david de giovanni
town planning
po box 155
malvern vic 3144
david@ddplanning.com.au
t 03 9509 4680
m 0401 298 255

development plan

covering land at **46 – 62 darren road and 55 – 67 coomoora road, springvale south**

prepared on behalf of paragon property holdings pty ltd

august 2022

PEDDLE THORP david de giovanni town planning

table of contents

1.0 introduction

This Development Plan has been prepared on behalf of Paragon Property Holdings Pty Ltd and in response to the requirements of the Development Plan Overlay, Schedule 13 (**DPO13**) as outlined in the Greater Dandenong Planning Scheme (**the planning scheme**).

The DP13 specifically mentions "*there can be up to two Development Plans for the whole of the land to which this Schedule applies*". A development plan has already been prepared for the land at 15-29 Coomoora Road, Springvale South (the western rectangular parcel of land subject to DPO13 shown in figure 1 below).

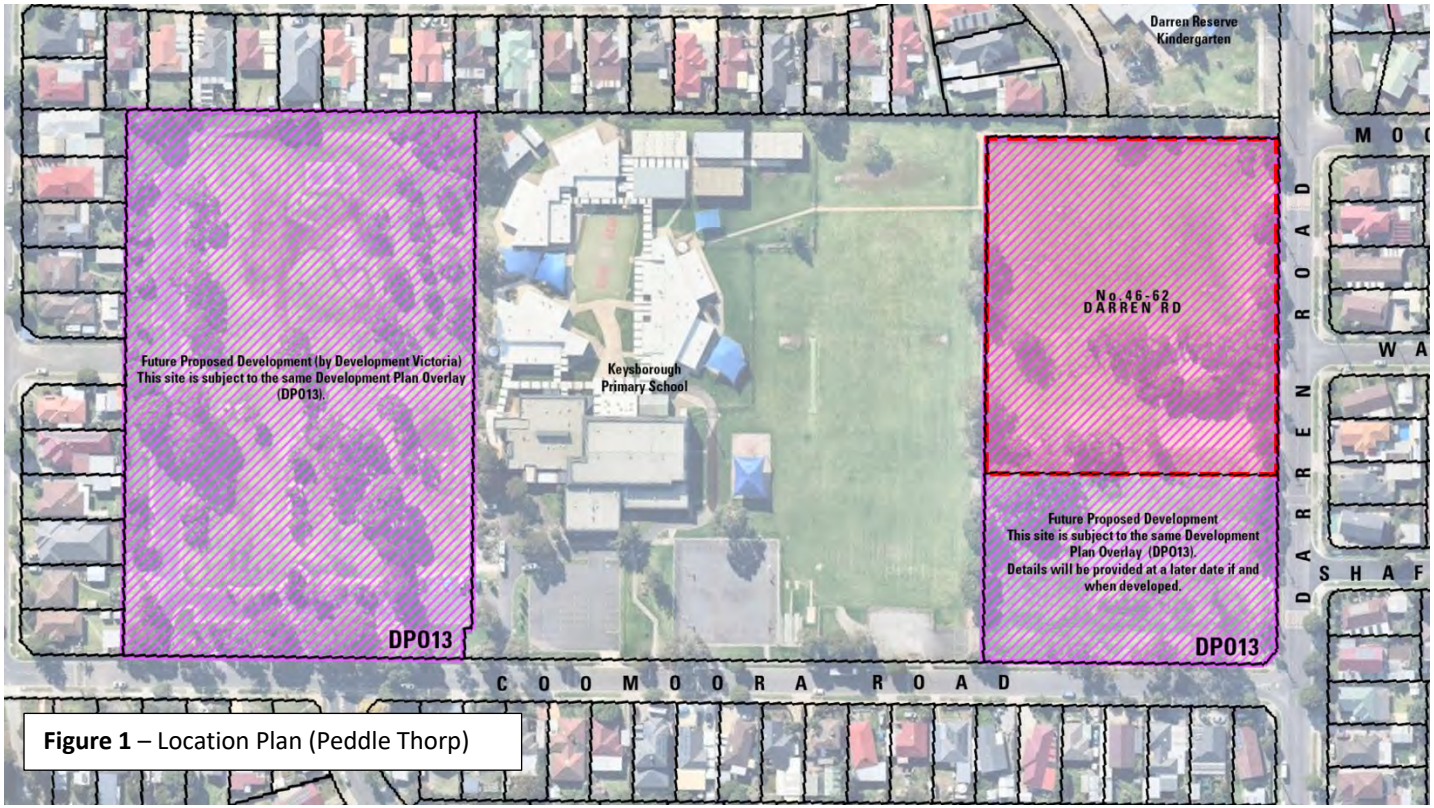


Figure 1 – Location Plan (Peddle Thorp)

This proposed development plan covers the remaining part of the development plan area that is not yet subject to a development plan, and represents the second development plan. This second development plan comprises three parcels of land, - in separate ownership, bordered by the Keysborough Primary School to the west, Coomoora Road to the south, Darren Road to the east and the public walkway to the north (represented by the red and purple shaded land on the eastern side of figure 1).

The proponent of this development plan, Paragon Property Holdings Pty Ltd, owns the northern parcel of land identified as Crown Allotment 2272, Volume 12016, Folio 598 which is commonly known as 46 – 62 Darren Road, Springvale South (**the subject land**) and shaded red in figure 1. The central parcel of land is identified as Crown Allotment 2271, Volume 12016, Folio 598 and has a land area of 2,000 square metres, whilst the southern parcel of land is identified as Crown Allotment 2262, Volume 11930, Folio 470 and has a land area of 5,000 square metres (both represented by the purple shaded land on the eastern side of figure 1). Both the central and southern allotments are owned by the Secretary to the Department of Health and Human Services (DHHS) who at this stage have no immediate intentions to prepare a development plan or develop their land.

It is important to note that all of the information provided in this report has been commissioned by Paragon Property Holdings Pty Ltd and relates exclusively to the north-eastern parcel of land referenced in the previous paragraph (Crown Allotment 2272, Volume 12016, Folio 598, 46 – 62 Darren Road, Springvale South) and represented by the red shade in figure 1. Additional information regarding the future development of the central and southern parcels of land will need to be prepared by their owners to the satisfaction of Council before any planning permit can issue for these two allotments.

The Schedule 13 to the Development Plan Overlay identifies the following two objectives for this land:

- To achieve a high quality, integrated residential development that capitalises on the existing landscape features and adopts a form and density that is consistent with the identified future character, as described in Clause 22.09.

- To facilitate a high quality landscape outcome that integrates with the overall layout and design of the sites and recognises and protects existing identified vegetation.

The objective of this development plan is to facilitate a predominantly residential development that is based on the above two objectives.

The development plan comprises the following separate documents:

- This particular document prepared by DD Planning dated August 2022.
- Architectural images prepared by Peddle Thorp Architects dated July 2022, Revision K.
- Stormwater Management Plan prepared by Equilibrium Engineering dated 01 February 2022, Revision 4.
- Environmentally Sustainable Design statement prepared by Urban Digestor dated 19 March 2021.
- Arboricultural Impact Assessment prepared by Landscape Dept dated January 2022, Version 2.0.
- Traffic and Transport Assessment prepared by Cardno dated 19 March 2021.
- Waste Management Plan prepared by Leigh Design dated 29 March 2021.
- Landscape Concept Plan prepared by John Patrick Landscape Architects Pty Ltd dated 22 March 2021, Revision B.

2.0 planning provisions

2.1 planning policy framework

The planning policy framework aims to assist in achieving the objectives of planning through appropriate land use and development policies and guidelines. This Development Plan has been guided by the following sections of the planning policy framework. These sections would similarly apply to future planning applications on the subject land that arise as a result of this Development Plan.

Clause 11 – Settlement

This clause mentions that "*Planning is to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure*".

It further mentions that planning is to contribute to amongst other things, 'health, wellbeing and safety', 'diversity of choice', 'a high standard of urban design and amenity', 'energy efficiency' and 'accessibility'.

Clause 11.02-1S (supply of urban land) includes the objective: *"To ensure a sufficient supply of land is available for residential, commercial, retail, industrial, recreational, institutional and other community uses".*

The listed strategies in place to achieve this objective include (inter alia):

- Ensure the ongoing provision of land and supporting infrastructure to support sustainable urban development.
- Ensure that sufficient land is available to meet forecast demand.
- Plan to accommodate projected population growth over at least a 15 year period and provide clear direction on locations where growth should occur. Residential land supply will be considered on a municipal basis, rather than a town-by-town basis.

- Planning for urban growth should consider:
  - Opportunities for the consolidation, redevelopment and intensification of existing urban areas.
  - Neighbourhood character and landscape considerations.
  - The limits of land capability and natural hazards and environmental quality.
  - Service limitations and the costs of providing infrastructure.

Clause 11.02-2S (structure planning) includes the objective: *"To facilitate the orderly development of urban areas".*

The listed strategies in place to achieve this objective include (inter alia):

- Ensure effective planning and management of the land use and development of an area through the preparation of relevant plans.
- Undertake comprehensive planning for new areas as sustainable communities that offer high-quality, frequent and safe local and regional public transport and a range of local activities for living, working and recreation.

Clause 13 – Environmental Risks and Amenity

This clause outlines the following key points that apply to this Development Plan (inter alia):

- Planning should aim to avoid or minimise natural and human-made environmental hazards, environmental degradation and amenity conflicts.
- Planning should ensure development and risk mitigation does not detrimentally interfere with important natural processes.

Clause 13.04-1S (contaminated and potentially contaminated land) has the objective "*To ensure that potentially contaminated land is suitable for its intended future use and development, and that contaminated land is used safely".*

The first of the two listed strategies seeks to:

"*Require applicants to provide adequate information on the potential for contamination to have adverse effects on future land use if the subject land is known to have been used for industry, mining or the storage of chemicals, gas, wastes or liquid fuel".*

Clause 15 – Built Environment and Heritage

This clause outlines key design principles that require consideration as follows:

- Planning is to recognise the role of urban design, building design, heritage and energy and resource efficiency in delivering liveable and sustainable cities, towns and neighbourhoods.
- Planning should ensure all land use and development appropriately responds to its surrounding landscape and character, valued built form and cultural context.
- Planning should protect places and sites with significant heritage, architectural, aesthetic, scientific and cultural value.
- Planning must support the establishment and maintenance of communities by delivering functional, accessible, safe and diverse physical and social environments, through the appropriate location of use and development and through high quality buildings and urban design.
- Planning should promote development that is environmentally sustainable and should minimise detrimental impacts on the built and natural environment.
- Planning should promote excellence in the built environment and create places that:
  - Are enjoyable, engaging and comfortable to be in.

- Accommodate people of all abilities, ages and cultures.
- Contribute positively to local character and sense of place.
- Reflect the particular characteristics and cultural identity of the community.
- Enhance the function, amenity and safety of the public realm

Clause 15.01-1S (urban design) includes the objective: *"To create urban environments that are safe, healthy, functional and enjoyable and that contribute to a sense of place and cultural identity*".

The listed strategies in place to achieve this objective include (inter alia):

- Require development to respond to its context in terms of character, cultural identity, natural features, surrounding landscape and climate.
- Ensure the interface between the private and public realm protects and enhances personal safety.
- Ensure that the design and location of publicly accessible private spaces, including car parking areas, forecourts and walkways, is of a high standard, creates a safe environment for users and enables easy and efficient use.
- Ensure that development provides landscaping that supports the amenity, attractiveness and safety of the public realm.

Clause 15.01-1R (urban design – Metropolitan Melbourne) includes the objective: *"To create a distinctive and liveable city with quality design and amenity*" and has the following relevant strategy (inter alia):

- Support the creation of well-designed places that are memorable, distinctive and liveable.

Clause 15.01-2S (building design) includes the objective: *"To achieve building design outcomes that contribute positively to the local context and enhance the public realm*".

The listed strategies in place to achieve this objective include (inter alia):

- Ensure a comprehensive site analysis forms the starting point of the design process and provides the basis for the consideration of height, scale and massing of new development.
- Ensure development responds and contributes to the strategic and cultural context of its location.
- Ensure development provides safe access and egress for pedestrians, cyclists and vehicles.
- Ensure development provides landscaping that responds to its site context, enhances the built form and creates safe and attractive spaces.
- Encourage development to retain existing vegetation.

Clause 15.01-3S (subdivision design) includes the objective: *"To ensure the design of subdivisions achieves attractive, safe, accessible, diverse and sustainable neighbourhoods*".

The listed strategies in place to achieve this objective include (inter alia):

In the development of new residential areas and in the redevelopment of existing areas, subdivision should be designed to create liveable and sustainable communities by:

- Creating compact neighbourhoods that have walkable distances between activities.
- Creating urban places with a strong sense of place that are functional, safe and attractive.

- Providing a range of lot sizes to suit a variety of dwelling and household types to meet the needs and aspirations of different groups of people.

- Creating landscaped streets and a network of open spaces to meet a variety of needs with links to regional parks where possible.

- Reduce car dependency by allowing for:

  - Convenient and safe public transport.
  - Safe and attractive spaces and networks for walking and cycling.
  - Subdivision layouts that allow easy movement within and between neighbourhoods.
  - A convenient and safe road network.

- Being accessible to people with disabilities.

- Creating an urban structure and providing utilities and services that enable energy efficiency, resource conservation, integrated water management and minimisation of waste and air pollution.

Clause 15.01-4S (healthy neighbourhoods) includes the objective: *"To achieve neighbourhoods that foster healthy and active living and community wellbeing*".

The listed strategies in place to achieve this objective include (inter alia):

Design neighbourhoods that foster community interaction and make it easy for people of all ages and abilities to live healthy lifestyles and engage in regular physical activity by providing:

- Connected, safe, pleasant and attractive walking and cycling networks that enable and promote walking and cycling as a part of daily life.

- Streets with direct, safe and convenient access to destinations.

- Conveniently located public spaces for active recreation and leisure.
- Accessibly located public transport stops.
- Amenities and protection to support physical activity in all weather conditions.

Clause 15.01-4R (healthy neighbourhoods – Metropolitan Melbourne) includes the sole strategy: *"Create a city of 20 minute neighbourhoods, that give people the ability to meet most of their everyday needs within a 20 minute walk, cycle or local public transport trip from their home*".

Clause 15.01-5S (Neighbourhood character) includes the objective: *"To recognise, support and protect neighbourhood character, cultural identity, and sense of place*".

The listed strategies in place to achieve this objective include:

Ensure development responds to cultural identity and contributes to existing or preferred neighbourhood character.

Ensure development responds to its context and reinforces a sense of place and the valued features and characteristics of the local environment and place by emphasising the:

- Pattern of local urban structure and subdivision.
- Underlying natural landscape character and significant vegetation.
- Heritage values and built form that reflect community identity.

Clause 15.03-2S (aboriginal cultural heritage) includes the objective: *"To ensure the protection and conservation of places of Aboriginal cultural heritage significance*".

The most relevant strategy in place to achieve this objective as it relates to this Development Plan is to "*Ensure that permit approvals align with the recommendations of any relevant Cultural Heritage Management Plan approved under the Aboriginal Heritage Act 2006*".

Clause 16 – Housing

This clause outlines three key design principles that require consideration as follows:

- Planning should provide for housing diversity, and ensure the efficient provision of supporting infrastructure.
- Planning should ensure the long term sustainability of new housing, including access to services, walkability to activity centres, public transport, schools and open space.
- Planning for housing should include the provision of land for affordable housing.

Clause 16.01-1S (integrated housing) includes the objective: *"To promote a housing market that meets community needs*".

The first strategy in particular applies to this Development Plan as follows:

- Increase the supply of housing in existing urban areas by facilitating increased housing yield inappropriate locations, including under-utilised urban land.

Clause 16.01-1R (integrated housing – Metropolitan Melbourne) includes two strategies that well apply to this Development Plan:

- Provide certainty about the scale of growth by prescribing appropriate height and site coverage provisions for different areas.
- Allow for a range of minimal, incremental and high change residential areas that balance the need to protect valued areas with the need to ensure choice and growth in housing.

Clause 16.01-2S (Location of residential development) has the following objective – *"To locate new housing in designated locations that offer good access to jobs, services and transport*".

The listed strategies in place to achieve this objective include (inter alia):

- Increase the proportion of new housing in designated locations within established urban areas and reduce the share of new dwellings in greenfield and dispersed development areas.
- Encourage higher density housing development on sites that are well located in relation to jobs, services and public transport.
- Ensure an adequate supply of redevelopment opportunities within established urban areas to reduce the pressure for fringe development.
- Facilitate residential development that is cost effective in infrastructure provision and use, energy efficient, water efficient and encourages public transport use.
- Identify opportunities for increased residential densities to help consolidate urban areas.

Clause 16.01-2R (Housing opportunity areas – Metropolitan Melbourne) includes a series of strategies, of which the following apply to this Development Plan:

- Identify areas that offer opportunities for more medium and high density housing near employment and transport in Metropolitan Melbourne.
- Manage the supply of new housing to meet population growth and create a sustainable city by developing housing and mixed use development opportunities in locations that are:
    - Urban-renewal precincts and sites.
    - Areas for grey field renewal, particularly through opportunities for land consolidation.

- Facilitate increased housing in established areas to create a city of 20 minute neighbourhoods close to existing services, jobs and public transport.
- Direct new housing to areas with appropriate infrastructure.

Clause 16.01-3S (Housing diversity) has the following objective – *"To provide for a range of housing types to meet diverse needs".*

The listed strategies in place to achieve this objective include:

- Ensure housing stock matches changing demand by widening housing choice.
- Facilitate diverse housing that offers choice and meets changing household needs through:
  - A mix of housing types.
  - Adaptable internal dwelling design.
  - Universal design.
- Encourage the development of well-designed medium-density housing that:
  - Respects the neighbourhood character.
  - Improves housing choice.
  - Makes better use of existing infrastructure.
  - Improves energy efficiency of housing.
- Support opportunities for a range of income groups to choose housing in well-serviced locations.
- Ensure planning for growth areas provides for a mix of housing types through a variety of lot sizes, including higher housing densities in and around activity centres.

Clause 16.01-3R (Housing diversity – Metropolitan Melbourne) has the following single strategy – *"Create mixed-use neighbourhoods at varying densities that offer more choice in housing".*

Clause 16.01-4S (Housing affordability) has the following objective – *"To deliver more affordable housing closer to jobs, transport and services".*

The listed strategies in place to achieve this objective include (inter alia):

Improve housing affordability by:

- Ensuring land supply continues to be sufficient to meet demand.
- Increasing choice in housing type, tenure and cost to meet the needs of households as they move through life cycle changes and to support diverse communities.
- Promoting good housing and urban design to minimise negative environmental impacts and keep costs down for residents and the wider community.
- Encouraging a significant proportion of new development to be affordable for households on very low to moderate incomes.

Increase the supply of well-located affordable housing by:

- Facilitating a mix of private, affordable and social housing in suburbs, activity centres and urban renewal precincts.

Clause 18 – Transport

This clause includes the following directive that is relevant to this Development Plan:

"Planning should ensure an integrated and sustainable transport system that provides access to social and economic opportunities, facilitates economic prosperity, contributes to environmental sustainability, coordinates reliable movements of people and goods, and is safe".

Clause 18.01-1S (Land use transport planning) has the objective "*to create a safe and sustainable transport system by integrating land use and transport*".

Accompanying strategies in place to meet this objective that are relevant to this Development Plan include (inter alia):

- Develop integrated and accessible transport networks to connect people to jobs and services and goods to market.
- Plan urban development to make jobs and services more accessible by:
  - Ensuring equitable access is provided to developments in accordance with forecast demand, taking advantage of all available modes of transport and to minimise adverse impacts on existing transport networks and the amenity of surrounding areas.
  - Coordinating improvements to public transport, walking and cycling networks with the ongoing development and redevelopment of urban areas.
- Integrate public transport services and infrastructure into new development.
- Improve transport links that strengthen the connections to Melbourne and adjoining regions.

Clause 18.02-1R (Sustainable personal transport – Metropolitan Melbourne) includes the following two strategies that are relevant to this Development Plan:

- Improve local travel options for walking and cycling to support 20 minute neighbourhoods.

- Develop local cycling networks and new cycling facilities that support the development of 20-minuteneighbourhoods and that link to and complement the metropolitan-wide network of bicycle routes- the Principal Bicycle Network.

Clause 18.02-4S (Car parking) includes the following important objective that is applicable to this Development Plan: - "*To ensure an adequate supply of car parking that is appropriately designed and located".*

The various strategies in place to achieve this objective, as relevant to this Development Plan, including the following (inter alia):

- Allocate or require land to be set aside for car parking subject to the existing and potential modes of access including public transport, the demand for off-street car parking, road capacity and the potential for demand management of car parking.

- Encourage the efficient provision of car parking by consolidating car parking facilities.

- Design and locate local car parking to:

  - Protect the role and function of nearby roads.
  - Enable easy and efficient use.
  - Enable the movement and delivery of goods.
  - Achieve a high standard of urban design and protect the amenity of the locality, including the amenity of pedestrians and other road users.
  - Create a safe environment, particularly at night.
  - Facilitate the use of public transport.

- Protect the amenity of residential precincts from the effects of road congestion created by on-street parking.

Clause 19 – Infrastructure

This clause includes the following directives that are relevant to this Development Plan:

"Planning is to recognise social needs by providing land for a range of accessible community resources, such as education, cultural, health and community support (mental health, aged care, disability, youth and family services) facilities".

"Planning should ensure that the growth and redevelopment of settlements is planned in a manner that allows for the logical and efficient provision and maintenance of infrastructure, including the setting aside of land for the construction of future transport routes".

Clause 19.02-2S – 'Education facilities' has the following objective – "*To assist the integration of education and early childhood facilities with local and regional communities*".

Listed strategies that are relevant to this Development Plan include (inter alia):

- Consider demographic trends, existing and future demand requirements and the integration of facilities into communities in planning for the location of education and early childhood facilities.
- Locate childcare, kindergarten and primary school facilities to maximise access by public transport and safe walking and cycling routes.
- Ensure childcare, kindergarten and primary school facilities provide safe vehicular drop-off zones.

Clause 19.02-2R (education precincts – Metropolitan Melbourne) comprises one strategy that seeks to "*ensure education precincts are well serviced by community services*".

Clause 19.03-3S (Integrated water management) includes the following objective: - "*To sustainably manage water supply, water resources, wastewater, drainage and stormwater through an integrated water management approach".*

Relevant strategies include to:

"*Manage stormwater quality and quantity through a mix of on-site measures and developer contributions at a scale that will provide greatest net community benefit".*

"Provide for sewerage at the time of subdivision or ensure lots created by the subdivision are capable of adequately treating and retaining all domestic wastewater within the boundaries of each lot".

Clause 19.03-1S (Development and infrastructure contributions plans) includes the following objective that is relevant to this Development Plan: -

"To facilitate the timely provision of planned infrastructure to communities through the preparation and implementation of development contributions plans and infrastructure contributions plans."

Clause 19.03-2S (Infrastructure design and provision) includes the following objective that is relevant to this Development Plan: -

"To provide timely, efficient and cost-effective development infrastructure that meets the needs of the community".

The listed strategy in place to achieve this objective is also relevant as follows:

"Provide an integrated approach to the planning and engineering design of new subdivision and development".

2.2 local planning policy framework

The local planning policy framework also aims to assist in achieving the objectives of planning through appropriate land use and development policies and guidelines that are applied at a local level. This Development Plan has been guided by the following sections of the local planning policy framework of the Greater Dandenong Planning Scheme. These sections would similarly apply to future planning applications on the subject land that arise as a result of this Development Plan.

Clause 21.02-4 – 'Built Form' reinforces the presence of "*largely conventional Australian built form of single one storey dwellings"* within Greater Dandenong, and "*a predominance of lots between 500 and 750m2".*

Clause 21.03-1 – 'Vision' outlines Council's vision for Greater Dandenong that includes being "*a municipality where, housing diversity and choice is promoted in its various attractive neighbourhoods*".

Clause 21.04-1 – 'Housing and Community' outlines that "*Greater Dandenong's population is expected to rise by 22 percent, from 147,000 to 179,000 in the decade to 2024*" and that "*approximately 9,950 new households will need to be accommodated across the municipality by 2024*".

Objective 1 associated with this clause seeks: - "*To encourage and facilitate a wide range of housing types and styles which increase diversity and cater for the changing needs of households*".

The strategies in place to achieve this objective, as relevant to this Development Plan include:

- Encourage a mix of housing types that better reflects the cross section of the community in Greater Dandenong.
- Promote subdivision that provides for a range of lot sizes to cater for the diversity of the community of Greater Dandenong.
- Encourage the provision of housing that is adaptable to support the needs of the changing needs of present and future residents.

Objective 2 is applicable to this Development Plan where it seeks" – "*To respect and improve residential environments*". The three strategies in place to achieve this objective include:

- Strongly encourage new residential development to make a positive contribution to the identified future character of each residential Future Change Area.
- Encourage developments to exceed minimum compliance with the requirements of Clauses 54, 55 and56, where appropriate and identified.
- Encourage new residential development that incorporates adequate space for the planting and the long term viability and safe retention of canopy trees.

There are a number of additional objectives and strategies that reinforce the need to provide additional housing in strategic locations and in response to the designations listed in the strategic residential framework plan.

The land the subject of the Development Plan is located in an area of 'limited change' as identified in the strategic residential framework plan (figure 2).

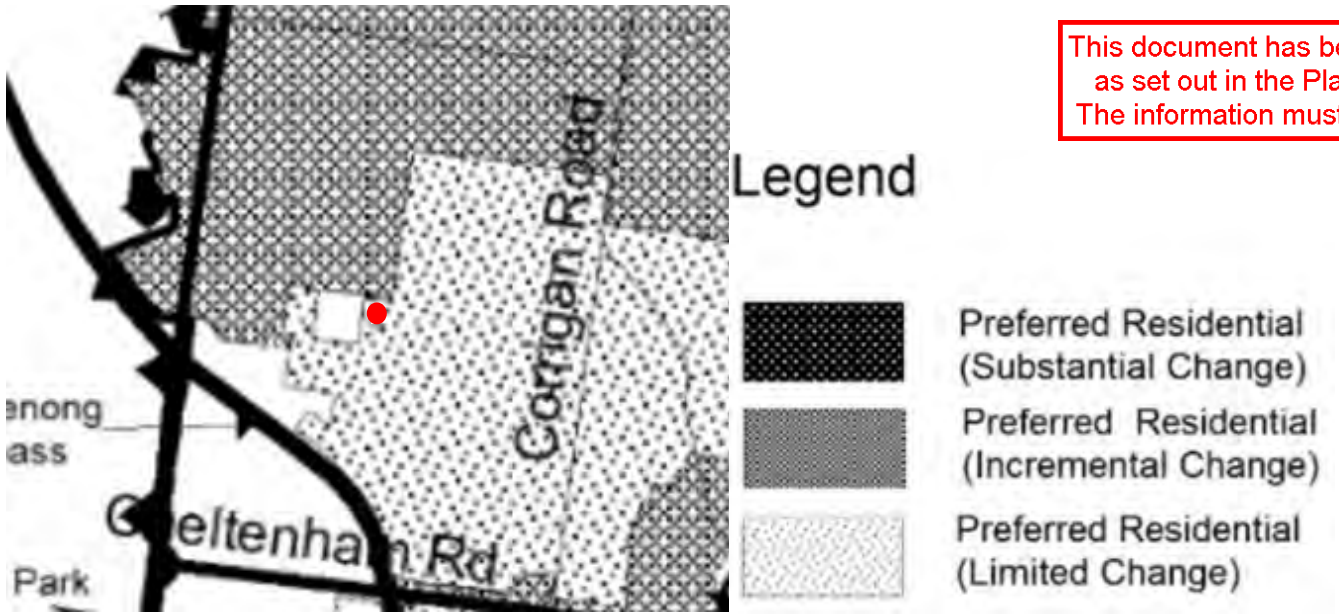


Figure 2 – Strategic Residential Framework Plan (DELWP)

Clause 21.05 – Built Form

Clause 21.05-1 (urban design, character, streetscapes and landscapes) lists ten objectives and associated strategies designed to achieve the objectives. The following objectives are most applicable to this proposed Development Plan:

- Objective 1 – To facilitate high quality building design and architecture.
- Objective 2 - To facilitate high quality development, which has regard for the surrounding environment and built form.
- Objective 3 - To improve the quality, consistency and function of the city's environment.
- Objective 7 - To protect and improve streetscapes.

- Objective 8 - To ensure landscaping that enhances the built environment.

Clause 21.05-3 (environmentally sustainable development) has the single objective: - "*To encourage all development to achieve best practice environmentally sustainable outcomes*".

Clause 21.07 – Infrastructure and Transportation

Clause 21.07-1 (physical, community and cultural infrastructure) lists five objectives and associated strategies designed to achieve the objectives. The following of these five objectives are most applicable to this proposed Development Plan:

- Objective 1 – To minimise the visual impact of physical infrastructure on the built and natural environment.
- Objective 2 – To manage the impact of discharge of stormwater to minimise pollution and flooding.
- Objective 3 – To minimise damage to physical infrastructure (including trees) from development.
- Objective 4 – To ensure new developments meet the cost of infrastructure.

Clause 21.07-3 (walking and cycling) includes one objective "*to promote and facilitate walking and cycling*".

2.3 local planning policies

This Development Plan has been guided by the following local planning policies contained within the Greater Dandenong Planning Scheme. These policies would similarly apply and guide future planning applications on the subject land that arise as a result of this Development Plan.

Clause 22.06 – Environmentally Sustainable Development Policy

This policy applies given this Development Plan will facilitate the development of 10 or more dwellings. An application is required to be accompanied by a Sustainability Management Plan (SMP) and Green Travel Plan (GTP).

This Policy lists seven objectives and associated performance measures that apply to this Development Plan. These objectives apply equally to the site layout of this planned Development Plan area as they do to future planning applications for individual dwelling(s).

The seven objectives listed at Clause 22.06-2 include:

- Energy performance.
- Water resources.
- Indoor environment quality.
- Stormwater management.
- Transport.
- Waste management.
- Urban ecology.

Clause 22.09 – Residential Development and Neighbourhood Character Policy

This policy is important in identifying Council's built form aspirations for this site, and applies to all three residential zones, including the Neighbourhood Residential Zone that applies to all of the subject land.

All of the subject land has a 'limited change' designation that correlates with the Neighbourhood Residential Zoning of this land (figure 3).

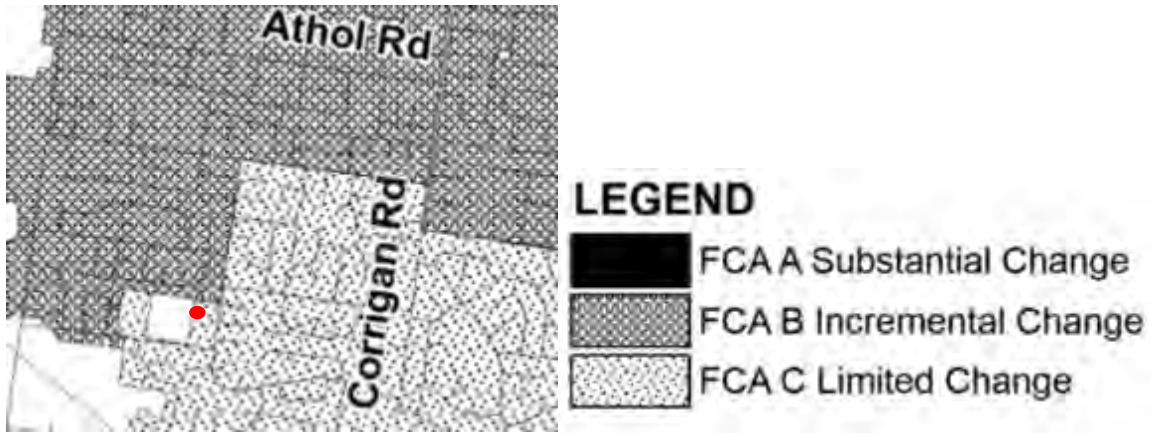


Figure 3 – Future Change Areas Plan (DELWP)

The identified future character listed for areas of limited change as it applies to the Development Plan area include:

The future character of limited change areas will evolve over time to contain a relatively limited number of well-designed and site responsive detached and infill residential developments that respect the existing neighbourhood character. Residential development will be a mix of one and two storey dwellings with separation between dwellings, at the upper level at least, with main living areas and private open space at ground level. Generous landscaping will make a significant contribution to the future character of these areas. Residential development will give particular consideration to providing appropriate setbacks and private open space areas and high quality landscaping, including the planting of canopy trees, to protect the amenity of adjoining dwellings and to contribute to the landscape character.

Key Design principles for Limited Change Areas as they apply to the Development Plan Area and that have guided the Development Plan layout and design include:

- Low density is the preferred housing type.
- 2 storeys represents the maximum building height.
- Substantial landscaping is encouraged to achieve a landscaped character.
- Garaging and car parking areas is to be sited so as to not dominate the streetscape.
- Ground level open space is encouraged.
- Separation in built form is promoted at the upper level.
- Spines of open space are promoted to maximise landscaping opportunities.
- Two storey built form is to be sensitively located having regard to character and amenity considerations.

A degree of balance and flexibility is required in the application of these design principles noting this Development Plan area:

- Is a significant land holding of some 12,500 square metres (1.25 hectares).

- Has abuttal with the sporting ovals of the Keysborough Primary School to the west, a pedestrian walkway to the north, Coomoora Road to the south and Darren Road to the east, - meaning this stand-alone Development Plan area does not directly abut any residential dwellings.

- Is located at the very edge of this Limited Change Area (Neighbourhood Residential Zone), and is located less than 10 metres from an Incremental Change Area (General Residential Zone) to the north of the site.

Clause 22.11 – Advertising Signs Policy

This policy is important in offering guidance on suitable advertising sign outcomes associated with the child care centre land use.

The policy includes the following three objectives at Clause 22.11-2:

> *"To ensure that signs are designed, positioned and displayed in an appropriate and attractive manner.*
>
> *To encourage signs that make a positive contribution to both the day and night time character of activity centres.*
>
> *To improve the appearance of identified gateway locations across the municipality through the effective, sensitive display of signs and the avoidance of a proliferation of signs and visual clutter".*

A series of policy directives are outlined at Clauses 22.11-3.1, 22.11-3.3, and 22.11-3.4 with relevant directives to this site including:

- Signs are designed taking into account how they will be viewed and read from different modes of travel.

- Signs are legible and concise in their presentation.

- Except for free-standing pole signs, signs, where practicable, are integrated with existing buildings and structures rather than erected as stand-alone structures.

- Sign design, material selection and structures are carefully chosen to avoid vandalism and to ensure durability and ease of maintenance.

- Generally limit freestanding signs to one per premises (for large sites with more than one street frontage a maximum of two freestanding signs may be permitted).

- Limit additional freestanding signs (more than two) to direction signs placed at strategic locations at a height easily read by pedestrians, including people with a disability, and motorists.

A number of policy directives detailed at Clause 22.11-3.6 apply to 'signs in residential areas' as follows:

"*While signs are discouraged in residential areas, there are a range of permissible land uses in residential areas where identification signs are appropriate, but require careful management to maintain the visual amenity of the area.*

Signs should be designed and located in a manner that:

- *does not dominate the building, the site or the streetscape;*
- *is limited to one per premises;*
- *is within the site, parallel to or perpendicular to the street except on a corner site".*

The accompanying figures 5a and 5b mention that signage located parallel to the street and at right angles to the street are encouraged.

2.4 neighbourhood residential zone

The Development Plan area is located in the Neighbourhood Residential Zone, Schedule 1 (NRZ1) as shown in figure 4 on the following page.

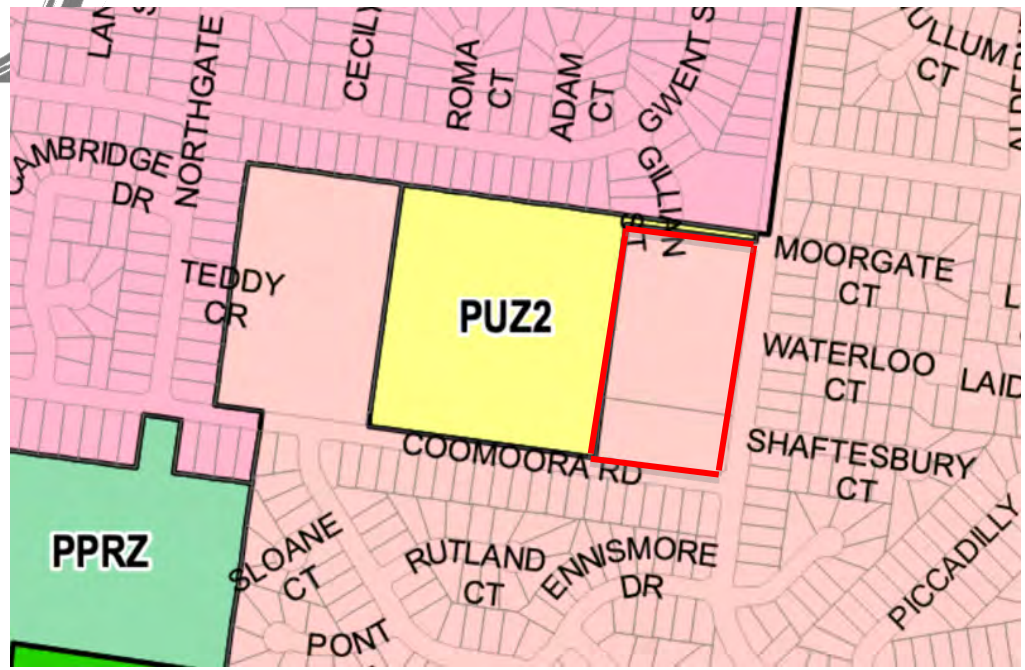


Figure 4 – Zoning Plan (DELWP)

The development Plan area is located at the edge of this Neighbourhood Residential Zone and comprises three separate titles.

This development applies to the northern-most title. Additional information regarding the future development of the central and southern parcels of land will need to be prepared by their owners to the satisfaction of Council before any planning permit can issue for these two allotments.

