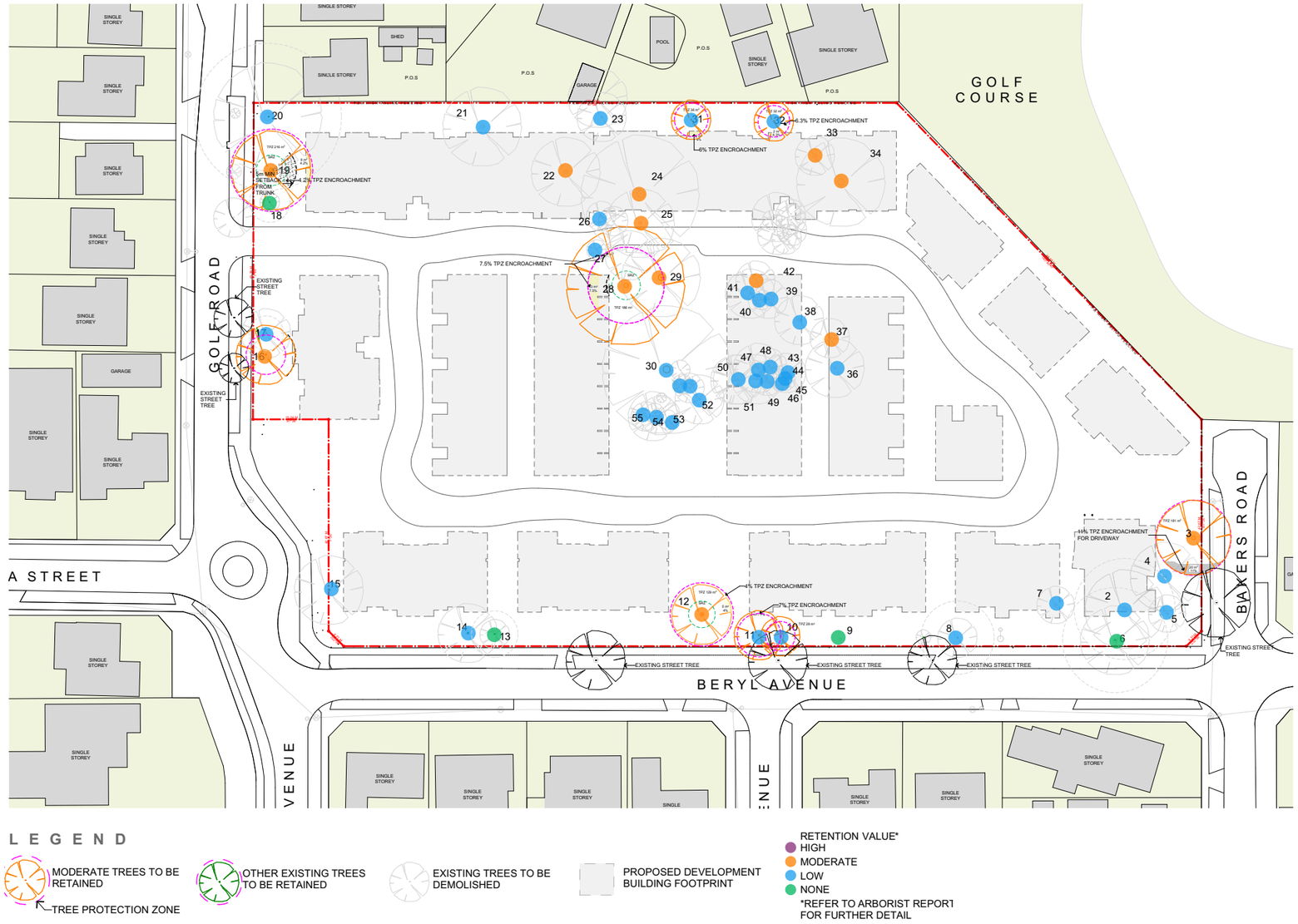



Figure 65. Tree Removal and Retention

## 5.3 DESIGN RESPONSE AND VISION

Landscape design comprises a key component of Oakmont Oakleigh South at the 52 Golf Road Development. The concept has been designed to create attractive, quality open spaces encouraging social engagement and community events. Oakmont will provide a high standard of amenity for residents and the surrounding existing community to share and enjoy.

The landscape treatment and strong vegetated character will provide 'green moments' throughout the open spaces. Landscape treatments will be consistent across the entire Site providing green relief and harmonizing with the proposed development.

In generating the design the following design objectives will be adopted:

- Provide communal landscape areas for outdoor retreat, quiet contemplation and social engagement.
- Abundance of gardens and planting - 'green' vegetated character.
- Integrate large evergreen trees to provide shade, shelter and a sense of pedestrian scale.
- Provide pedestrian linkages through the Site to the adjoining residential streets.
- Provide a considered arrangement of trees, shrubs and ground-covers that are drought tolerant and require a low watering and maintenance regime.

Refer to Figure 65.

**Figure 66.** Landscape Concept


Existing Tree to be Retained

Proposed Street Trees
Species to Council Selection

Proposed Trees
Refer to Plant Schedule

Proposed Shrubs
Refer to Plant Schedule

Proposed Groundcovers & Grasses
Refer to Plant Schedule

Appropriate Raingarden Location
Refer to Plant Schedule

Proposed Climbers
Refer to Plant Schedule

Proposed Lawn Area
Refer to Specification

Proposed Permeable Pedestrian Path
To Later detail

Proposed Permeable Paving
To Later detail

Proposed Paving
To Later Detail

Proposed Gravel Surface
Refer to Specification

Proposed Driveway/Roadway Surface
To Later Detail

Secondary Driveway/Roadway Surface
To Later Detail

Figure 67. Landscape Concept Master Plan (Source: John Patrick)

## 5.4 OPEN SPACE

### 5.4.1 Central Open Space

Located in the centre of the Site will be a generous open lawn, measuring approximately 50 metres in length and approximately 23 metres in width, accessible from the north and south ends.  Within this space, an existing mature tree will add to the quality of the landscape, providing a soft outlook from the adjacent dwellings. This will be further enhanced through new landscaping, including opportunities for the planting of several new trees. These trees will also offer shade and shadow during the warmer summer months.

The open space also offers a place for communal outdoor retreat, social engagement and informal play. A barbeque, seating opportunities and playground will be located south of the existing trees. The dedicated play zone  could include sculptural and interactive play elements.

Refer to Figure 66-69.

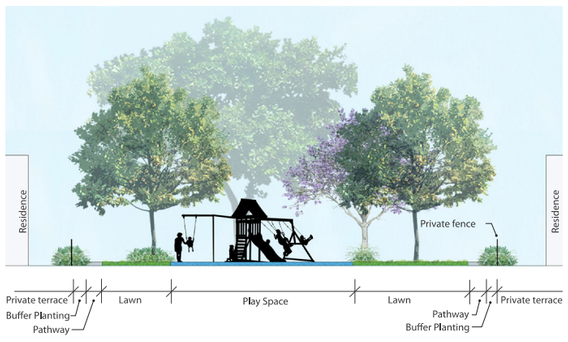



Figure 68. Indicative Open Space Section


Figure 69. Open Space Plan



Figure 70. Precedent Images

### 5.4.2 Eastern Garden on Beryl Avenue

Located to the east of the Site is the Eastern Garden framed by native trees. It is accessible from both the internal street as well as Bakers Road. This area consists of lawn and garden areas with trees and shrubs. The facades of adjoining dwellings fronting the garden will be softened with wall climbers. This space will provide a more intimate space for gathering and passive recreation. A rain garden on the western end assists in the sustainable treatment of stormwater.

Refer to Figure 69.

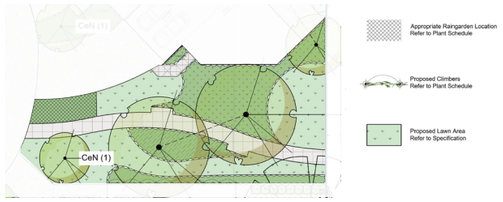



Figure 71. Eastern Garden

### 5.4.3 Opportunities for Community Garden

The proposed on-site communal open spaces offer opportunities for community gardens.

The community gardens could contain a productive garden that provides hand on opportunities for residents to engage in organic food production in a dedicated and protected area for ease of management.

Refer to Figures 70 - 71.

Figure 72. Precedent image

Figure 73. Precedent Image

### 5.4.4 Buffer Planting

Dense planting along the entire length of property boundary to the north and west side will provide adequate screening from the adjacent properties. Medium size trees and hedge type planting species will be selected.

Refer to Figures 72 - 73.


Figure 74. Buffer Planting

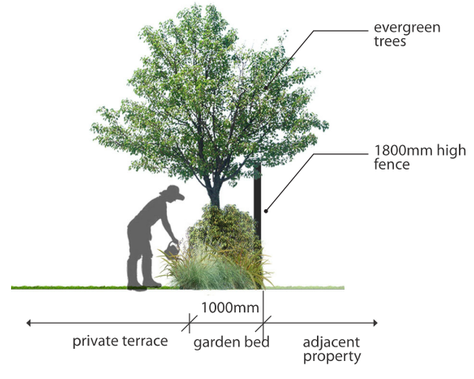



Figure 75. Buffer Planting Section

## 5.5 GROUND FLOOR PRIVATE OPEN SPACE

Ground floor private open space will provide an extension to the indoor living spaces and landscaped with various ground covers, shrubs, trees and wall climbers, which will provide shade and a green outlook for residents.

Services and water tanks have been designed and located to maximise the area of usable private open space.

In smaller spaces, including the balconies and courtyards of reverse living arrangements (TH04 and TH07), planters could be included to support a selection of ornamental shrubs and ground covers.

Refer to Figures 74 - 82.

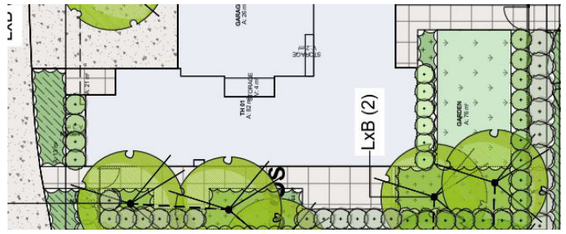



Figure 76. TH01

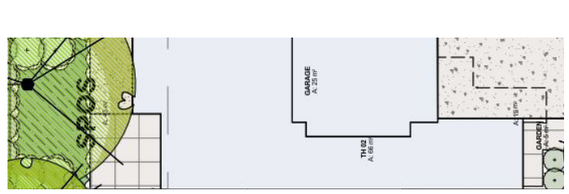



Figure 77. TH02


Figure 78. TH03

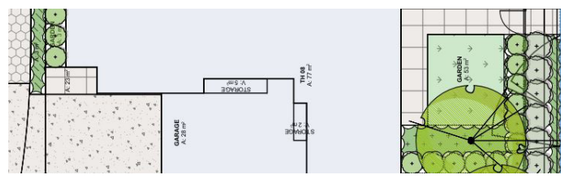



Figure 79. TH08


Figure 80. TH06

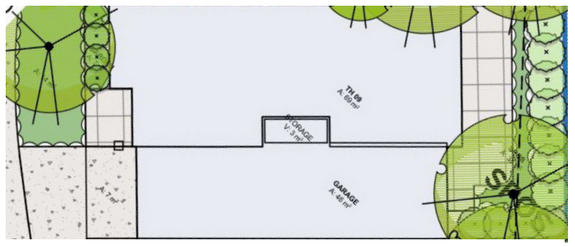



Figure 81. TH09


Figure 82. TH05

## 5.6 INTERNAL ROADS

The internal road is configured as a meandering ‘shareway’, providing priority to pedestrian and cyclist movements. Large planted areas increase tree planting opportunities.

Feature paving is incorporated at the entry threshold and ‘extension’ of communal space to the north and south. Visitor car parks, waste collection areas and bicycle hoops are provided at key locations.

The internal laneways connect the internal street to the residential parking spaces to terraced housing. A urban laneway aesthetic can be adopted with injections of greenery to soften the space.

Refer to Figure 83-86.

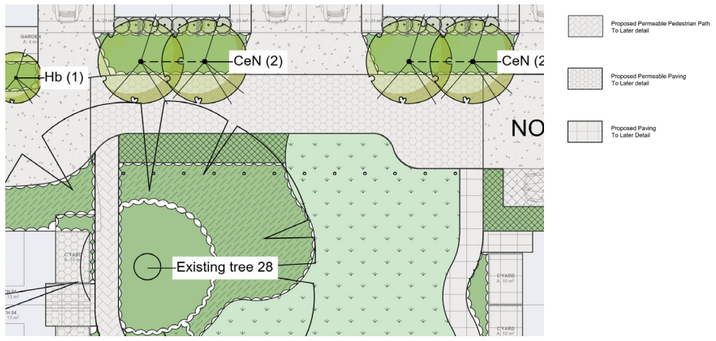



**Figure 83.** Feature paving at entry of communal space


**Figure 85.** Internal shareway road section

**Figure 84.** Precedent images


**Figure 86.** Precedent images

## 5.7 CENTRAL PEDESTRIAN CONNECTION

A 10.3m central pedestrian linkage connects Beryl Avenue and the internal central open space. An arrangement of plants, including wall climbers, shrubs, ground cover and trees, along both sides of the path will provide visual and physical separation to the adjacent townhouses, whilst allowing passive surveillance and creating a safe environment. The planted areas will support ornamental shrubs and ground covers and a rhythm of trees. Varied path treatments maintain visual interest for pedestrians. A section of the path consists of permeable paving, which will assist in dealing with stormwater.

Refer to Figures 87 - 88.

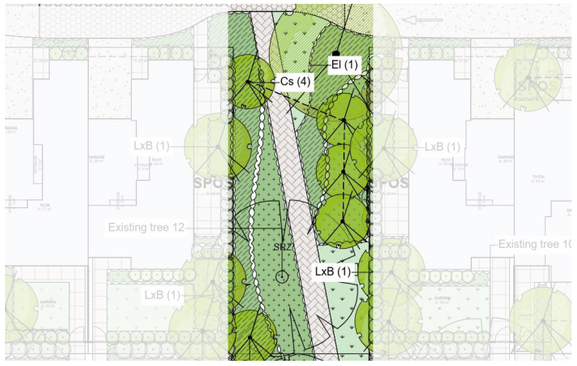



Figure 87. Pedestrian Path Link

Figure 88. Precedent Images

## 5.8 PLANTING INTENTION

Planting will be a naturalistic mix of textural shrubs, creeping ground covers and soft grasses that will flow in the breeze. It is envisioned that the landscape will contain several canopy trees, which will enhance Monash's Garden City character. The indicative landscape plan proposes 118 new trees to be planted. Proposed wall climbers will further integrate the development into the landscape.

The planting palette will provide a hardy landscape with minimal maintenance requirements, and low water consumption.

All landscape plantings are intended to be irrigated by an underground automatic dripper system. Private Terraces will include water tanks for rainwater collection and reuse in garden irrigation.

Once established the plantings will require minimal maintenance. Maintenance activities undertaken, during and post establishment, will include: fertilizer application, herbicide spray (if appropriate), replenishment of mulch, and monitoring of plant health and performance and the implementation of appropriate horticultural measures to ensure optimal growth at times.

Refer Landscape Plan for a list of proposed plant species.

# Traffic management.

# 6 TRAFFIC MANAGEMENT

This section of Development Plan addresses the following requirement of the DPO5:

'A traffic management report and car parking plan which includes:

- Identification of roads, pedestrian, cyclist and vehicle access locations, including parking areas, both internal and external to the Site.
- Traffic management measures, where required · Location and linkages to public transport. ·
- Car parking rates for all uses, including visitor parking.
- Provision for bicycle facilities.'

## 6.1 TRAFFIC ENGINEERING ASSESSMENT

The Traffic Engineering Assessment provides a detailed traffic engineering assessment of the parking and traffic issues associated with the proposed development.

## 6.2 EXISTING CONDITIONS

### 6.2.1 Road Network

Golf Road is a 'local collector road' extending in a north-south direction between North Road and Beryl Avenue, where it continues as Cameron Street to Centre Road.

To the north of the site, Golf Road generally has a 7m wide carriageway, which accommodates a single traffic lane in both directions and indented kerbside parking along the west side. Indented parking is generally unrestricted. 'No Stopping' restrictions apply along the east side. To the south of the site, Golf Road generally has a 6.8m wide carriageway, which accommodates a single lane of traffic in each direction. Alternatively, it accommodates a shared lane of through traffic and kerbside parking on one side of the road only.

Beryl Avenue is a 'local road' extending in an east-west direction between Riley Street and Golf Road. The intersection between Beryl Avenue and Cameron Avenue is governed by a give way sign facing Beryl Avenue.

Bakers Road is a 'local road' extending in a north-south direction between a dead end in the north and Centre Road in the south. The intersection between Bakers Road and Beryl Avenue is governed by a give way sign facing Bakers Road.

In the vicinity of the site, Bakers Road and Beryl Avenue have a 6.8m wide carriageway which accommodates a shared lane of through traffic and kerbside parking on one side of the road only. On-street parking along Bakers Road and Beryl Avenue is unrestricted in the vicinity of the site.

The default urban speed limit of 50 kilometres per hour applies to all three roads.

### 6.2.2 Traffic Conditions

Golf Road at the proposed site access carries an average traffic volume of 5,805 vehicles per day. This is consistent with its classification as a Connector Street  Level 2, which can accommodate between 3,000-7,000 vehicles per day.

Beryl Avenue at Cameron Avenue carries an average traffic volume of 2,371 vehicles per day. This is consistent with its classification as an Access Street  Level 2, which can accommodate 2,000-3,000 vehicles per day.

The recorded peak hour periods occurred between 8-9am and 3-4pm for both roads.

### 6.2.3 Car Parking

A parking survey was undertaken to determine the existing car parking conditions for the area surrounding the site. A total of 124 car spaces are available to the general public within the survey area. On-street parking within the survey area is predominantly unrestricted. Twenty-eight unrestricted on-street car spaces are located along the site's frontages to Beryl Avenue and Bakers Road. The results of the surveys indicate that there is a low to moderate demand for on-street parking throughout the survey period with occupancy recorded between 11-51% (61-110 vacant car spaces). The minimum number of vacant spaces recorded across the survey period was 61 spaces (51% occupancy).

### 6.2.4 Public Transport

The site is located within the PPTN area and as such has access to several bus services within convenient walking distance of the site. The available bus serviceprovides a link to Oakleigh and Clayton Railway Station, which has access to a greater number of public transport services. The closest railway station is Huntingdale Station, which is located 2.3km walking distance from the site.

The key facilities located within the nearby area include Bus Route 733, Bus Route 903 (SmartBus) and Bus Route 703.

## 6.3 PROPOSED CAR PARKING

Car parking for the indicative dwellings proposed are shown to be within single garages, single tandem garages and double garages for each respective dwelling, with access to these spaces provided via the internal road network, existing road network or from the rear laneways.