The subject land is located less than 10 metres from General Residential Zoned land to the north, and also abuts land in the Public Use Zone to the west.

The purpose of the Neighbourhood Residential Zone is:

"To implement the Municipal Planning Strategy and the Planning Policy Framework.

To recognise areas of predominantly single and double storey residential development.

To manage and ensure that development respects the identified neighbourhood character, heritage, environmental or landscape characteristics.

To allow educational ,recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations".

Key elements of the Neighbourhood Residential Zone provisions as applicable to this Development Plan area are as follows:

- Clause 32.09-2 mentions the land use 'dwelling' represents an as of right, permit not required land use.
- Clause 32.09-2 does not list the land use 'child care centre' within the table of uses. Accordingly, the land use 'child care centre' reverts to a Section 2, permit required land use as directed by Section 2.
- Clause 32.09-3 mentions that a permit is required to subdivide land. An application to subdivide land must accord with the requirements of Clause 56.
- The garden area provisions at Clause 32.09-4 do not apply to a lot designated as a medium density housing site in an approved development plan.
- Clause 32.09-5 mentions that a permit is required to construct or extend one dwelling on a lot of less than 300 square metres. Any application must meet the requirements of Clause 54.
- Clause 32.09-6 mentions that a permit is required to construct two or more dwellings on a lot. Any application must meet the requirements of Clause 55.
- Clause 32.09-9 mentions that a permit is required to construct a building or construct or carry out works for a Section 2 use (child care centre) at Clause 32.09-2.
- Clause 32.09-10 outlines a maximum building height of 9 metres or 2 storeys at any point subject to the slope of the land.
- Clause 32.09-14 specifies that this zone is in Category 3 of the sign requirements at Clause 52.05.

The Schedule 1 to the Neighbourhood Residential Zone applies to 'Neighbourhood Residential Areas' and lists the following five neighbourhood character objectives:

"To ensure the scale, built form and setbacks of residential development responds to the existing site circumstances by respecting the valued characteristics of the neighbourhood including the predominant built form, façade street patterns and appropriate separation between dwellings.

To provide appropriate front, side and rear setbacks, garden areas and private open space to allow for substantial high quality landscaping, including canopy trees to protect the amenity and outlook of adjoining properties and contribute to the landscape character.

To maximise the opportunities to create high quality landscaping through minimal paving and the use of permeable ground surfaces.

To ensure vehicle accessways and storage facilities do not visually dominate the streetscape.

To ensure that residential development achieves high quality useable private open space outcomes for future residents, including the provision of ground level secluded private open space at the side or rear of each dwelling".

Section 4.0 of the Schedule 1 lists six variations to Clause 54 and Clause 55 (ResCode) standards that are outlined on the following page.

	Standard	Requirement
Site coverage	A5 and B8	Maximum of 50%
Permeability	A6 and B9	Minimum of 40%
Landscaping	B13	70% of ground level front setback, and side and rear setbacks, planted with substantial landscaping and canopy trees
Side and rear setbacks	A10 and B17	A building wall opposite an area of secluded private open space or a window to a living room of an existing dwelling should be setback a minimum of 2 metres. All other buildings should be setback a minimum of 1 metre, plus 0.3 metre for every metre of height over 3.6 metres up to 6.9 metres.
Private open space	A17	An area of ground level open space of 80 square metres or 20 per cent of the area of the lot, whichever is the lesser, but not less than 40 square metres. At least one part of the private open space should consist of secluded private open space with a minimum area of 40 square metres and a minimum dimension of 5 metres at the side or rear of the dwelling with convenient access from a living room.
	B28	An area of 60 square metres of ground level, private open space, with one part of the private open space to consist of secluded private open space at the side or rear of the dwelling or residential building with a minimum area of 40 square metres and a minimum dimension of 5 metres and convenient access from a living room; or A balcony with a minimum area of 10 square metres with a minimum width of 2 metres and convenient access from a living room; or A roof-top area of 10 square metres with a minimum width of 2 metres and convenient access from a living room.
Front fence height	A20 and B32	Maximum 1.5 metre height in streets in Road Zone Category 1 Maximum 1.2 metre height for other streets

2.5 development plan overlay, schedule 13

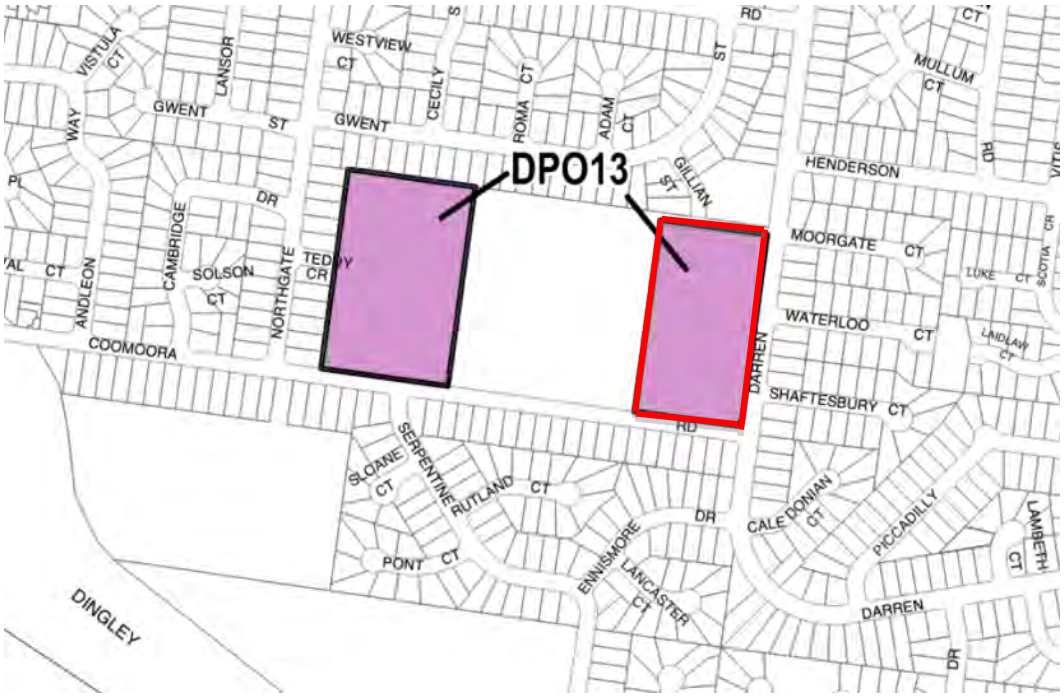


Figure 5– Development Plan Overlay (DELWP)

The Development Plan area is covered by the Development Plan Overlay, Schedule 13 (DPO13) as shown in figure 5.

The DPO13 includes the land at 15 – 29 Coomoora Road, Springvale South that is the subject of the first development plan application, the subject land, and also includes the abutting parcel of land to the south (2 separate titles) that will be subject to future details by these landowners.

The purpose of the Development Plan Overlay is:

"To implement the Municipal Planning Strategy and the Planning Policy Framework.

To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.

To exempt an application from notice and review if a development plan has been prepared to the satisfaction of the responsible authority".

Clause 43.04-2 mentions that "*a permit must not be granted to use or subdivide land, construct a building or construct or carry out works until a development has been prepared to the satisfaction of the responsible authority*".

Clause 43.04-3 further mentions that a development plan that has been prepared to the satisfaction of the responsible authority is exempt from the notice requirements and review rights of the Act.

Clause 43.04-4 outlines the composition of a development plan, that may comprise plans and associated documents. A development that provides for residential subdivision must meet the requirements of Clause 56. The development plan also describe:

- The land to which the plan applies.
- The proposed use and development of each part of the land.
- Any other requirements specified for the plan in a schedule to this overlay.

The Schedule 13 to the Development Plan Overlay applies to '15 – 29 and 55 – 67 Coomoora Road, Springvale South' and outlines the following two objectives:

> *"Achieve a high quality, integrated residential development that capitalises on the existing landscape features and adopts a form and density that is consistent with the identified future character, as described in Clause 22.09.*
>
> *Facilitate a high quality landscape outcome that integrates with the overall layout and design of the sites and recognises and protects existing identified vegetation".*

Section 4.0 of Schedule 13 outlines the various requirements for a development plan.

This Development Plan specifically responds to these requirements.

2.6 particular provisions

Clause 52.05 – Signs

Clause 52.05 is a relevant provision as it relates to child care centre signage. The four purpose points of Clause 52.05 are outlined as follows:

> *"To regulate the development of land for signs and associated structures.*
>
> *To ensure signs are compatible with the amenity and visual appearance of an area, including the existing or desired future character.*
>
> *To ensure signs do not contribute to excessive visual clutter or visual disorder.*
>
> *To ensure that signs do not cause loss of amenity or adversely affect the natural or built environment or the safety, appearance or efficiency of a road".*

A series of application requirements are listed at Clause 52.05-6 and detailed decision guidelines are listed at Clause 52.05-8. Some of the more relevant decision guidelines as applicable to the child care centre land use include (inter alia):

- The sensitivity of the area in terms of the natural environment, heritage values, waterways and open space, rural landscape or residential character.
- The potential to obscure or compromise important views from the public realm.
- The proportion, scale and form of the proposed sign relative to the streetscape, setting or landscape.
- The position of the sign, including the extent to which it protrudes above existing buildings or landscape and natural elements.
- The ability to reduce the number of signs by rationalising or simplifying signs.

- The scale and form of the sign relative to the scale, proportion and any other significant characteristics of the host site and host building.
- The extent to which the sign displays innovation relative to the host site and host building.
- The impact of any illumination.
- The impact on road safety.

Clause 52.05-13 provides details for 'Category 3 – High amenity areas' signs. This signage is identified as being of 'medium limitation' and has the following purpose:

"To ensure that signs in high-amenity areas are orderly, of good design and do not detract from the appearance of the building on which a sign is displayed or the surrounding area".

As relevant to any signage associated with the child care centre land use:

- A permit is required for all business identification signage.

Clause 52.06 – Car Parking

Clause 52.06 is an important provision as it relates to this Development Plan. The six purpose points of Clause 52.06 are outlined as follows:

"To ensure that car parking is provided in accordance with the Municipal Planning Strategy and the Planning Policy Framework.

To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.

To support sustainable transport alternatives to the motor car.

To promote the efficient use of car parking spaces through the consolidation of car parking facilities.

To ensure that car parking does not adversely affect the amenity of the locality.

To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use".

Use	Rate Column A	Rate Column B	Car Parking Measure Column C
Child care centre	0.22	0.22	To each child
Dwelling	1	1	To each one or two bedroom dwelling, plus
	2	2	To each three or more bedroom dwelling (with studies or studios that are separate rooms counted as a bedrooms) plus
	1	0	For visitors to every 5 dwellings for developments of 5 or more dwellings

Clause 52.06-3 says that a permit is required to reduce the number of car parking spaces required in the table at Clause 52.06-5.

As relevant to this Development Plan, the following parking rates apply as outlined in the table at Clause 52.06-5. The rate outlined in Column A applies.

Clause 52.06-9 outlines a series of design standards for car parking, including the width and length of accessways, car spaces and garages.

Clause 53.01 – Public Open Space Contribution and Subdivision

Clause 53.01 outlines the need to provide open space contributions as follows:

> *A person who proposes to subdivide land must make a contribution to the council for public open space in an amount specified in the schedule to this clause (being a percentage of the land intended to be used for residential, industrial or commercial purposes, or a percentage of the site value of such land, or a combination of both). If no amount is specified, a contribution for public open space may still be required under section 18 of the Subdivision Act 1988.*

The schedule to Clause 53.01 outlines a 5% open space contribution for the Development Plan area.

Clause 53.18 – Stormwater Management in Urban Development

Clause 53.18 has the following purpose:

> *"To ensure that stormwater in urban development, including retention and reuse, is managed to mitigate the impacts of stormwater on the environment, property and public safety, and to provide cooling, local habitat and amenity benefits".*

This clause outlines a series of stormwater management measures to be considered in applications for development and subdivision.

Clause 54 – One Dwelling on a Lot

Clause 54 applies "*to an application to construct a building or construct or carry out works associated with one dwelling on a lot under the provisions of: A Neighbourhood Residential Zone…".*

Clause 54 may apply to future applications for single dwellings depending on the nature of the proposal and lot sizes.

Clause 54 has four purpose points that are detailed as follows:

> "*To implement the Municipal Planning Strategy and the Planning Policy Framework.*
>
> *To achieve residential development that respects the existing neighbourhood character or which contributes to a preferred neighbourhood character.*
>
> *To encourage residential development that provides reasonable standards of amenity for existing and new residents.*
>
> *To encourage residential development that is responsive to the site and the neighbourhood*".

The operation and requirements of Clause 54 are detailed in this clause, with specific reference made that development:

- Must meet all of the objectives of this clause.
- Should meet all of the standards of this clause.

Clause 55 – Two or More Dwellings on a Lot

As applicable to this Development Plan and the Neighbourhood Residential Zoning that applies, Clause 55 applies to:

- Construct a dwelling if there is at least one dwelling existing on the lot,
- Construct two or more dwellings on a lot,
- Extend a dwelling if there are two or more dwellings on the lot,
- Construct or extend a dwelling on common property, or
- Construct or extend a residential building.

Clause 55 may apply to future applications in this Development Plan.

Clause 55 has four purpose points that are detailed as follows:

"To implement the Municipal Planning Strategy and the Planning Policy Framework.

To achieve residential development that respects the existing neighbourhood character or which contributes to a preferred neighbourhood character.

To encourage residential development that provides reasonable standards of amenity for existing and new residents.

To encourage residential development that is responsive to the site and the neighbourhood".

The operation and requirements of Clause 55 are detailed in this clause, with specific reference made that a development:

- Must meet all of the objectives of this clause.
- Should meet all of the standards of this clause.

Clause 56 – Residential Subdivision

As applicable to this Development Plan and the Neighbourhood Residential Zoning that applies, Clause 56 applies to an application to subdivide land.

Clause 56 may apply to future applications for subdivision in this Development Plan.

Clause 56 has the following purpose that is detailed as follows:

"To implement the Municipal Planning Strategy and the Planning Policy Framework.

To create liveable and sustainable neighbourhoods and urban places with character and identity.

To achieve residential subdivision outcomes that appropriately respond to the site and its context for:

- *Metropolitan Melbourne growth areas.*
- *Infill sites within established residential areas.*
- *Regional cities and towns.*

To ensure residential subdivision design appropriately provides for:

- *Policy implementation.*
- *Liveable and sustainable communities.*
- *Residential lot design.*
- *Urban landscape.*
- *Access and mobility management.*

- *Integrated water management.*
- *Site management.*
- *Utilities"*

The operation of Clause 56 is detailed in this clause that says - "*A standard should normally be met. However, if the responsible authority is satisfied that an application for an alternative design solution meets the objective, the alternative design solution may be considered*".

3.0 site analysis and urban context analysis

3.1 the subject land

Figure 6 shows the subject land (shown red) forms part of an established residential area with good access to local community, parkland and education services. The site is also well positioned with respect to the primary and secondary road network. The site is formally identified as Crown Allotment 2272, Parish of Dandenong, and is more commonly known as **46 – 62 Darren Road, Springvale South**.

Figure 6 – Location Plan (Peddle Thorp

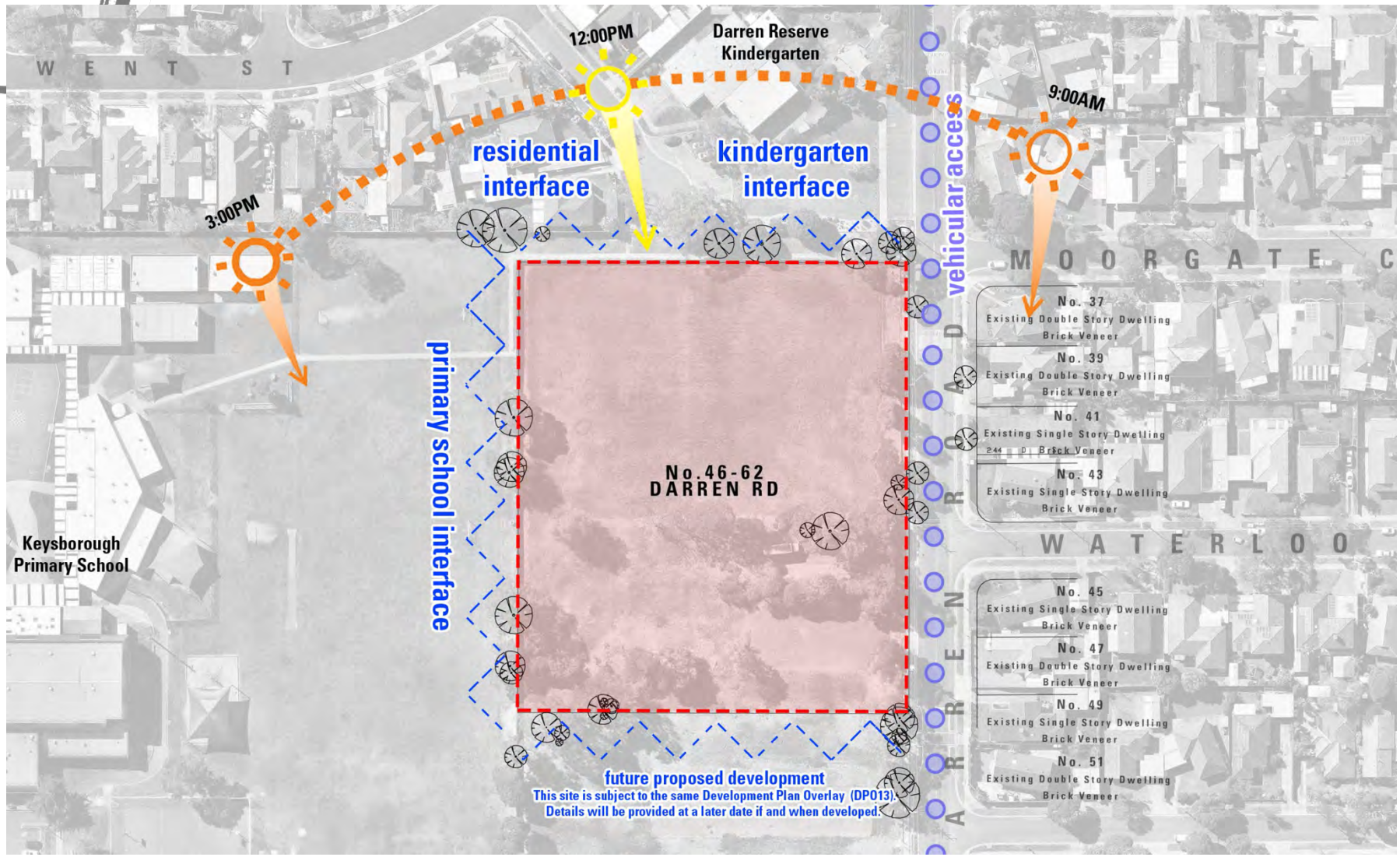


Figure 7 – Site Analysis Plan (Peddle Thorp)

Figure 8 – Existing Site Plan (Peddle Thorp)

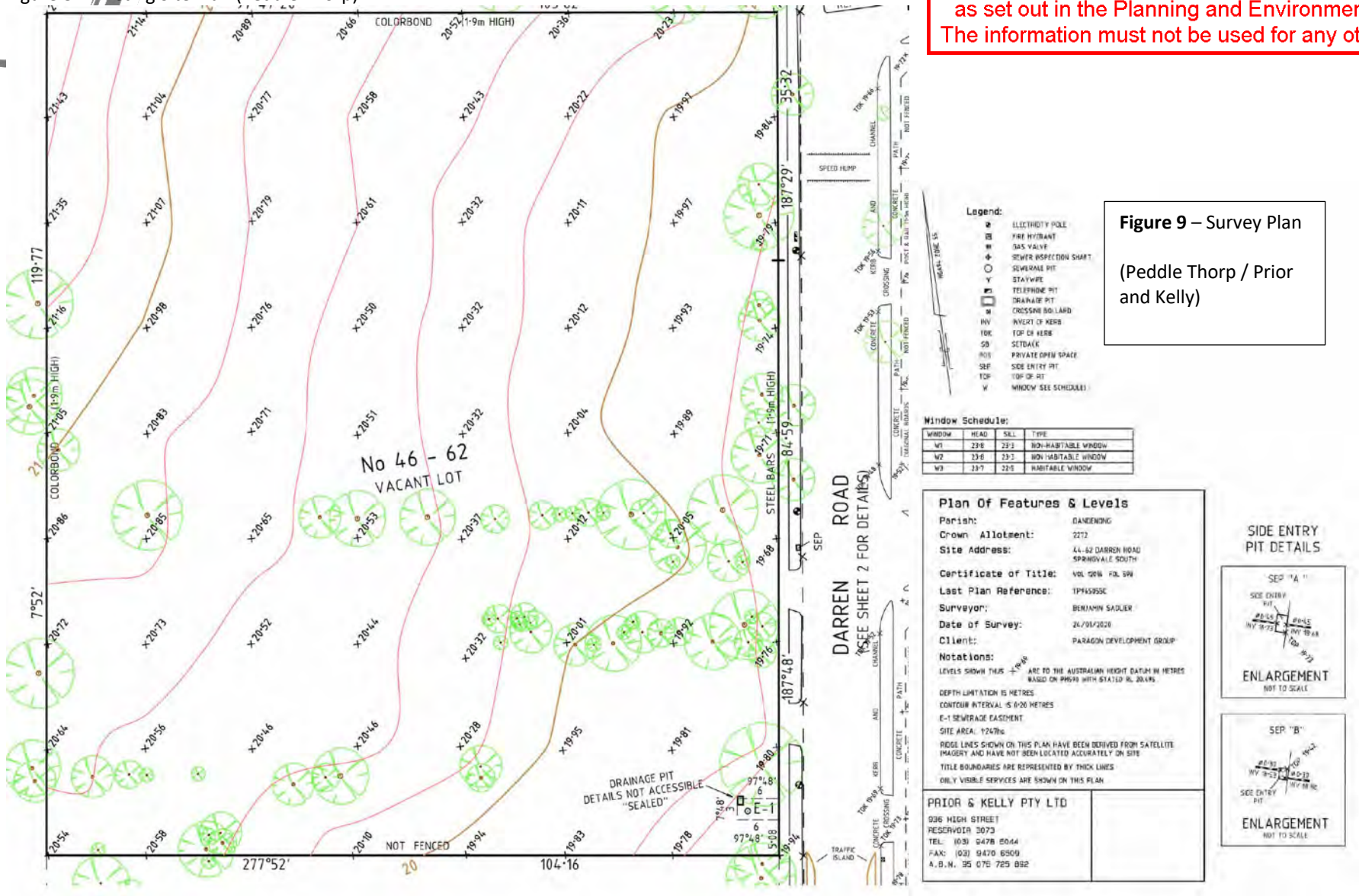


Figure 9 – Survey Plan

(Peddle Thorp / Prior and Kelly)

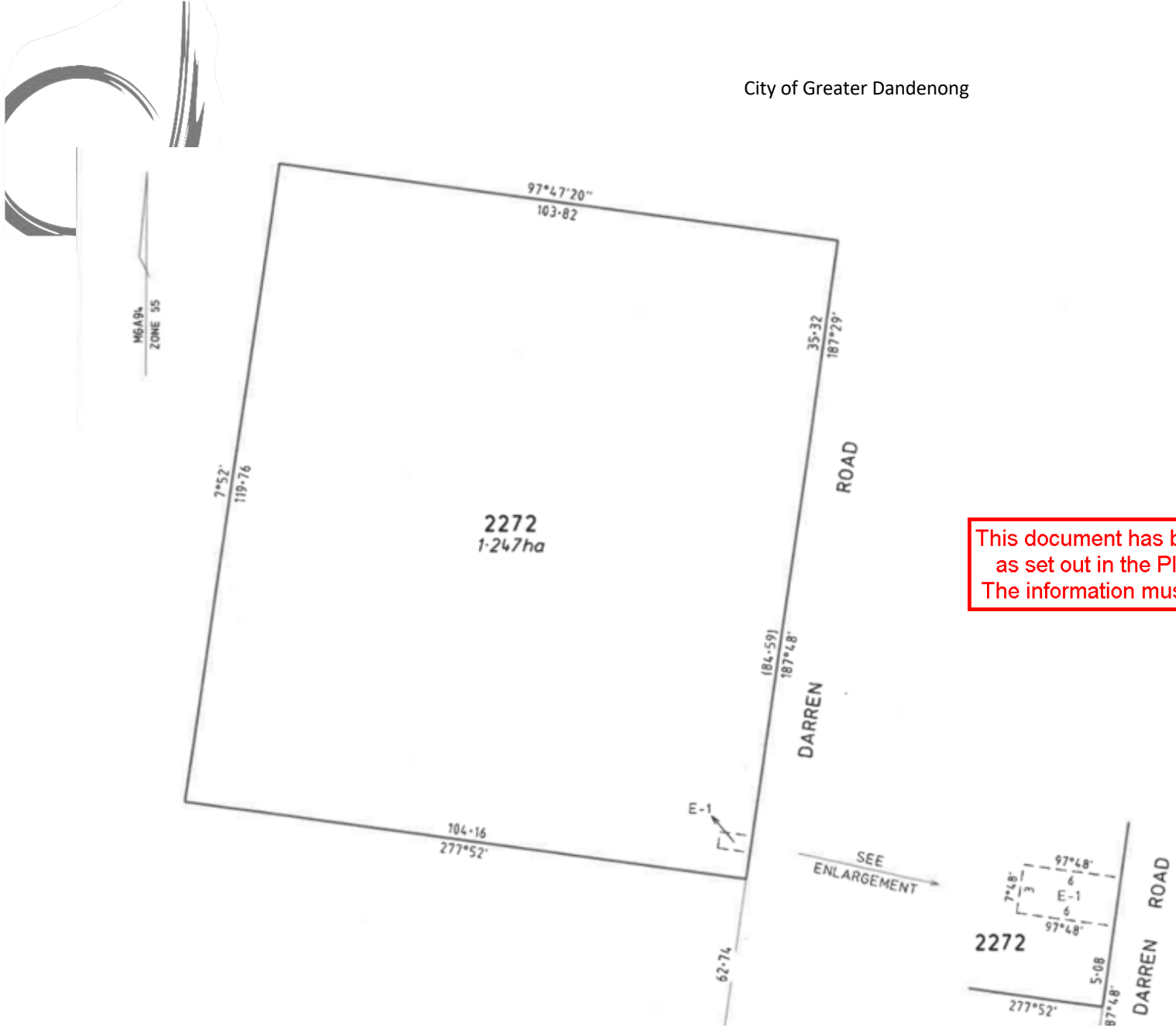


Figure 10 – Title Plan (Land Titles Office)

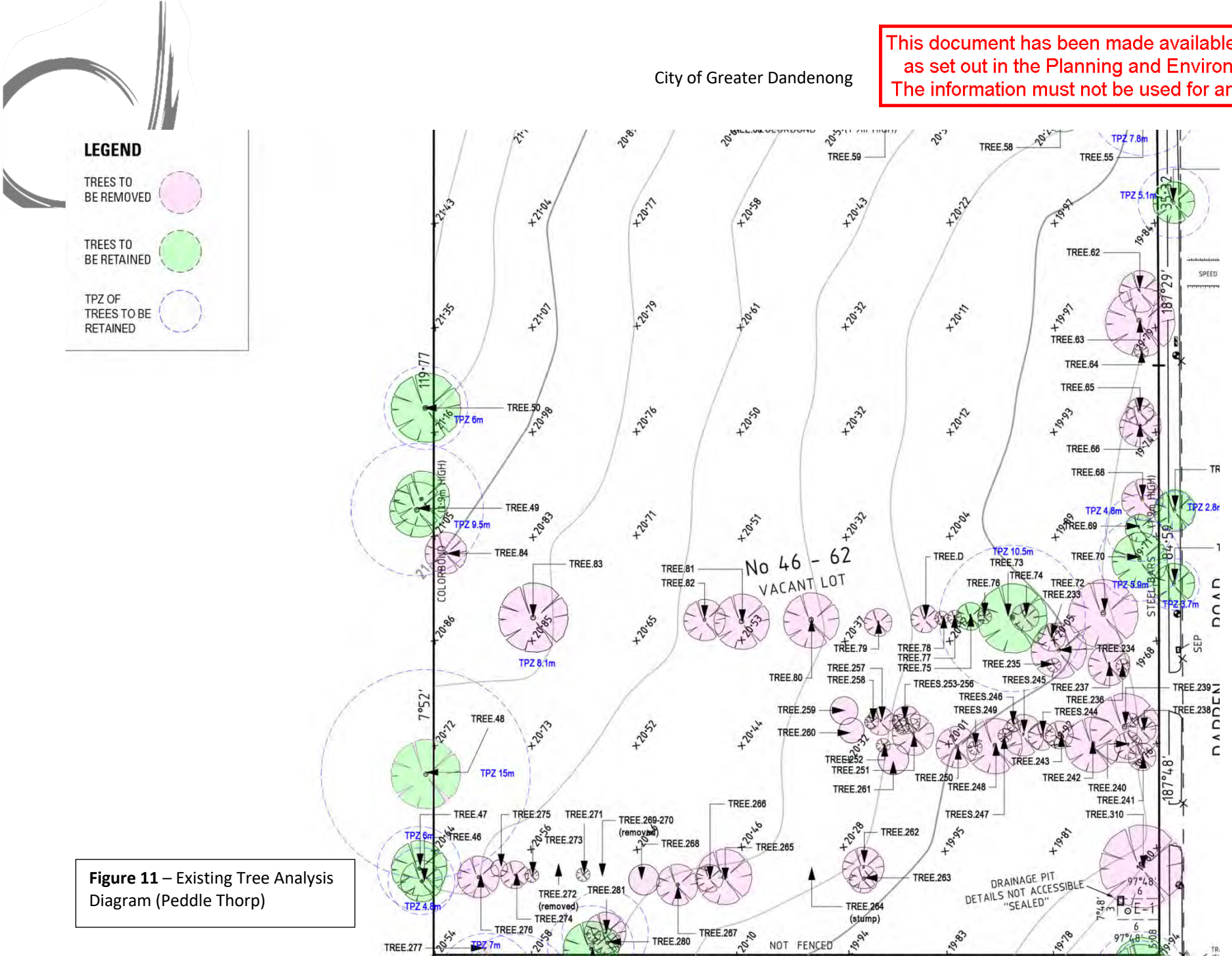


Figure 11 – Existing Tree Analysis Diagram (Peddle Thorp)

Figures 6 to 11 document the details of the subject land and its urban context. Some of the key elements derived from this documentation include:

- The site has a combined area of 1.247 hectares, or 3.08 acres, or 12,470 square metres.
- The site is generally square in shape, with a frontage (east boundary) to Darren Road of 119.91 metres, a western boundary length of 119.77 metres, a northern boundary length of 103.82 metres and a southern boundary length of 104.16 metres.
- The land is effectively flat. The north-western corner is the highest corner with an RL of 21.54m and the north-east corner is the lowest corner with an RL of 19.92m, representing a fall of 1.62 metres across the width of the site (1.5 percent).
- A drainage pit easement (E-1) is located along the eastern side boundary, approximately 5.0m from the southern boundary. The easement measures 6.0m x 3.0m (18 square metres) is noted as 'not accessible' and 'sealed'.
- The site forms part of an established residential area, and is able to be connected to relevant infrastructure services.
- There are presently two vehicle crossovers that provide vehicle access to the site from Darren Road.
- The site is vacant.
- The site includes a scattering of canopy trees of various size, condition and importance. The landscape concept plan prepared by Landscape Dept April 2020 (that references the *Ecology and Arboriculture Assessment and Tree Retention Plan* by Jacobs 2015) includes further details of this vegetation.
- The site has abuttal with a pedestrian link (communal open space) to the north, with both a Kindergarten (Darren Reserve Kindergarten) and standard residential properties located beyond this pedestrian link.
- The site has abuttal with a vacant parcel of land to the south that is also vacant and subject to the same Development Plan Overlay (DPO13).

- The site has abuttal with sporting fields associated with the Keysborough Primary School to the west.

- The site has abuttal with Darren Road (secondary road) to the north. Beyond Darren Road are six single dwellings of single/double storey form between 37 and 47 Darren Road that enjoy a direct frontage to Darren Road.

- Pedestrian connection to the site is available via Darren Road that comprises a sealed footpath along the Darren Road frontage. Nearby pedestrian links to the site are also available from the pedestrian link abutting the site to the north that offers direct pedestrian access to Gillian Street (Darren Reserve Kindergarten and Darren Reserve), Keysborough Primary School Oval and Keysborough Primary School.

- Transport links include bus route 824 that extends down Darren Road (80m to the north). Smart Bus Route 924 extends along Springvale Road and can be accessed by bus route 824 or by foot (950m).

- There is one high retention value tree on the site (Tree 73) and one high retention value tree abutting the site (Tree 48). There are also a number of trees with moderate retention value on the site and abutting it, with all other trees of low retention value.

3.2 urban context (the surrounds)

3.2.1 surrounding land use and development

The site forms part of the established suburb of Springvale South. The immediate context is largely residential in nature with a scattering of non-residential uses including schools (Keysborough Primary School to the west), public parkland (Darren Reserve to the north) and small local shops (corner Darren Road and Paterson Road).

The form of residential development is generally consistent across the immediate area, with this pocket of Springvale South having been developed consistently in a relatively short period of time. The housing exhibits design elements common to residential areas of the 1980's, including the prevailing single storey heights (with some later two storey additions), the strong presence of pitched roof forms with eaves (some angled skillion style roofs), face brickwork and timber/aluminium windows.

Car parking (garages/carports) is in most instances located behind the dwelling, however, there is also an emergence of parking structures being sited to the side of the dwelling, and in some instances, integrated into the architecture.

Most dwellings have medium sized backyards characterised by low-scale planting and sheds and associated out-buildings.

Front yards are generally open (low or no front fence) and feature low scale vegetation (lawn, small shrubs).

The site itself does not have a direct abuttal with a sensitive land use, with the pedestrian walkway (public open space) to the north and Darren Road (east) offering suitable buffers to the closest residential (land use) interfaces.

As shown in figure 12 on the following page, the direct abuttals of the site include:

- Abutting the subject land to the **north** is a public walkway that offers pedestrian access from Darren Road, Gillian Street and the Keysborough Primary School oval.

- Abutting the subject land to the **south** is vacant land. This vacant land is comprised of two separate allotments that whilst forming part of the development plan area, will require future submissions to Council over the development layout of this land.

- Abutting the subject land to the **west** are the open ovals associated with the Keysborough Primary School.

- Abutting the subject land to the **east** is Darren Road, a two way local road. Beyond Darren Road are a series of predominantly single dwellings from the 1980's that front the opposite side of Darren Road.

Figure 12 – Design Response Plan (Peddle Thorp)

3.2.2 proposed use and development and links to the site

This development plan facilitates the use and development of the land for a childcare centre and the development of the land for residential dwellings as detailed in the following section of this Development Plan. A key aspect of the layout involves achieving suitable vehicle and pedestrian links that respond to the immediate and broader context.

vehicle access

Vehicle access to the site is achieved via Darren Road. Vehicle access points will be designed to accord with Council, Clause 52.06 of the Greater Dandenong Planning Scheme and relevant Australian Standards.

pedestrian access and links

Pedestrian access through the site is achieved via the 8.1m east-west road that includes a pedestrian pathway along the southern side.

The private open space area (854sqm) with a frontage to Darren Road connects through to the north-south road and the additional private open space area (306sqm) located west of this road.

The public open space area (625sqm) is positioned in the north-east corner of the site where it enjoys a direct frontage to Darren Road (east) and the east-west internal road (south). This park also abuts the pedestrian link abutting the subject land to the north, and forms an extension of this link.

The pedestrian links connect with abutting public open space and facilitate access to nearby bus routes.

4.0 development plan

overview and design response

The development plan facilitates the future use and development of the land for a child care centre (south-east corner) and the development of two storey dwellings and vacant land lots across the remainder of the site. The child care centre is positioned on the site to function independently of the residential component, having its own boundaries and vehicle access points to Darren Road.

The child care centre building is sited behind the main car park. This siting feature contributes to a sense of openness to the site frontage. The child care centre is also setback from the southern boundary a minimum 2.0 metres, with this setback and the single storey building module respectful of future built form outcomes that may occur on the development plan land to the south.

The development plan also comprises five separate residential modules accommodating two storey dwellings that extend around the site boundaries and in part, centrally within the site. These residential modules are complemented by vacant land lots of approximately 300 square metres located immediately south of the east-west road. The vacant land lots allow for 2 storey built form with suitable setbacks from boundaries. The residential modules are each sited between ground level private open space (front) and secluded private open space (rear yards) that along with the two private open space areas and public open space area, allow open space and vegetation to form an integral component of the layout. This outcome specifically responds to the two objectives at Schedule 13 of the Development Plan Overlay.

The siting of the residential modules is influenced by a combination of retaining identified significant vegetation, maximising solar access and achieving an efficient and functional road network. The five residential modules are sited to allow secluded private open space areas and key living zones of future dwellings to have a direct northerly, easterly or westerly aspect. The vacant land allow for a variety of configurations, including dwellings that front Darren Road (east), dwellings that front the north-south road (west) and dwellings that front the east-west road (north). The vacant land lots with a frontage to Darren Road will accommodate dwellings with a minimum 5.4m front setback, with all remaining lots to accommodate dwellings with front setbacks of at least 4.0m. Dwellings on vacant lots are to have rear setbacks of at least 5.0m.

The residential modules respond to the Neighbourhood Residential Zone, Schedule 1 and the immediate physical context in limiting building heights to a maximum 2 storeys, featuring conventional dwelling footprints for all future dwellings that offer ground level living zones (non-reverse living), and ground level private open space that accords with the areas and proportions listed in the Schedule 1 to the NRZ. The vacant land lots offer flexibility in design, with land lots proposed with approximate land areas of 300 square metres.