A total of 156 car parking spaces are proposed including 144 resident spaces and 12 shared visitor spaces (Table 3 indicates the statutory car parking requirement for each dwelling type).

Any overflow demands above the provision of 12 will be accommodated on-street. In addition to on-site car parking, the site also has access to a total of 21 on-street car spaces along the site's combined frontages.Accordingly, the development has access to a total of 33 spaces either on-site or along the site's frontage.

**Table 3.** Statutory Car Parking Requirement

| Use | Size/ No | Car Parking Rate | Car Parking Provision |
|---|---|---|---|
| Two bedroom townhouse | 22 | 1 space per one or two bedroom dwelling | 22 |
| Three bedroom townhouse | 21 | 2 spaces per 3 or more bedroom dwelling | 42 |
| Four bedroom townhouse | 40 | 2 spaces per 3 or more bedroom dwelling | 80 |
| Residential Visitors | 83 dwellings | No requirement | 12 |
| **Total** | | **144** | **156** |

## 6.4 VEHICLE ACCESS AND INTERNAL ROAD NETWORK

Vehicle access to the internal road network is provided via a 5.8m wide accessway to Golf Road located at the approximate mid-point along the site's frontage to Golf Road. Eight dwellings located along the site's southern boundary will have direct vehicle access to Beryl Avenue, and a further two dwellings will have direct vehicle access to Bakers Road, along the site's eastern boundary.

The internal street network will include access lanes and access streets. The proposed internal access road has a minimum carriageway width of 5.5 metres, which is akin to an Access Street - Level 1. The road width will allow two-way traffic throughout the Site. The width of the accessway is reduced to 3.6 metres along the interface of the central open space which allows for only one direction of traffic at a time.

All vehicles will be able to enter and exit the site in a forwards direction. Pedestrian sight triangles are also provided on both sides of the accessway.

Access to and from critical car spaces are acceptable. Some car spaces may require an additional manoeuvre to access. However, this is expressly permitted by AS2890.1-2004 for long term parking (i.e. resident parking) and is acceptable.

The report determined that the proposed layout of car spaces is satisfactory and that the access arrangements for the site will provide for safe and efficient movements to and from the surrounding road network.

## 6.5 BICYCLE PARKING

As this development is less than four storeys there is no statutory requirement to provide bicycle parking on Site.

Nonetheless, 24 visitor bicycle spaces will be provided for visitors within the development.

Further, given the nature of the development, informal bicycle parking can be accommodated within garages or elsewhere on the properties.

## 6.6 TRAFFIC GENERATION

The estimated traffic generation rate for the development is 507 vehicle trip-ends per day, with 51 vehicle trip-ends occurring during the road network peak hours.

This corresponds to one vehicle either entering or exiting the Site every minute on average, during the peak hours and less at other times of the day.

The subject site formerly operated as a primary school, which would have generated more than 51 vehicle trip-ends during the peak hour and accordingly the proposed use is less intense and will generate less impact on the surrounding road network and intersections compared to the former use of the site.

Traffic generated by the development would gain access to the wider road network via Golf Road with the majority of motorists accessing North Road. These traffic volumes are minor in the context of the existing volumes using Warrigal Road and North Road in this location.

The report determined that the surrounding network, including local streets, has capacity to accommodate traffic generated by the Site, and that there will be no detrimental impact on traffic conditions in the surrounding area as a result of the development.

## 6.7 SERVICE AND EMERGENCY VEHICLE ACCESS

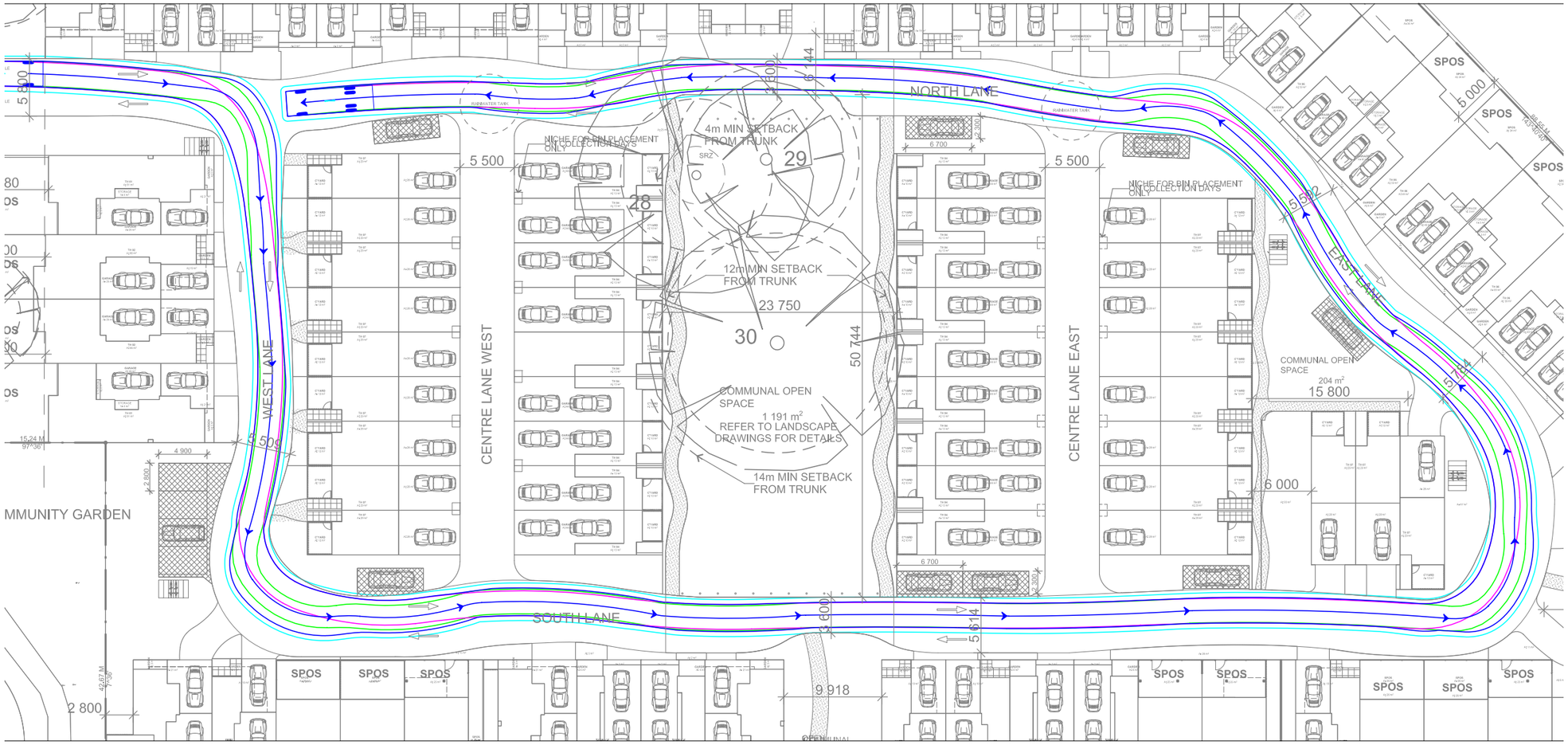
Prior to waste bin collection, residents shall place their bins outside their townhouse for collection. In the case of the dwellings with access to the central laneways, bins will be placed in 'niche for bin placement' areas, such that they are not stored on the vehicle accessway.

It is proposed that private collection will occur on the site, via an 8.8m long MRV, for all dwellings with garages that do not front Beryl Avenue. For all dwellings with garages fronting Beryl Avenue, waste will be collected via Council's existing waste collection service.

The vehicle circulation and access arrangement of the development will suitably accommodate the private waste collection vehicle.

All trucks and emergency service vehicles will be adequately accommodated on the Site.

8.8m MRV - CIRCULATING SITE







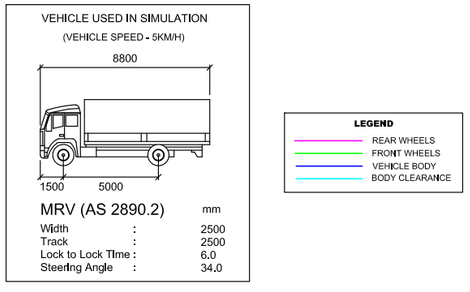



Figure 89. Swept Path Diagrams (Source TraffixGroup)

# Sustainable management plan.

# 7 SUSTAINABLE MANAGEMENT PLAN

This section of Development Plan addresses the following requirement of the DPO5:

'Incorporate sustainable design features to address water and waste management, solar access and energy saving initiatives, to deliver lower living costs for future residents.'

## 7.1 OVERVIEW

The Sustainable Management Plan outlines the sustainable design initiatives that are intended to be incorporated in the proposed development.

To quantify the project's sustainability performance against an industry benchmark, the Sustainable Management Plan uses the Built Environment Sustainability Scorecard (BESS), released by CASBE to support the Sustainable Design Assessment in the Planning Process (SDAPP) program. Importantly, the sustainable design initiatives outlined for this project will achieves all the requirements under the BESS Assessment (refer to Table 4)

Key sustainable design strategies considered in the Development Plan include:

- Gas instantaneous hot water systems to all dwellings.
- 3 star rated efficient reverse cycle air conditioning.
- Installation of efficient water fixtures to minimise potable water consumption.
- A 2,000L rainwater harvesting tank for each dwelling (except Type TH04 and TH07) plumbed to all WC's for toilet flushing and landscape irrigation. Type TH04 and TH07 will have communcal rainwater tanks plumbed to all WC's for toilet flushing and landscape irrigation. Additionally, a series of stormwater pits providing treatment equivalent to 12 square metres of 300 mm deep rain gardens to treat the rainwater collected from the main driveway in the development.
- Low/ultra-low VOC paints, adhesives and sealants, and low formaldehyde wood products (e.g. E0/Super E0 MDF and plywood).
- Resident and visitor bicycle parking spaces, and shared electric bicycle facilities, charging stations, and a public bike repair station (including pump, tire lever, Allen keys and screw drivers).
- Electric vehicle charging bays for residents and the broader community.

**Table 4.** BESS Summary

| Categories | Minimum Required | Category Score | Weighting | Overall Contribution | Compliance Achieved? |
|---|---|---|---|---|---|
| Management | - | 83% | 4.5% | 4% | - |
| Water | 50% | 71% | 9.0% | 6% | Yes |
| Energy | 50% | 58% | 27.5% | 16% | Yes |
| Stormwater | 100% | 100% | 13.5% | 14% | Yes |
| Indoor Environment Quality (IEQ) | 50% | 67% | 16.5% | 8% | Yes |
| Transport | - | 66% | 9.0% | 6% | - |
| Waste Management | - | 50% | 5.5% | 3% | - |
| Urban Ecology | - | 62% | 5.5% | 3% | - |
| Innovation | - | 90% | 9.0% | 8% | - |
| **Overall BESS Score** | **50%** | **-** | **100%** | **68%** | **YES** |

## 7.2 ESD FEATURES

### 7.2.1 Water Efficiency

The BESS result for mains water use is 71%, which exceeds the minimum required in this category. To achieve this rating, high efficiency fixtures were used throughout the development. Key water efficiency features include:

- Fixtures and fittings will have high efficiency WELS rating.
- Each dwelling (except Type TH04 and TH07) will have an individual rainwater harvesting tank of 2,000 litres capacity to collect rainwater from 100% of roof areas. This rainwater will be used for toilet flushing and/or landscape irrigation for the dwelling it serves. Type TH04 and TH07 will have communcal rainwater tanks (minimum 36,000L and 34,000L) plumbed to all WCs for toilet flushing and landscape irrigation.
- Water efficient landscaping throughout the development including drought tolerant or low water demand plants and a water efficient system (e.g. sub-surface drip) will be used.

### 7.2.2 Energy Efficiency

Generally, the strategy includes high efficiency building fabric and design for thermal comfort. The energy consumption is further reduced through selection of efficient building services. This has yielded a BESS result of 58% for energy efficiency . Key energy efficiency features include:

- 3-star reverse cycle split systems for heating and cooling.
- Gas instantaneous hot water systems.
- An average weighted NatHERS star rating of 6.6 has been modeled for all thermally unique dwellings.
- Concrete slab-on ground, double lazed windows and insulation to all external walls, party walls and walls between the conditioned and unconditioned zones
- External lighting throughout the development will be controlled by motion detectors.
- A private outdoor clothes line will be provided to each dwelling.
- The development will achieve a maximum illumination power density of 4W/sqm or less.

### 7.2.3 NatHERS Rating

As previously specified, NatHERS ratings have been completed for all thermally similar dwellings. On this occasion, seven townhouses were modeled (one for each type). The NatHERS Rating for each dwelling is show in Table 5. Importantly, this indicates that the dwellings will comfortably achieve the required 6.6 stars at the building permit stage.

**Table 5.** NatHERS Rating

| Dwelling Type | No. of Dwellings in the Group | Heating Load (Mj/m2) | Cooling Load (Mj/m2) | Total Load (Mj/m2) | Star Rating |
|---|---|---|---|---|---|
| TH01 | 10 | 82.1 | 14.5 | 96.6 | 6.8 |
| TH02 | 17 | 79.6 | 31.6 | 111.2 | 6.6 |
| TH03 | 16 | 72.2 | 5.4 | 77.6 | 7.4 |
| TH04 | 18 | 82.8 | 38.9 | 121.7 | 6.1 |
| TH05 | 2 | 94 | 20.7 | 114.7 | 6.3 |
| TH06 | 7 | 106 | 13.9 | 119.9 | 6.1 |
| TH07 | 20 | 80.7 | 32.1 | 112.8 | 6.4 |
| **Average (weighted)** | | | | | **6.6** |

### 7.2.4 Stormwater Management

Melbourne Water has developed the STORM calculator to provide an assessment of the rainwater/stormwater treatment methods and design score. This calculator assesses quality and quantity of the stormwater runoff from the development.

Based on the assumptions outlined in the Sustainable Management Plan, the project achieves a 100% score in this category through the use of rainwater harvesting tanks of 2,000L to each dwelling, plumbed to all toilets. Additionally, a series of stormwater pits providing treatment equivalent to 12sqm of 300mm deep raingarden servicing a partial area of the driveway . The exact details of impermeable areas (other than roof) that will be treated will be finalised in the next phase of the design once the civil engineers are engaged.

Key stormwater management features include:

- A rainwater harvesting tank of 2,000L capacity for each dwelling (except Type TH04 and TH07) capturing 100 percent of roof area for re-use in toilet flushing and landscape irrigation.
- Type TH04 and TH07 will have communcal rainwater tanks (minimum 36,000L and 34,000L) plumbed to all WCs for toilet flushing and landscape irrigation.
- A series of stormwater pits providing treatment equivalent to a total of 12sqm of 300mm deep raingarden treating runoff collected from a partial area of driveway.

### 7.2.5 Urban Ecology

The development will have a BESS score of 62% for urban ecology. Key urban ecology features include:

- Approximately 30% of Site area is covered with natural vegetation
- A tap and floor waste will be provided to balconies and terraces.

### 7.2.6 Indoor Environment Quality

The Sustainable Management Plan finds that the dwelling layouts and glazed facades deliver good access to natural light and fresh air. The following features will provide an improved indoor environment quality in the dwellings:

- Double glazing used for all of the habitable rooms in the development.
- Good levels of daylight by good space layout and appropriately-sized untinted double glazing.
- Acoustic separation between dwellings and within dwellings.
- Good lighting design with the right Colour Rendering Index (CRI), optimum lighting contrast, feature/wall washing lighting, and localised lighting control.
- Low/ultra-low VOC paints, adhesives, sealants and carpets, as well as low formaldehyde wood products (e.g. E0/Super E0 MDF and plywood) will be used in the development.

### 7.2.7 Transport

The development will include the following sustainable transport features:

- 1 bicycle parking space will be provided for each dwelling.
- 24 bicycle parking spaces for visitors will be provided in the development.
- Electric bicycles and public bike repair station including pump, tire lever, Allen keys and screwdrivers will be provided in the development.
- Electric vehicle charging bay for residents and broader community will be provided in the development. Notably, service can be free for residents.

### 7.2.8 Waste Management

The development will include the following waste management features:

- Facilities are provided for on-site management of food and garden waste. This will be achieved with community composting facilities.
- The development will make a commitment to divert 90% of Construction and Demolition waste from landfill, either through recycling or reusing.
- Waste bins will be provided for each dwelling individually. Bins will be provided for garbage, commingled recycling and green waste for the convenience of residents.
- Bins for e-waste including batteries, print cartridges and mobile phone are also considered at this stage.

### 7.2.9 Building Materials

BESS does not include a category dealing with sustainable building materials. As such, the project has reverted to the GreenStar TVOC Content Limit requirements. Materials include:

- Low / ultra-low VOC paints, adhesives and sealants.
- Low formaldehyde wood products.

Additionally, construction materials will be sourced with the following considerations

- Reduced Portland cement and virgin aggregate content, and nominate recycled water in all concrete mixes.
- Steel to be sourced from suppliers that are part of the World Steel Association's Climate Action Plan.
- Where used, PVC should be Best Practice PVC, or be an alternative material (e.g. HDPE etc)
- Use products that are:
  - Manufactured using recycled materials
  - Carry a "Green" certification
  - Are inherently durable and require minimal maintenance.

### 7.2.10 Community Education and Engagement

A Building Users Guide is intended to be developed for the community, outlining the key environmental features of dwellings and shared space, and tips and hints on how to use features in their home to maximise their water/energy consumptions, and reduce waste. This information can be provided via an online portal, where they can see other shared information such as share car/bike bookings, BBQ bookings, and shared energy system generation, and will also provide a platform to encourage social gatherings.

The park will include a public electric BBQ, children's play equipment, workout station to encourage community interaction and engagement with other residents.

# Stormwater management plan.

# 8 STORMWATER MANAGEMENT PLAN

## 8.1 OVERVIEW

FMG Engineering has prepared a Stormwater Management Plan for the site.

The purpose of this SWMP is to evaluate the quantity and quality of stormwater associated with the proposed development plan to demonstrate to City of Monash Council that an appropriate stormwater management strategy has been adopted.

The plan specifically address the following items for both the construction and operational phases of the development:

- Stormwater runoff volumes and detention.
- Stormwater quality treatment measures.

## 8.2 FLOODING

The site is not subject to any Special Building Overlays or Land Subject to Inundation, which indicates that the site should not be prone to stormwater overflow that would result in a 1 in 100 year storm. Notwithstanding, Council engineers have indicated that the development site is subject to overland flows during storm events.

The runoff comes from the intersection of Bakers Road and Beryl Avenue and travels in a north/west direction where it has been captured in the existing channel along the northern boundary to avoid discharging into existing dwellings at Barholme Court. The existing channel along the northern boundary was constructed to divert the runoff away from these court bowl properties.