The layout locates areas of secluded and communal private open space along the western boundary, and areas of secluded private open space and the public open space to the northern boundary to facilitate a landscaped interface with the abutting areas of open space. The residential modules present southern setbacks of a minimum 2.0m, and that allow for a vegetated buffer to this abutting land in the development plan. The minimum 3.0m southern setback of the south-western residential module allows for the retention of trees 280, 281 and 282 along the southern boundary of the site.

The layout supports safe and efficient vehicle access and movement, with an internal road network that accords with Clause 52.06 of the Planning Scheme. Vehicle parking is also provided at a level that accords with Clause 52.06 of the Planning Scheme. Visitor car spaces are shown in select locations.

Pedestrian links are offered through the site, with a network of pedestrian footpaths offering access to communal open space and adjacent areas of open space.

The communal open space is located in the north-east corner of the site where it links with the adjacent pedestrian link to the north, and enjoys a prominent frontage to Darren Road and the proposed internal east-west road. The details of any furniture and planting for this space will be formalised in a landscape plan.

In addition to this communal open space area are two areas of private open space. The first of these directly fronts Darren Road and is located immediately north of the child care centre. This private open space area serves as a pedestrian link through the site, and is also positioned to accommodate retained trees 69, 70, 73 and 75.

Development of subject land as detailed in accompanying plans at figures 13 to 18. These plans cover the following key elements:

- The siting of the built form across the site.
- Setbacks, spacing, building heights and building form.
- Vegetation retention.
- Pedestrian and vehicle access and movement.
- Public and communal open space.

Complementing these architectural plans and images are a series of design parameters that guide the future development of the site.

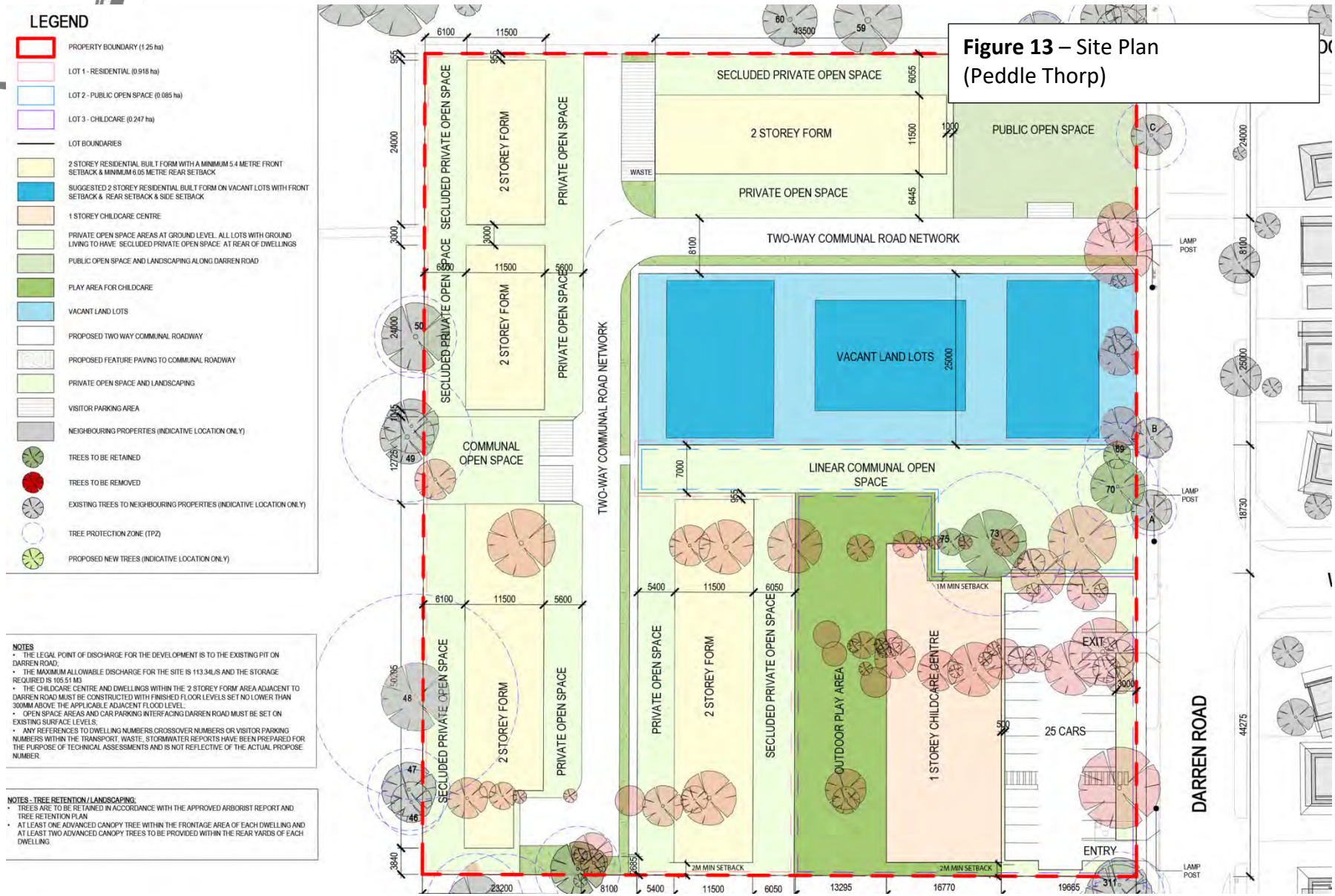


Figure 13 – Site Plan (Peddle Thorp)

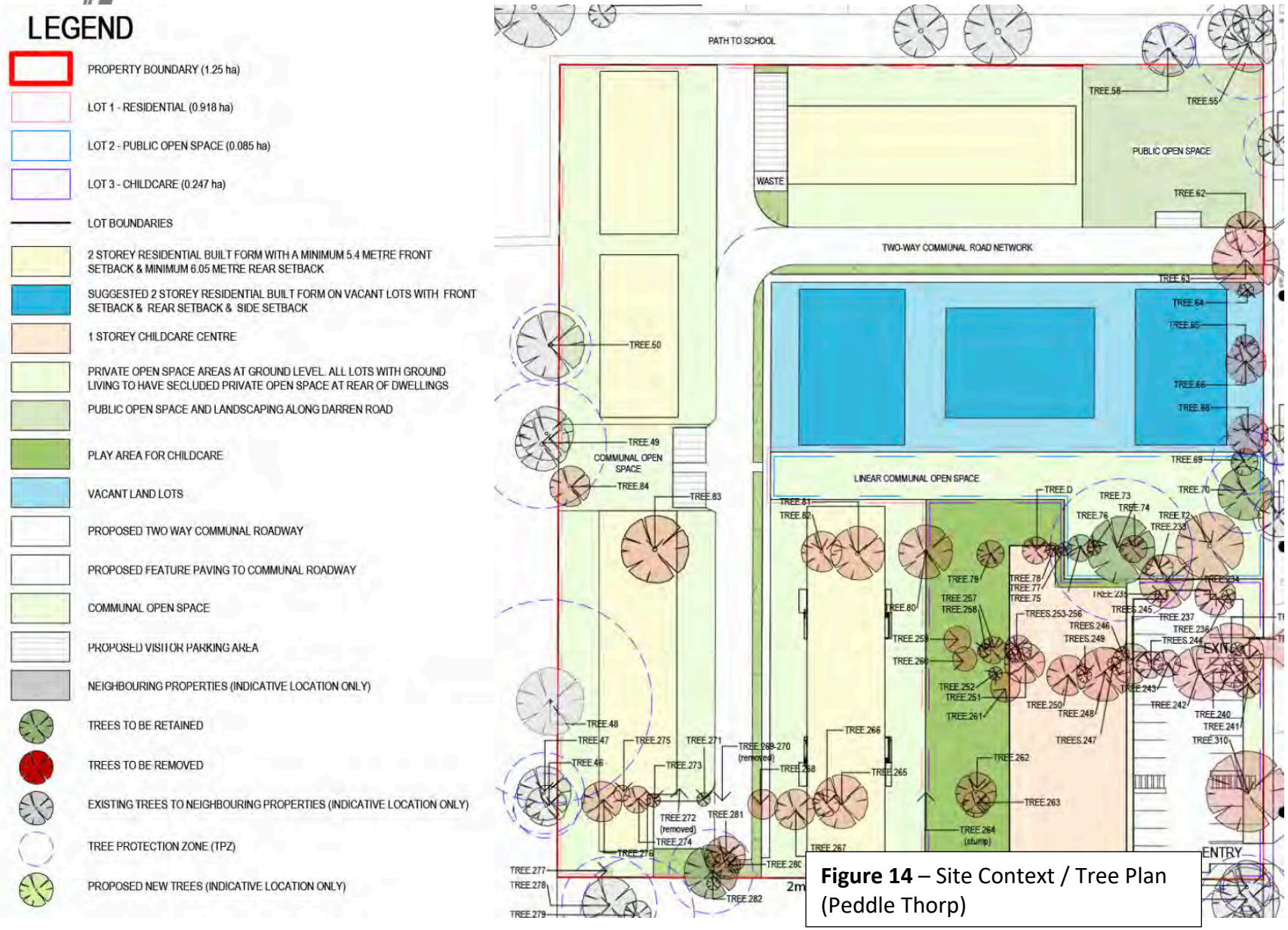


Figure 14 – Site Context / Tree Plan (Peddle Thorp)

Figure 15 – Interface Detail Plan 1 (Peddle Thorp)

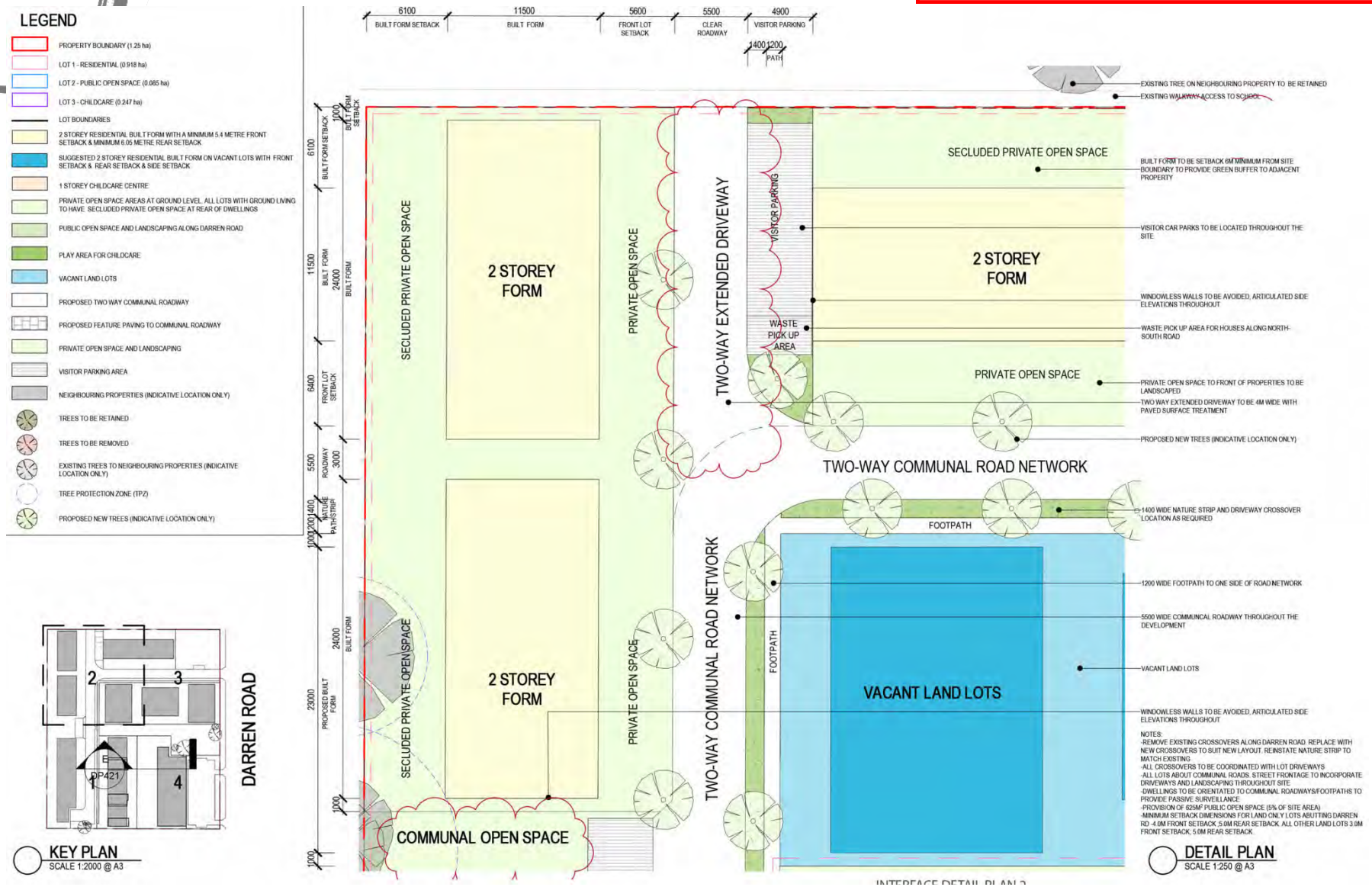


Figure 16 – Interface Detail Plan 2 (Peddle Thorp)

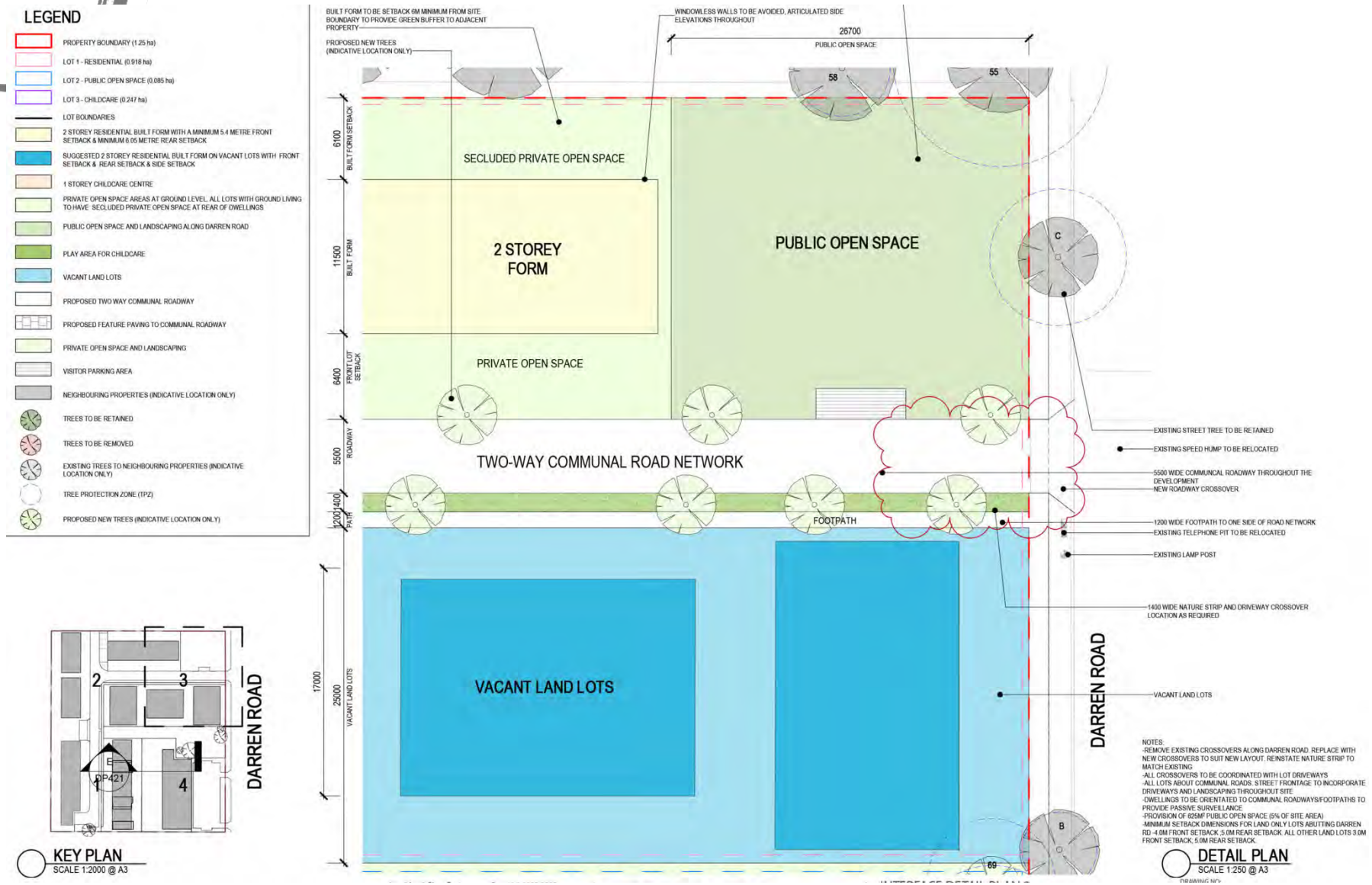


Figure 17 – Interface Detail Plan 4 (Peddle Thorp)

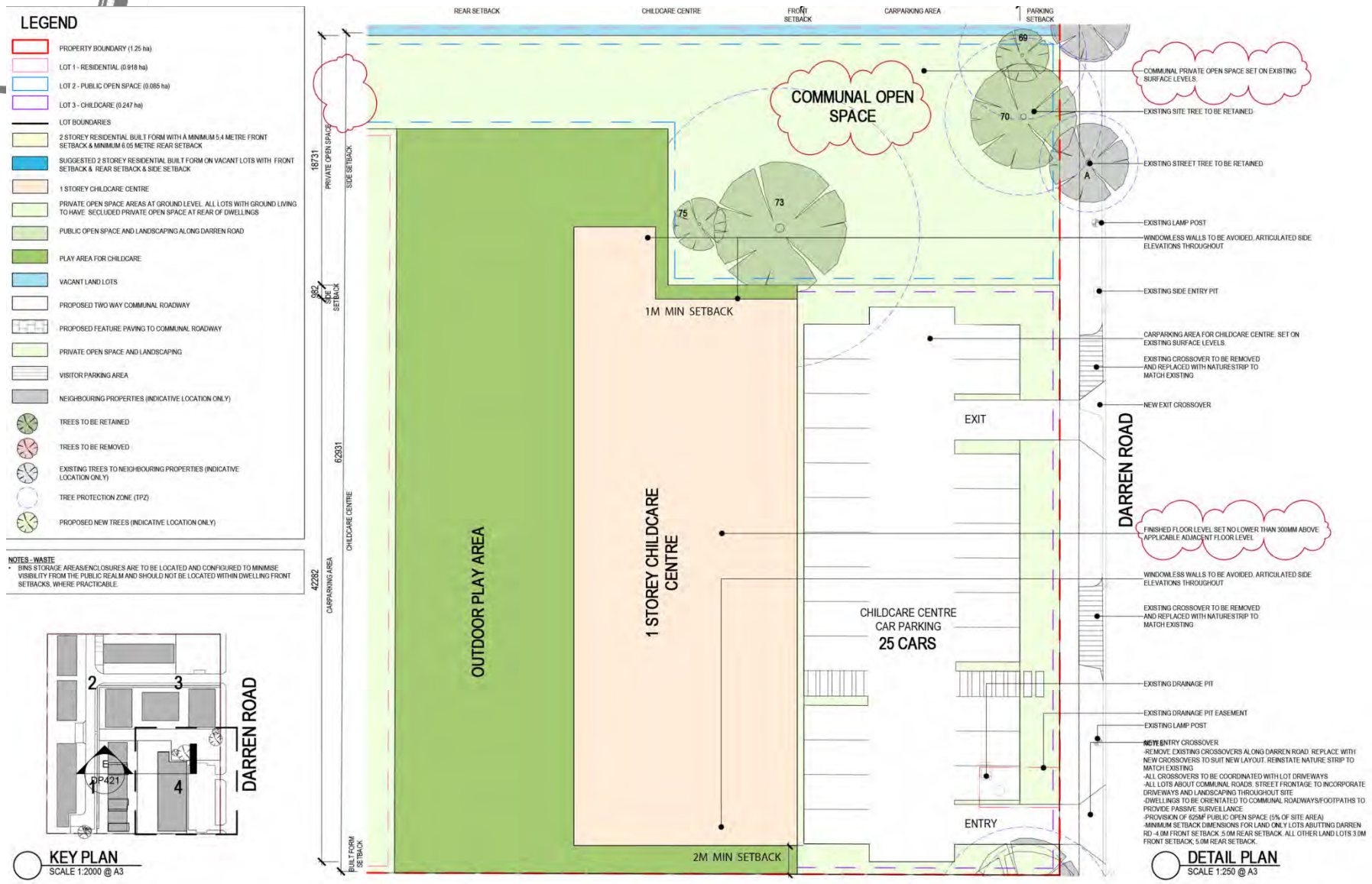


Figure 18 – Interface Detail Plan 4 (Peddle Thorp)

4.1 design and layout parameters

The following design and layout parameters are to guide the future development of this land and should be considered when assessing a planning permit application for development on the land.

Site Parameters for 46 – 62 Darren Road, Springvale	
Public Open Space	▪ There should be a minimum 5% public open space provided across the development plan area. ▪ The public open space should be highly accessible and have a direct frontage to Darren Road. ▪ There shall be 1.8m high timber paling fencing separating the secluded private open space of the dwellings to the north of the east-west road and the public open space. ▪ Fencing to the northern, eastern and southern boundaries of the public open space shall be low and transparent.
Vegetation	▪ Vegetation identified as being retained should be retained, and any measures or recommendations made to retain this vegetation should be adhered to. ▪ All vegetation identified as 'high retention value' in the arboriculture report prepared by 'Landscape Dept April 2020' should be retained.
Road Network & Car Parking	▪ The road network is to be privately managed. ▪ The communal road network is to connect with Darren Road. ▪ Dwellings are to be oriented toward footpaths and roads required by Clause 52.06 of the Greater Dandenong Planning Scheme and/or the Australian Standards.

	▪ Internal road design is to accord with Clause 52.06 of the Greater Dandenong Planning Scheme and/or the Australian Standards. ▪ Internal roads (access lanes) are to provide a two-way trafficable carriageway width of 5.5 metres. ▪ The internal road network is to accommodate the movements of a 6.4 metre length refuse collection vehicle. ▪ Visitor car parking is to be provided within the internal road network (access lanes) at a ratio of one visitor car space for every five dwellings. ▪ Visitor parking is not to encroach on the 5.5 metre wide carriageways. ▪ Footpaths are to be 1.2 metres wide. ▪ Public lighting is to be provided to the satisfaction of the Responsible Authority. ▪ Any reference to dwelling numbers, crossover numbers or visitor parking numbers within the Transport, Waste, Stormwater reports have been prepared for the purpose of technical assessments and is not reflective of the actual proposed number.
Residential Built Form Design and Layout Parameters – 46 – 62 Darren Road, Springvale	
Setbacks	▪ All dwellings are to be setback at least 5.4 metres from their respective front boundaries. ▪ Architectural elements (non-habitable space) may encroach into the front setback by no more than 300mm. ▪ Porches, pergolas and verandahs that are less than 3.6 metres high and eaves may encroach no more than 2.5 metres into the minimum 5.4m front setback. ▪ All dwellings are to have rear setbacks (backyards) of at least 6.0 metres.

	▪ Dwellings shall be setback a minimum 2.0m from the southern boundary (abutting land to the south covered by the Development Plan Overlay, Schedule 13).
Spacing & Layout	▪ A site coverage of a maximum 50% shall be achieved across the site. ▪ Permeability of at least 40% across the site shall be achieved. ▪ Dwelling typology should be single dwelling townhouses (can be detached, attached or semi-detached). ▪ Dwellings will offer a variety of bedrooms, including 2, 3 and 4 bedroom layouts. ▪ All dwellings shall have conventional footprints with predominantly ground level living zones opening onto ground level secluded private open space (non-reverse living). ▪ All dwellings should include a ground level habitable room (with habitable room window) facing the site frontage. ▪ All dwellings with 3 or more bedrooms should include 60 square metres of private open space with one part provided as secluded private open space comprising 40 square metres (minimum) with a minimum dimension of 5 metres and convenient access from a living room at the rear of the dwellings. Two bedroom dwellings are permitted to encroach within the prime secluded private open space areas of the dwelling by no more than 500mm or to the satisfaction of the Responsible Authority. ▪ Secluded private open space areas are to be sited and designed to maximise northern solar access. Where secluded private open space areas are south facing, they should be compliant with Standard B29. ▪ Living areas are to be sited to the north where possible. ▪ All habitable rooms are to have an external window for daylight.

	▪ All habitable rooms should have direct access to natural light. ▪ Built form may be attached at ground level. ▪ First floor forms of the dwellings should be separated 2.0 metres for at least every second dwelling (with the exception of the dwellings adjacent to the childcare centre to the east). ▪ First floor forms of the dwellings adjacent to the childcare centre to the east should be separated for every second dwelling to achieve a 1.5 metre gap. ▪ Trees are to be retained in accordance with the approved Arborist Report and Tree Retention Plan. ▪ At least one advanced canopy tree should be provided in the front setback of each dwelling, and at least two advanced canopy trees should be provided within the rear yards of each dwelling.
Building Heights, Form & Design	▪ All dwellings are to have a maximum 2 storey height. ▪ Single car garages associated with a dwelling with 3 or more bedrooms should be sited to accommodate a tandem car space in accordance with Clause 52.06 of the Planning Scheme. ▪ Front setbacks of dwellings are to be landscaped, with hard paved surfaces in the front setback to be minimised and generally limited to a pedestrian path. ▪ Fences on side and rear boundaries should not extend forward of the primary frontage setback. ▪ Front fences to be limited to a maximum 1.2 metres height and be at least 50% visually transparent in nature. ▪ Street frontages should incorporate landscaped setbacks, with built form directly on the front boundary to be avoided.

	▪ Garages shall be architecturally integrated into the dwelling design. ▪ Blank and window less walls are to be avoided where they are visible from a street or area of public open space. ▪ A consistent and simple palette of materials, colours, finishes and architectural detailing shall be used. ▪ Low maintenance, resource and energy efficient materials and finishes that can reasonably be expected to endure for the life of the building shall be used to maximise the ongoing affordability and sustainability of the dwellings. ▪ Buildings forms are to incorporate a variety of setbacks to ground and first floor levels add to articulation. Continuous and unbroken first floor massing should be avoided, where practicable. ▪ Facades are to incorporate a variety of complementary materials, fenestration and articulation to create a visually interesting streetscape and neighbourhood character. ▪ Exposed front and side facades are to incorporate fenestration to aid with passive surveillance of public areas and create façade articulation. ▪ Any single material should not comprise more than 70% of the façade of the building facing the primary frontage. ▪ Materials such as rendered cement sheeting, unarticulated surfaces and excessive repetitive use of materials should be avoided. ▪ Building materials should be quality, durable building materials and finishes designed for residential purposes. ▪ The use of commercial or industrial style building materials and finishes should be avoided.

	▪ Side and rear fencing is to be timber paling in nature, and is to satisfy relevant sight-line requirements where proximate to a street frontage or footpath. ▪ A suitable storage area of 6 cubic metres is to be provided for each dwelling. ▪ Bin storage areas should not be positioned within front setbacks of dwellings where possible, and should be positioned to minimise visibility from the public realm. ▪ Service installations are to be positioned to minimise their visibility from the public realm. ▪ A fold down clothes-line shall be located in the secluded private open space courtyard of each dwelling.
Land Only Lots Built Form Design and Layout Parameters – 46 – 62 Darren Road, Springvale	
Setbacks	▪ All dwellings with a frontage to Darren Road are to be setback at least 5.4 metres from their respective front boundaries, and all remaining dwellings (non-Darren Road frontage) are to be setback at least 4.0 metres from their respective front boundaries. ▪ Architectural elements (non-habitable space) may encroach into the front setback by no more than 300mm. ▪ Porches, pergolas and verandahs that are less than 3.6 metres high and eaves may encroach no more than 1.4 metres into the minimum 5.4m front setback to Darren Road, or 2.4m into the minimum 4.0m front setback to other roads. ▪ All dwellings are to have rear setbacks (backyards) of at least 5.0 metres at ground and first floor level. ▪ All dwellings are to have a ground and first floor setback of a minimum 1m from at least one side boundary.
Spacing & Layout	▪ A site coverage of a maximum 50% shall be achieved across the site.

	▪ Permeability of at least 40% across the site shall be achieved. ▪ Substantial landscaping should be provided to create a landscaped character, particularly canopy trees in front and rear gardens. ▪ All dwellings shall have conventional footprints with predominantly ground level living zones opening onto ground level secluded private open space (non-reverse living). ▪ All dwellings should include a ground level habitable room (with habitable room window) facing the site frontage. ▪ Secluded private open space throughout the site shall be well proportioned, well connected to dwelling living areas and have access to direct sunlight during the course of the day. ▪ Living areas of all dwellings shall be located with direct connection to secluded private open space. ▪ North facing windows should be provided to all dwellings where possible and beneficial. ▪ Living areas are to be sited to the north where possible. ▪ All habitable rooms are to have an external window for daylight. ▪ All habitable rooms should have direct access to natural light. ▪ Built form may be attached at ground level. ▪ Separation should be provided at the upper level for each dwelling.

	▪ Habitable room windows on all levels of residential buildings that overlook the public realm, public and communal open space, streets, laneways, internal access ways and car parking areas shall be maximised.
Building Heights, Form & Design	▪ All dwellings are to have a maximum 2 storey height. ▪ Garages associated with a dwelling with 3 or more bedrooms should be sited to accommodate a tandem car space in accordance with Clause 52.06 of the Planning Scheme. ▪ Front setbacks of dwellings are to be landscaped, with hard paved surfaces in the front setback to be minimised and generally limited to a pedestrian path. ▪ Fences on side and rear boundaries should not extend forward of the primary frontage setback. ▪ Front fences to be limited to a maximum 1.2 metres height and be at least 50% transparent in nature. ▪ Front setbacks of dwellings are to be landscaped, with hard paved surfaces in the front setback to be minimised and generally limited to a pedestrian path. ▪ Each lot must provide no more than a double garage facing the common property road/street. ▪ Garages shall be integrated into the design of the dwelling, designed to not dominate the streetscape and to maximise soft landscaping opportunities at ground level. ▪ Garage doors should be sectional or tilt style and must not be roller style. ▪ Garages associated with a dwellings that has 3 or more bedrooms should be sited to accommodate a tandem car space in accordance with Clause 52.06 of the Greater Dandenong Planning Scheme.

	▪ Each lot must only be accessed from the Common Property Road via one (1) single crossover with a width of 3.0 metres. ▪ Land only lots are not to be further subdivided. ▪ Blank and window less walls are to be avoided where they are visible from a street or area of public and communal open space. ▪ Buildings forms are to incorporate a variety of setbacks to ground and first floor levels add to articulation. Continuous and unbroken first floor massing should be avoided, where practicable. ▪ Materials such as rendered cement sheeting, unarticulated surfaces and excessive repetitive use of materials should be avoided. ▪ Facades are to incorporate a variety of complementary materials, fenestration and articulation to create a visually interesting streetscape and neighbourhood character. ▪ Exposed front and side facades are to incorporate fenestration to aid with passive surveillance of public areas and create façade articulation. ▪ All domestic and building services shall be visually integrated into the design of the building and appropriately positioned or screened so as not to be visible from the street or adjoining properties. ▪ Side and rear fencing is to be timber paling in nature, and is to satisfy relevant sight-line requirements where proximate to a street frontage or footpath. ▪ A suitable storage area of 6 cubic metres is to be provided for each dwelling. ▪ Bin storage areas should not be positioned within front setbacks of dwellings where possible, and should be positioned to minimise visibility from the public realm.

	▪ A fold down clothes-line shall be located in the secluded private open space courtyard of each dwelling.
Child Care Centre Design and Layout Parameters – 46 – 62 Darren Road, Springvale	
Setbacks	▪ The primary child care centre car park is to be located between the child care centre building and Darren Road. ▪ The child care centre building should be setback at least 2.0m from the southern boundary (with the adjacent lot that is also covered by the DPO13). ▪ The child care centre building should be setback at least 1.0m from the abutting private open space area to the north.
Spacing & Layout	▪ The child care centre is to include ground level play areas. ▪ Built form within the child care centre module should be informed by root exploratory trenching performed by a suitably qualified arborist to the satisfaction of Council and should utilise pier and beam and associated construction techniques as required to facilitate the retention of Tree 73 located within the site.
Building Heights, Form and Detail	▪ The child care centre shall be single level. ▪ Bin storage areas are to be sited within an enclosure so they are not visible from the street or public realm. ▪ Side and rear fencing is to be timber paling in nature, and is to satisfy relevant sight-line requirements where proximate to a street frontage or footpath. ▪ Blank and window less walls are to be avoided where they are visible from a street or area of public open space.

Advertising Signage	▪ Business identification signage with an area of up to 8 square metres may be located on the child care centre building. ▪ Signage on the building should be integrated with the building design. ▪ Signage on the building should not extend above the wall height of the building. ▪ One business identification sign with an area of up to 2 square metres may be located parallel to the street as per Figure 5a of the Advertising Signs Policy at Clause 22.11 of the Greater Dandenong Planning Scheme. ▪ One direction sign may be located for each vehicular entry and exit point. ▪ All signage is to be non-illuminated.

5.0 landscape concept plan

A landscape concept plan prepared by John Patrick Landscape Architects Pty Ltd forms part of this development plan.

The landscape concept plan includes:

- Details of the treatment of the public realm, including the treatment of the public open space reserve fronting Darren Road, the two communal private open space reserves, and includes details of street tree planting and nature strip treatment.
- Reference to the Tree Retention Plan included in the '*Ecology and Arboriculture Assessment and Tree Retention Plan'* (Jacobs, 2015).
- Details of vegetation to be retained as referenced in the accompanying arboricultural assessment prepared by the Landscape Dept.
- Details of new planting, its location and a planting theme for the site, including suggested species for trees, shrubs and ground cover species, including images/photographs of suggested tree species.

6.0 environmentally sustainable design statement

An Environmentally Sustainable Design statement prepared by Urban Digestor forms part of this development plan and responds to Clause 22.06 (Environmentally Sustainable Development) of the Planning Scheme and the requirements of Schedule 13 to the Development Plan Overlay in outlining environmentally sustainable practices and best practice water sensitive design principles that include energy and water conservation, passive solar design, waste minimisation, vegetation retention, the promotion of alternative transport options amongst other practices.

The Environmentally Sustainable Design statement includes environmentally sustainable design initiatives relating to:

- The management of the dwellings and childcare centre.
- Water conservation throughout the development plan area.
- Achieving suitable energy efficiency outcomes.
- Indoor environment quality.
- Sustainable transport methods.
- Waste.
- Urban ecology outcomes.

7.0 vehicle access, car parking and traffic management

A Traffic and Transport Assessment prepared by Cardno forms part of this development plan and details measures to satisfy Clause 52.06 (Car Parking) of the Planning Scheme and the detailed requirements of Schedule 13 to the Development Plan Overlay.

This assessment includes a detailed analysis on existing road conditions, existing traffic generation and also includes likely traffic impact levels associated with the development plan at 15-29 Coomoora Road, Springvale South.

The assessment then considers post-development traffic generation and its impact on the surrounding road network, along with associated mitigation treatments.

A detailed assessment is provided on the road layout, the road design, reserve widths, vehicle ingress/egress to and from the site, location of on-site car parking, dimensions of garages and car park areas, along with a pedestrian and bicycle facilities and network plan.

8.0 stormwater management

A Stormwater Management Plan prepared by Equilibrium Engineering Pty Ltd forms part of this development plan and details measures to satisfy Clause 53.18 (Stormwater Management in Urban Development) of the Planning Scheme.

This Plan outlines measures to accommodate the anticipated increase in stormwater discharge, means of comply with best practice environmental management and the implementation of water sensitive urban design.

Some of the key measures recommended include the use of rainwater tanks to collect water from the extensive roof areas and the use of rain-gardens adjacent to parking areas.

9.0 provision of service infrastructure

The development plan area forms part of an established residential area that is connected to all relevant services and forms of infrastructure.

Discussions with relevant service authorities indicate the capacity for the development plan area to connect to existing services and infrastructure, including electricity, water, sewer, gas, telephone/internet etc.

10.0 urban design guidelines for victoria

The *Urban Design Guidelines for Victoria* is a document prepared by the Victorian State Government that assist in delivering functional and enjoyable places for people to live, work, and spend leisure time. They aim to create neighbourhoods that foster community interaction and that make it easy for people of all ages and abilities to live healthy lifestyles and engage in regular physical activity.

This development plan adopts a number of the key objectives outlined in the Urban Design Guidelines for Victoria, including:

- The provision of footpaths that have a straight alignment and flat topography promotes strong pedestrian links through the development plan area by persons of all ability, and in doing so, increases human activity, outlook and interaction (objective 2.1.1).
- Curved roads are avoided, promoting clear sightlines between vehicles using the road network, and pedestrians and cyclists using the footpaths/roads (objective 2.1.2).
- The locating of vehicle zones (roads) and pedestrian/cycle zones (footpath) side by side increases informal surveillance and a feeling of safety (objective 2.2.1).
- The dwellings will each feature a ground level habitable room (and habitable room window) facing the frontage and street that enhances informal surveillance and safety (objective 2.2.2).
- The dwelling module heights (2 storey) and conventional floor plans with ground level open space that accords with the Neighbourhood Residential Zone, Schedule 1 achieves a built form scale and layout that supports the existing and preferred character (objective 2.2.3).
- The use of indented visitor car parking achieves parking efficiencies and responds to the narrower street context (objective 2.7.1).
- The public open space has a prominent frontage and entry point to Darren Road, the east-west road and the abutting pedestrian link to the north of the site, promoting open views, convenient access and pedestrian/community interaction (objective 3.1.1).

- The public open space has been sited to facilitate the retention of landscape elements that contribute to the existing and preferred character of the area (objective 3.1.6).

- Surveillance is available to open space areas (public and common) by having habitable room windows face these areas (objective 5.2.2).

- Two storey dwellings facing west allow surveillance of the open space of the Keysborough Primary School (objective 5.2.2).

11.0 crime prevention through environmental design

Crime Prevention through Environmental Design is a document prepared by the Victorian State Government comprising a series of strategies designed to reduce the fear of crime and opportunities to commit crimes. These strategies are to be considered during the planning and design stage of development.

This development plan adopts a number of the strategies outlined in *Crime Prevention through Environmental Design*, including:

- The capacity to include street lighting along the east-west and north-south roads.
- The avoidance of concealed spaces in the public and communal open space areas.
- The straight alignment of roads and open space networks that promote sight-lines.
- The clustering of dwellings to create neighbour-to-neighbour surveillance.
- The requirement for low and transparent front fencing.
- The directives to locate habitable room windows facing the frontage of each dwelling.
- The setting back of the dwelling modules and child care centre walls from the public open space and communal open space reduces the potential for graffiti and associated vandalism.

12.0 ecology and arboriculture assessment / tree retention plan

The Schedule 13 to the Development Plan Overlay requires that the development concept plan include "*the identification of existing vegetation to be retained and removed, having regard to the findings of Ecology and Arboriculture Assessment and Tree Retention Plan*" (Jacobs 2015).

The Jacobs report (2015) mentions the site is highly modified and exotic grasses and weeds dominate the ground cover of the site; there is no native remnant vegetation on site; native trees on site are planted and thus satisfy the exemptions required for planning approval under Clause 52.17-7 of the Greater Dandenong Planning Scheme.

The Jacobs report (2015) has formed the starting point of identifying the status of vegetation on site. Noting the Jacobs report is now five years old and that site conditions and environmental conditions including drought have taken place in the interim, the Jacobs report has been supplemented by an arboricultural assessment prepared by Landscape Dept dated April 2020.

The Landscape Dept report (2020) uses the same tree numbering as the Jacobs report (2015) and provides an updated assessment of tree conditions. The Landscape Dept report (2020) references both trees on the subject land, along with trees abutting the site. A classification key of 'high retention value', 'moderate retention value', 'low retention value' and 'no retention value' applies.

The trees recommended for retention are identified by the tree protection zones provided, with these tree protection zones aligning with those prescribed in the Landscape Dept report (2020).

The location of these trees is outlined in figure 13 on page 55 of this Development Plan.

The retention of tree 73 necessitates the use of pier and beam construction techniques in concert with root exploratory trenching.

55-67 COOMOORA RD & 46-62 DARREN RD | SPRINGVALE SOUTH

DEVELOPMENT PLAN
JULY 2022

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

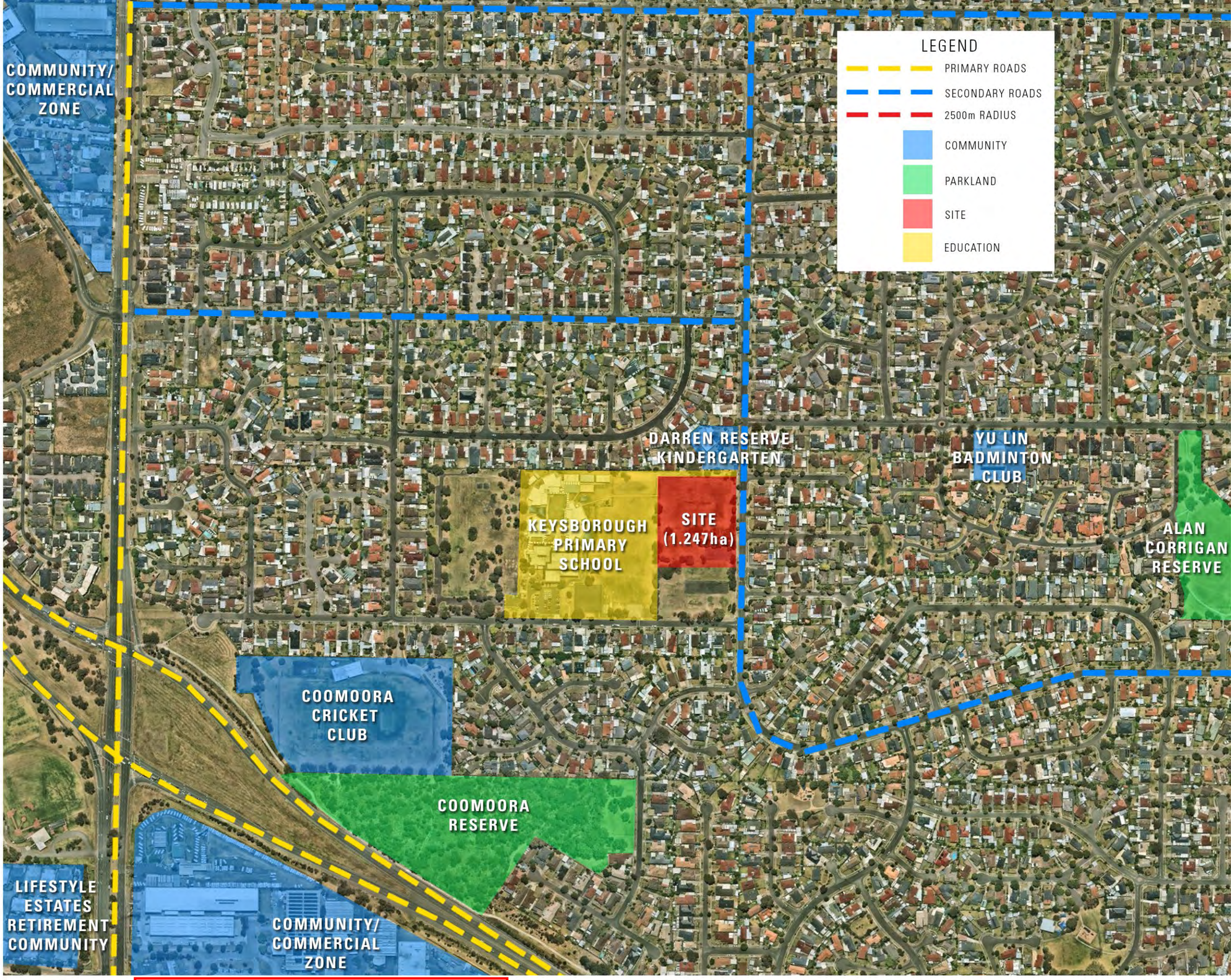
REVISION: K

DATE: JULY 2022

DRAWING NO: DP-000

46-62 DARREN ROAD, SPRINGVALE - RFI

CONTENTS	SCALE @ A3
DP001 CONTENTS	1:5000
DP002 LOCATION PLAN	1:2000
DP003 SITE ANALYSIS	1:1000
DP004 EXISTING SITE PLAN	1:500
DP005 SITE PHOTOS	N.T.S
DP006 SURVEY	1:500
DP100 EXISTING TREE ANALYSIS	1:500
DP101 TREE RETENTION	1:500
DP200 DESIGN RESPONSE	1:1000
DP201 DEVELOPMENT PLAN	N.T.S
DP202 CONTEXT PLAN	1:1000
DP300 SITE PLAN	1:500
DP301 INTERFACE DETAIL PLAN 1	1:250
DP302 INTERFACE DETAIL PLAN 2	1:250
DP303 INTERFACE DETAIL PLAN 3	1:250
DP304 INTERFACE DETAIL PLAN 4	1:250
DP400 SECTIONS A & B	1:100
DP401 SECTIONS C & D	1:100
DP500 ELEVATION	1:200



PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

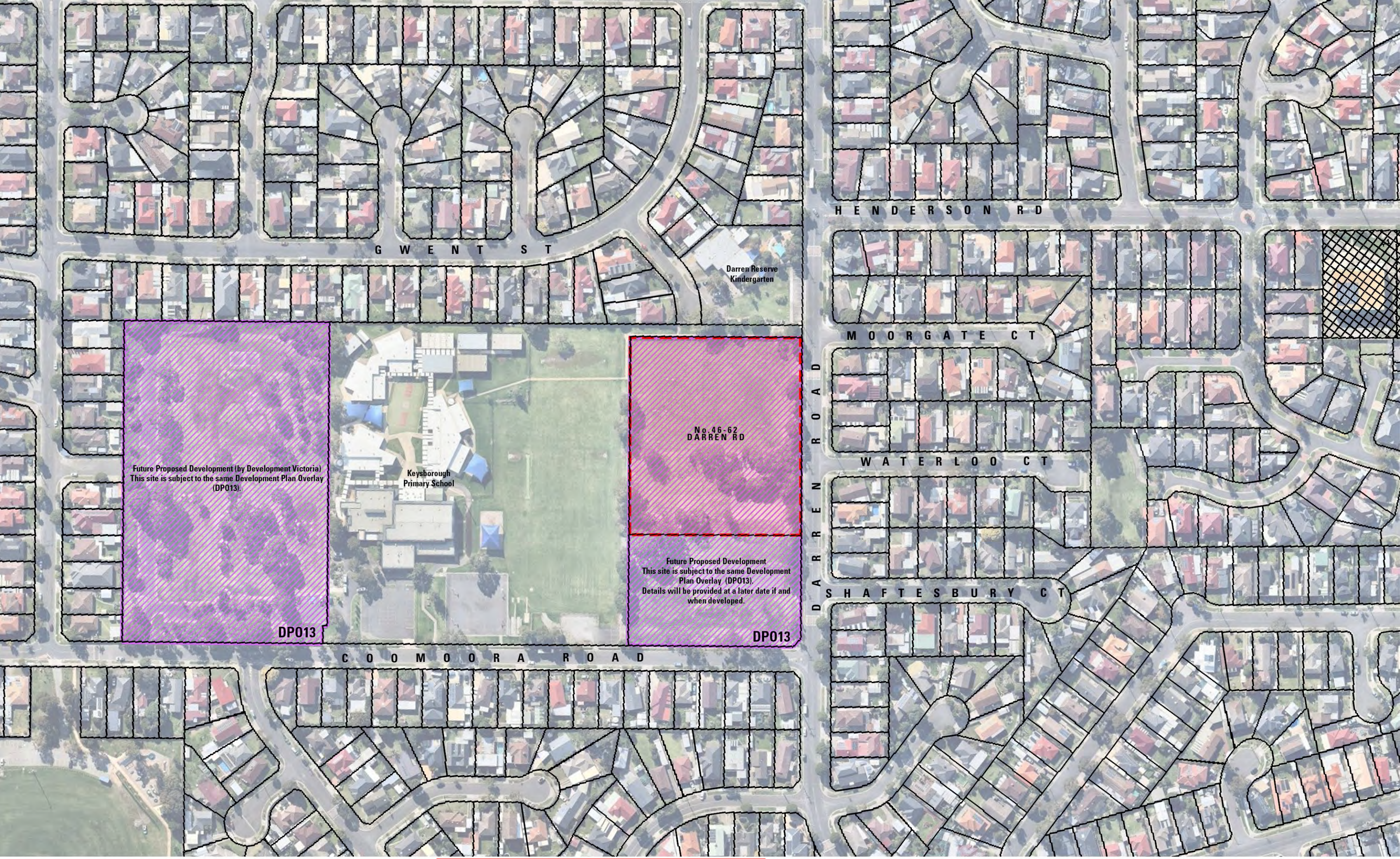
SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

CONTENT

REVISION: K
DATE: JULY 2022
SCALE: 1:5000@A3

DRAWING NO: DP-001



PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

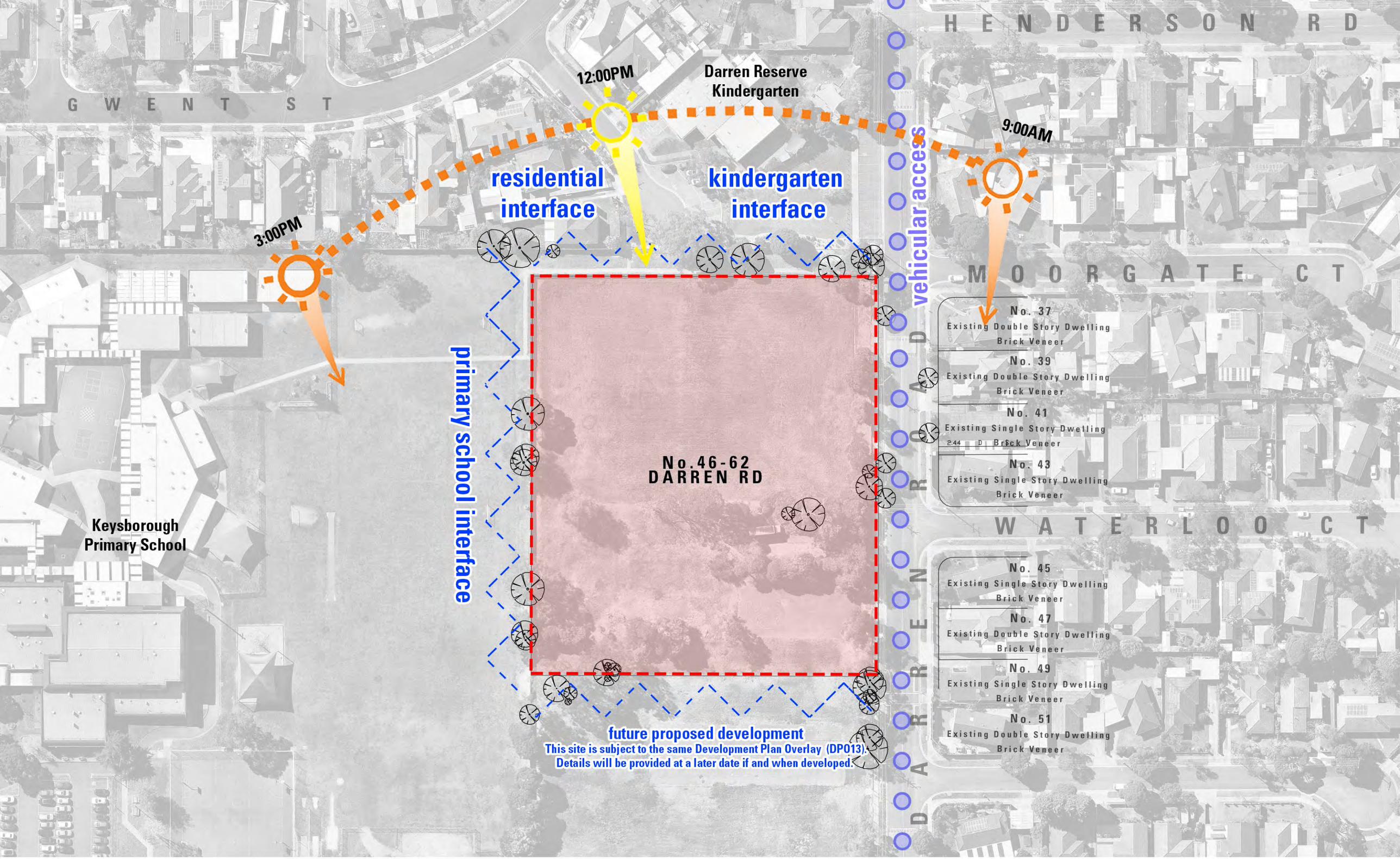
LOCATION PLAN

REVISION: K

DATE: JULY 2022

SCALE: 1:2000@A3

DRAWING NO: DP-002



PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

SITE ANALYSIS

REVISION: K
DATE: JULY 2022
SCALE: 1:1000@A3

DRAWING NO: DP-003

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

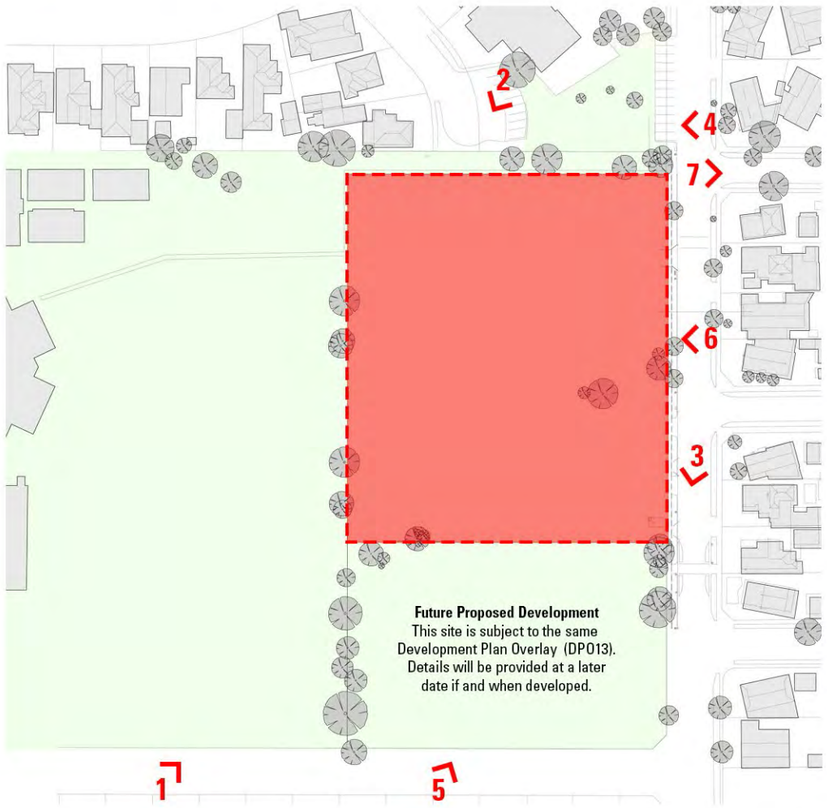
EXISTING SITE PLAN

REVISION: K

DATE: JULY 2022

SCALE: 1:500@A3

DRAWING NO: DP-004



PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

SITE

REVISION: K

DATE: JULY 2022

SCALE: NOT TO SCALE

DRAWING NO: DP-005

Legend:

	ELECTRICITY POLE
	FIRE HYDRANT
	GAS VALVE
	SEWER INSPECTION SHAFT
	SEWERAGE PIT
	STAYWIRE
	TELEPHONE PIT
	DRAINAGE PIT
	CROSSING BOLLARD
INV	INVERT OF KERB
TOK	TOP OF KERB
SB	SETBACK
POS	PRIVATE OPEN SPACE
SEP	SIDE ENTRY PIT
TOP	TOP OF PIT
W	WINDOW (SEE SCHEDULE)

Window Schedule:

WINDOW	HEAD	SILL	TYPE
W1	23·8	23·3	NON-HABITABLE WINDOW
W2	23·8	23·3	NON HABITABLE WINDOW
W3	23·7	22·5	HABITABLE WINDOW

Plan Of Features & Levels

Parish:	DANDENONG
Crown Allotment:	2272
Site Address:	44-62 DARREN ROAD SPRINGVALE SOUTH
Certificate of Title:	VOL 12016 FOL 598
Last Plan Reference:	TP965055C
Surveyor:	BENJAMIN SADLIER
Date of Survey:	24/01/2020
Client:	PARAGON DEVELOPMENT GROUP

Notations:

LEVELS SHOWN THUS +19·69 ARE TO THE AUSTRALIAN HEIGHT DATUM IN METRES BASED ON PM590 WITH STATED RL 20.495

DEPTH LIMITATION 15 METRES

CONTOUR INTERVAL IS 0·20 METRES

E-1 SEWERAGE EASEMENT

SITE AREA: 1·247ha

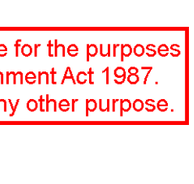
RIDGE LINES SHOWN ON THIS PLAN HAVE BEEN DERIVED FROM SATELLITE IMAGERY AND HAVE NOT BEEN LOCATED ACCURATELY ON SITE

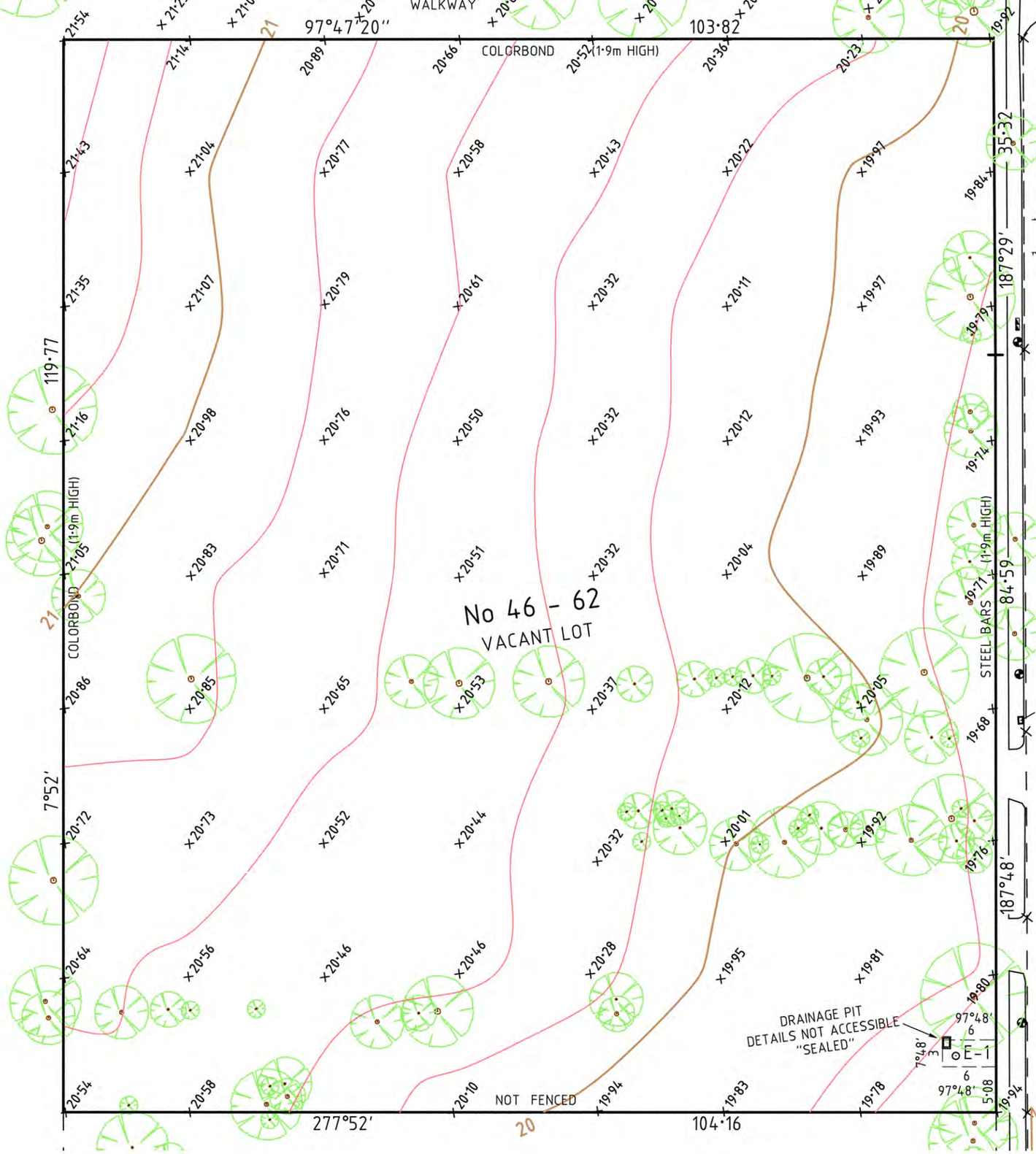
TITLE BOUNDARIES ARE REPRESENTED BY THICK LINES

ONLY VISIBLE SERVICES ARE SHOWN ON THIS PLAN

PRIOR & KELLY PTY LTD
936 HIGH STREET
RESERVOIR 3073
TEL: (03) 9478 6044
FAX: (03) 9470 6509
A.B.N. 95 076 725 892

SIDE ENTRY PIT DETAILS





PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

SURVEY

REVISION: K

DATE: JULY 2022

SCALE: 1:500A3

DRAWING NO: DP-006

ARBORIST REPORT TREE CLASSIFICATION KEY

HIGH

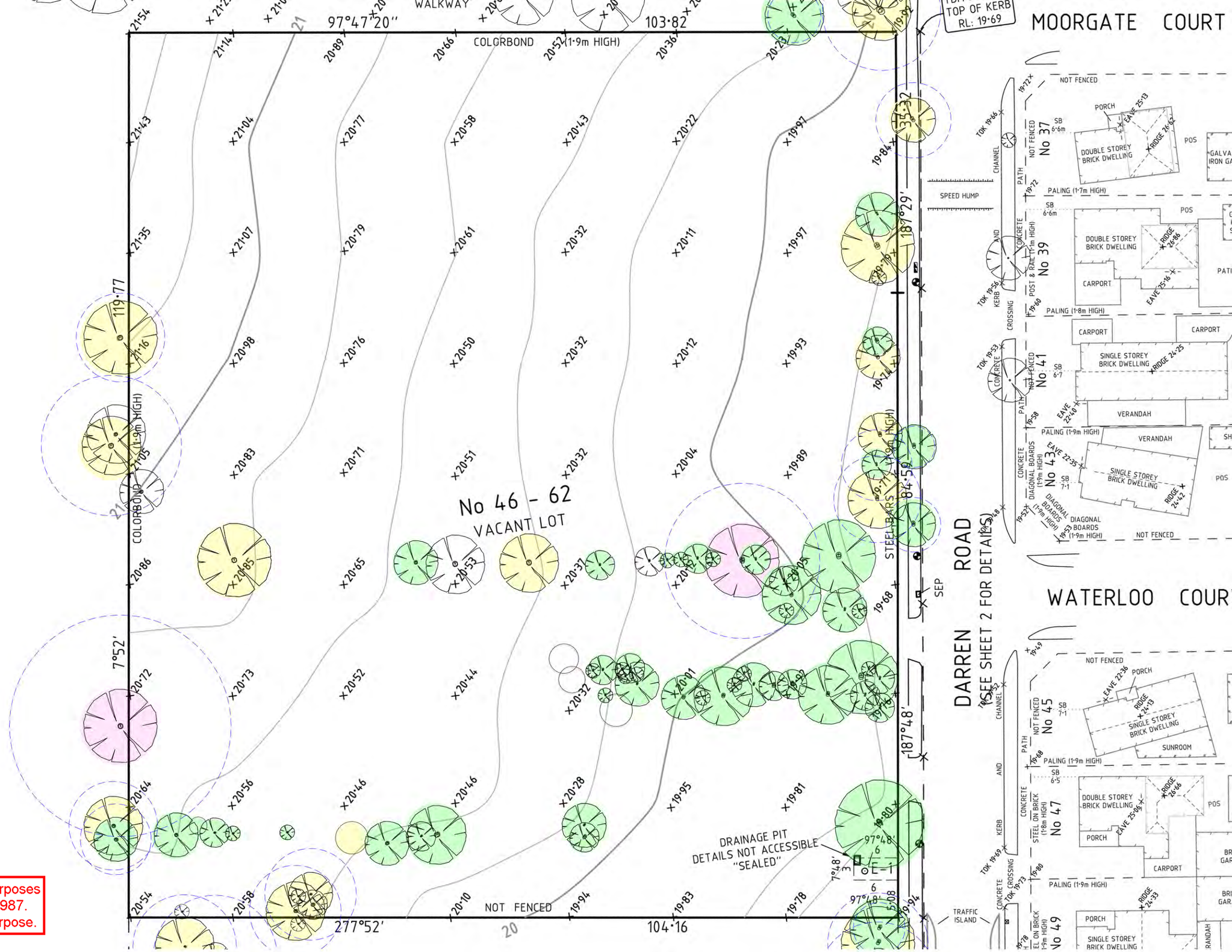
MODERATE

LOW

NONE

TPZ OF TREES TO BE RETAINED

*TREES WITH TPZ'S ARE TO BE RETAINED
*TREES WITHOUT TPZ'S ARE TO BE REMOVED
*CLASSIFICATIONS FROM ABORICULTURAL IMPACT ASSESSMENT BY LANDSCAPE DEPT APRIL 2020
*ALL TREE NUMBERS IN THE 2020 ARBORICULTURAL IMPACT ASSESSMENT BY LANDSCAPE DEPT. AND THE 2015 ECOLOGICAL ASSESSMENT BY JACOBS ARE THE SAME



PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

EXISTING TREE ANALYSIS DIAGRAM

REVISION: K

DATE: JULY 2022

SCALE: 1:500A3

DRAWING NO: DP-100

LEGEND

TREES TO BE REMOVED

TREES TO BE RETAINED

TPZ OF TREES TO BE RETAINED

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

TREE RETENTION DIAGRAM

REVISION: K

DATE: JULY 2022

SCALE: 1:500A3

DRAWING NO: DP-101

interface to landscaped pedestrian link | contextual streetscape to frontage | pedestrian link to school | visual axis to proposed public open space | tree to be retained | tree to be removed

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

DESIGN RESPONSE

REVISION: K

DATE: JULY 2022

SCALE: 1:1000A3

DRAWING NO: DP-200

The Development Plan

The future development of the subject site is outlined by a series of drawings
These drawings address the following themes.

- General site layout.
- Built form, including setbacks, building height and other key principles.
- Tree retention and removal.
- Site access and movement.
- Open space.

It is proposed to develop the subject site with a series of two storey, townhouse-style dwellings and some two storey, detached style dwellings. These dwellings will be located around a communal road network.

The future development layout has been informed by the retention of canopy vegetation identified to have the highest retention value. Communcal Private Open Space and landscaping has been provided in a west east axis through the middle of the site. An area of public open space a minimum 5% of the total area of the subject site is proposed along the Darren Road frontage at the North east corner of the site.

The SW corner of the site is dedicated to a childcare centre with frontage on Darren Road. This 2,480m² site will have a 1 storey building with an east-west orientation to maximise solar access. Car parking will face Darren road for ease of access

The street layout has been indicated to ensure that future lots predominantly have an east-west orientation to maximise solar access.

Two storey townhouses are proposed throughout the subject site. These dwellings are to have living on ground fronting areas of public open space and roads encouraging passive surveillance. Vacant land lots are also proposed for more traditional detached style dwellings.

Dwellings are expected to be set back 5.4 metres from internal streets, although there are some examples where smaller setbacks are acceptable, as indicated by the following plans.

The traditional style dwellings will meet the secluded private open space provisions of the NRZ1, with a size and layout to ensure that these spaces are highly functional for future residents.

Vehicle access to the site will be provided from Darren Road to the east. Car parking will be provided in accordance with Clause 52.06 of the Scheme.

It is noted that while the following drawings contain details as to how the subject site is to be developed, the detailed design of any future development will need to be determined at planning permit application stage.

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

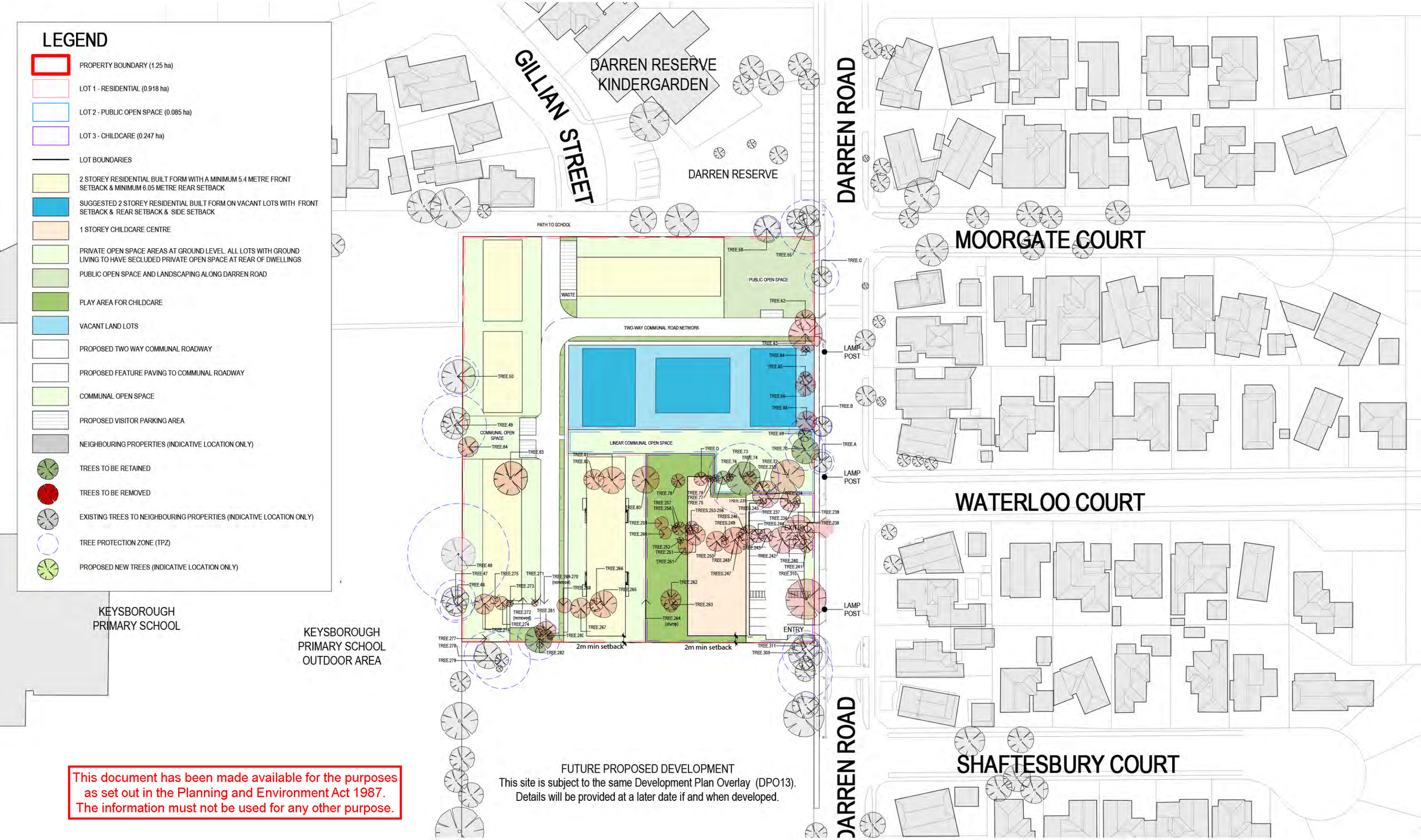
DEVELOPMENT PLAN

REVISION: K
DATE: JULY 2022
SCALE: NOT TO SCALE

DRAWING NO: DP-201

LEGEND

- PROPERTY BOUNDARY (1.25 ha)
- LOT 1 - RESIDENTIAL (0.918 ha)
- LOT 2 - PUBLIC OPEN SPACE (0.085 ha)
- LOT 3 - CHILDCARE (0.247 ha)
- LOT BOUNDARIES
- 2 STOREY RESIDENTIAL BUILT FORM WITH A MINIMUM 5.4 METRE FRONT SETBACK & MINIMUM 6.05 METRE REAR SETBACK
- SUGGESTED 2 STOREY RESIDENTIAL BUILT FORM ON VACANT LOTS WITH FRONT SETBACK & REAR SETBACK & SIDE SETBACK
- 1 STOREY CHILDCARE CENTRE
- PRIVATE OPEN SPACE AREAS AT GROUND LEVEL. ALL LOTS WITH GROUND LIVING TO HAVE SECLUDED PRIVATE OPEN SPACE AT REAR OF DWELLINGS
- PUBLIC OPEN SPACE AND LANDSCAPING ALONG DARREN ROAD
- PLAY AREA FOR CHILDCARE
- VACANT LAND LOTS
- PROPOSED TWO WAY COMMUNAL ROADWAY
- PROPOSED FEATURE PAVING TO COMMUNAL ROADWAY
- COMMUNAL OPEN SPACE
- PROPOSED VISITOR PARKING AREA
- NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- EXISTING TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREE PROTECTION ZONE (TPZ)
- PROPOSED NEW TREES (INDICATIVE LOCATION ONLY)



FUTURE PROPOSED DEVELOPMENT
This site is subject to the same Development Plan Overlay (DPO13).
Details will be provided at a later date if and when developed.