The overland flow is expected to flow across the site with a flow rate of approximately 1.5m3/s.

## 8.3 STORMWATER MANAGEMENT

The stormwater management for the development will be based on water sensitive urban design (WSUD) principles and will be consistent with Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 2006). The following key items will be considered:

- Adequate drainage to ensure a free draining development
- Pavement, road and drainage levels designed to ensure surrounding properties are not adversely affected
- The discharge volumes of the development are stored to pre-development levels.
- The pollutant discharge from the site is minimised to meet Best Practice.
- Overland flow paths are considered in the design.

The proposed development has a total catchment area of approximately 18,260 square metres. For the purpose of water quality, the site is separated into three elements (refer Table 6).

**Table 6.** Stormwater Treatment

| Area Description | Catchment Area | Discharge |
|---|---|---|
| Dwellings | 9,152sqm | To rainwater tanks with overflows to LPD via Gross Pollutant Trap |
| Pavement | 4,200sqm | Discharge to bio-retention then to LPD via Gross Pollutant Trap |
| Landscape | 4,908sqm | Discharge to bio-retention with overflow to LPD via Gross Pollutant Trap |
| Total | 18,260sqm. | |

Drainage infrastructure will be required to collect flow from downpipes and runoff from hard pavement areas.

A legal Point of Discharge (LPD) application will need to be made with Council to determine the location of the connection point for the development. There are existing council pits and pipes located along Beryl Avenue and Golf Road. Preliminary advice from City of Monash has indicated that the LPD will be located in the north/west corner of the site. This will need to be confirmed once LPD is received from council.

## 8.4 STORMWATER SYSTEM ON-SITE WATER QUALITY TREATMENT

The strategy for on-site treatment of the stormwater runoff is to provide treatment of the roof and surface runoff from the developed site through on-site reuse and a system of raingardens located in green areas of the development.

Runoff from each lot is proposed to be collected and discharged to the stormwater system. The roads within the development will discharge via a combination overland flows and into the stormwater system and diverted through nominated bio-retention / raingardens swales located in key areas within the road reserves then through the gross pollutant trap before discharging to the nominated LPD.

By using the Music Model, the Stormwater Management Plan shows that the development achieves and exceeds the pollution reduction targets of the Urban Stormwater Best Practice Environmental Management Guidelines set by CSIRO and the Victorian Stormwater Committee.

## 8.5 ON-SITE DETENTION SYSTEM

The whole site has been considered as a single catchment discharging to the council drain at the intersection of Cameron and Beryl Avenue.

On-site detention has been proposed to restrict the flow to pre-development conditions for the LPD.

The permissible site discharge was modelled using an OSD4W model for a 5-year ARI design standard permissible site discharge and the on-site storage standard of 20-year ARI. Time of concentration for the catchment outlet was assumed to be the worst case which was found to be 10 minutes with a time from site to outlet of 5 minutes. Table 7 shows the preliminary OSD4W results.

**Table 7.** Stormwater Treatment

| Catchment | Permissible Site Discharge | Storage |
|---|---|---|
| Council Drainage | 136.32 L/s | 188.12 cubic metres |

Stormwater pits and pipes and tanks for each proposed lot are proposed to store the required volume of water. An orifice pit with the calculated orifice diameter is proposed to restrict the flow to permissible site discharge.

## 8.6 FLOOD MITIGATION SUMMARY

Water Technology Pty Ltd has provided an assessment on the impacts of flooding for existing and developed conditions for the proposed development and surrounding properties.

Flood mitigation scenario modeling was undertaken utilising an iterative approach with the goal of achieving no increase in flood risk to surrounding properties (both up-and-downstream) during the 1% AEP rainfall event as a result of the development. The design outcome of which is referred to as "Ultimate Conditions" which is to ensure:

- Safe conveyance of overland flow through the site (for events up to and including the 1% AEP)
- Suitable road and Finished Surface Levels (FSL) are nominated such that continuous grade is achieved
- The existing elevations surrounding trees nominated to be retained are not changed
- The need to upgrade the existing infrastructure surrounding the subject site is minimised
- That not only is the status quo (regarding the flood risk) of adjacent properties maintained but reduced or removed as a result of the development.

Figure 90 depicts the proposed Finished Surface Levels as 100mm contours and the proposed overland flowpaths through the Site.

Figure 91 shows the 1% AEP flood extents and contours for existing conditions (in blue) and ultimate conditions (in orange).

It is evident the movement of overland flow through the site and directly downstream has been significantly altered, with ultimate conditions overland flows contained within the proposed development's streetscape with continuous grade allowing for the conveyance of flow from east-to-west and ultimately out into Golf Road. This is in contrast to the movement of flow in existing conditions which has an approximate south-to-north orientation resulting in eight properties directly downstream being affected by flood to varying degrees


Figure 90. Proposed Finished Surface Levels - Ultimate Conditions

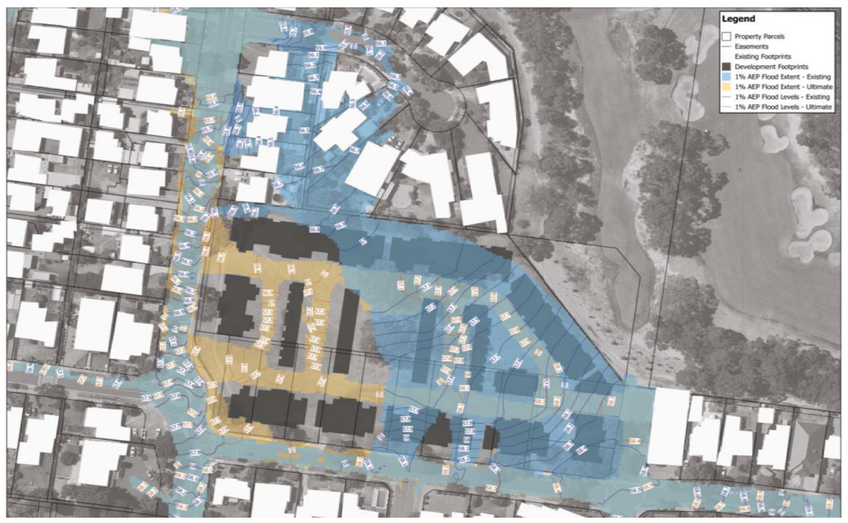



Figure 91. 1% AEP WSEL - Existing and Ultimate Conditions

Figures 92 and 93 depict the difference in flood extent and depth between the existing and ultimate scenarios for the 1% AEP event. Note the removal of overland flow through the eight properties to the north of the subject site which, within existing conditions, are impacted by overland flows of up to approximately 330 mm in depth.

By severing the flowpath to the north within ultimate conditions flows are being introduced to the road reserve earlier which results an increase in flow depth and a slight increase in extent directly adjacent to the subject site.

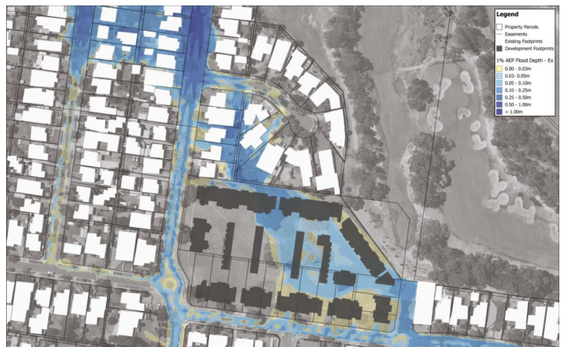



Figure 92. 1% AEP Flood Depth - Existing Conditions

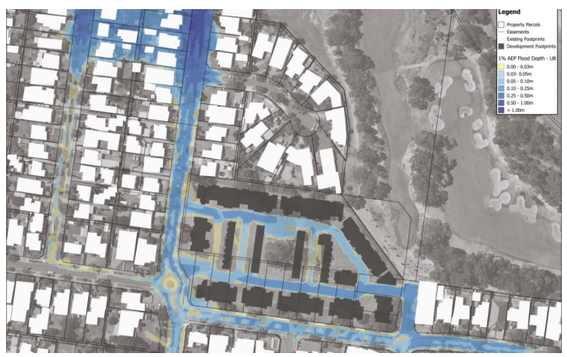



Figure 93. 1% AEP Flood Depth - Ultimate Conditions

Figure 94 is an afflux plot which provides detail in the changes in flood level `between the two scenarios in addition to nominating regions which either:

- Were wet in existing conditions and are dry in ultimate conditions (in purple), or
- Were dry in existing conditions and are wet in ultimate conditions (in pale blue).

As depicted, there are regions within both Golf Road and Beryl Avenue which are subject to an increase in localised flood level (and depth) as a result of the development.

Multi-point sampling yields an average increase in flood depth of 25 mm equating to an average flood depth of 120 mm within the road reserve of Golf Road. There are isolated pockets of increased flood depths of up to 100 mm, these however are most likely due to the utilisation of LiDAR elevation data which can result in poor representation of the road profile.

Localised flood levels within Beryl Ave also increase as a result of the development by an average of 15 mm, equating to an average flood depth of 85 mm within the road reserve. Even with the poor representation of the road profile it appears the increase in flood level has not resulted in any increase in actual flood extent.