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

CONTEXT PLAN

REVISION: K
DATE: JULY 2022
SCALE: 1:1000A3

DRAWING NO: DP-202

LEGEND

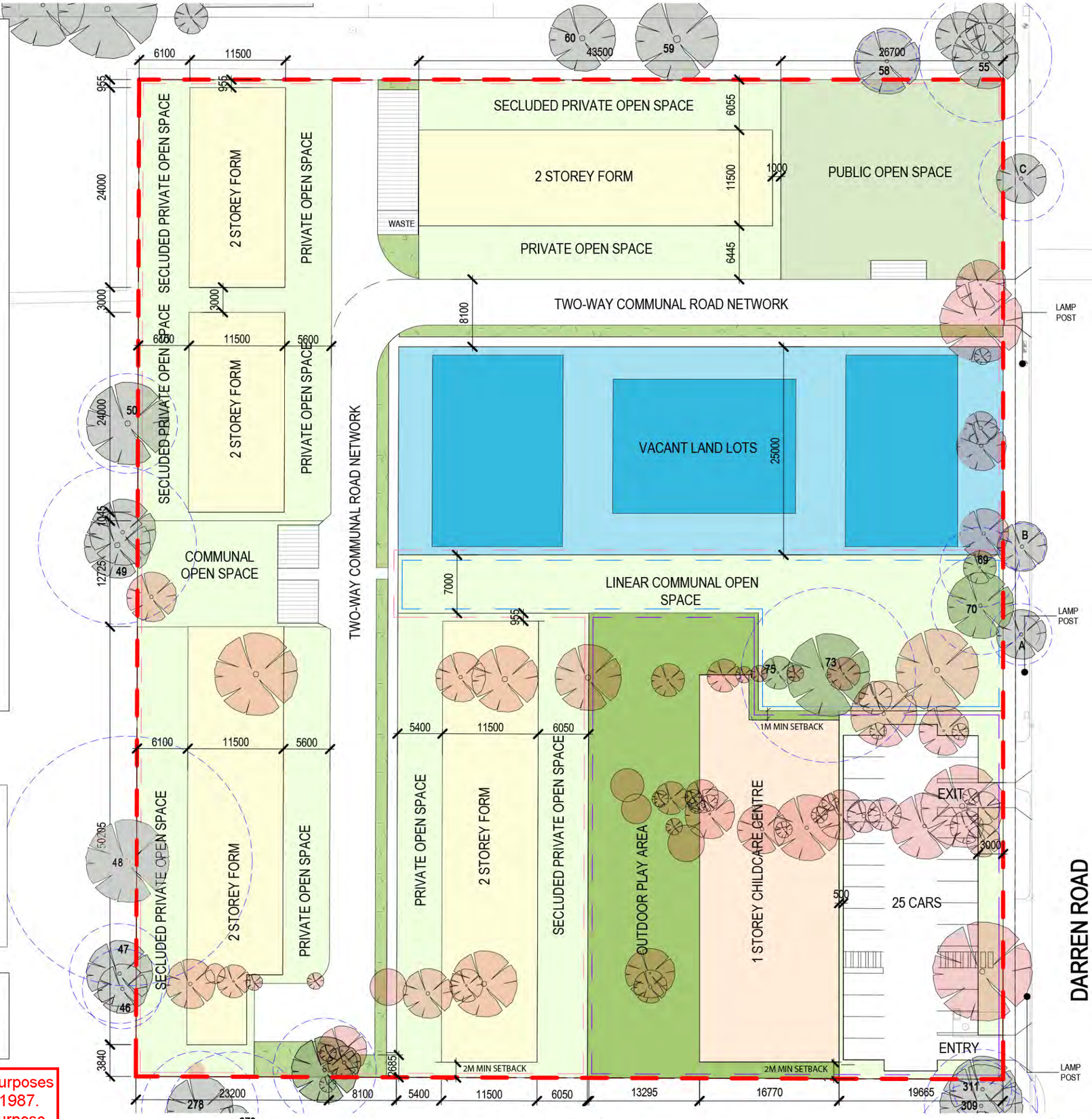
- PROPERTY BOUNDARY (1.25 ha)
- LOT 1 - RESIDENTIAL (0.918 ha)
- LOT 2 - PUBLIC OPEN SPACE (0.085 ha)
- LOT 3 - CHILDCARE (0.247 ha)
- LOT BOUNDARIES
- 2 STOREY RESIDENTIAL BUILT FORM WITH A MINIMUM 5.4 METRE FRONT SETBACK & MINIMUM 6.05 METRE REAR SETBACK
- SUGGESTED 2 STOREY RESIDENTIAL BUILT FORM ON VACANT LOTS WITH FRONT SETBACK & REAR SETBACK & SIDE SETBACK
- 1 STOREY CHILDCARE CENTRE
- PRIVATE OPEN SPACE AREAS AT GROUND LEVEL. ALL LOTS WITH GROUND LIVING TO HAVE SECLUDED PRIVATE OPEN SPACE AT REAR OF DWELLINGS
- PUBLIC OPEN SPACE AND LANDSCAPING ALONG DARREN ROAD
- PLAY AREA FOR CHILDCARE
- VACANT LAND LOTS
- PROPOSED TWO WAY COMMUNAL ROADWAY
- PROPOSED FEATURE PAVING TO COMMUNAL ROADWAY
- PRIVATE OPEN SPACE AND LANDSCAPING
- VISITOR PARKING AREA
- NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- EXISTING TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREE PROTECTION ZONE (TPZ)
- PROPOSED NEW TREES (INDICATIVE LOCATION ONLY)

NOTES

- THE LEGAL POINT OF DISCHARGE FOR THE DEVELOPMENT IS TO THE EXISTING PIT ON DARREN ROAD;
- THE MAXIMUM ALLOWABLE DISCHARGE FOR THE SITE IS 113.34L/S AND THE STORAGE REQUIRED IS 105.51 M3
- THE CHILDCARE CENTRE AND DWELLINGS WITHIN THE '2 STOREY FORM' AREA ADJACENT TO DARREN ROAD MUST BE CONSTRUCTED WITH FINISHED FLOOR LEVELS SET NO LOWER THAN 300MM ABOVE THE APPLICABLE ADJACENT FLOOD LEVEL;
- OPEN SPACE AREAS AND CAR PARKING INTERFACING DARREN ROAD MUST BE SET ON EXISTING SURFACE LEVELS;
- ANY REFERENCES TO DWELLING NUMBERS,CROSSOVER NUMBERS OR VISITOR PARKING NUMBERS WITHIN THE TRANSPORT, WASTE, STORMWATER REPORTS HAVE BEEN PREPARED FOR THE PURPOSE OF TECHNICAL ASSESSMENTS AND IS NOT REFLECTIVE OF THE ACTUAL PROPOSE NUMBER.

NOTES - TREE RETENTION / LANDSCAPING:

- TREES ARE TO BE RETAINED IN ACCORDANCE WITH THE APPROVED ARBORIST REPORT AND TREE RETENTION PLAN
- AT LEAST ONE ADVANCED CANOPY TREE WITHIN THE FRONTAGE AREA OF EACH DWELLING AND AT LEAST TWO ADVANCED CANOPY TREES TO BE PROVIDED WITHIN THE REAR YARDS OF EACH DWELLING.



PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

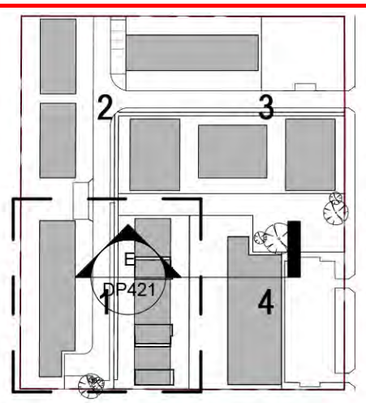
SITE PLAN

REVISION: K
DATE: JULY 2022
SCALE: 1:5000A3

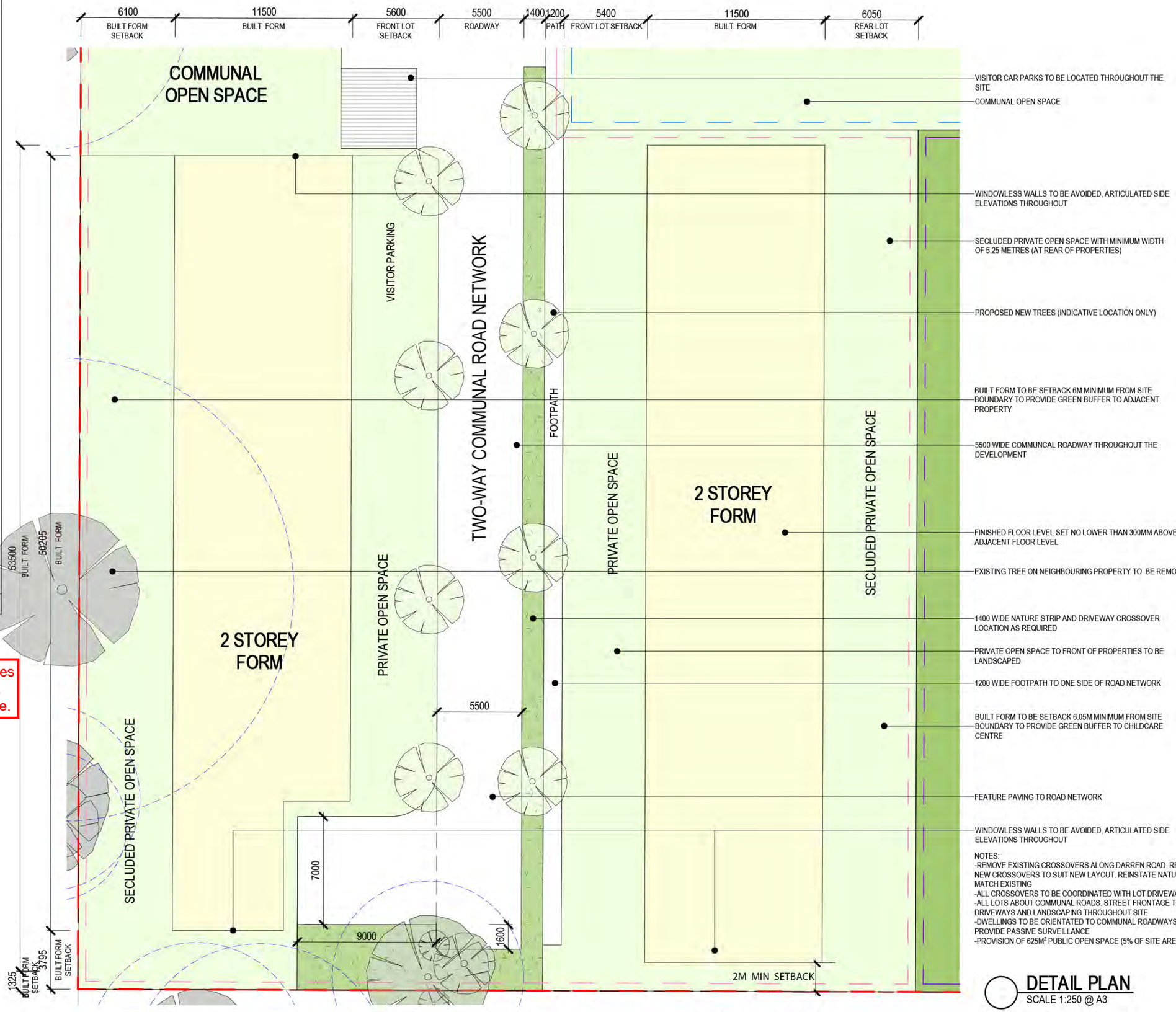
DRAWING NO: DP-300

LEGEND

- PROPERTY BOUNDARY (1.25 ha)
- LOT 1 - RESIDENTIAL (0.918 ha)
- LOT 2 - PUBLIC OPEN SPACE (0.085 ha)
- LOT 3 - CHILDCARE (0.247 ha)
- LOT BOUNDARIES
- 2 STOREY RESIDENTIAL BUILT FORM WITH A MINIMUM 5.4 METRE FRONT SETBACK & MINIMUM 6.05 METRE REAR SETBACK
- SUGGESTED 2 STOREY RESIDENTIAL BUILT FORM ON VACANT LOTS WITH FRONT SETBACK & REAR SETBACK & SIDE SETBACK
- 1 STOREY CHILDCARE CENTRE
- PRIVATE OPEN SPACE AREAS AT GROUND LEVEL. ALL LOTS WITH GROUND LIVING TO HAVE SECLUDED PRIVATE OPEN SPACE AT REAR OF DWELLINGS
- PUBLIC OPEN SPACE AND LANDSCAPING ALONG DARREN ROAD
- PLAY AREA FOR CHILDCARE
- VACANT LAND LOTS
- PROPOSED TWO WAY COMMUNAL ROADWAY
- PROPOSED FEATURE PAVING TO COMMUNAL ROADWAY
- PRIVATE OPEN SPACE AND LANDSCAPING
- VISITOR PARKING AREA
- NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- EXISTING TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREE PROTECTION ZONE (TPZ)
- PROPOSED NEW TREES (INDICATIVE LOCATION ONLY)



KEY PLAN
SCALE 1:2000 @ A3



NOTES:
-REMOVE EXISTING CROSSOVERS ALONG DARREN ROAD. REPLACE WITH NEW CROSSOVERS TO SUIT NEW LAYOUT. REINSTATE NATURE STRIP TO MATCH EXISTING
-ALL CROSSOVERS TO BE COORDINATED WITH LOT DRIVEWAYS
-ALL LOTS ABOUT COMMUNAL ROADS. STREET FRONTAGE TO INCORPORATE DRIVEWAYS AND LANDSCAPING THROUGHOUT SITE
-DWELLINGS TO BE ORIENTATED TO COMMUNAL ROADWAYS/FOOTPATHS TO PROVIDE PASSIVE SURVEILLANCE
-PROVISION OF 625M² PUBLIC OPEN SPACE (5% OF SITE AREA)

DETAIL PLAN
SCALE 1:250 @ A3

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

INTERFACE DETAIL PLAN 1

REVISION: K
DATE: JULY 2022
SCALE: AS INDICATED @A3

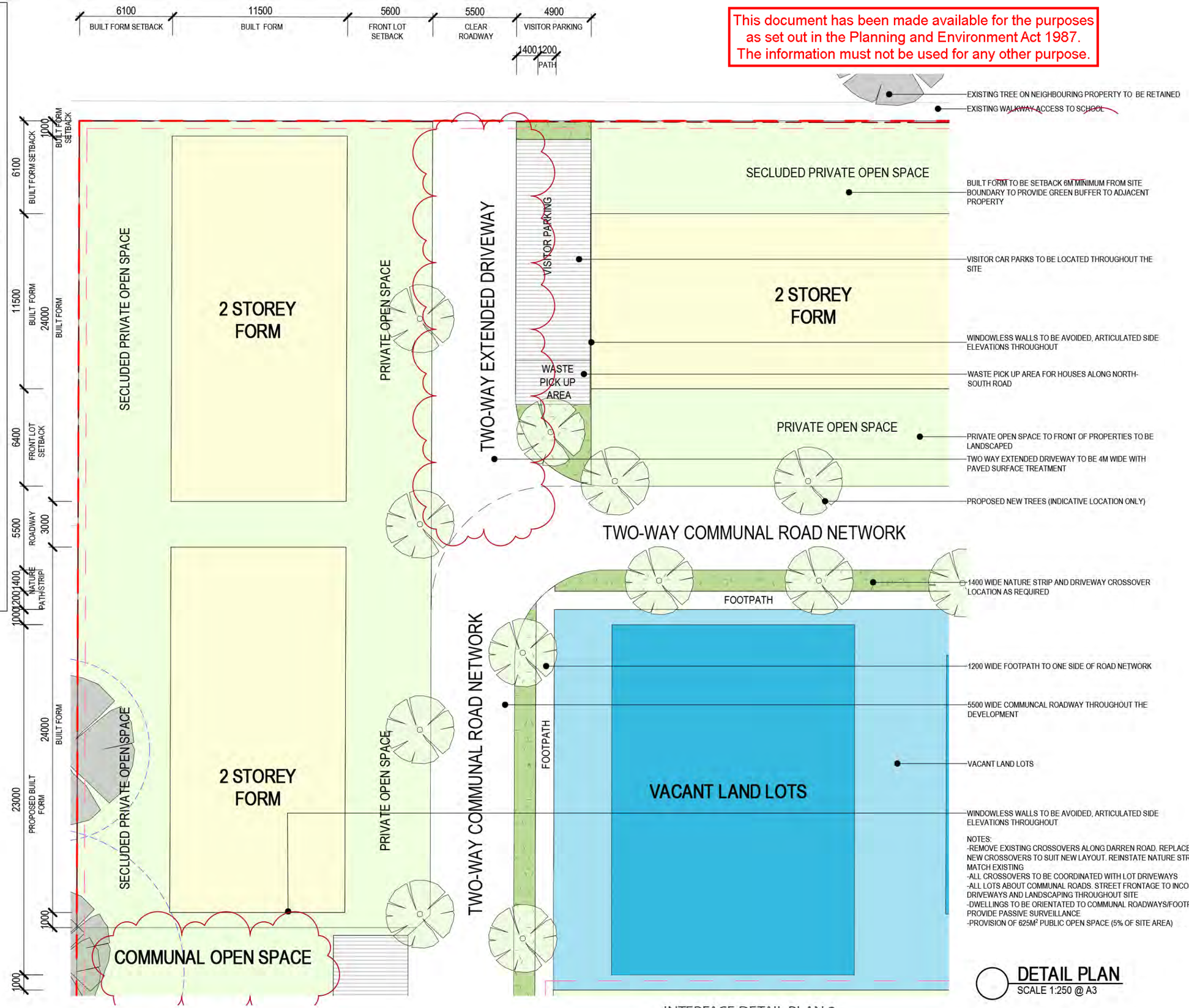
DRAWING NO: DP-301

LEGEND

- PROPERTY BOUNDARY (1.25 ha)
- LOT 1 - RESIDENTIAL (0.918 ha)
- LOT 2 - PUBLIC OPEN SPACE (0.085 ha)
- LOT 3 - CHILDCARE (0.247 ha)
- LOT BOUNDARIES
- 2 STOREY RESIDENTIAL BUILT FORM WITH A MINIMUM 5.4 METRE FRONT SETBACK & MINIMUM 6.05 METRE REAR SETBACK
- SUGGESTED 2 STOREY RESIDENTIAL BUILT FORM ON VACANT LOTS WITH FRONT SETBACK & REAR SETBACK & SIDE SETBACK
- 1 STOREY CHILDCARE CENTRE
- PRIVATE OPEN SPACE AREAS AT GROUND LEVEL. ALL LOTS WITH GROUND LIVING TO HAVE SECLUDED PRIVATE OPEN SPACE AT REAR OF DWELLINGS
- PUBLIC OPEN SPACE AND LANDSCAPING ALONG DARREN ROAD
- PLAY AREA FOR CHILDCARE
- VACANT LAND LOTS
- PROPOSED TWO WAY COMMUNAL ROADWAY
- PROPOSED FEATURE PAVING TO COMMUNAL ROADWAY
- PRIVATE OPEN SPACE AND LANDSCAPING
- VISITOR PARKING AREA
- NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- EXISTING TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREE PROTECTION ZONE (TPZ)
- PROPOSED NEW TREES (INDICATIVE LOCATION ONLY)

DARREN ROAD

KEY PLAN
SCALE 1:2000 @ A3



DETAIL PLAN
SCALE 1:250 @ A3

INTERFACE DETAIL PLAN 2

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

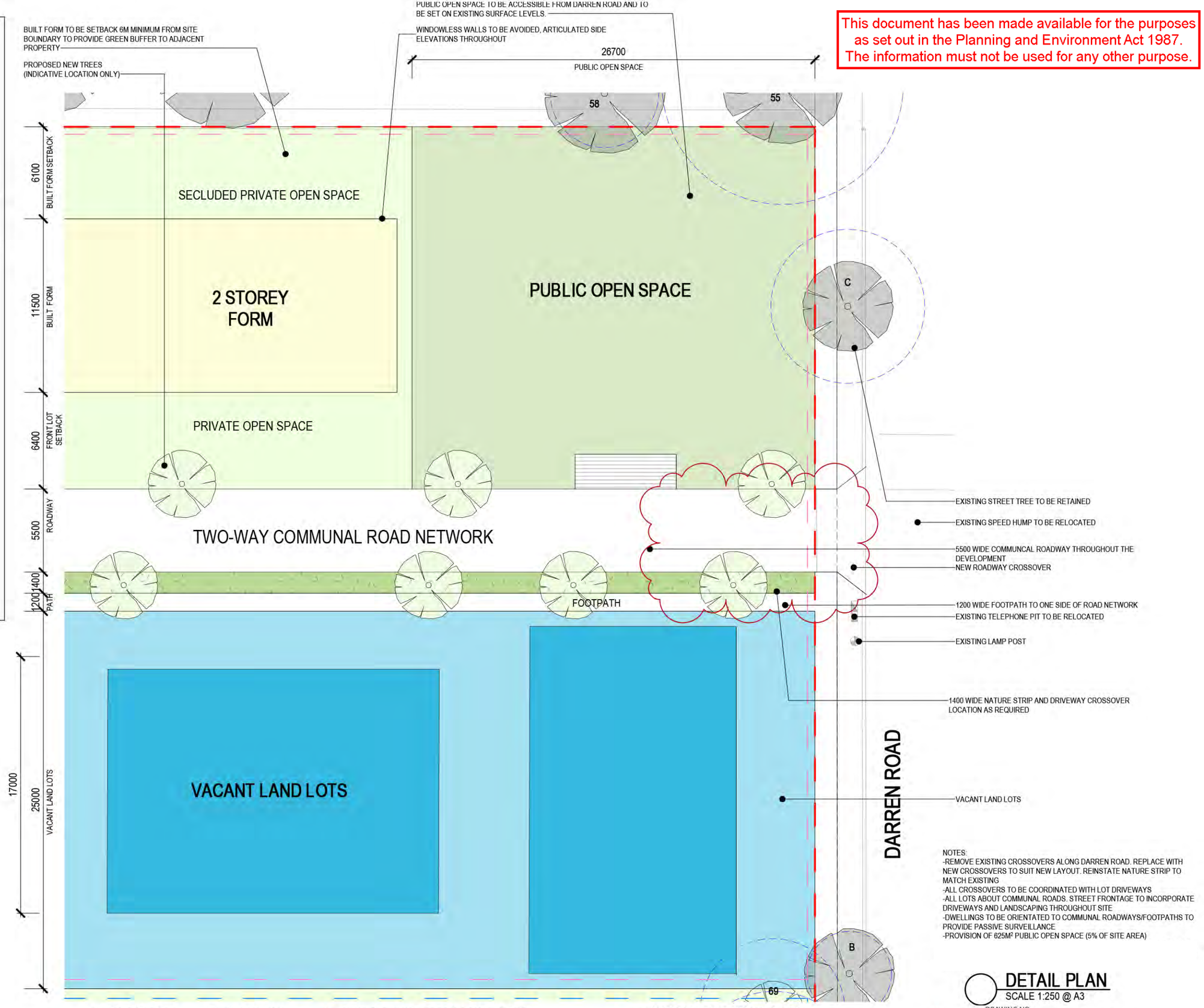
ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

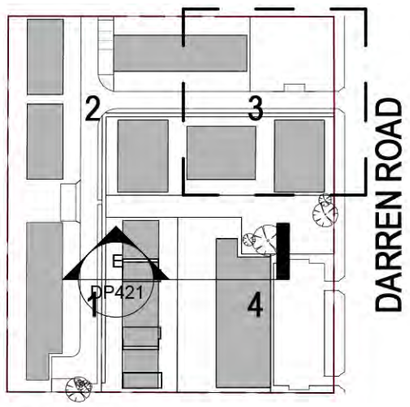
PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION
REVISION: K
DATE: JULY 2022
SCALE: AS INDICATED @A3
DRAWING NO: DP-302

LEGEND

- PROPERTY BOUNDARY (1.25 ha)
- LOT 1 - RESIDENTIAL (0.918 ha)
- LOT 2 - PUBLIC OPEN SPACE (0.085 ha)
- LOT 3 - CHILDCARE (0.247 ha)
- LOT BOUNDARIES
- 2 STOREY RESIDENTIAL BUILT FORM WITH A MINIMUM 5.4 METRE FRONT SETBACK & MINIMUM 6.05 METRE REAR SETBACK
- SUGGESTED 2 STOREY RESIDENTIAL BUILT FORM ON VACANT LOTS WITH FRONT SETBACK & REAR SETBACK & SIDE SETBACK
- 1 STOREY CHILDCARE CENTRE
- PRIVATE OPEN SPACE AREAS AT GROUND LEVEL. ALL LOTS WITH GROUND LIVING TO HAVE SECLUDED PRIVATE OPEN SPACE AT REAR OF DWELLINGS
- PUBLIC OPEN SPACE AND LANDSCAPING ALONG DARREN ROAD
- PLAY AREA FOR CHILDCARE
- VACANT LAND LOTS
- PROPOSED TWO WAY COMMUNAL ROADWAY
- PROPOSED FEATURE PAVING TO COMMUNAL ROADWAY
- PRIVATE OPEN SPACE AND LANDSCAPING
- VISITOR PARKING AREA
- NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- EXISTING TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREE PROTECTION ZONE (TPZ)
- PROPOSED NEW TREES (INDICATIVE LOCATION ONLY)



NOTES:
-REMOVE EXISTING CROSSOVERS ALONG DARREN ROAD. REPLACE WITH NEW CROSSOVERS TO SUIT NEW LAYOUT. REINSTATE NATURE STRIP TO MATCH EXISTING
-ALL CROSSOVERS TO BE COORDINATED WITH LOT DRIVEWAYS
-ALL LOTS ABOUT COMMUNAL ROADS. STREET FRONTAGE TO INCORPORATE DRIVEWAYS AND LANDSCAPING THROUGHOUT SITE
-DWELLINGS TO BE ORIENTATED TO COMMUNAL ROADWAYS/FOOTPATHS TO PROVIDE PASSIVE SURVEILLANCE
-PROVISION OF 625M² PUBLIC OPEN SPACE (5% OF SITE AREA)



KEY PLAN
SCALE 1:2000 @ A3

DETAIL PLAN
SCALE 1:250 @ A3

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

INTERFACE DETAIL PLAN 3

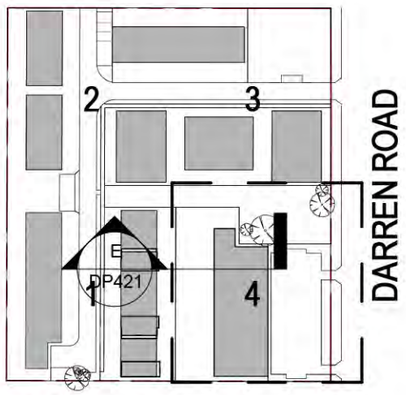
REVISION: K
DATE: JULY 2022
SCALE: AS INDICATED @A3

DRAWING NO: DP-303

LEGEND

- PROPERTY BOUNDARY (1.25 ha)
- LOT 1 - RESIDENTIAL (0.918 ha)
- LOT 2 - PUBLIC OPEN SPACE (0.085 ha)
- LOT 3 - CHILDCARE (0.247 ha)
- LOT BOUNDARIES
- 2 STOREY RESIDENTIAL BUILT FORM WITH A MINIMUM 5.4 METRE FRONT SETBACK & MINIMUM 6.05 METRE REAR SETBACK
- SUGGESTED 2 STOREY RESIDENTIAL BUILT FORM ON VACANT LOTS WITH FRONT SETBACK & REAR SETBACK & SIDE SETBACK
- 1 STOREY CHILDCARE CENTRE
- PRIVATE OPEN SPACE AREAS AT GROUND LEVEL. ALL LOTS WITH GROUND LIVING TO HAVE SECLUDED PRIVATE OPEN SPACE AT REAR OF DWELLINGS
- PUBLIC OPEN SPACE AND LANDSCAPING ALONG DARREN ROAD
- PLAY AREA FOR CHILDCARE
- VACANT LAND LOTS
- PROPOSED TWO WAY COMMUNAL ROADWAY
- PROPOSED FEATURE PAVING TO COMMUNAL ROADWAY
- PRIVATE OPEN SPACE AND LANDSCAPING
- VISITOR PARKING AREA
- NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- EXISTING TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREE PROTECTION ZONE (TPZ)
- PROPOSED NEW TREES (INDICATIVE LOCATION ONLY)

NOTES - WASTE
- BINS STORAGE AREAS/ENCLOSURES ARE TO BE LOCATED AND CONFIGURED TO MINIMISE VISIBILITY FROM THE PUBLIC REALM AND SHOULD NOT BE LOCATED WITHIN DWELLING FRONT SETBACKS, WHERE PRACTICABLE.



KEY PLAN
SCALE 1:2000 @ A3

REAR SETBACK
CHILDCARE CENTRE
FRONT SETBACK
CARPARKING AREA
PARKING SETBACK
18731
PRIVATE OPEN SPACE
SIDE SETBACK
982
SIDE SETBACK
62931
CHILDCARE CENTRE
CARPARKING AREA
42282
BUILT FORM SETBACK
OUTDOOR PLAY AREA
1 STOREY CHILDCARE CENTRE
1M MIN SETBACK
2M MIN SETBACK
COMMUNAL OPEN SPACE
CHILDCARE CENTRE CAR PARKING
25 CARS
EXIT
ENTRY
DARREN ROAD
69
70
73
75
A

- COMMUNAL PRIVATE OPEN SPACE SET ON EXISTING SURFACE LEVELS.
- EXISTING SITE TREE TO BE RETAINED
- EXISTING STREET TREE TO BE RETAINED
- EXISTING LAMP POST
- WINDOWLESS WALLS TO BE AVOIDED, ARTICULATED SIDE ELEVATIONS THROUGHOUT
- EXISTING SIDE ENTRY PIT
- CARPARKING AREA FOR CHILDCARE CENTRE. SET ON EXISTING SURFACE LEVELS.
- EXISTING CROSSOVER TO BE REMOVED AND REPLACED WITH NATURESTRIP TO MATCH EXISTING
- NEW EXIT CROSSOVER
- FINISHED FLOOR LEVEL SET NO LOWER THAN 300MM ABOVE APPLICABLE ADJACENT FLOOR LEVEL
- WINDOWLESS WALLS TO BE AVOIDED, ARTICULATED SIDE ELEVATIONS THROUGHOUT
- EXISTING CROSSOVER TO BE REMOVED AND REPLACED WITH NATURESTRIP TO MATCH EXISTING
- EXISTING DRAINAGE PIT
- EXISTING DRAINAGE PIT EASEMENT
- EXISTING LAMP POST
- NEW ENTRY CROSSOVER

NOTE
-REMOVE EXISTING CROSSOVERS ALONG DARREN ROAD. REPLACE WITH NEW CROSSOVERS TO SUIT NEW LAYOUT. REINSTATE NATURE STRIP TO MATCH EXISTING
-ALL CROSSOVERS TO BE COORDINATED WITH LOT DRIVEWAYS
-ALL LOTS ABOUT COMMUNAL ROADS. STREET FRONTAGE TO INCORPORATE DRIVEWAYS AND LANDSCAPING THROUGHOUT SITE
-DWELLINGS TO BE ORIENTATED TO COMMUNAL ROADWAYS/FOOTPATHS TO PROVIDE PASSIVE SURVEILLANCE
-PROVISION OF 625M² PUBLIC OPEN SPACE (5% OF SITE AREA)

DETAIL PLAN
SCALE 1:250 @ A3

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

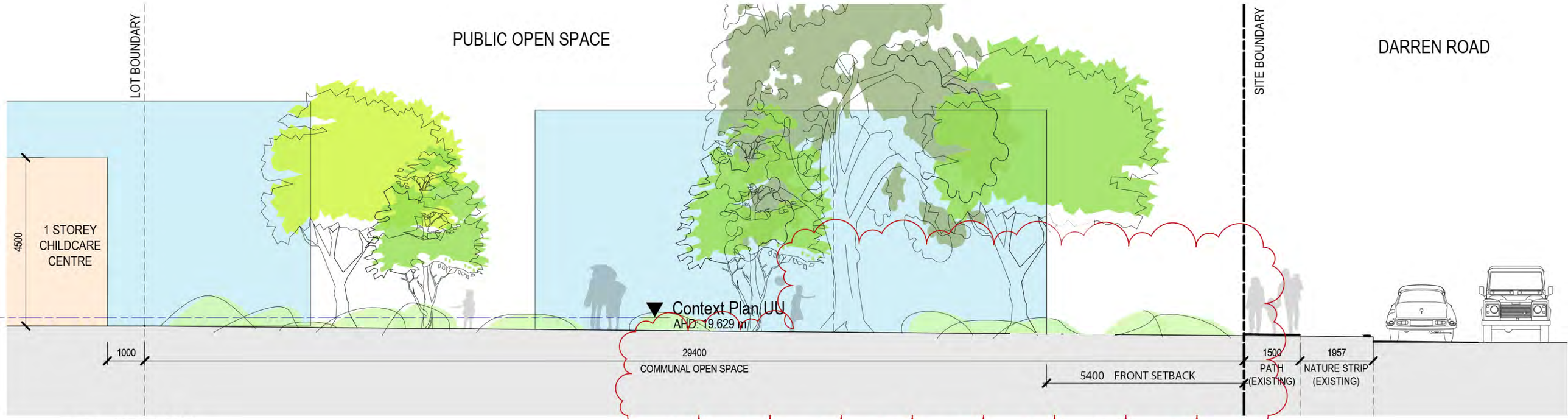
SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

INTERFACE DETAIL PLAN 4

REVISION: K
DATE: JULY 2022
SCALE: AS INDICATED @A3

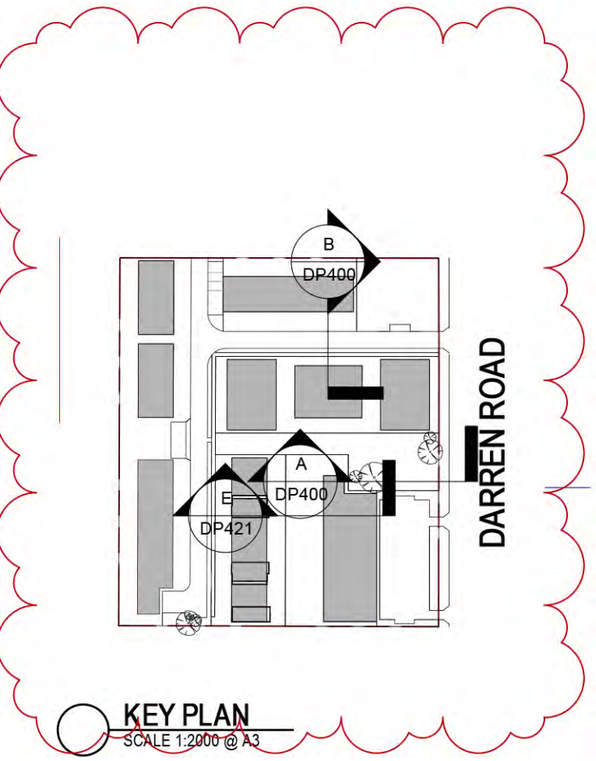
DRAWING NO: DP-304



SECTION A

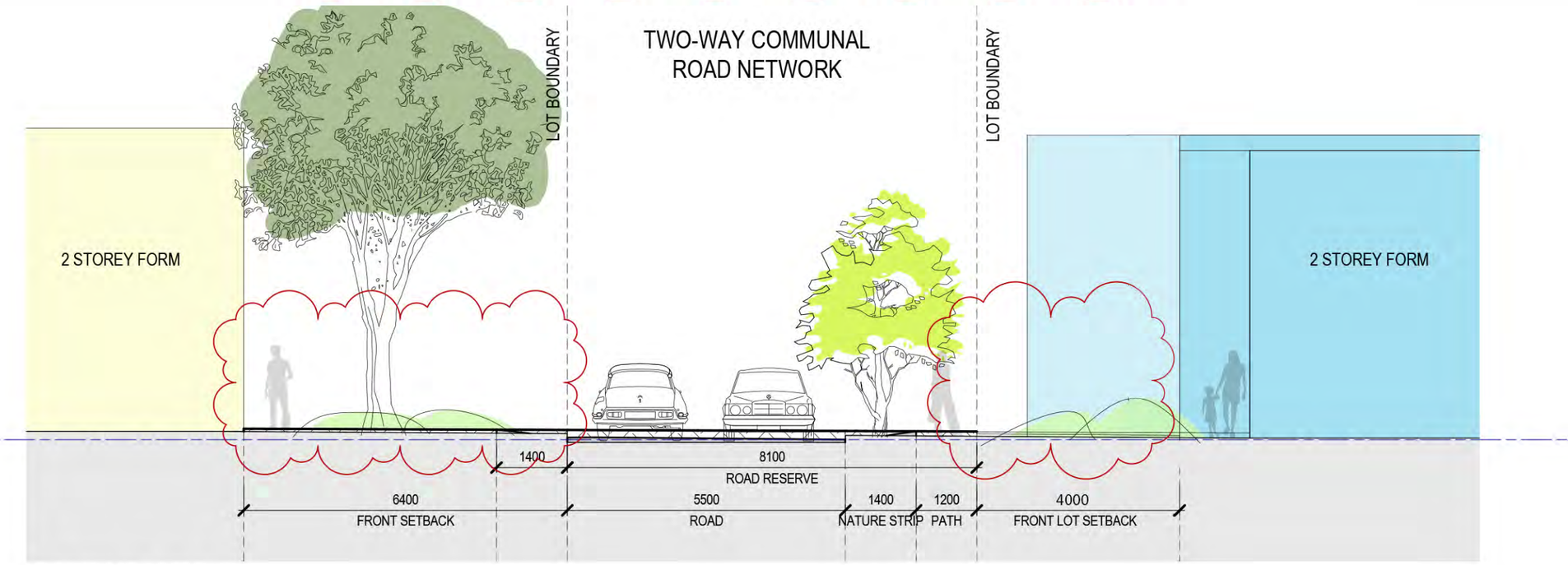
SCALE 1:100 @ A3

Landscape indicative only. Refer landscape plan for detail.



KEY PLAN

SCALE 1:2000 @ A3



SECTION B

SCALE 1:100 @ A3

Landscape indicative only. Refer landscape plan for detail.