Figure 94. 1% AEP WSEL Difference - Existing vs. Ultimate Conditions

In an attempt to further quantify the impacts of the increase in flood levels within Golf Road and Beryl Avenue, an assessment of changes in flood safety within the road reserve was undertaken. Figure 97 depicts the flood safety results for existing conditions during the 1% AEP event; the region is almost entirely classed as low risk with a peak velocity and depth product (or "v.d ratio") of less than 0.2. The only exception being a small pocket nominated to be of low to moderate flood safety adjacent to Barholme Crt where the "v.d ratio" is approximately 0.25.

As a result of the development, the existing pocket of low to moderate flood safety is enlarged, extending southwards to the proposed point of vehicular ingress/egress of the development. Whilst the "v.d ratio" within this region is increased to approximately 0.30, the associated flood safety risk is still considered within Melbourne Water's criteria of 0.35. (Refer Figure 98).

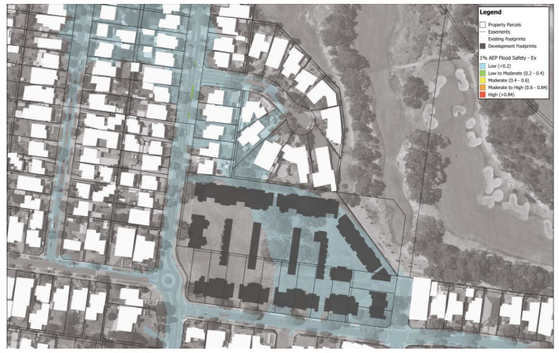



Figure 95. 1% AEP Flood Safety (v.d ratio) - Existing Conditions

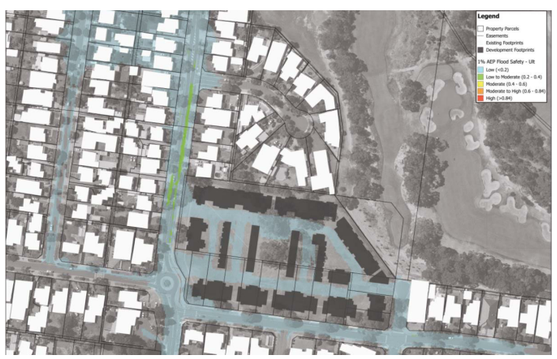



Figure 96. 1% AEP Flood Safety (v.d ratio) - Ultimate Conditions

### 8.6.1 Summary

The proposed mitigation design is successful in the conveyance of overland flows through the development in a controlled manner with the major upshot of entirely removing the pre-existing flood risk to eight properties directly north of the subject site.

This is however at the cost of localised increases in flood depth within Golf Road to the south-west of the site.

This increase results in an altered (enlarged) flood extent which is, for the most part, contained within the road reserve with the exception of minor infringements in the frontages of 99-109 Golf Road

The increase in flood risk with respect to safety has been assessed with the impact considered to be low and well within acceptable limits.

# Waste management.

# 9 WASTE MANAGEMENT

## 9.1 INDICATIVE WASTE MANAGEMENT ARRANGEMENTS

### 9.1.1 Residents

- Individual dwellings will manage their own garbage, commingled recycling, and food and garden organic (FOGO) waste using their own bins.
- Smaller bins may be used within their dwelling at the discretion of the individual residents.
- Individual residents will transfer the garbage and commingled recycling bins to the kerbside for weekly collection by a private contractor (or possibly Council contractor for dwellings that present to a public road).
- Individual residents will transfer the FOGO bins to the composting facilities at the community garden, FOGO bins are to be emptied by the resident and bins returned to their dwelling.
- Hard waste can be kept at the kerbside (1m x 2m) on the collection day or can be kept near the communal bin storage area and collection arrangement should be made prior to the collection day.

### 9.1.2 Owners' Corporation Responsibilities

- An agreement under Section 173 Agreement of the Planning and Environment Act 1987 should be prepared and finalised prior to commencement of Private/Council waste collection services. Interim private services should be provided if Section 173 agreement has not been finalised prior to any occupancy
- The owners' corporation will endure that the communal e-waste bin area is tidy and well maintained, and will arrange for collection as required.

### 9.1.3 Waste Stream Summary

#### Garbage

All garbage will be stored in individual private bins for Council collection.

#### Commingled Recycling

All commingled recycling will be stored in individual private bins for Council collection. Recyclable items include paper, cardboard, PET, glass, aluminium, steel, and HDPE containers.

#### Food and Garden Organics (FOGO)

FOGO waste will be disposed of at the community compositing facility as required by users.

#### Hard Waste

Hard waste collection will be managed by the City of Monash. Hard waste will be stored within individual dwellings and during collection periods, hard waste will be placed on the kerbside by individual residents in accordance with local council guidelines. A 1m x 2m space is available for hard waste collection in kerbside.

#### Electronic Waste

E-waste, including batteries, print cartridges and mobile phones, will be stored in communal bins and collected on an 'at-call' basis.

#### Other Waste Streams

The disposal of other waste including paints and chemical shall be the responsibility of each dwelling. Waste can be disposed at recycled centres of the at Monash Waste Transfer and Recycling Station.

### 9.1.4 Collection Arrangements and Access to Site

- Garbage and commingled recycling waste collection will be handled by a private contractor with potential for Council collection to be utilised for dwellings that present to a public road.
- Private waste collections will be conducted in line with Council and EPA requirements, on Fridays as per Council schedule, no earlier than 6am. Given the enclosed nature of the development and the impact of noise from collection vehicles, and on residential vehicle access, collections will occur outside the peak commuter period, and no earlier than 7am. The regular collection day for this development is Friday as nominated by the City of Monash.
- Bins will generally be collected from the kerbside outside each townhouse dwelling. Private contractors should keep the bins back on the kerb side after collecting the waste.
- P rivate contractor to conduct on site collection with a Medium Rigid Vehicle with the following maximum dimensions: 4.5m(H) x 2.5m(W) x 8.8m(L).
- Should the collection arrangement details depart from the above preferred requirements, the proposed alternative arrangement will need to be submitted to Council for approval as part of a planning permit application.

### 9.1.5 Actions towards the Victorian Government's 'State-wide Waste and Resource Recovery Infrastructure Plan' (SWRRIP)

As per SWRRIP 2018, one of the aims is extracting the materials that can be recovered thus reducing the waste that goes to landfill. To comply with the requirements of SWRRIP, all dwellings and residents will:

- Separate household commingled recyclables and organics for recovery which is strictly as per the waste collector requirements.
- Generate recoverable material streams and residual waste.
- Improve operations and systems relating to sorting waste at the development level.

### 9.1.6 Bin Schedule and Collection Frequency

The following table outlines the bin schedules including details of collection. Subject to preference and Site constraints, bin sizes and quantities may be changed.

**Table 8.** Bin Schedule

| Waste Stream | Frequency |
|---|---|
| Garbage | Weekly |
| Commingled Recycling | Weekly |
| Food and Garden Organics | N/A (managed within the development) |
| Hard Waste | Annually (or at-call user pays) |
| E-Waste | At-call |

### 9.1.7 Bin Storage and Signage

The townhouse plans indicate the location of the Garbage and recycling bin in the garage. Natural ventilation vents or mechanically ventilation exhaust fans will be provided in each townhouse garage to meet the ventilation requirements for bin storage.

Bin a ccessibility route would be facilitated by the provision of ramp wherever major l evel difference is present within the townhouses

The town planning drawings provided show there is sufficient space for garbage and commingled recycling bins for each dwelling on the kerbside. The streetscape has allowed for a minimum of 2 lineal metres for each dwelling (i.e 1 metre per bin).

Communal FOGO composting facilities and e-waste bins will be clearly signposted to ensure all residents are aware of these facilities.

# Site environmental considerations.

# 10 SITE ENVIRONMENTAL CONSIDERATIONS

This section of Development Plan addresses the following requirements of the DPO5:

'For the former Clayton West Primary School and former Oakleigh South Primary School, where a sensitive use is proposed (residential use, child care centre, pre-school centre or primary school), a risk assessment detailing the risk of landfill gas migration from nearby landfills must be undertaken. The risk assessment must be conducted by a suitably qualified professional, having regard to the EPA Publication 788.1 Landfill Best Practice Environment Management Guidelines, October 2010, to the satisfaction of the responsible authority.'

'For the former Oakleigh South Primary School Site, plans to implement the Site Development Management Plan developed by Prensa in their report dated August 2013.'

## 10.1 DESKTOP LANDFILL GAS INVESTIGATION REVIEW 2018

Prensa has conducted a review on the Landfill Gas Investigation previously completed by Prensa in 2014 for the Site to determine whether the investigation is still relevant for assessing landfill gas migration that may pose a potential human health risk to future occupants and users of the Site with regards to its proposed residential development.

### 10.1.1 Summary of 2014 Desktop Landfill Gas Investigation

The objective of the Desktop Landfill Gas Investigation previously completed by Prensa was to '*provide an indication of the potential for landfill gas to be present at the Site, which may represent a potential risk to the proposed future residential use of the Site'*.

As part of the Desktop Landfill Gas Investigation, Prensa undertook the following:

- A desktop review, including:
  - Review of environment assessment reports relating to the Site;
  - Liaising with EPA Victoria and the City of Monash.
- Site inspection and monitoring using a portable landfill gas monitor; and
- Preparation of a report outlining the findings.

The desktop review identified a former sand quarry, alternatively identified as the 'Cavanagh Sands Quarry' or the 'Centre Road Quarry', which was located on the corner of Centre and Warrigal Roads, approximately 200 metres south west of the Site.