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

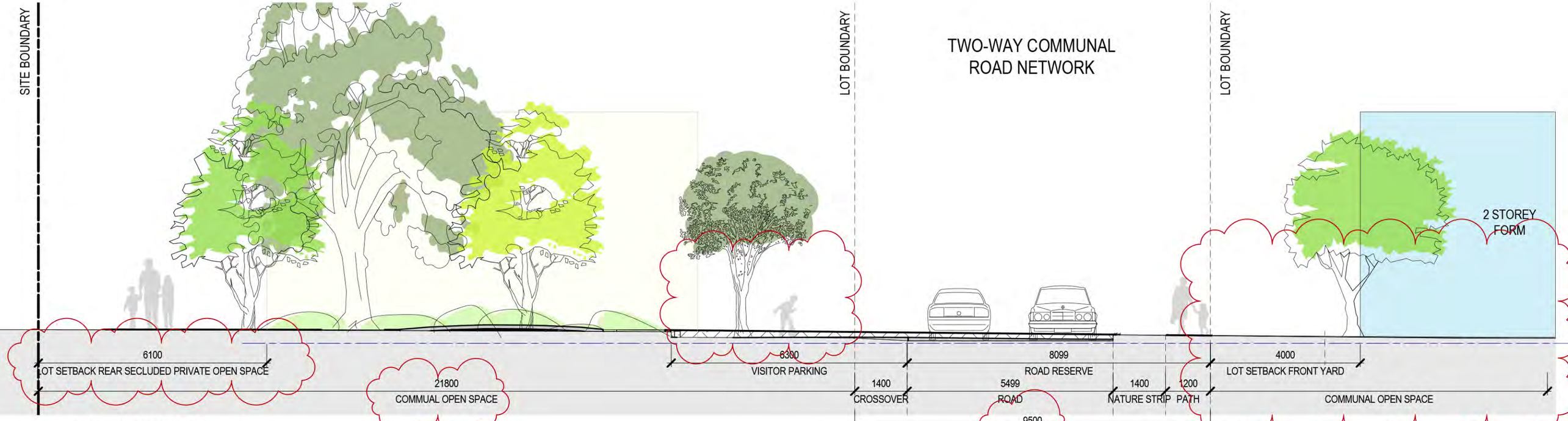
SECTION A & B

REVISION: K

DATE: JULY 2022

SCALE: AS INDICATED @A3

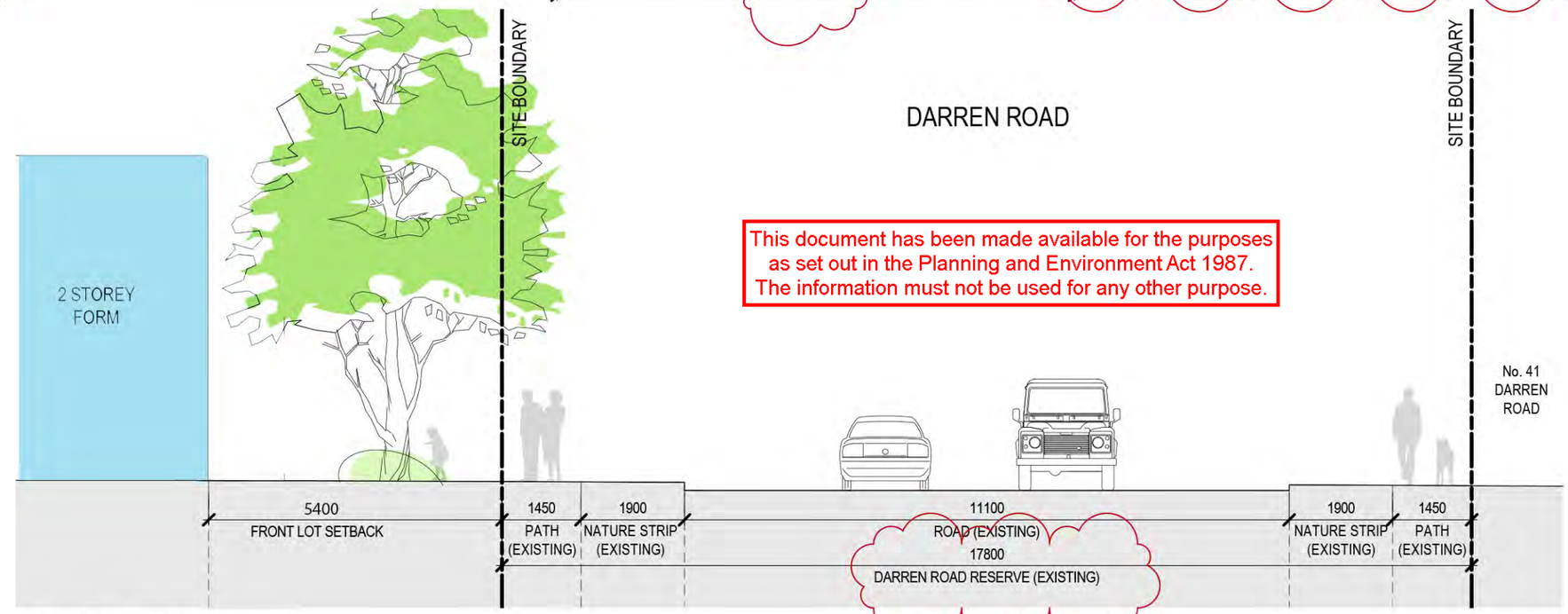
DRAWING NO: DP-400



SECTION C

SCALE 1:100 @ A3

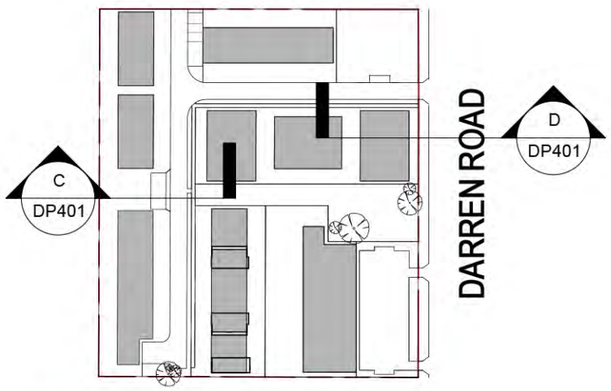
Landscape indicative only. Refer landscape plan for detail.



SECTION D

SCALE 1:100 @ A3

Landscape indicative only. Refer landscape plan for detail.



KEY PLAN

SCALE 1:2000 @ A3

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

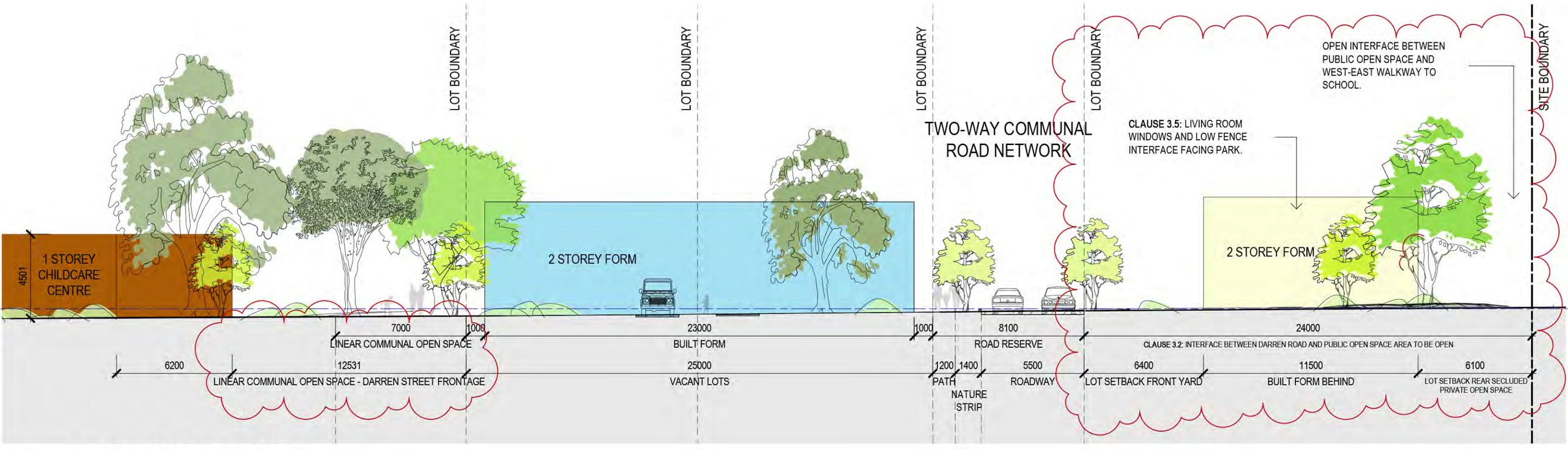
SECTION C & D

REVISION: K

DATE: JULY 2022

SCALE: AS INDICATED @A3

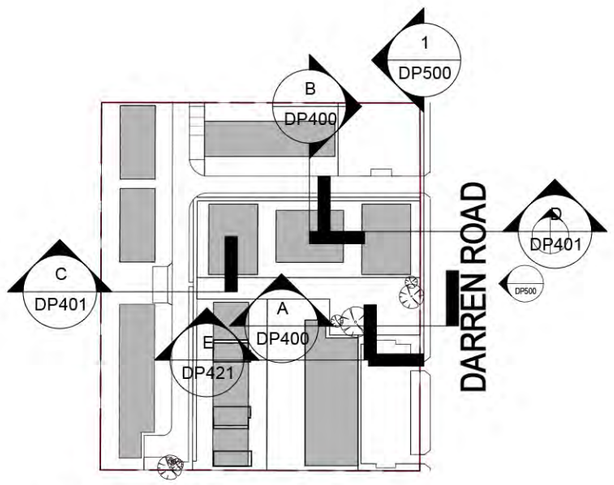
DRAWING NO: DP-401



DARREN ROAD ELEVATION

SCALE 1:200 @ A3

Landscape indicative only. Refer landscape plan for detail.



KEY PLAN

SCALE 1:2000 @ A3

NOTES - STREETSCAPES:

- STREET FRONTAGES ARE TO INCORPORATE LANDSCAPED SETBACKS WITH BUILT FORM DIRECTLY ON FRONT BOUNDARY TO BE AVOIDED
- FENCES ON SIDE AND REAR BOUNDARIES ARE NOT PERMITTED FORWARD OF THE PRIMARY FRONTAGE SETBACK
- ALL FENCES WITHIN THE FRONT SETBACK AREA MUST BE NO HIGHER THAN 1.2 METRES AND ARE TO BE AT LEAST 50% VISUALLY TRANSPARENT.

PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003

REASON FOR ISSUE: PRE-APPLICATION

ELEVATION

REVISION: K

DATE: JULY 2022

SCALE: AS INDICATED @A3

DRAWING NO: DP-500

Project Reference: 20005 - 46-62 Darren Rd, Springvale South	
Client: Paragon Property	
Architect / Designer: Peddle Thorpe	
12/04/2022	
Environmentally Sustainable Design Statement V3	

www.urbandigestor.com
ABN 84 151 437 348
Pacific Tower, Ground Floor
737 Burwood Rd
Hawthorn VIC 3122
(03) 9005 6451

Introduction

As required by DPO13 overlay on this site, this report identifies the Environmentally Sustainable Design (ESD) initiatives that are considered for inclusion with the proposed development at 46-62 Darren Rd, Springvale South.

Using the BESS (Built Environment Sustainability Scorecard), the project will be designed to exceed the minimum required BESS score of 50%, including minimums in Energy (50%), Water (50%), IEQ (50%) and Stormwater (100%) categories, to demonstrate best practice in sustainable design. This will also ensure that Local Planning Policy Clause 22.06 Environmentally Sustainable Development objectives will be met.

ESD Initiatives

MANAGEMENT

- Individual utility meters to all dwellings and childcare
- Provision of a building user's guide to all future owners.
- Preliminary energy efficiency (NatHERS) ratings will be undertaken as part of all preliminary design works to ensure passive design elements achieve optimal outcomes.

WATER

- Each dwelling will have their roofs (approx. 73m2 each) connected to a 3000L minimum rainwater tank and fed to toilets and garden taps.
- Childcare centre will have their roof area (approx. 725m2) connected to 15,000L tank and fed to toilets and irrigation.
- Water efficient fixtures and fittings:
    - Showers minimum 3 Star (>6 and ≤7.5/min) WELS
    - Bathroom Taps minimum 5-star WELS
    - Kitchen Taps minimum 4-star WELS
    - WC minimum 4-star WELS
    - Include dishwasher as part of fit-out: minimum 3- star WELS
- Water efficient landscaping and/or irrigation from non-potable water source.
- No water-based chillers to childcare centre

ENERGY

- 10% improvement on NCC Section J requirements
- Dwellings to achieve a NatHERS rating beyond 6-stars, with a target of 7 stars per dwelling
- Heating and cooling systems within one Star of the most efficient equivalent capacity unit available
- Hot Water to Dwellings: Hot water systems to be a combination of electric based heat pump systems and gas instantaneous units.
- Hot Water to Childcare Centre: Electric heat pump systems will be used to facilitate a gas-free, all electric and hence net-zero ready, strategy for the childcare centre.
- Outdoor clotheslines to each dwelling's POS.

- LED lighting design to have maximum illumination power density (W/m2) in at least 90% of the relevant building class at least 20% lower than required by Table J6.2a of the NCC 2019 Volume 1 Section J
- Internal lighting to dwellings will achieve a maximum illumination power density of 4W/sqm or less.
- External lighting will be controlled by motion and/or PE sensors.
- Childcare centre will have a 10kW photovoltaic system on the roof to reduce energy use and costs.
- All dwelling roofs designed as a minimum to accommodate (sufficient size and orientation) solar photovoltaic panels.
- All opportunities to reduce Council's and the community's emissions (to a net zero outcome as quickly as possible) will be considered as a result of the current Climate and Ecological Emergency
- Site will provide the opportunity for dwellings to be designed as all-electric, avoiding the need for any on-site gas infrastructure to that lot.

INDOOR ENVIRONMENT QUALITY

- The childcare centre will be designed to have at least 30% of area with Daylight factor of 2 and allow for natural ventilation to all habitable spaces.
- All townhouses have openings on 2 facades to allow for cross-ventilation
- All living room and bedroom glazing will be double-glazed for thermal comfort of occupants

TRANSPORT

- 1 visitor bike park per 5-dwellings will be provided to the outdoor landscaped areas.
- Childcare centre will include bicycle parking that exceeds planning scheme requirements for employee and visitor bicycle parking by at least 50%.
- Dwelling owners will have the option of installing their own Electric Vehicle charge points with the provision of electrical connection points to each garage.

WASTE

- General waste and co-mingled recycling bins located convenient to each other
- 60% demolition waste and construction waste recycling target has been committed to

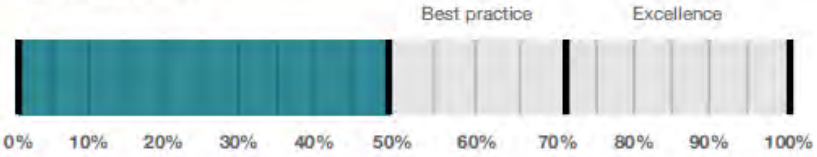
URBAN ECOLOGY

- 624m2 of public open space and 1156m2 of communal open space is included in the design.
- At least 40% of the whole site will be covered with vegetation.
- Each rainwater tank will be connected to a garden top in each dwelling's POS to allow residents to cultivate their own plants.

A preliminary BESS assessment has been conducted on these initiatives and a score exceeding 50% is achievable to demonstrate best practice in sustainable design. See BESS Summary over page.

BESS Summary

Your BESS Score

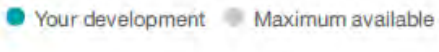


52%

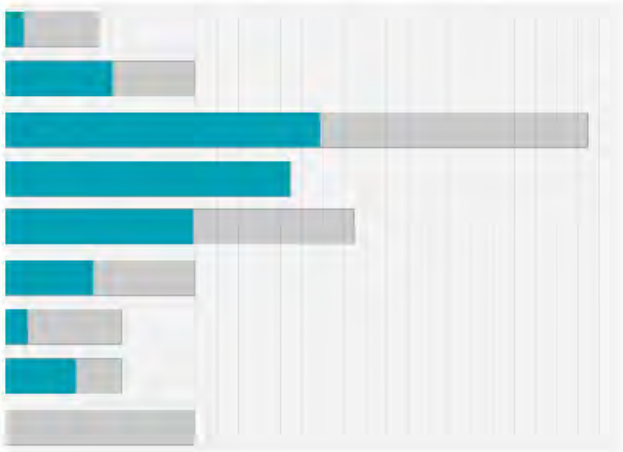
Project details

Address	46 Darren Rd Springvale South VIC 3172
Project no	2FD9F14B-R1
BESS Version	BESS-6
Site type	Mixed use development
Account	ud@urbandigestor.com.au
Application no.	
Site area	12,500 m²
Building floor area	3,277.0 m²
Date	12 April 2022
Software version	1.7.0-B.384

Performance by category



Category	Weight	Score	Pass
Management	5%	19%	
Water	9%	57%	✓
Energy	28%	54%	✓
Stormwater	14%	100%	✓
IEQ	17%	54%	✓
Transport	9%	47%	
Waste	6%	20%	
Urban Ecology	6%	62%	
Innovation	9%	0%	



LANDSCAPE NOTES - PLANTING THEMES & SPECIES.

PLANTING THROUGHOUT THE DEVELOPMENT WILL UTILISE A MIXED AND DIVERSE SELECTION OF TREES, SHRUBS, GRASSES , GROUNDCOVERS AND CLIMBING PLANTS. THIS WILL PROVIDE A DESIRED LEVEL OF BIODIVERSITY AND VISUAL INTEREST WHILE RECOGNISING THAT BOTH PUBLIC AND PRIVATE OPEN SPACES REQUIRE DIFFERENT LANDSCAPING APPROACHES.

NATIVE AND WHERE POSSIBLE, INDIGENOUS SPECIES WILL BE PREFERRED OVER EXOTIC SPECIES. PLANTS WILL BE SELECTED FOR THEIR HARDINESS, DROUGHT TOLERANCE AND SUITABILITY TO LOCAL CLIMATIC AND SOIL CONDITIONS.

EXISTING SITE TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATIONS ONLY)

EXISTING STREET SITE TREES (INDICATIVE LOCATIONS ONLY)

FEATURE PAVING TO INTERNAL ROADS AT DESIGINATED LOCATIONS

SMALL STREET TREES TO ALL INTERNAL ROADS WITHIN GRASSED NATURESTRIPS

FEATURE PAVING WITHIN INTERNAL ROADS AT DESIGINATED LOCATIONS

NEW MIXED PLANTING TO SITE BOUNDARIES TO PROVIDE VEGETATED BUFFER BETWEEN SITE AND NEIGHBOURING PROPERTIES

BUFFER LANDSCAPING TO PRIVATE OPEN SPACES

SMALL STREET TREES TO ALL INTERNAL ROADS WITHIN GRASSED NATURESTRIPS

PUBLIC OPEN SPACE TO LATER COUNCIL DETAILED DESIGN

EXISTING SITE TREE No. 69 MELALEUCA LINARIFOLIA - 'SNOW IN SUMMER' REFER TO ABORICULTURAL IMPACT ASSESSMENT BY LANDSCAPE DEPT - APRIL 2020 FOR DETAILS OF RECOMMENDED PROTECTION MEASURES. ALSO REFER TO ECOLOGY & ABORICULTURE ASSESSMENT & TREE RETENTION PLAN BY JACOB'S 2015.

EXISTING SITE TREE No. 70 EUCALYPTUS SIDEROXYLON - RED IRONBARK' REFER TO ABORICULTURAL IMPACT ASSESSMENT BY LANDSCAPE DEPT - APRIL 2020 FOR DETAILS OF RECOMMENDED PROTECTION MEASURES. ALSO REFER TO ECOLOGY & ABORICULTURE ASSESSMENT & TREE RETENTION PLAN BY JACOB'S 2015

EXISTING SITE TREE No. 73 EUCALYPTUS CAMALDULENSIS - 'RIVER RED GUM' REFER TO ABORICULTURAL IMPACT ASSESSMENT BY LANDSCAPE DEPT - APRIL 2020 FOR DETAILS OF RECOMMENDED PROTECTION MEASURES. ALSO REFER TO ECOLOGY & ABORICULTURE ASSESSMENT & TREE RETENTION PLAN BY JACOB'S 2015.

NEW MIXED PLANTING TO LOT BOUNDARIES TO PROVIDE VEGETATED BUFFER BETWEEN LOTS

NEW GARDEN BEDS TO STREET INTERFACE CONTAINING TREES & MIXED LOW GROWING SHRUBS AND GROUNDCOVERS

NEW MIXED PLANTING TO SITE BOUNDARIES TO PROVIDE VEGETATED BUFFER BETWEEN SITE AND NEIGHBOURING PROPERTIES

EXISTING SITE TREES 280-282 TO BE RETAINED REFER TO ABORICULTURAL IMPACT ASSESSMENT BY LANDSCAPE DEPT - APRIL 2020 FOR DETAILS. ALSO REFER TO ECOLOGY & ABORICULTURE ASSESSMENT & TREE RETENTION PLAN BY JACOB'S 2015

NEW MIXED PLANTING TO SITE BOUNDARIES TO PROVIDE VEGETATED BUFFER BETWEEN SITE AND NEIGHBOURING PROPERTIES

NOT FOR CONSTRUCTION

JOHN PATRICK
LANDSCAPE ARCHITECTS PTY LTD
324 Victoria Street,
Richmond, VIC 3121
T +61 3 9429 4855
F +61 3 9429 8211
admin@johnpatrick.com.au
www.johnpatrick.com.au

REVISION		DATE	BY
A	UPDATE TO NEW SITE PLAN	02.09.2020	BM
B	UPDATE TO NEW SITE PLAN	22.03.2021	BM

CLIENT
TIME & PLACE

PROJECT
SPRINGVALE DEVELOPMENT
Darren Road, Springvale South

DRAWING
Landscape Concept Plan for Town Planning

SCALE	1:300@A1/1:600@A3
DATE	21.04.2020
DRAWN	
CHECKED	BM
JOB NO	20-071L
DWG NO	LCP01B
CAD FILE	20-071L.dwg

PLANTING MATRIX

	BOTANICAL NAME	COMMON NAME
STREET TREES		
TREES		
	Corymbia citriodora 'Scentuous'	Scentuous Lemon-scented Gum
	Tristaniopsis laurina 'Luscious'	Luscious Kanooka/Water Gum
CHILDCARE CENTRE PLANTING INCLUDING DARREN ROAD CARPARK		
TREES		
	Acacia implexa	Lightw ood
	Callistemon x 'Harkness'	Harkness Bottlebrush
	Acer negundo 'Sensation'	Sensation Box Elder
	Corymbia citriodora 'Scentuous'	Scentuous Lemon-scented Gum
	Hymenosporum flavum	Native Frangipani
	Lagerstroemia indica x L. fauriei 'Natchez'	Natchez Crepe Mytle
SHRUBS		
	Correa alba	White Correa
	Callistemon 'Green John'	Green John Bottlebrush
	Grevillea rosmarinifolia 'Crimson Villa'	Crimson Villa Rosemary Grevillia
	Murraya paniculata	Orange Jessamine
	Salvia leucantha 'Santa Barbara'	Dw arf Mexican Sage
	Westringia fruticosa 'Blue Gem'	Blue Gem Coastal Rosemary
GROUNDCOVERS		
	Dianella caerulea 'Little Jess'	Little Jess Paroo Lily
	Dianella tasmanica 'Emerald Arch'	Emerald Arch Flax Lily
	Kennedia prostrata	Running Postman
	Lomandra longifolia 'Katrinus'	Katrinus Mat-rush
	Myoporum parvifolium 'Fine White'	Creeping Boobialla
	Poa morrisii	Velvet Tussock Grass
	Poa poiformis 'Kingsdale'	Kingsdale Tussock Grass
	Trachelospermum asiaticum	Yellow Star Jasmine
PUBLIC RESERVE PLANTING (Indicative only and to final Council Approval)		
TREES		
	Acacia implexa	Lightw ood
	Acacia mearnsii	Black Wattle
	Callistemon citrinus	Crimson Bottlebrush
	Eucalyptus leucoxylon 'Rosea'	Red Flow ering Yellow Gum
	Hymenosporum flavum	Native Frangipani
SHRUBS		
	Correa alba	White Correa
	Callistemon 'Green John'	Green John Bottlebrush
	Grevillea rosmarinifolia 'Crimson Villa'	Crimson Villa Rosemary Grevillia
	Leptospermum continentale	Prickly Tea-tree
	Leucophyta brownii	Cushion Bush
	Westringia fruticosa 'Blue Gem'	Blue Gem Coastal Rosemary
GROUNDCOVERS		
	Anigozanthos 'Amber Velvet'	Kangaroo Paw
	Banksia spinulosa 'Birthday Candles'	Birthday Candles Banksia
	Dianella caerulea 'Little Jess'	Little Jess Paroo Lily
	Dianella revoluta	Black Anther Flax Lily
	Grevillea 'Bronze Rambler'	Grevillea Bronze Rambler
	Lomandra longifolia 'Tanika'	Tanika Mat-rush
	Myoporum parvifolium 'Fine White'	Creeping Boobialla
	Poa morrisii	Velvet Tussock Grass
	Rhagodia spinescens	Creeping Saltbush
PLANTING FOR RESIDENTIAL LOTS INCLUDING BOUNDARIES		
TREES		
	Acacia implexa	Lightw ood
	Brachychiton acerifolius x populneus 'Bella Pink'	Bella Pink Brachychiton
	Brachychiton acerifolius x populneus 'Jerilderie Red'	Jerilderie Red Brachychiton
	Corymbia citriodora 'Dw arf Pink'	Dw arf Pink Lemon-scented Gum
	Elaeocarpus reticulatus 'Prima Donna'	Pink Flow ering Blueberry Ash
	Eucalyptus leucoxylon ssp. connata	Melbourne Yellow Gum
	Eucalyptus polyanthemos	Red Box
	Hymenosporum flavum	Native Frangipani
	Lagerstroemia indica x L. fauriei 'Natchez'	Natchez Crepe Mytle
	Melia azedarach 'Elite'	Low -fruiting White Cedar
SHRUBS		
	Correa alba	White Correa
	Correa glabra	Rock Correa
	Callistemon 'Green John'	Green John Bottlebrush
	Callistemon salignus 'Perth Pink'	Pink Willow Bottlebrush
	Grevillea banksii x G.bipinnatifida 'Superb'	Grevillea Superb
	Kunzea ericoides	Burgen
	Murraya paniculata	Orange Jessamine
	Salvia leucantha 'Santa Barbara'	Dw arf Mexican Sage
	Sarcococca ruscifolia	Fragrant Sw eet Box
	Viburnum odoratissimum	Sw eet Viburnum
	Westringia fruticosa 'Blue Gem'	Blue Gem Coastal Rosemary
GROUNDCOVERS		
	Anigozanthos 'Rampaging Roy Slaven'	Kangaroo Paw
	Brachyscome multifida	Cut-leaf Daisy
	Clivia miniata	Clivia
	Dianella caerulea 'Little Jess'	Little Jess Paroo Lily
	Dianella revoluta	Black Anther Flax Lily
	Lomandra longifolia 'Katrinus'	Katrinus Mat-rush
	Liriope muscari 'Just Right'	Just Right Lily-turf
	Myoporum parvifolium 'Fine White'	Creeping Boobialla
	Nandina domestica 'Obsession'	Obsession Dw arf Sacred Bamboo
	Orthrosanthus multiflorus	Morning Flag
	Poa morrisii	Velvet Tussock Grass
	Ruscus hypoglossum	Butcher's Broom
	Trachelospermum asiaticum	Yellow Star Jasmine
CLIMBERS		
	Pandorea pandorana	Wonga Wonga Vine
	Trachelospermum jasminoides	Star Jasmine

REFERENCE IMAGES - TREES

Eucalyptus leucoxylon 'Rosea'

Eucalyptus polyanthemos

Hymenosporum flavum

Lagerstroemia indica x L. fauriei 'Natchez'

REFERENCE IMAGES - SHRUBS

Callistemon salignus 'Perth Pink'

Correa alba

Grevillea banksii x G.bipinnatifida 'Superb'

Leucophyta brownii

REFERENCE IMAGES - GROUNDCOVERS

Banksia spinulosa 'Birthday Candles'

Clivia miniata

Lomandra longifolia 'Tanika'

Myoporum parvifolium 'Fine White'

Poa morrisii

Ruscus hypoglossum

REFERENCE IMAGES - CLIMBERS

Pandorea pandorana

NOT FOR CONSTRUCTION

JOHN PATRICK
LANDSCAPE ARCHITECTS PTY LTD
324 Victoria Street,
Richmond, VIC 3121

T +61 3 9429 4855
F +61 3 9429 8211
admin@johnpatrick.com.au
www.johnpatrick.com.au

REVISION	DATE	BY

CLIENT
TIME & PLACE

PROJECT
SPRINGVALE DEVELOPMENT
Darren Road, Springvale South

DRAWING
Landscape Planting Matrix for Town Planning

SCALE	na
DATE	09.04.2020
DRAWN	
CHECKED	BM
JOB NO	20-071L
DWG NO	LCP02
CAD FILE	20-071L.dwg

ARBORICULTURAL IMPACT ASSESSMENT

46-62 DARREN ROAD, SPRINGVALE SOUTH

v. 3.0 MARCH 2022

PREPARED BY SIMON HOWE

B.APPSCI (HORT). G.DIP PLAN & DESI. (LARCH)

LANDSCAPE **DEPT**

ABN 285753365069

PO BOX 283 CLIFTON HILL VIC 3068

INFO@LANDSCAPEDEPT.COM

CONTENTS

1.0 INTRODUCTION

1.1.1 This report has been prepared to provide an arboricultural impact assessment for trees located within and adjacent to the site identified as Allot. 2271 Parish of Dandenong, 46-62 Darren Road, Springvale South. A development plan for a residential subdivision and childcare centre is proposed.

1.1.2 Trees were assessed on 6th and 10th March 2020 from within the subject site and road reserve. The site is not subject to any overlays that restrict the removal of vegetation as part of the Dandenong Planning Scheme. A site tree audit was undertaken as part of an ecological assessment previously prepared for the site by Jacobs. Numbering from the previous study has been adopted in this report.

1.1.3 An additional four trees, three in the Darren Road road reserve and a fourth specimen within the site have also been recorded and have been identified as Trees A-D.

1.1.4 This report has been updated in January 2022 to address the following:

> *Identification of any vegetation required to be removed, lopped and/or pruned with reference to Clause 52.17 Native Vegetation of the Greater Dandenong Planning Scheme and the Ecology and Arboricultural Assessment and Tree Retention Plan (Jacobs, 2015).*

1.1.5 The 52.17 assessment is contained at Section 3.2.

2.0 DISCUSSION

2.1.1 The site, located on the west side of Darren Road is rectangular in plan, formerly Department of Education land. Buildings have been demolished but some hard standing remains throughout the study area. The southern end of the land on the corner of Coomoora Road is a separate parcel and not part of the development plan area.

2.1.2 Trees are scattered throughout the site predominantly in bands along boundaries and across the site. Plantings are typical of late 20th century school plantings, with a predominance of Australian native species. A number of trees have been assessed outside the site close to common boundaries within the adjoining school land to the west and north, as well as three street trees in the Darren road reserve to the east.

2.1.3 Despite containing a number of substantially sized specimens, the overall quality of trees within the site is generally low, with many trees exhibiting reduced health and/or structural ratings often as a result of close planting. Several trees previously recorded within the site, mainly Bracelet Honey Myrtles (*Melaleuca armillaris*), have been removed.

2.1.4 75 trees or tree groups have been assessed as part of this study, comprising a total of 90 individual specimens:

- 1 tree within the site has been assessed of high arboricultural value
- 9 trees or tree groups within the site have been assessed of moderate arboricultural value;
- 36 trees or tree groups within the site have been assessed of low arboricultural value;
- 13 trees or tree groups within the site have been assessed of no arboricultural value;

- 16 trees have been assessed outside the site.

2.2 TREES WITHIN THE SITE

2.2.1 One tree within the subject site, a River Red Gum (*Eucalyptus camaldulensis*), Tree 73, has been assessed of high arboricultural value. This is a prominent specimen within the site with a long useful life expectancy of more than 20 years.

TABLE 2-1 TREE ASSESSED OF HIGH ARBORICUTURAL VALUE WITHIN THE SITE

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
73	1	***Eucalyptus camaldulensis***, River Red Gum	**High**

2.2.2 Nine trees or tree groups within the subject site have been assessed of moderate arboricultural value. These comprise trees of mature proportions with reduced health or structural attributes that limit their useful life expectancy to the medium term, 11-20 years, or are established trees of smaller stature which would be expected to provide ongoing amenity within the site into the long term.

TABLE 2-2 TREES ASSESSED OF MODERATE ARBORICUTURAL VALUE WITHIN THE SITE

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
63	1	***Eucalyptus sideroxylon***, Red Ironbark	**Moderate**
66	1	***Eucalyptus camaldulensis***, River Red Gum	**Moderate**
68	1	***Eucalyptus globulus***, Blue Gum	**Moderate**
70	1	***Eucalyptus sideroxylon***, Red Ironbark	**Moderate**
80	1	***Eucalyptus globulus***, Blue Gum	**Moderate**
83	1	***Casuarina glauca***, Swamp Sheoak	**Moderate**
234	1	***Casuarina glauca***, Swamp Sheoak	**Moderate**
268	1	***Melaleuca styphelioides***, Prickly-leaved Paperbark	**Moderate**
281 282 283	3	***Eucalyptus sideroxylon***, Red Ironbark	**Moderate**

2.2.3 36 trees or tree groups within the site have been assessed of low arboricultural value. These comprise trees with significantly reduced health and/or structural ratings, declining specimens and small scale specimens of limited amenity value. The high proportion of low value trees is in part due to the close planting of many specimens with stunted or structurally compromised forms, as well as the large number of Bracelet Honey Myrtles that are over-mature and breaking up.

TABLE 2-3 TREES ASSESSED OF LOW ARBORICUTURAL VALUE WITHIN THE SITE

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
253 - 258	6	***Ulmus parvifolia***, Chinese Elm	**Low**
61	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
62	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
65	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
69	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
72	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**Low**
74	1	***Eucalyptus mannifera***, Red Spotted Gum	**Low**
77	1	***Callistemon salignus***, Willow Bottlebrush	**Low**
78	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
79	1	***Lophostemon confertus***, Brush Box	**Low**
81	1	***Eucalyptus nicholii***, Narrow-leaved Peppermint	**Low**
75 76	2	***Melaleuca styphelioides***, Prickly-leaved Paperbark	**Low**
233	1	***Grevillea robusta***, Silky Oak	**Low**
235	1	***Callistemon salignus***, Willow Bottlebrush	**Low**
236	1	***Lophostemon confertus***, Brush Box	**Low**
237	1	***Melaleuca styphelioides***, Prickly-leaved Paperbark	**Low**
238	1	***Allocasurina verticillata***, Drooping She-oak	**Low**
239	1	***Eucalyptus globulus***, Blue Gum	**Low**
240	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
241	1	***Melaleuca styphelioides***, Prickly-leaved Paperbark	**Low**
242	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**Low**
245	1	***Melaleuca styphelioides***, Prickly-leaved Paperbark	**Low**
246	1	***Callistemon salignus***, Willow Bottlebrush	**Low**
247	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
248	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**Low**
249	1	***Photinia serratifolia***, Christmas Berry	**Low**
250	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
251	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
252	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
262	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**Low**
263	1	***Agonis flexuosa***, Willow Myrtle	**Low**
265	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**Low**
267	1	***Eucalyptus nicholii***, Narrow-leaved Peppermint	**Low**
271 273 - 276	5	***Melaleuca linariifolia***, Snow-in-summer	**Low**
310	1	***Eucalyptus mannifera***, Red Spotted Gum	**Low**
243 244	2	***Melaleuca linariifolia***, Snow-in-summer	**Low**

2.2.4 13 trees within the site have been assessed of no arboricultural value, comprising trees that have died, failed in the ground or have been cut back to a stump.

TABLE 2-4 TREES ASSESSED OF NO ARBORICUTURAL VALUE WITHIN THE SITE

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
D	1	***Callistemon salignus***, Willow Bottlebrush	**None**
64	1	***Callistemon sp.***, Bottlebrush	**None**
67	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**None**
71	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**None**
82	1	***Eucalyptus mannifera***, Red Spotted Gum	**None**
84	1	***Eucalyptus cladocalyx***, Sugar Gum	**None**
259	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**None**
260	1	***Melaleuca nesophila***, Showy Honey Myrtle	**None**

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
261	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**None**
264	1	***Melaleuca armillaris***, Bracelet Honey-myrtle	**None**
266	1	***Eucalyptus mannifera***, Red Spotted Gum	**None**
277	1	***Eucalyptus nicholii***, Narrow-leaved Peppermint	**None**
269 270 272	3	***Melaleuca armillaris***, Bracelet Honey-myrtle	**None**

2.3 NATIVE SPECIES

2.3.1 Under the provisions of 52.17 *Native Vegetation* that applies as part of the Greater Dandenong Planning Scheme a permit is required to remove, destroy or lop native vegetation, including dead native vegetation. Of the trees assessed, the following six taxa are recorded that are native to Victoria and considered native under 52.17.

TABLE 2-5 NATIVE TAXA RECORDED IN THE STUDY AREA

Taxon	Common Name	Origin	No. of trees
Allocasurina verticillata	Drooping She-oak	Indigenous	1
Eucalyptus camaldulensis	River Red Gum	Indigenous	2
Eucalyptus globulus	Blue Gum	Victoria	3
Eucalyptus mannifera	Red Spotted Gum	Victoria	3
Eucalyptus sideroxylon	Red Ironbark	Victoria	3
Melaleuca armillaris	Bracelet Honey-myrtle	Victoria	11

2.3.2 In the table of exemptions to 52.17, a permit is not required for native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding. All of the recorded native species within the study area are commonly planted species found in Melbourne public school grounds. None are of the size where they would pre-date subdivision of the area, and the location and pattern of tree planting across the site suggests all trees are planted amenity specimens, and therefore do not require a permit for removal under 52.17.

2.4 TREES OUTSIDE THE SITE

2.4.1 16 trees have been assessed outside the site, located in the adjacent school grounds to the west and north that are close to common boundaries, as well as street trees within the Darren Road road reserve and the southern parcel of land near the site boundary.

TABLE 2-6 TREES ASSESSED OUTSIDE THE SITE

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
A	1	***Melaleuca linariifolia***, Snow-in-summer	**Outside site - Low**

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
B	1	***Melaleuca linariifolia***, Snow-in-summer	**Outside site - Low**
C	1	***Melaleuca linariifolia***, Snow-in-summer	**Outside site - Moderate**
46	1	***Eucalyptus sideroxylon***, Red Ironbark	**Outside site - Moderate**
47	1	***Eucalyptus nicholii***, Narrow-leaved Peppermint	**Outside site - Low**
48	1	***Eucalyptus mannifera***, Red Spotted Gum	**Outside site - High**
49	1	***Casuarina glauca***, Swamp Sheoak	**Outside site - Moderate**
50	1	***Eucalyptus cladocalyx 'Nana'***, Bushy Sugar Gum	**Outside site - Moderate**
55	1	***Eucalyptus globulus***, Blue Gum	**Outside site - Moderate**
58	1	***Eucalyptus leucoxylon***, Yellow Gum	**Outside site - Low**
278	1	***Eucalyptus sideroxylon***, Red Ironbark	**Outside site - Moderate**
279	1	***Eucalyptus sideroxylon***, Red Ironbark	**Outside site - Moderate**
307	1	***Eucalyptus nicholii***, Narrow-leaved Peppermint	**Outside site - Moderate**
308	1	***Eucalyptus sp.***, Eucalypt	**Outside site - None**
309	1	***Eucalyptus mannifera***, Red Spotted Gum	**Outside site - Moderate**
311	1	***Melaleuca styphelioides***, Prickly-leaved Paperbark	**Outside site - Low**

2.4.2 Tree assessment data is included at Section 4. Tree locations are shown on the attached plan at Section 7.

3.0 IMPACT ASSESSMENT

3.1 PROPOSAL

3.1.1 A development plan has been prepared for the site that proposes a residential development with child care facility in the south east portion of the site and two areas of public open space. The following drawing has been reviewed in the preparation of this assessment, made against the guidelines of AS4970-2009 *Protection of trees on development sites*:

Context Plan DP202 Rev F SK02A Oct 21

46-62 Darren Road, Springvale South

Prepared by Peddle Thorp

3.1.2 The development plan has been overlaid over the tree location plan at Section 6 of this report.

3.1.3 Three trees are proposed to be retained within areas of public open space as summarised below:

TABLE 3-1 TREES WITHIN THE SITE TO BE RETAINED

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value
69	1	***Melaleuca linariifolia***, Snow-in-summer	**Low**
70	1	***Eucalyptus sideroxylon***, Red Ironbark	**Moderate**
73	1	***Eucalyptus camaldulensis***, River Red Gum	**High**

3.1.4 Whilst a number of additional trees could potentially be retained in the eastern public open space, none of these are considered to be worthy of retention and can readily be replaced with a more cohesive landscape master plan.

3.1.5 Tree 239 and Tree 310 are shown as retained within the area of the childcare car park. Both specimens have evidence of extensive internal decay with trunk cankers and conks and have been assessed of low arboricultural value. Neither tree is worthy of retention within the context of site development.

3.1.6 Of the trees noted for retention within the site, encroachments are noted for the following specimen:

3.1.7 **Tree 73, River Red Gum**. The encroachment by the footprint of the childcare centre is 16% a major encroachment under AS4970-2009.

3.1.8 The encroachment is outside the nominated structural root zones of the tree. Encroachments by built form can be mitigated against by utilisation of on-grade and lightweight building construction for the childcare centre near Tree 73. The requirement for such construction can be confirmed following a non-destructive tree root investigation for the tree along the edge of the building footprints. Suitable footing systems could include stumps and above grade sub-floor members (Figure 1), or a proprietary micro pile system such as Surefoot footings (Figure 2), designed to engineer's specification.

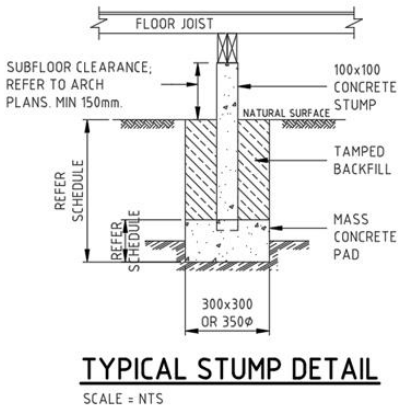


FIGURE 1 TYPICAL STUMP DETAIL

FIGURE 2 SUREFOOT MICRO PILE FOOTING SYSTEM

3.1.9 Encroachments are noted for a number of neighbouring trees, as summarised in the table below.

TABLE 3-2 TREES WITHIN THE SITE TO BE RETAINED

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value	% Encroachment
A	1	***Melaleuca linariifolia***, Snow-in-summer	**Outside site - Low**	**0**
B	1	***Melaleuca linariifolia***, Snow-in-summer	**Outside site - Low**	**0**
C	1	***Melaleuca linariifolia***, Snow-in-summer	**Outside site - Moderate**	**0**
46	1	***Eucalyptus sideroxylon***, Red Ironbark	**Outside site - Moderate**	**0**
47	1	***Eucalyptus nicholii***, Narrow-leaved Peppermint	**Outside site - Low**	**0**
48	1	***Eucalyptus mannifera***, Red Spotted Gum	**Outside site - High**	**20%. Major encroachment. Outside SRZ**
49	1	***Casuarina glauca***, Swamp Sheoak	**Outside site - Moderate**	**2%. Minor encroachment**
50	1	***Eucalyptus cladocalyx 'Nana'***, Bushy Sugar Gum	**Outside site - Moderate**	**0**
55	1	***Eucalyptus globulus***, Blue Gum	**Outside site - Moderate**	**< 4%. Minor encroachment**
58	1	***Eucalyptus leucoxylon***, Yellow Gum	**Outside site - Low**	**< 2%. Minor encroachment**
278	1	***Eucalyptus sideroxylon***, Red Ironbark	**Outside site - Moderate**	**2%. Minor encroachment**
279	1	***Eucalyptus sideroxylon***, Red Ironbark	**Outside site - Moderate**	**0**
307	1	***Eucalyptus nicholii***, Narrow-leaved Peppermint	**Outside site - Moderate**	**0**

ID	No. of trees	*Taxon,* Common Name	Arboricultural Value	% Encroachment
308	1	***Eucalyptus sp.***, Eucalypt	**Outside site - None**	**0**
309	1	***Eucalyptus mannifera***, Red Spotted Gum	**Outside site - Moderate**	**2%. Minor encroachment**
311	1	***Melaleuca styphelioides***, Prickly-leaved Paperbark	**Outside site - Low**	**0**

3.1.10 For all but one tree encroachment is considerably below the threshold of a minor encroachment under AS4970-2009. Provided the balance of the TPZs within the site are appropriately managed during construction, no other mitigation measures should be required for these trees.

3.1.11 **Tree 48, Red Spotted Gum**. The encroachment for this tree by the form of adjacent townhouses to the east is 20%, a major encroachment. Mitigation measures for this tree would be the same as for Trees 73 and 83 within the site, that is:

- Confirming the requirement for a modified footing system following a non-destructive tree root investigation along the proposed building footprint;
- If required, utilise a lightweight building system on stumps or micro-piles to limit the requirement for excavation within the TPZ of the tree.

3.2 ASSESSMENT AGAINST 52.17 NATIVE VEGETATION

3.2.1 The site has previously been assessed under the provisions of 52.17 *Native Vegetation* as part of the Greater Dandenong Planning Scheme by Jacobs (2015) for the Department of Education and Training. The findings of that study are:

- The site is highly modified and exotic grasses and weeds dominate the groundcover of the site;
- While many of the trees located within the site are native to Victoria, no native remnant vegetation was identified on site;
- Native tree species, where they exist on site, are planted trees and are therefore exempt from the need for planning approval under the provisions of Clause 52.17-7 Table of exemptions.

3.2.2 These observations are supported by the assessment at Section 2.3.

3.2.3 In summary, vegetation removal from the site does not trigger a permit under 52.17.

4.0 TREE ASSESSMENT DATA

TREE: **46**	***Eucalyptus sideroxylon***, Red Ironbark			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 9	**WIDTH** (m): 12	**DBH** (cm): 50 Estimate Low **DAB** (cm): 65	**TPZ** (m): 6.0 **SRZ** (m): 2.8
NOTES			**ARBORICULTURAL RATING**: Moderate	

TREE: **47**	***Eucalyptus nicholii***, Narrow-leaved Peppermint			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-poor	**FORM**: Suppressed	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 8	**DBH** (cm): 40 **DAB** (cm): 55	**TPZ** (m): 4.8 **SRZ** (m): 2.6
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **48**	***Eucalyptus mannifera***, Red Spotted Gum			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Mature	**HEIGHT** (m): 19	**WIDTH** (m): 16	**DBH** (cm): 125 **DAB** (cm): 140	**TPZ** (m): 15.0 **SRZ** (m): 3.9
NOTES			**ARBORICULTURAL RATING**: High	

TREE: **49**	***Casuarina glauca***, Swamp Sheoak			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Mature	**HEIGHT** (m): 15	**WIDTH** (m): 10	**DBH** (cm): 79 **DAB** (cm): 95	**TPZ** (m): 9.5 **SRZ** (m): 3.3
NOTES			**ARBORICULTURAL RATING**: Moderate	

TREE: **50**	***Eucalyptus cladocalyx 'Nana'***, Bushy Sugar Gum			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 11	**WIDTH** (m): 16	**DBH** (cm): 50 **DAB** (cm): 65	**TPZ** (m): 6.0 **SRZ** (m): 2.8
NOTES			**ARBORICULTURAL RATING**: Moderate	

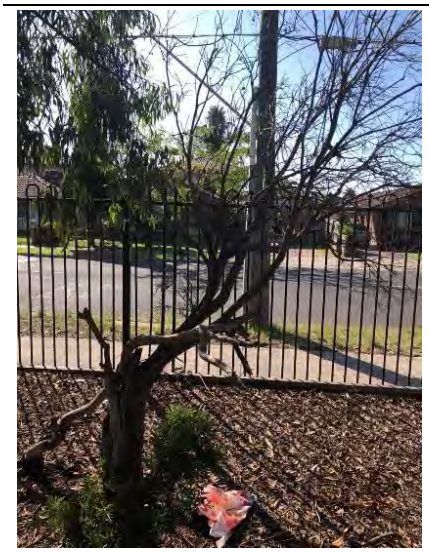
TREE: **55**	***Eucalyptus globulus***, Blue Gum			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Asymmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 15	**WIDTH** (m): 8	**DBH** (cm): 65 **DAB** (cm): 80	**TPZ** (m): 7.8 **SRZ** (m): 3.1
NOTES HV pruned			**ARBORICULTURAL RATING**: Moderate	

TREE: **58**	***Eucalyptus leucoxylon***, Yellow Gum			
ORIGIN: Indigenous	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 8	**WIDTH** (m): 6	**DBH** (cm): 30 **DAB** (cm): 45	**TPZ** (m): 3.6 **SRZ** (m): 2.4
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **61**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 2	**WIDTH** (m): 4	**DBH** (cm): 35 Estimate Low **DAB** (cm): 50	**TPZ** (m): 4.2 **SRZ** (m): 2.5
NOTES Stunted			**ARBORICULTURAL RATING**: Low	

TREE: **62**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 3	**WIDTH** (m): 4	**DBH** (cm): 40 Measured Low **DAB** (cm): 50	**TPZ** (m): 4.8 **SRZ** (m): 2.5
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **63**	***Eucalyptus sideroxylon***, Red Ironbark			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Asymmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 15	**WIDTH** (m): 12	**DBH** (cm): 58 **DAB** (cm): 70	**TPZ** (m): 7.0 **SRZ** (m): 2.9
NOTES			**ARBORICULTURAL RATING**: Moderate	



TREE: **64**	***Callistemon sp.***, Bottlebrush			
ORIGIN: Australian Native	**HEALTH**: Poor	**STRUCTURE**: Poor	**FORM**: Asymmetrical	**ULE**: 0
AGE: Senescent	**HEIGHT** (m): 2	**WIDTH** (m): 1	**DBH** (cm): 15 **DAB** (cm): 16	**TPZ** (m): 2.0 **SRZ** (m): 1.5
NOTES			**ARBORICULTURAL RATING**: None	

TREE: **65**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 4	**WIDTH** (m): 6	**DBH** (cm): 50 Estimate Low **DAB** (cm): 50	**TPZ** (m): 6.0 **SRZ** (m): 2.5
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **66**	***Eucalyptus camaldulensis***, River Red Gum			
ORIGIN: Indigenous	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 16	**WIDTH** (m): 10	**DBH** (cm): 52 **DAB** (cm): 65	**TPZ** (m): 6.3 **SRZ** (m): 2.8
NOTES			**ARBORICULTURAL RATING**: Moderate	

TREE: **67**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**:
AGE:	**HEIGHT** (m): 0	**WIDTH** (m): 0	**DBH** (cm): 0	**TPZ** (m): 2.0
NOTES Removed			**ARBORICULTURAL RATING**: None	

TREE: **68**	***Eucalyptus globulus***, Blue Gum			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 17	**WIDTH** (m): 12	**DBH** (cm): 80 **DAB** (cm): 95	**TPZ** (m): 9.6 **SRZ** (m): 3.3
NOTES HV pruned			**ARBORICULTURAL RATING**: Moderate	

TREE: **69**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 4	**WIDTH** (m): 5	**DBH** (cm): 40 Estimate Low **DAB** (cm): 40	**TPZ** (m): 4.8 **SRZ** (m): 2.3
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **70**	***Eucalyptus sideroxylon***, Red Ironbark			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Asymmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 15	**WIDTH** (m): 8	**DBH** (cm): 49 **DAB** (cm): 60	**TPZ** (m): 5.9 **SRZ** (m): 2.7
NOTES HV pruned			**ARBORICULTURAL RATING**: Moderate	

TREE: **71**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**:
AGE:	**HEIGHT** (m): 0	**WIDTH** (m): 0	**DBH** (cm): 0	**TPZ** (m): 2.0
NOTES Removed			**ARBORICULTURAL RATING**: None	

TREE: **72**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-good	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 1-5 years
AGE: Over-mature	**HEIGHT** (m): 6	**WIDTH** (m): 12	**DBH** (cm): 40 30 30 **DAB** (cm): 60	**TPZ** (m): 7.0 **SRZ** (m): 1.5
NOTES Breaking up			**ARBORICULTURAL RATING**: Low	

TREE: **73**	***Eucalyptus camaldulensis***, River Red Gum			
ORIGIN: Indigenous	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 20	**WIDTH** (m): 16	**DBH** (cm): 73 48 **DAB** (cm): 85	**TPZ** (m): 10.5 **SRZ** (m): 3.1
NOTES			**ARBORICULTURAL RATING**: High	

TREE: **74**	***Eucalyptus mannifera***, Red Spotted Gum			
ORIGIN: Victoria	**HEALTH**: Fair	**STRUCTURE**: Fair-poor	**FORM**: Suppressed	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 8	**WIDTH** (m): 4	**DBH** (cm): 25 **DAB** (cm): 40	**TPZ** (m): 3.0 **SRZ** (m): 2.3
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **75 76**	***Melaleuca styphelioides***, Prickly-leaved Paperbark			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 8	**WIDTH** (m): 6	**DBH** (cm): 25 Estimate Low **DAB** (cm): 25	**TPZ** (m): 3.0 **SRZ** (m): 1.5
NOTES Sooty mould			**ARBORICULTURAL RATING**: Low	

TREE: **77**	***Callistemon salignus***, Willow Bottlebrush			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Basal regrowth (developing)	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 4	**WIDTH** (m): 2	**DBH** (cm): 15 15 **DAB** (cm): 25	**TPZ** (m): 2.6 **SRZ** (m): 1.9
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **78**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 4	**DBH** (cm): 50 **DAB** (cm): 60	**TPZ** (m): 6.0 **SRZ** (m): 2.7
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **79**	***Lophostemon confertus***, Brush Box			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 5	**DBH** (cm): 31 **DAB** (cm): 35	**TPZ** (m): 3.7 **SRZ** (m): 2.1
NOTES Previously lopped			**ARBORICULTURAL RATING**: Low	

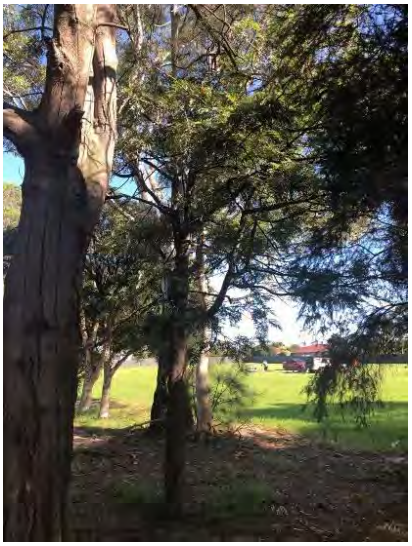
TREE: **80**	***Eucalyptus globulus***, Blue Gum			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 17	**WIDTH** (m): 12	**DBH** (cm): 51 72 **DAB** (cm): 113	**TPZ** (m): 10.6 **SRZ** (m): 3.5
NOTES			**ARBORICULTURAL RATING**: Moderate	

TREE: **81**	***Eucalyptus nicholii***, Narrow-leaved Peppermint			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 6-10 years
AGE: Over-mature	**HEIGHT** (m): 16	**WIDTH** (m): 12	**DBH** (cm): 50 45 40 **DAB** (cm): 75	**TPZ** (m): 9.4 **SRZ** (m): 3.0
NOTES Decay in primary unions			**ARBORICULTURAL RATING**: Low	

TREE: **82**	***Eucalyptus mannifera***, Red Spotted Gum			
ORIGIN: Victoria	**HEALTH**: Poor	**STRUCTURE**: Poor	**FORM**: Symmetrical	**ULE**: 0
AGE: Senescent	**HEIGHT** (m): 12	**WIDTH** (m): 9	**DBH** (cm): 45 **DAB** (cm): 60	**TPZ** (m): 5.4 **SRZ** (m): 2.7
NOTES Shooting at base			**ARBORICULTURAL RATING**: None	

TREE: **83**	***Casuarina glauca***, Swamp Sheoak			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Mature	**HEIGHT** (m): 14	**WIDTH** (m): 10	**DBH** (cm): 67 Measured Low **DAB** (cm): 75	**TPZ** (m): 8.1 **SRZ** (m): 3.0
NOTES			**ARBORICULTURAL RATING**: Moderate	

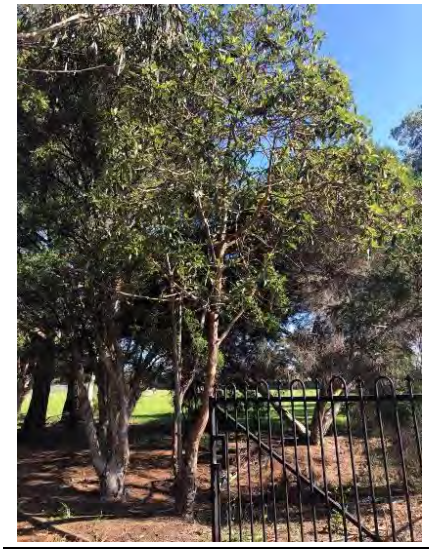
TREE: **84**	***Eucalyptus cladocalyx***, Sugar Gum			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Poor	**FORM**: Basal regrowth (developing)	**ULE**: 0
AGE: Over-mature	**HEIGHT** (m): 5	**WIDTH** (m): 5	**DBH** (cm): Multi-stemmed **DAB** (cm): 75	**TPZ** (m): 3.5 **SRZ** (m): 3.0
NOTES Stump sprout			**ARBORICULTURAL RATING**: None	



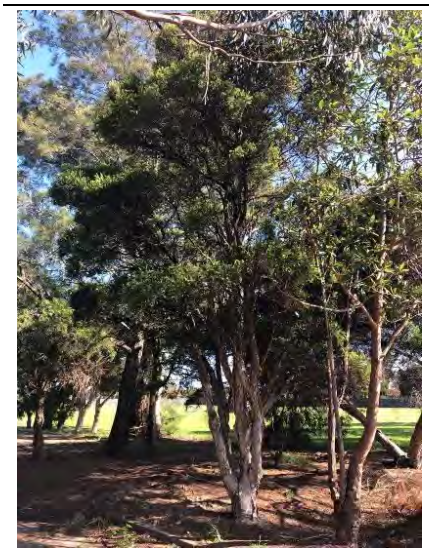
TREE: **233**	***Grevillea robusta***, Silky Oak			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 3	**DBH** (cm): 18 **DAB** (cm): 20	**TPZ** (m): 2.2 **SRZ** (m): 1.7
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **234**	***Casuarina glauca***, Swamp Sheoak			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Mature	**HEIGHT** (m): 18	**WIDTH** (m): 12	**DBH** (cm): 50 **DAB** (cm): 65	**TPZ** (m): 6.0 **SRZ** (m): 2.8
NOTES			**ARBORICULTURAL RATING**: Moderate	

TREE: **235**	***Callistemon salignus***, Willow Bottlebrush			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 4	**WIDTH** (m): 4	**DBH** (cm): 22 Estimate Low **DAB** (cm): 28	**TPZ** (m): 2.7 **SRZ** (m): 2.0
NOTES			**ARBORICULTURAL RATING**: Low	



TREE: **236**	***Lophostemon confertus***, Brush Box			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 3	**DBH** (cm): 17 **DAB** (cm): 25	**TPZ** (m): 2.1 **SRZ** (m): 1.9
NOTES Low vigour specimen			**ARBORICULTURAL RATING**: Low	



TREE: **237**	***Melaleuca styphelioides***, Prickly-leaved Paperbark			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 5	**DBH** (cm): 45 Estimate Low **DAB** (cm): 45	**TPZ** (m): 5.4 **SRZ** (m): 2.4
NOTES Sooty mould			**ARBORICULTURAL RATING**: Low	

TREE: **238**	***Allocasurina verticillata***, Drooping She-oak			
ORIGIN: Indigenous	**HEALTH**: Fair-good	**STRUCTURE**: Poor	**FORM**: Lopped/topped	**ULE**: 1-5 years
AGE: Semi-mature	**HEIGHT** (m): 4	**WIDTH** (m): 5	**DBH** (cm): 25 **DAB** (cm): 27	**TPZ** (m): 3.0 **SRZ** (m): 2.0
NOTES Limited crown			**ARBORICULTURAL RATING**: Low	

TREE: **239**	***Eucalyptus globulus***, Blue Gum			
ORIGIN: Victoria	**HEALTH**: Fair-poor	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 1-5 years
AGE: Over-mature	**HEIGHT** (m): 14	**WIDTH** (m): 8	**DBH** (cm): 75 50 **DAB** (cm): 90	**TPZ** (m): 10.9 **SRZ** (m): 3.2
NOTES Declining . Cankers			**ARBORICULTURAL RATING**: Low	

TREE: **240**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-poor	**STRUCTURE**: Fair-poor	**FORM**: Suppressed	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 5	**WIDTH** (m): 5	**DBH** (cm): 18 18 **DAB** (cm): 30	**TPZ** (m): 3.1 **SRZ** (m): 2.0
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **241**	***Melaleuca styphelioides***, Prickly-leaved Paperbark			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Asymmetrical	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 5	**DBH** (cm): 18 15 **DAB** (cm): 30	**TPZ** (m): 2.9 **SRZ** (m): 2.0
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **242**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair	**STRUCTURE**: Fair-poor	**FORM**: Asymmetrical	**ULE**: 1-5 years
AGE: Over-mature	**HEIGHT** (m): 5	**WIDTH** (m): 10	**DBH** (cm): 50 **DAB** (cm): 65	**TPZ** (m): 6.0 **SRZ** (m): 2.8
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **243** **244**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 4	**WIDTH** (m): 3	**DBH** (cm): 0 Multi-stemmed **DAB** (cm): 28	**TPZ** (m): 2.0 **SRZ** (m): 2.0
NOTES Stunted			**ARBORICULTURAL RATING**: Low	

TREE: **245**	***Melaleuca styphelioides***, Prickly-leaved Paperbark			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 3	**DBH** (cm): 22 **DAB** (cm): 27	**TPZ** (m): 2.7 **SRZ** (m): 2.0
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **246**	***Callistemon salignus***, Willow Bottlebrush			
ORIGIN: Australian Native	**HEALTH**: Poor	**STRUCTURE**: Fair-poor	**FORM**: Suppressed	**ULE**: 1-5 years
AGE: Semi-mature	**HEIGHT** (m): 3	**WIDTH** (m): 2	**DBH** (cm): 10 **DAB** (cm): 15	**TPZ** (m): 2.0 **SRZ** (m): 1.5
NOTES Stunted			**ARBORICULTURAL RATING**: Low	

TREE: **247**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair-poor	**FORM**: Asymmetrical	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 5	**WIDTH** (m): 3	**DBH** (cm): 18 **DAB** (cm): 25	**TPZ** (m): 2.2 **SRZ** (m): 1.9
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **248**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-good	**STRUCTURE**: Poor	**FORM**: Symmetrical	**ULE**: 1-5 years
AGE: Over-mature	**HEIGHT** (m): 8	**WIDTH** (m): 7	**DBH** (cm): 50 **DAB** (cm): 60	**TPZ** (m): 6.0 **SRZ** (m): 2.7
NOTES Cracking trunk			**ARBORICULTURAL RATING**: Low	

TREE: **249**	***Photinia serratifolia***, Christmas Berry			
ORIGIN: Exotic	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 6-10 years
AGE: Semi-mature	**HEIGHT** (m): 2	**WIDTH** (m): 3	**DBH** (cm): Multi-stemmed **DAB** (cm): 16	**TPZ** (m): 2.0 **SRZ** (m): 1.6
NOTES Shrub			**ARBORICULTURAL RATING**: Low	

TREE: **250**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 8	**WIDTH** (m): 5	**DBH** (cm): 48 **DAB** (cm): 60	**TPZ** (m): 5.8 **SRZ** (m): 2.7
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **251**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 7	**WIDTH** (m): 6	**DBH** (cm): 39 **DAB** (cm): 50	**TPZ** (m): 4.7 **SRZ** (m): 2.5
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **252**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 7	**WIDTH** (m): 4	**DBH** (cm): 30 **DAB** (cm): 40	**TPZ** (m): 3.6 **SRZ** (m): 2.3
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **253-258**	***Ulmus parvifolia***, Chinese Elm			
ORIGIN: Exotic	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Asymmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 10	**WIDTH** (m): 6	**DBH** (cm): 18 **DAB** (cm): 24	**TPZ** (m): 2.2 **SRZ** (m): 1.9
NOTES Dense copse. Dimensions for largest			**ARBORICULTURAL RATING**: Low	

TREE: **259**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair	**STRUCTURE**: Poor	**FORM**: Asymmetrical	**ULE**: 0
AGE: Over-mature	**HEIGHT** (m): 2	**WIDTH** (m): 8	**DBH** (cm): 0 Multi-stemmed **DAB** (cm):	**TPZ** (m): 2.0 **SRZ** (m): 1.5
NOTES Failed in ground			**ARBORICULTURAL RATING**: None	

TREE: **260**	***Melaleuca nesophila***, Showy Honey Myrtle			
ORIGIN: Indigenous	**HEALTH**: Fair-good	**STRUCTURE**: Poor	**FORM**: Asymmetrical	**ULE**: 0
AGE: Over-mature	**HEIGHT** (m): 3	**WIDTH** (m): 8	**DBH** (cm): 35 **DAB** (cm): 50	**TPZ** (m): 4.2 **SRZ** (m): 2.5
NOTES Failed in ground			**ARBORICULTURAL RATING**: None	

TREE: **261**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair	**STRUCTURE**: Poor	**FORM**: Asymmetrical	**ULE**: 0
AGE: Over-mature	**HEIGHT** (m): 4	**WIDTH** (m): 12	**DBH** (cm): 0 Multi-stemmed **DAB** (cm): 35	**TPZ** (m): 2.0 **SRZ** (m): 2.2
NOTES Failed in ground			**ARBORICULTURAL RATING**: None	

TREE: **262**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-poor	**STRUCTURE**: Fair-poor	**FORM**: Asymmetrical	**ULE**: 1-5 years
AGE: Over-mature	**HEIGHT** (m): 4	**WIDTH** (m): 6	**DBH** (cm): 30 25 **DAB** (cm): 50	**TPZ** (m): 4.7 **SRZ** (m): 2.5
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **263**	***Agonis flexuosa***, Willow Myrtle			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 6-10 years
AGE: Over-mature	**HEIGHT** (m): 11	**WIDTH** (m): 7	**DBH** (cm): 60 **DAB** (cm): 70	**TPZ** (m): 7.2 **SRZ** (m): 2.9
NOTES Declining			**ARBORICULTURAL RATING**: Low	

TREE: **264**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**:
AGE:	**HEIGHT** (m): 0	**WIDTH** (m): 0	**DBH** (cm): 0	**TPZ** (m): 2.0
NOTES Stump			**ARBORICULTURAL RATING**: None	

TREE: **265**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-good	**STRUCTURE**: Fair-poor	**FORM**: Asymmetrical	**ULE**: 1-5 years
AGE: Over-mature	**HEIGHT** (m): 7	**WIDTH** (m): 12	**DBH** (cm): 45 35 **DAB** (cm):	**TPZ** (m): 6.9 **SRZ** (m): 1.5
NOTES			**ARBORICULTURAL RATING**: Low	

TREE: **266**	***Eucalyptus mannifera***, Red Spotted Gum			
ORIGIN: Victoria	**HEALTH**: Poor	**STRUCTURE**: Poor	**FORM**: Symmetrical	**ULE**: 0
AGE: Senescent	**HEIGHT** (m): 12	**WIDTH** (m): 8	**DBH** (cm): 40 **DAB** (cm): 55	**TPZ** (m): 4.8 **SRZ** (m): 2.6
NOTES			**ARBORICULTURAL RATING**: None	

TREE: **267**	***Eucalyptus nicholii***, Narrow-leaved Peppermint			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Poor	**FORM**: Asymmetrical	**ULE**: 1-5 years
AGE: Over-mature	**HEIGHT** (m): 15	**WIDTH** (m): 6	**DBH** (cm): 55 55 **DAB** (cm): 85	**TPZ** (m): 9.4 **SRZ** (m): 3.1
NOTES Lost codominant			**ARBORICULTURAL RATING**: Low	

TREE: **268**	***Melaleuca styphelioides***, Prickly-leaved Paperbark			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 9	**WIDTH** (m): 8	**DBH** (cm): 30 30 30 20 20 **DAB** (cm): 65	**TPZ** (m): 7.1 **SRZ** (m): 2.8
NOTES			**ARBORICULTURAL RATING**: Moderate	

TREE: **269 270 272**	***Melaleuca armillaris***, Bracelet Honey-myrtle			
ORIGIN: Australia	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Symmetrical	**ULE**:
AGE:	**HEIGHT** (m): 0	**WIDTH** (m): 0	**DBH** (cm): 0	**TPZ** (m): 2.0
NOTES Removed			**ARBORICULTURAL RATING**: None	

TREE: **271 273-276**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 8	**WIDTH** (m): 5	**DBH** (cm): 30 **DAB** (cm): 45	**TPZ** (m): 3.6 **SRZ** (m): 2.4
NOTES Row			**ARBORICULTURAL RATING**: Low	

TREE: **277**	***Eucalyptus nicholii***, Narrow-leaved Peppermint			
ORIGIN: Australian Native	**HEALTH**: Dead	**STRUCTURE**: Poor	**FORM**: Symmetrical	**ULE**:
AGE: Dead	**HEIGHT** (m): 7	**WIDTH** (m): 5	**DBH** (cm): 25 **DAB** (cm):	**TPZ** (m): 3.0 **SRZ** (m): 1.5
NOTES			**ARBORICULTURAL RATING**: None	

TREE: **278**	***Eucalyptus sideroxylon***, Red Ironbark			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 16	**WIDTH** (m): 14	**DBH** (cm): 58 **DAB** (cm): 75	**TPZ** (m): 7.0 **SRZ** (m): 3.0
NOTES Extended structure			**ARBORICULTURAL RATING**: Moderate	

TREE: **279**	***Eucalyptus sideroxylon***, Red Ironbark			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair-poor	**FORM**: Symmetrical	**ULE**: 11-20 years
AGE: Mature	**HEIGHT** (m): 18	**WIDTH** (m): 15	**DBH** (cm): 70 **DAB** (cm): 93	**TPZ** (m): 8.4 **SRZ** (m): 3.3
NOTES Included primary union - split prone			**ARBORICULTURAL RATING**: Moderate	

TREE: **281 282 283**	***Eucalyptus sideroxylon***, Red Ironbark			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 14	**WIDTH** (m): 9	**DBH** (cm): 51 **DAB** (cm): 65	**TPZ** (m): 6.2 **SRZ** (m): 2.8
NOTES Three trees planted as copse on mound. Manage as group			**ARBORICULTURAL RATING**: Moderate	

TREE: **307**	***Eucalyptus nicholii***, Narrow-leaved Peppermint			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Asymmetrical	**ULE**: 11-20 years
AGE: Mature	**HEIGHT** (m): 17	**WIDTH** (m): 10	**DBH** (cm): 50 45 **DAB** (cm): 70	**TPZ** (m): 8.1 **SRZ** (m): 2.9
NOTES Clearance pruned			**ARBORICULTURAL RATING**: Moderate	

TREE: **308**	***Eucalyptus sp.***, Eucalypt			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Poor	**FORM**: Basal regrowth (developing)	**ULE**: 0
AGE: Over-mature	**HEIGHT** (m): 3	**WIDTH** (m): 2	**DBH** (cm): Multi-stemmed	**TPZ** (m): 2.0
NOTES Stump sprout – *E. botryoides*?			**ARBORICULTURAL RATING**: None	

TREE: **309**	***Eucalyptus mannifera***, Red Spotted Gum			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair-good	**FORM**: Asymmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 17	**WIDTH** (m): 12	**DBH** (cm): 56 **DAB** (cm): 65	**TPZ** (m): 6.8 **SRZ** (m): 2.8
NOTES Clearance pruned			**ARBORICULTURAL RATING**: Moderate	

TREE: **310**	***Eucalyptus mannifera***, Red Spotted Gum			
ORIGIN: Victoria	**HEALTH**: Fair-good	**STRUCTURE**: Fair-poor	**FORM**: Asymmetrical	**ULE**: 6-10 years
AGE: Over-mature	**HEIGHT** (m): 15	**WIDTH** (m): 9	**DBH** (cm): 72 **DAB** (cm): 90	**TPZ** (m): 8.7 **SRZ** (m): 3.2
NOTES Trunk canker, conk			**ARBORICULTURAL RATING**: Low	

TREE: **311**	***Melaleuca styphelioides***, Prickly-leaved Paperbark			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair-good	**FORM**: Asymmetrical	**ULE**: 11-20 years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 5	**DBH** (cm): Multi-stemmed **DAB** (cm): 50	**TPZ** (m): 3.5c **SRZ** (m): 2.5
NOTES Over-shadowed			**ARBORICULTURAL RATING**: Low	

TREE: **A**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 5	**WIDTH** (m): 4	**DBH** (cm): 19 24 **DAB** (cm): 40	**TPZ** (m): 3.7 **SRZ** (m): 2.3
NOTES Street tree			**ARBORICULTURAL RATING**: Low	

TREE: **B**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 3	**WIDTH** (m): 2	**DBH** (cm): 23 **DAB** (cm): 35	**TPZ** (m): 2.8 **SRZ** (m): 2.2
NOTES Street tree			**ARBORICULTURAL RATING**: Low	

TREE: **C**	***Melaleuca linariifolia***, Snow-in-summer			
ORIGIN: Australian Native	**HEALTH**: Fair-good	**STRUCTURE**: Fair	**FORM**: Symmetrical	**ULE**: 20+years
AGE: Semi-mature	**HEIGHT** (m): 6	**WIDTH** (m): 5	**DBH** (cm): 26 33 **DAB** (cm): 50	**TPZ** (m): 5.1 **SRZ** (m): 2.5
NOTES Street tree			**ARBORICULTURAL RATING**: Moderate	

TREE: **D**	***Callistemon salignus***, Willow Bottlebrush			
ORIGIN: Australian Native	**HEALTH**: Poor	**STRUCTURE**: Poor	**FORM**: Asymmetrical	**ULE**: 0
AGE: Senescent	**HEIGHT** (m): 6	**WIDTH** (m): 4	**DBH** (cm): 20 **DAB** (cm): 35	**TPZ** (m): 2.4 **SRZ** (m): 2.2
NOTES			**ARBORICULTURAL RATING**: None	

5.0 DESCRIPTORS

Taxon: Botanical name of tree.

Common Name: Accepted common name of taxon

Sources for Taxon and Common Names:

Flora of Victoria online (https://vicflora.rbg.vic.gov.au/)

Horticultural Flora of South Eastern Australia (Vols. 1-5)

Origin:

Indigenous Naturally occurring within locale. Considered Native under planning scheme provisions

Victoria Naturally occurring taxon within Victoria. Considered Native under planning scheme provisions

Australia Australian native. Occurs naturally within Australia, but outside Victoria.

Exotic. Introduced taxon to Australia.

DBH: Diameter at breast height (1.4m), in centimetres.

DAB: Diameter of trunk immediately above root buttress, in centimetres, estimated.

Height: Height of tree, in metres.

Width: Estimated width of tree, in metres.

TPZ: Tree Protection Zone calculated in accordance with AS4970-2009 *Protection of Trees on Development Sites.*

SRZ: Structural Root Zone calculated in accordance with AS4970-2009 *Protection of Trees on Development Sites.*

Form General shape of tree crown

ULE Useful life expectancy of tree

Age

Juvenile: Young, recently planted tree.

Semi-mature: Tree is developing and established.

Mature: Specimen has reached expected size in current situation, limited extension growth.

Over-mature: Specimen entering stage of decline, declining health.

Senescent Tree is in advanced and irreversible decline.

Health

Good: Optimal vigour for taxon. Crown full with good density, foliage entire, with good colour, minimal or no pathogen damage. Good growth indicators, e.g. extension growth. No or minimal canopy dieback. Good wound-wood and callus formation.

Fair: Tree is exhibiting one or more of the following:

Tree has <30% deadwood. Or can have minor canopy dieback. Foliage generally with good colour, some

discolouration may be present, minor pathogen damage present. Typical growth indicators, e.g. extension growth, leaf size, canopy density for species in location may be slightly abnormal.

Poor: Tree has >30% deadwood. Canopy dieback present. Discoloured or distorted leaves and/or excessive epicormic re-growth. Pathogen is present and/or stress symptoms that could lead to or are contributing to the decline of tree.

Dead: Tree is dead.

Structure

Good: Optimal structure for taxon. Sound branch attachment and/or no minor structural defects. Trunk and scaffold branches sound or only minor damage. Good trunk and scaffold branch taper. No branch over extension. No damage to structural roots, good buttressing present. No obvious root pests or diseases.

Fair: Some minor structural defects and/or minimal damage to trunk. Bark missing. Cavities could be present. Minimal or no damage to structural roots. Typical structure for species.

Poor: Major structural defects and/or trunk damaged and/or missing bark. Large cavities and/or girdling or damaged roots that are problematic.

Arboricultural Value

None Tree with severe health and/or structural defects that cannot be rectified through reasonably practicable Arboricultural works; Tree may be inter dependent with surrounding trees and will be unable to be retained once adjacent shelter trees are removed; The tree is classed as a noxious or environmental weed species and is detrimental to the environment.