In summary, the Desktop Landfill Gas Investigation identified that the quarry was:

- Used as a sand quarry;
- Backfilled with 'clean fill' according to the City of Monash and solid fill - inert according to the EPA Victoria, following its closure. Filling appeared to have begun in the 1980s and was completely backfilled by 1991.
- Rezoned from Industrial 1 Zone to a Business 3 Zone, in accordance with the City of Monash Planning Scheme;
- Redeveloped into a "Large Formal Home Improvement Store and Supermarket" in 2012, in accordance with the rezoning. The 'Construction Environmental Management Plan', prepared by Pellicano Builders (2011) for the redevelopment did not incorporate landfill gas collection or vapour mitigation systems, thereby indicating a low potential for landfill gas generation of migration.

A conceptual site model was developed for the site, including identification of source, pathway and receptor.

Preliminary landfill gas monitoring was undertaken by Prensa using a hand held landfill gas metre at the site in January 2014. The monitoring reported non-detectable concentrations of methane at the 9 locations sampled, which predominately comprised stormwater drains, service pits and a groundwater monitoring well at the site

Based on the site history review and landfill gas monitoring undertaken, Prensa considered it unlikely that the Cavanagh Sands Quarry has been filled with putrescible wastes and considered the potential was low for landfill gas to be present at the site that would pose a potential health risk to residential uses on the Site.

### 10.1.2 Assessment of Previous Investigation

Due to the time since the 2014 investigation, a review and update of desktop resources was completed in 2018. This included a review of publicly available information from EPA Victoria:

- A search of EPA Victoria audit reports indicated that an environmental audit had not been undertaken at the former Cavanagh Sands Quarry, nor within the vicinity of the former quarry since the 2014 review.
- Prensa reviewed the interactive Victorian Landfills Register Map on 5 December 2018. The map identified 1 solid inert landfill located at 19-71 Carroll Road, Oakleigh South, approximately 800 metres south east of the Site. A search of the EPA interaction portal indicated that a Post Closure Pollution Abatement Notice has been issued to this site on 6 September 2018.
- Prensa reviewed the Priority Site Register on 5 December 2018 (dated 31 October 2018). The landfill located at Carroll Road was noted to be on the Priority Sites Register as a former landfill requiring ongoing management. No other sites were listed in the vicinity of the Site.

Prensa submitted a 'Dial Before You Dig' application on 5 December 2018 for the area between the former quarry and the Site. A sewer main was identified to be running in a northwest - southwest direction between the landfill and the Site. Although no further information was collected it is considered likely that this infrastructure would provide a preferential pathway for landfill gas migration,.

Prensa considers that the conceptual site model developed for the Site in the 2014 investigation is still relevant.

Prensa undertook landfill gas monitoring from subsurface services and an onsite groundwater well in 2014. In reviewing the source, pathway and receptor risk factors of the conceptual site model, the following aspects mitigate the potential for unacceptable risk:

### Source

- The potential source of the landfill gas is approximately 30 years old. As waste degrades over time, its ability to produce methane diminishes. Whilst the time will vary based on many factors, the key period of landfill gas production is generally within 30 years of waste placement. As such the likelihood of sites producing significant quantities of landfill gas that may migrate to the development Site is diminished and likely to be low;
- Information suggests the landfill was backfilled with either clean fill or solid inert fill, both of which have a low potential for methane gas generation; and
- Redevelopment of the landfill circa 2012 did not incorporate landfill gas collection or vapour mitigation systems, thereby indicating a low potential for landfill gas generation or migration having been identified by the developer at the time.

### Pathway

- The distance to the Site from the Cavanagh Sands Quarry is approximately 200 metres, which is the buffer distance recommended for solid inert landfills;
- The geology at the site has been identified as a Quaternary aged high level alluvium, which is conducive to gas migration through the silty sand. The porous nature of the geology provides opportunity for vertical migration of the landfill gas rather than lateral migration.
- Underground services have the potential to create a preferential pathway from the former quarry towards or away from the Site. A sew main identified to run between the former quarry and the Site would likely provide a preferential pathway for landfill gas migration away from the Site.
- Groundwater monitoring previously completed at the Site indicated that groundwater was shallow. This limits the ability for landfill gas to migrate laterally in the subsurface soils.
- Landfill gas monitoring undertaken by Prensa in 2014 from the subsurface services and groundwater monitoring wells did not indicate the presence of landfill gas.

### Receptor

- The proposed future development comprises residential townhouses with no basement levels.

### 10.1.3 Summary

Based on the conceptual model and review of the key risk factors, the Prensa report considers that the risk of landfill gas migration occurring and causes an unacceptable human health or environmental impact on the proposed residential development is low.

As such a further landfill gas investigation or assessment is not considered warranted.

## 10.2 DESKTOP REVIEW OF ENVIRONMENTAL RESOURCE MANAGEMENT AUSTRALIA PTY LTD TECHNICAL REVIEW

### 1-17 Beryl Avenue, Oakleigh South 2018

Environmental Resource Management Australia Pty Ltd prepared a technical review of Prensa's 2013 Environmental Site Assessment. The review concluded that the requirement or otherwise for an Environmental Audit will be generally determined in the first instance by the local Planning Authority. The environmental assessments described by Prensa (2013) suggested a low level of environmental risk and that an Environmental Audit is not required. However, this case will be strengthened by addressing the data gaps identified in the previous section, either by reference to historical reports or by completing additional works.

The data gaps identified in ERM's review include:

- Extent and quality of shallow fill- close either by review of historical data or by intrusive works, include potential presence of ACM buried in fill, utilities constructed from ACM and aesthetics;
- Groundwater quality at i) lead "hotspot'' and ii) in the western portion of the Site - close by installing at least two new wells in the western portion of the (no existing wells) and then complete a groundwater monitoring event; and
- Status of landfill gas risk assessment - close by review of existing report."

Given the amount of assessment work that has been conducted to date at the Site, and in light of the fact that ERM were provided with only three (3) of the eleven (11) previous environmental assessments of the Site as part of their review, Prensa conducted a detailed review in December 2018 to identify whether these gaps require further assessment work.

Prensa concluded that, based on soil logs provided within previous environmental assessment reports, ACM has not been identified within fill at the Site. While the review acknowledges that the presence of underground ACM piping has not been investigated at the Site, this type of infrastructure would normally be identified (if present) and removed during early works at the Site. Should such infrastructure or ACM within fill, be identified during development works, reference should be made to the SDMP plan developed for the Site.

The review also found that further groundwater monitoring at the Site is not considered necessary based on the history of the Site and in the context of the proposed residential land use with reticulated water supply available in the area.

The review considers that the risk of landfill gas migration occurring and causing an unacceptable human health or environmental impact on the proposed residential development at 52 Golf Road, Oakleigh South, is low, based on 2018 Prensa's Desktop Landfill Investigation Review.

## 10.3 SITE DEVELOPMENT MANAGEMENT PLAN IMPLEMENTATION

Prensa was commissioned by the Department of Treasury and Finance to develop a site-specific Site Development Management Plan (SDMP) for the Site. The SDMP was developed following the identification of asbestos containing material (ACM) debris within a soil stockpile onsite.

The SDMP was then updated in December 2018 for the new project entity for future construction at the Site, Golf Road Project Development Pty Ltd.

Any future development of the Site must implement the following recommendations of the Site Development Management Plan 2018:

### 10.3.1 Site Setup

- Prior to the commencement of works at the Site, workers undertaking soil related activities will be inducted in accordance with the SDMP and all works should be undertaken in line with the SDMP.
- If excavation or remedial works are to be undertaken in an area where asbestos has been identified, the area will be secure and signed appropriately. This boundary will be maintained throughout the duration of the remedial works. Contractors and site workers undertaking soil related activities and working in an asbestos work zone will be inducted into the SDMP.

### 10.3.2 Excavation

- Subsequent to the removal of vegetation from the Site surface, an inspection of the exposed surface will be conducted by a hygienist.

### 10.3.3 Removal of ACM

Unlicensed removal of minor asbestos is permitted in Victoria for non-friable ACM and quantities that require less than 1 hour a week per company to remove and total less than 10 m2 of ACM. The ACM identified at the Site is considered to comprise 'minor contamination'.

Where ACM contamination is identified in soil and comprises surface and sub-surface ACM, the following procedure will be followed:

- The asbestos work zone will be isolated with asbestos warning signage and barrier tape.
- Where the contamination is found to be localised, to exist in minor quantities, and it is deemed practicable to manually remove visible fragments, the ACM should be removed by a nominated person who is trained under the SDMP. If the quantities are not minor, a licensed contractor will be engaged.
- The asbestos removalist or nominated person will pick through the soil using a rake with teeth less than 7 millimetres apart and greater than 10 centimetres long. At least two passes of picking and raking should be made with 90 degree direction change between each pass. The ACM fragments will be placed into a 200 millimetre thick plastic bag;
- Visible asbestos must be removed from the soil under asbestos removal working conditions (refer to previous two dot points) at each stage the soil Is handled (i.e. following each occasion that it is moved);
- Where the nominated person has removed the visible asbestos fragments as far as reasonably practical, the soil may then be reused onsite, or disposed offsite in accordance with IWRG621based on the chemical contamination of the soil, if required;
- Should the nominated person or hygienist find at any stage that the contamination is extensive and the hand picking of the fragments is deemed impractical, it is recommended that a licensed asbestos removalist be engaged to remove the ACM and possibly the soil. The soil should not be reused onsite and should be loaded directly into a plastic lined skip for offsite disposal. The soil should be classified as Category C waste (depending on chemical contaminant concentrations) in accordance with IWRG611.2 (i.e. as asbestos waste) and disposed offsite;
- Where a licensed removalist has been engaged to remove the ACM, a hygienist must be engaged to inspect the soil and confirm that visible fragments have been removed so far as reasonably practicable. The soil may then be reused onsite, or disposed offsite, in accordance with EPA Victoria Publication IWRG621 based on the chemical contaminant concentrations in the soil, if required;
- Plastic bags containing ACM fragments should be disposed of at a licensed EPA landfill as Asbestos Waste (refer to Section 6.8 of this SDMP);
- Any skips containing ACM contaminated soil should be disposed to a licensed EPA landfill as Category C waste (refer to Section 6.8 of the SDMP); and
- When removal work Is being undertaken, site workers within the asbestos work zone must wear appropriate PPE (i.e. half face mask with particulate filter and disposable coveralls).

### 10.3.4 Previously Unidentified Contamination

Minor ACM debris has previously been identified during assessment works at the Site and, although unlikely, further ACM may be encountered in surface soils throughout the Site. Should significant ACM be identified during the potential redevelopment works, the works will be conducted under the supervision of a person competent in asbestos works. Should ACM be discovered that is consistent with the findings of this assessment, actions consistent with the above requirements will be adopted.

If previously unidentified asbestos contamination in the form of FA and AF is identified or suspected during the development works, the following procedure will be followed:

- Excavation works will cease immediately and a risk assessment should be undertaken by a hygienist (within the adjacent area);
- The area where the contaminated soil exists will be covered with plastic and isolated using barrier tape and asbestos warning signs;
- The asbestos removalist will work under asbestos removal working conditions. The conditions will include:
  - Isolating the removal area from other areas (i.e. public areas and other work areas);
  - The installation of asbestos warning signage at the entrances to the removal area; and
  - The use of appropriate PPE when removalists are within the work area (i.e. half face mask with a particulate filter and disposable coveralls).
- Where it is deemed impractical to remove the asbestos (due to the amount of contamination) the soil shall be disposed of as Category C waste; and
- Excavation works can recommence once the contaminated soil has been removed and a hygienist has conducted a satisfactory inspection.

### 10.3.5 Reuse of Soil Onsite

Where soil is proposed to be reused onsite, the following procedures will be followed:

- Where ACM is identified within the soil and it is deemed practicable to manually remove visible fragments, this will be done in accordance with Section 6.2.1 of the SDMP and under asbestos removal conditions. Where a licensed asbestos removalist is required to undertake the removal of asbestos, a hygienist must be engaged to inspect the soil and confirm that visible fragments have been removed so far as reasonably practicable. Following this, the soil may be reused onsite; or
- Where ACM is not visible within the soil, a hygienist will be engaged to inspect the soil and confirm that no visible fragments of ACM are present. Following this, the soil may be reused on Site; and
- The above procedure must be undertaken on each occasion that the soil is moved.

Should the contractor or hygienist find at any stage that the contamination is extensive and the hand picking of the fragments is deemed impractical, a licensed asbestos removalist will be engaged to remove the contaminated soil. The soil will not be reused onsite and will be loaded directly into a plastic lined skip for offsite disposal. The soil will be classified as Category C waste (depending on chemical contaminant concentrations) in accordance with IWRG611.2 (i.e. as asbestos waste) and disposed of offsite.

### 10.3.6 Decontamination

If asbestos removal works have been undertaken either by onsite contractors or a licensed contractor, the area will be left clean and safe for people to enter. If required, the licensed asbestos removalist will require access to water and power to adequately establish a decontamination area.

Before leaving the asbestos work area, employees will decontaminate any tools or equipment used during the works and remove visible dust from protective clothing and footwear using an asbestos vacuum cleaner, washing or wet wiping with a damp rag. While still wearing their respirator, employees will carefully peel off the coveralls and clothing inside out and place them into an asbestos-waste container for disposal.

Respiratory protective equipment must be worn until all contaminated coveralls and clothing has been removed and bagged for disposal. After removing their respirator, employees need to wash their face and hands and clean under their fingernails.

Any machinery working within an asbestos work zone will be inspected by the asbestos hygienist prior to it leaving the asbestos work zone.

Personal decontamination must be undertaken before employees leave the asbestos work area at any time. Asbestos-contaminated PPE must not be transported outside the asbestos work area except for disposal purposes where it is double bagged, sealed and labeled. These practices help to ensure contamination of other areas in the workplace does not occur.

### 10.3.7 Air Monitoring

Should non-minor quantities of asbestos or friable asbestos be identified at the Site, control airborne asbestos fibre monitoring will be considered along the boundary of the asbestos work zone.

If required, air monitoring will be undertaken each day excavation/soil disturbance works occur to soil containing asbestos. Air monitoring will also be undertaken in the cabin of an excavator operating in the asbestos work zone and in the worker's lunch room if such works are required. This monitoring would validate the adequacy of controls in place and highlight any areas where controls may need to be increased.

### 10.3.8 Personal Protective Equipment

The use of PPE is mandatory on the Site for workers involved in activities within an asbestos work zone. Environmental assessments identified minor ACM debris and the following will be worn by all workers at all times within the work zone, with the exception of those individuals in trucks/plant:

- Disposable nitrile or leather gloves, when in direct contact with the soil;
- Long pants;
- Long-sleeved shirt;
- Hard hat (when plant and machinery are in operation);
- High visibility fluorescent vest; and
- Steel-capped boots.

For workers working within the asbestos work zone the following PPE is also mandatory:

- Disposable coveralls;
- Disposable shoe covers or footwear that can be easily decontaminated (i.e. gumboots); and
- Half face respirator with P2 particulate filter or P2 disposable mask

### 10.3.9 Dust Suppression

Where ACM is suspected or identified, dust suppression techniques will be adopted to reduce the risk of generation of airborne asbestos fibres. Dust suppression techniques will include the following:

- If required, a water truck or hose should be will to keep the soil surface moist. Care will be taken to dispense the water as a mist to prevent run-off into stormwater;
- When excavators are being used onsite, the bucket will only be three quarter filled, ensuring soil does not fall out of the bucket, particularly when loading trucks;
- The excavator bucket will be emptied within the trucks tray (i.e not allowing the soil to fall from height into the tray);
- Dust-producing works will be suspended during exceptionally windy days;
- Machinery used in the work zone will be adequately decontaminated prior to leaving the Site to prevent the spread of contaminants and dust; and
- Any soil to be stockpiled, will be stockpiled on an impermeable surface and covered with weighted plastic. Soil should be stockpiled away from any sensitive receptors including residents and stormwater drains. Workers will stay upwind of stockpiles where practical.

### 10.3.10 Offsite Disposal

Asbestos waste must be transported and disposed of in accordance with EPA Victoria Publication Industrial Waste Resource Guideline, Asbestos Transport and Disposal, July 2009 (IWRG611.2). IWRG611.2 states that asbestos waste is required to be transported by vehicles with an EPA waste transport permit and that the asbestos waste must be transported with a waste transport certificate.

The ACM will be packed into a suitable container, which will then be sealed and labeled with asbestos warning marks. The asbestos waste can only be disposed of to a disposal facility licensed by EPA Victoria to accept waste asbestos.

### 10.3.11 Site Walkover

Following the completion of the development works, a site walkover will be undertaken by a qualified hygienist to confirm that no visible ACM remains on the surface soils at the Site, prior to access to this area being provided to the site users.

### 10.3.12 Personal Hygiene

It is important that good personal hygiene practices are adopted by workers involved in asbestos removal works. Workers are to ensure they follow the decontamination process specified in Section 6.4 of the SDMP. The workers will always wash their hands following the completion of works within asbestos work zones and will be within designated areas when eating, drinking and smoking.

### 10.3.13 Induction

As part of the development works, the head contractor will be responsible for conducting inductions of staff, contractors and visitors on the Site who will be involved in asbestos removal works. All contractors and workers on the Site will also be inducted to raise awareness regarding the potential exposure to asbestos in soil at the Site. The SDMP will be included in the site induction.

# Conclusion.

# 11 CONCLUSION

The Development Plan for 52 Golf Road, Oakleigh South is consistent with the planning policy framework which supports infill residential redevelopment and urban consolidation.

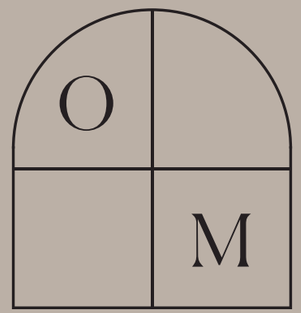
The development will offer a vibrant and sustainable residential community that will integrate with the existing urban environment.

The development will also provide community benefits in addition to residential facilities. In summary, the development will allow for the delivery of the following:

- Green links and approximately 2,002 square metres of functional open space, contributing to the to the open space network of Oakleigh South and improves the pedestrian networks.
- A highly permeable pedestrian and cycling network that encourages slow moving vehicle traffic, walking and cycling.
- A contemporary and architecturally merited design which responds to the surrounding neighbourhood character and broadens housing diversity in Monash.
- A design which sets a benchmark in ESD performance in Oakleigh South
- An abundance of gardens and planting maintaining Monash's Garden City Character.

The land represents a significant opportunity for infill residential development that will provide a unique neighbourhood identity.

Development in accordance with this Development Plan ensures that the potential of the Site is realised in a manner which respects the existing character of the area whilst setting a new benchmark for infill development.




# OAKMONT

OAKLEIGH SOUTH

Prepared by **Tract** in conjunction with **Plus Architects**, **Traffix Group**, **Sustainability House**, **FMG Engineering** and **Landscape Dept** on behalf of Golf Road Project Development Pty Ltd.