Low A tree that offers little in terms of contributing to the of the future landscape for reasons of poor health, structural condition, and/or species suitability, including propensity to weediness; A tree that is not significant due to its size and/or age and can be easily replaced; Tree with a ULE of under 10 years; Trees classed as having a low retention value may be able to be retained in the mid to short term if they do not require a disproportionate expenditure of resources (i.e. design modification).

Moderate A tree with some attributes that may benefit the site in relation to botanical, horticultural, historical or local significance but may be limited to some degree by their current health condition or future growth in relation to existing or future site conditions and/or immediate/future maintenance requirements. The tree is likely to tolerate changes in its environment and will respond to arboricultural treatments. Trees classed as having a moderate retention value should be considered for retention if reasonably practicable. Arboricultural works may be required but should remain within reasonable limits. Tree may have a ULE of over 10 years if managed appropriately.

High A tree in good overall condition that has the potential to positively contribute to the landscape in the long-term if appropriately managed. Species is suited to its existing site conditions and can tolerate

certain changes in its environment. Ideally, trees with a high retention value should be retained and incorporated into any development plans. The tree is worthy of retention wherever possible.

6.0 REFERENCES

Jacobs (2015). *Ecological Assessment. Site rezoning – Keysborough Primary School*. Final C. 3 February 2015. Prepared for Department of Education and Training.

7.0 TREE LOCATION PLAN

11 DARREN ROAD, SPRINGVALE SOUTH
Address

TREE LOCATION PLAN
Drawing

TREE DEPARTMENT PTY LTD
ABN 285 753 365 069
info@landscapedept.com
P.O. BOX 283 CLIFTON HILL VIC 3068

20–03–11	1:500@A3
Job N°.	Scale
01.04.2020	SH
Date	Drawn

TPP01 A7.3.22
Drawing N°. Revision

68 TREE TO BE REMOVED

69 TREE TO BE RETAINED WITH TPZ

Traffic and Transport Assessment

Darren Road Townhouse & Childcare Centre Development

V200098

Prepared for
Paragon Development Group

19 March 2021

Cardno
Shaping the Future

Document Information

Prepared for	Paragon Development Group
Project Name	Darren Road Townhouse & Childcare Centre Development
File Reference	V200098REP001F03.docx
Job Reference	V200098
Date	19 March 2021

Contact Information

Cardno Victoria Pty Ltd
Trading as Cardno
ABN 47 106 610 913

Level 4
501 Swanston Street
Melbourne
Victoria 3000 Australia

Telephone: (03) 8415 7777
Facsimile: (03) 8415 7788
International: +61 3 8415 7777

victoria@cardno.com.au
www.cardno.com

Document Control

Version	Date	Author	Author Initials	Reviewer	Reviewer Initials
F01	28/04/20	Matthew Duffy		Andrew Car	
F02	19/08/20	Matthew Duffy		Andrew Car	
F03	19/03/21	Matthew Duffy		Andrew Car	

Table of Contents

Appendices

Tables

Figures

1 Introd.....

Cardno has been retained by Paragon Development Group to revise this Traffic and Transport Assessment for a proposed mixed-use development comprising a childcare centre and townhouses on land located at 46-62 Darren Road, Springvale South.

Cardno has had previous involvement in the planning permit application, having prepared a Traffic & Transport Assessment (Cardno Ref#V200098REP001F01, dated 28th April, 2020) that was submitted alongside the original town planning documentation in early 2020.

Following submission of the original report, Paragon Development Group received a Request for Further Information Letter from City of Greater Dandenong Council (Council Ref# PlnSM20/0001, dated 6th July, 2020) which sought changes and/or additional information with regard to the development application.

The items that related to traffic engineering were as follows:

12. *Visitor parking to be provided which does not encroach on the 5.5m carriageways.*
23. *A waiver of visitor parking is not supported. Sufficient visitor parking must be provided for all properties that access via the proposed private road.*
24. *The private road due to its design and layout can only accommodate very bespoke private waste collection (i.e. very small waste vehicles reversing extensively on site). At other similar sites (including the other end of the school) this has been indicated to be not desirable by our Waste Team (Council collection and economy's of scale result in a better environmental outcome).*
29. *Visitor car spaces must not encroach on the 5.5 metre wide accessway.*
30. *A number of dead end streets have been proposed with no provision for turning without using crossovers.*

In response, the plans were updated to address many of the above concerns and the Traffic & Transport Assessment amended (Cardno Ref#V200098REP001F02, dated 17th March, 2021) and submitted alongside the revised application

In March 2021, Paragon Development Group advised Cardno that an amended masterplan had been prepared and negotiated with Council. Accordingly, this report has been updated to reflect and assess the latest iteration of the plans and supersedes the previous two revisions.

In the course of preparing this assessment the subject site and its environs have been inspected, plans of the development examined, and all relevant traffic data collected and analysed.

A copy of the amended ground floor development plan prepared for the site by Peddle Thorp is attached as Appendix A to this report.

2 Ba..... d and Existing Conditions

2.1 Location and Land Use

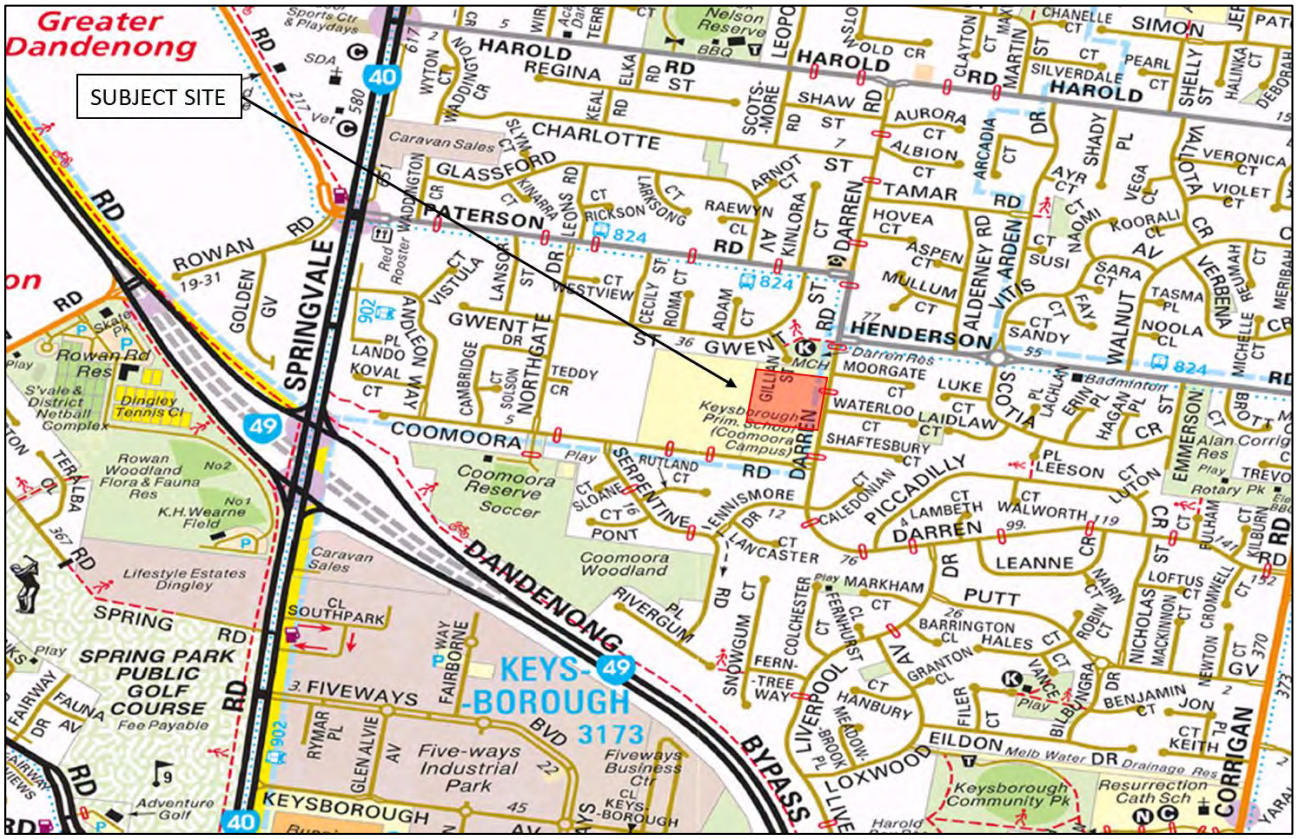
2.1.1 Site Location

The subject site has an approximate area of 1.25 hectares and is located on the western side of Darren Road, approximately 200 metres south of Paterson Road in Springvale South.

The site is rectangular in shape and has approximately 240 metres frontage to Darren Road along the eastern site boundary.

Figure 2-1 shows the location of the site and the surrounding road network.

Figure 2-1 Site Locality Plan



The site is generally vacant albeit for some paved areas at the south-eastern corner, having formerly accommodated the playground and sporting oval associated with its previous use as Keysborough Primary School.

Notable land uses in the vicinity of the site include the relocated Keysborough Primary School to the immediate west, Darren Reserve Kindergarten to the north, and Parkmore Shopping Centre approximately 1,600 metres south-east of the site.

The site is situated within the City of Greater Dandenong Council area and is located approximately 25 kilometres south-east of the Melbourne CBD.

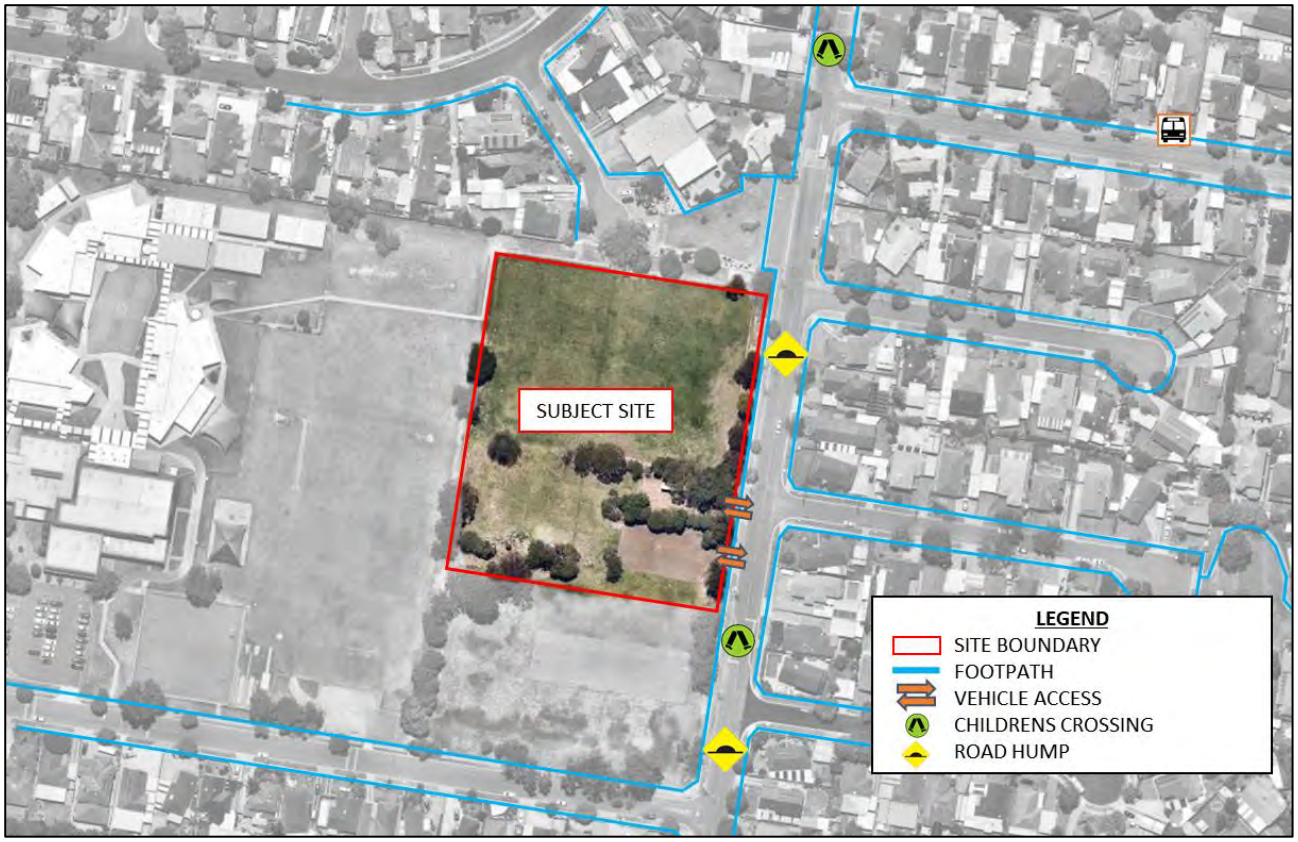
2.1.2 Existing Vehicle and Pedestrian Access Arrangements

Vehicular access to the site is currently provided via two (2) double width crossovers to Darren Road located towards the south of the site.

Footpaths are located along both sides of the road reservations within close proximity of the site, including along the immediate Darren Road frontage. A 'Children's Crossing' is located on Darren Road at the south-eastern site boundary.

The aerial photograph at Figure 2-2 illustrates the existing vehicle and pedestrian access arrangements at the site.

Figure 2-2 Existing Site Conditions



2.2 Planning Zones

Figure 2-3 shows the location of the site as defined by the Greater Dandenong Land Zoning Maps.

Figure 2-3 Greater Dandenong Planning Scheme Land Zoning Map Extract

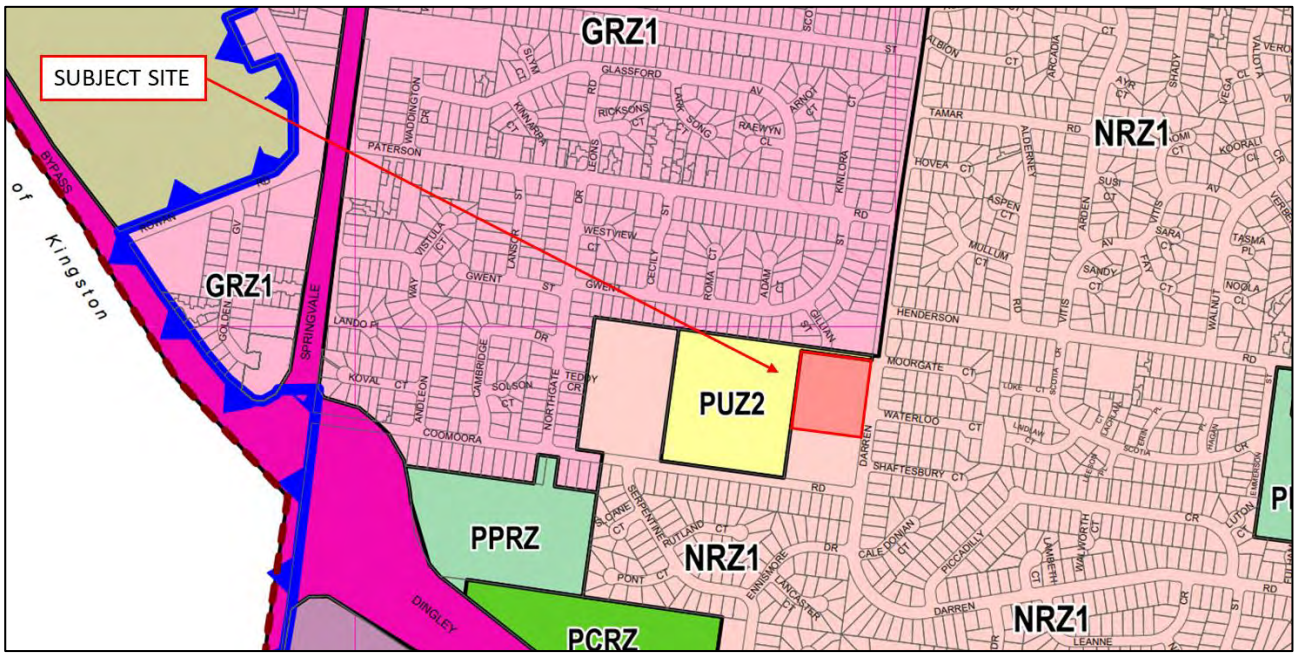


Figure 2-3 demonstrates that the subject site is located within a Neighbourhood Residential Zone (NRZ1). The permitted uses within the neighbourhood residential areas are listed at Clause 32.09 of the Greater Dandenong Planning Scheme.

The site is also subject to Schedule 13 to the Development Plan Overlay (DPO13)

The overlay states that the development plan must comprise the following to the satisfaction of the Responsible Authority:

- A Transport Impact Report assessing the potential effects that the development may have on the surrounding road network detailing:
  - Performance objectives.
  - An existing conditions assessment.
  - Proposed vehicle access arrangements.
  - Traffic generation.
  - Base-case without the proposed development.
  - Post development analysis.
  - Mitigation treatments.
- An Integrated Traffic Management Plan, including:
  - An existing conditions assessment.
  - The road layout and design including road reserve widths.
  - The means of vehicle ingress and egress to and from the site.
  - Location and access points for on-site car parking.
  - A pedestrian network plan and bicycle facilities plan.
  - Access routes to public transport.
  - The actions and responsibilities for ongoing implementation of the plan, including proposed funding arrangements.

This report seeks to cover the information required for both the above reports within one (1) document.

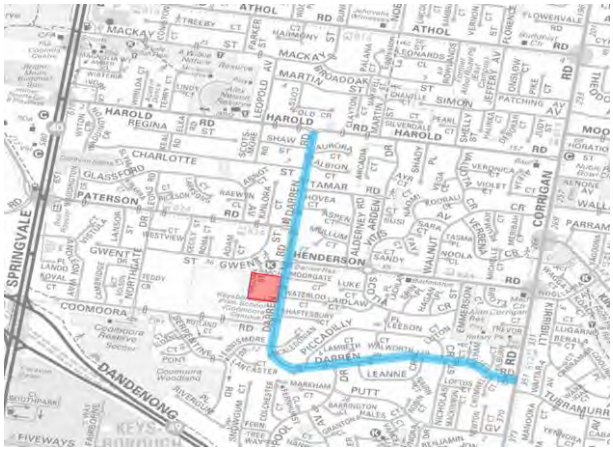
2.3 Road Network

2.3.1 Darren Road

Darren Road is a local street under the jurisdiction of City of Greater Dandenong Council which serves a collector road function, extending southward from Harold Road beyond the site frontage, then bending to the east and extending to Corrigan Road.

In the vicinity of the subject site, Darren Road accommodates a single two-way carriageway of approximately 10.5 metres width, which accommodates a single travel lane in each direction. On-street car parking is generally unrestricted on both sides of the carriageway, but . ubject to 'No stopping' or 'No Parking' restrictions during school set-down and collection times.

Indented 90-degree parking for twelve (12) vehicles is provided on the western side of the carriageway to the immediate north of the site, which typically caters to the set-down and collection parking demands of the adjacent Darren Reserve Kindergarten.



The posted speed limit along the frontage of the site is 40km/h. A speed hump is located at the site frontage to reduce vehicles speed in the vicinity of the site.

A 'No U-Turn' restriction is advised by signs on Darren Road along the length of the former school site.

The photographs at Figure 2-4 and Figure 2-5 illustrate the existing road configuration of Darren Road along the eastern site frontage.

Figure 2-4 Darren Road, looking north along the site frontage

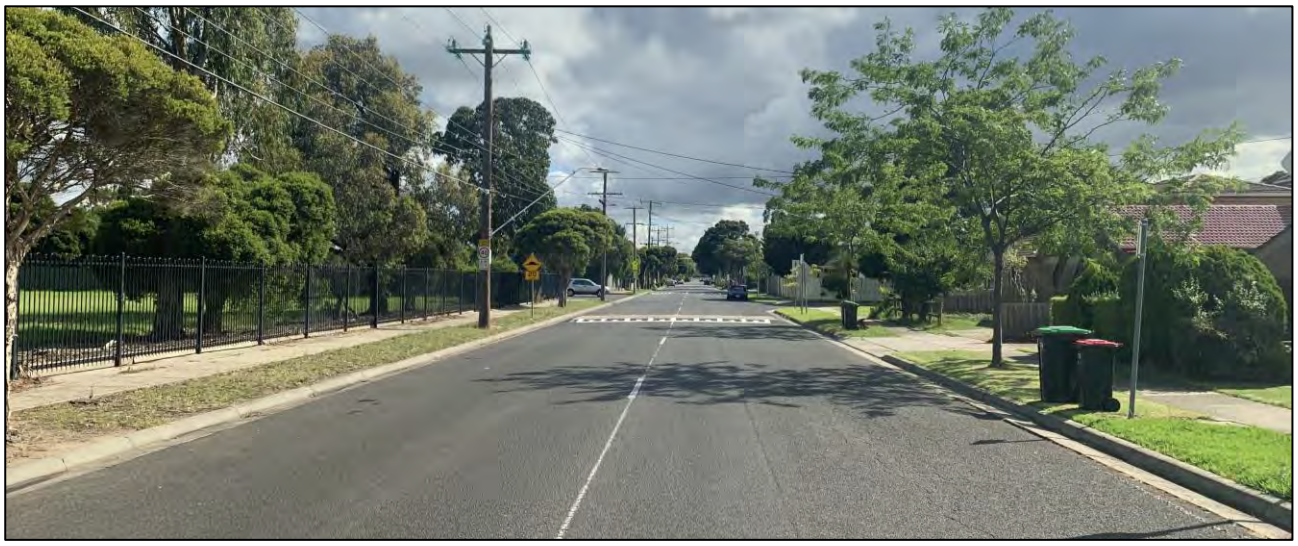


Figure 2-5 Darren Road, looking south along the site frontage

2.3.2 Henderson Road

Henderson Road is a local street under the jurisdiction of City of Greater Dandenong Council that extends in an east-west alignment between Darren Road and Corrigan Road, approximately 70 metres to the north of the site.

Henderson Road accommodates an approximately 10.5-metre wide single two-way carriageway that provides a single travel lane in each direction and permits parallel kerbside parking on both sides of the roadway. The default speed limit along Henderson Road is 50 km/h.

The photograph at Figure 1-1 illustrates the existing roadway formation along Henderson Road to the north of the site.

Figure 2-6 Henderson Road, looking east from Darren Road

2.3.3 Paterson Road

Paterson Road is a local street under the jurisdiction of City of Greater Dandenong Council, that extends in an east-west alignment from Springvale Road at its western end to Darren Road at its eastern end.

Paterson Road accommodates an approximately 10.5-metre wide single two-way carriageway that provides a travel lane and kerbside parking lane in each direction. The default speed limit along Henderson Road is 50 km/h.

The photograph at Figure 2-7 illustrates the existing roadway formation along Paterson Road to the north of the site.

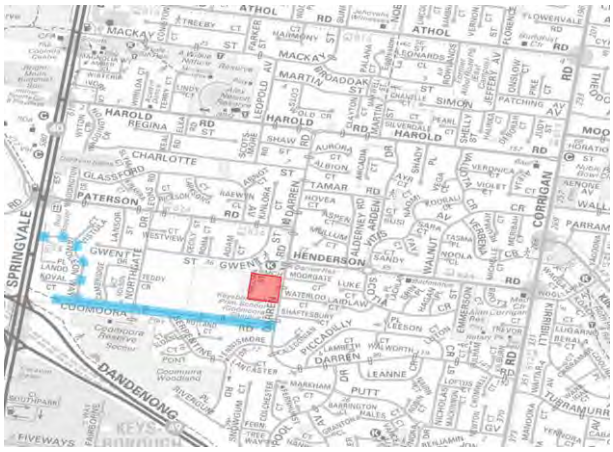
Figure 2-7 Paterson Road, looking west from Darren Road

2.3.4 Coommoora Road / Andleon Way

Coomoora Road is a local street under the jurisdiction of City of Greater Dandenong Council that extends westward from Darren Road along the Keysborough Primary School frontage towards Springvale Road.

Coomoora Road terminates at a court bowl arrangement to the east of Andleon Way, however access to/from Springvale Road is provided via Andleon Way which intersects Springvale Road at a left-in, left-out intersection formation, or via Northgate Drive which provides access to Springvale road at a fully directional signalised intersection via Paterson Road.

Coomoora Road, Andleon Way and Northgate Drive accommodate single two-way carriageways that provide a single travel lane in each direction and permit parallel kerbside parking on both sides of the roadway. The default speed limit along both roads is 50 km/h.



The photograph at Figure 2-8 illustrates the existing roadway formation along Henderson Road to the north of the site.

Figure 2-8 Coomora Road, looking west from Darren Road

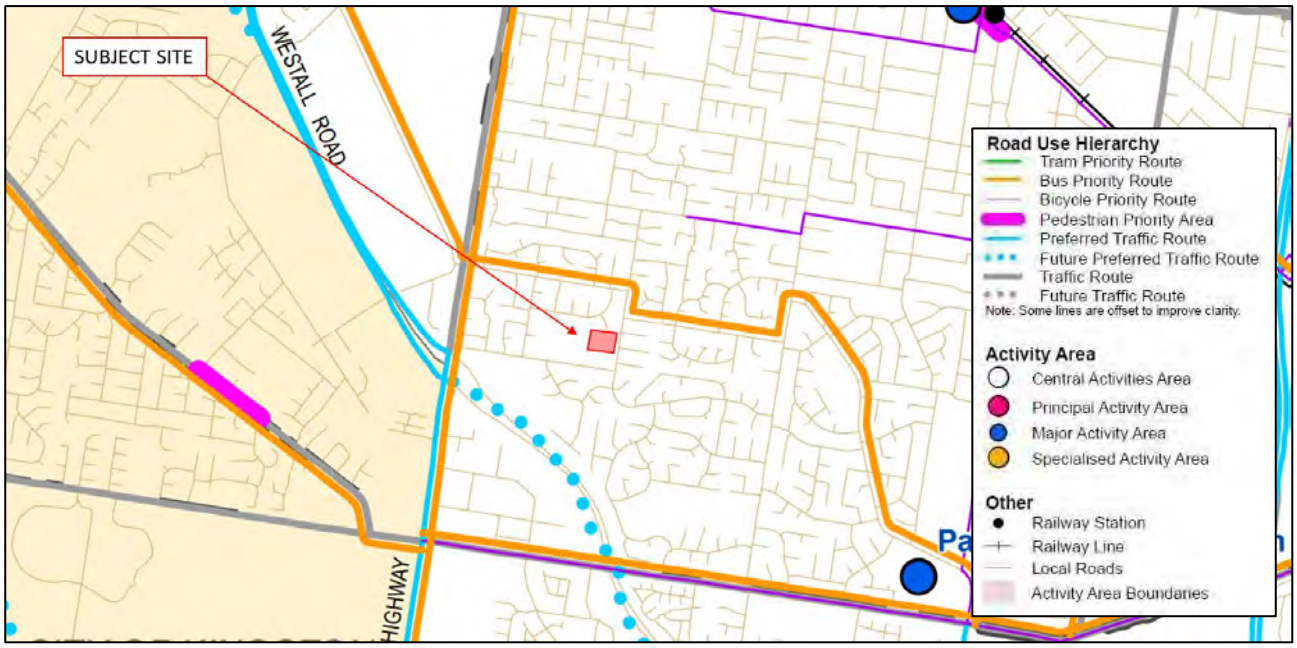
Figure 2-9 A. dleon Way to n'th from Coomora Rd (L) & Northgate Dr to s'th from Paterson Rd (R)

2.4 SmartRoads Network Operating Plans

SmartRoads Network Operating Plans have been developed through extensive consultation with local councils, government agencies and relevant stakeholders, and illustrate which transport modes should ideally have priority on the road at different times of the day.

Figure 2-10 presents the Network Operating Plan in the vicinity of the site, which indicates that the Paterson Road / Darren Road / Henderson Rd link to the north of the site .s a 'bus priority route'. The Dandenong Bypass, which is designated as a preferred traffic route in the figure below, has since been constructed.

Figure 2-10 SmartRoads Network Operating Plan



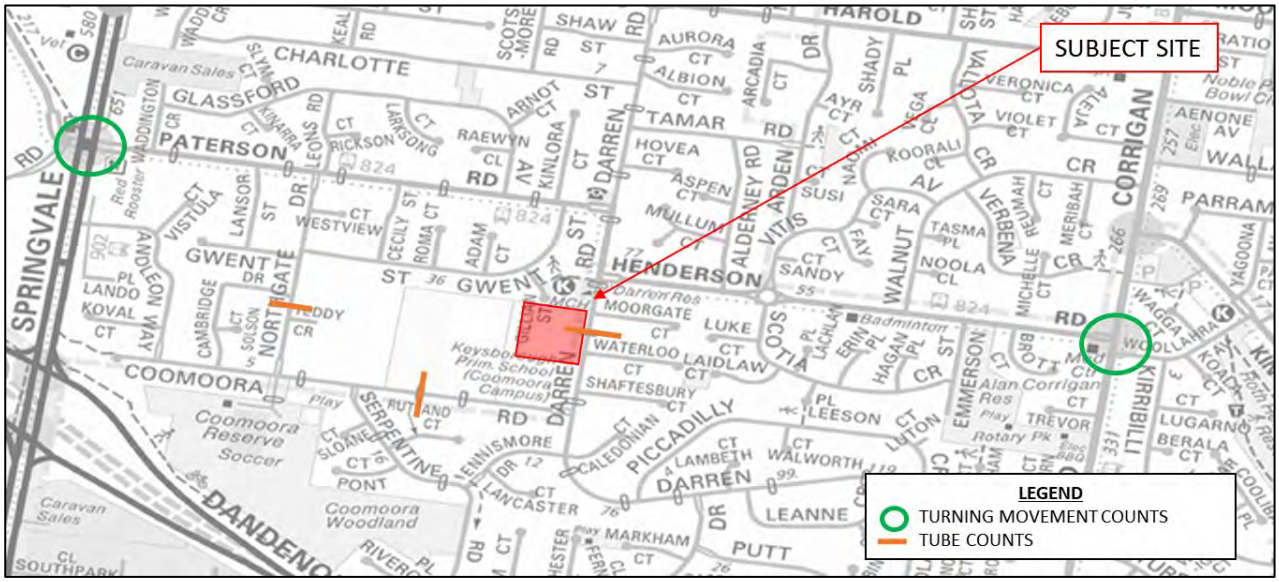
2.5 Existing Traffic Volumes

2.5.1 Traffic Volume Surveys

Cardno has sourced traffic volume data from surveys undertaken by Trans Traffic Surveys at the request of One Mile Grid in July, 2018.

The location of the surveys are illustrated at Figure 2-11 below and discussed in the following sub-sections.

Figure 2-11 Traffic Survey Locations



2.5.2 Tube Counts

Tube counts were undertaken for the 7-day period from Sunday 22nd July to Saturday 29th July, 2018 in the following locations:

> Darren Road, between Moorgate Court and Watergate Court;

> Coomoora Road, at the frontage of Keysborough Primary School; and

> Northgate Drive, between Teddy Crescent and Cambridge Drive.

The weekday averages of these surveys are presented at Table 2-1, below.

Table 2-1 Tube Count Results

Location	Daily (vpd)			AM Peak Hour (vph) (8:00am - 9:00am)			PM Peak Hour (vph) (3:00pm . 4:00pm)		
	N'b. und	S'bound	Total	N'bound	S'bound	Total	N'bound	S'bound	Total
Darren Rd	1022	1090	2112	125	95	220	127	143	270
Northgate Dr	666	722	1388	87	74	161	63	100	163
	W'bound	E'bound	Total	W'bound	E'bound	Total	W'bound	E'bound	Total
Coomoora Rd	687	573	1256	112	50	162	66	84	150

The tube count surveys indicate that Darren Road along the eastern site frontage carries in the order of 2,112 vehicle movements per day.

Both Northgate Drive and Coomoora Road to the west of the site carry less than 1,500 vehicle movements per day.

2.5.3 Intersection Turning Volumes

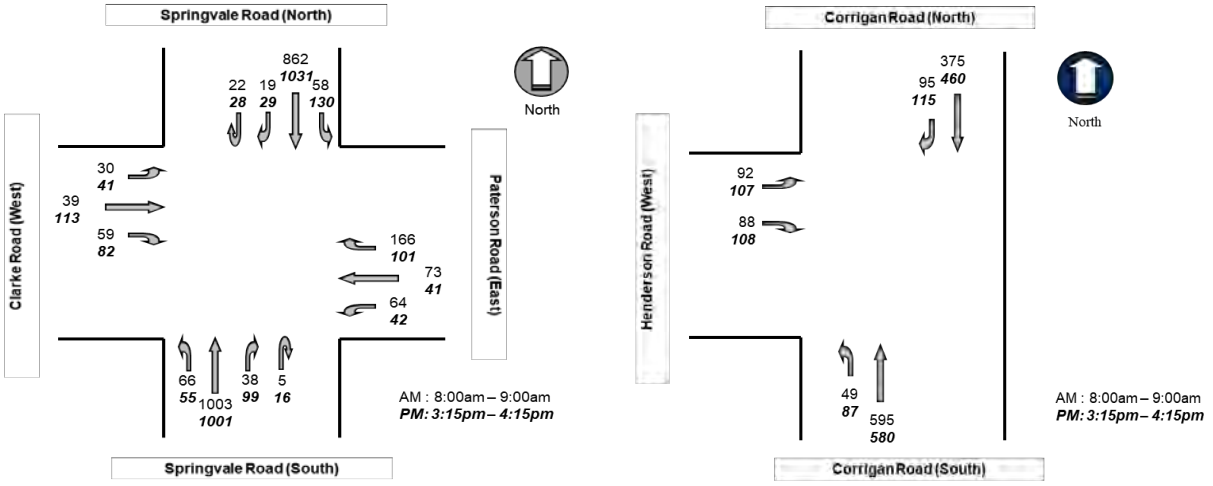
Turning movement counts were undertaken at the following intersections on Thursday 26th July, 2018 from 7:00am to 10:00am and 2:30pm to 5:30pm:

> Springvale Road / Paterson Road / Clarke Road; and

> Corrigan Road / Henderson Road.

The peak 1-hour periods at both intersections occurred between 8:00am and 9:00am in the morning and between 3:15pm and 4:15pm in the afternoon, and are illustrated at Figure 2-12 below.

Figure 2-12 Intersection Peak Hour Turning Volumes



2.6 Intersection Operation

2.6.1.1 One Mile Grid Forecast Turning Volumes (15-29 Coomoora Road)

To account for some ..... h on the external road network, Cardno has sourced the 'Transport Impact Assessment' prepared by One Mile Grid for the residential development located on land at 15-29 Coomoora Road, Springvale South.

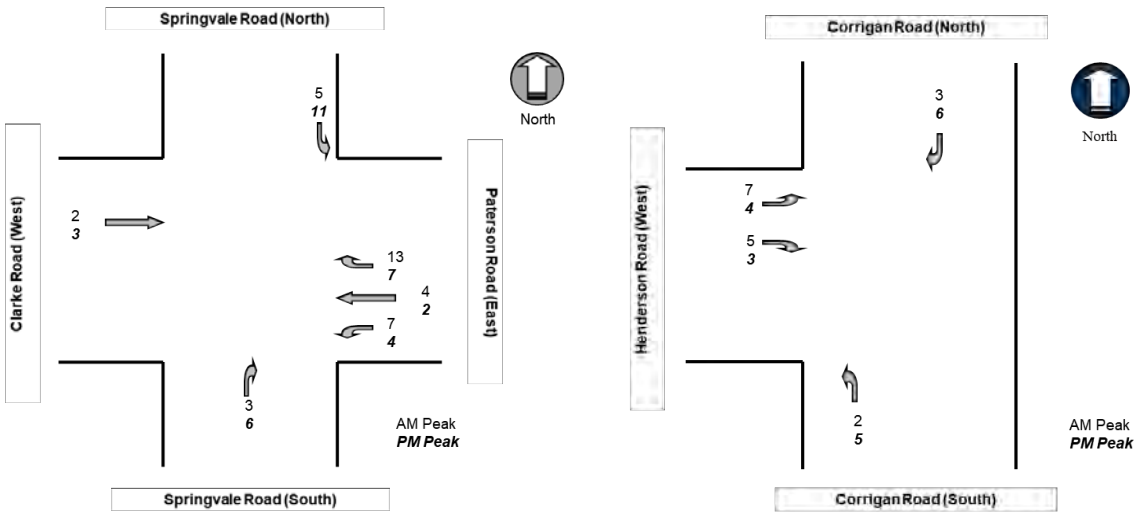
This land parcel is also subject to Schedule 13 to the Development Plan Overlay in the Greater Dandenong Planning Scheme, having previously accommodated the buildings and grounds of the former Keysborough Secondary College.

A Development Plan application has been lodged by Development Victoria, which suggests the land will accommodate in the order of 73 residential lots, as shown at Figure 2-13, below.

Figure 2-13 Location of Adjacent DPO Development (15-29 Coomoora Road)

The One Mile Grid Traffic Impact Assessment indicates the development will generate the following traffic volumes at the Springvale Road / Paterson Road / Clarke Road and Corrigan Road / Henderson Road intersections.

Figure 2-14 One Mile Grid Forecast Turning Volumes (15-29 Coomoora Road)



2.6.2 Base Case Intersection Operation

The surveyed turning volumes at Figure 2-12 and the forecast turning volumes at Figure 2-14 have been . ombined to represent the 'base case' turning volumes at both the Springvale Road / Paterson Road / Clarke Road and Corrigan Road / Henderson Road for analysis with SIDRA Intersection.

This computer package, originally developed by the Australian Road Research Board, provides information about the capacity of an intersection in terms of a range of parameters, as described below:

Degree of Saturation (D.O.S.) is the ratio of the volume of traffic observed making a particular movement compared to the maximum capacity for that movement. Various values of degree of saturation and their rating are shown in Table 2.

Table 2-2 Rating of Degrees of Saturation

D.O.S.	Rating
Up to 0.6	Excellent
0.6 to 0.7	Very Good
0.7 to 0.8	Good
0.8 to 0.9	Fair
0.9 to 1.0	Poor
Above 1.0	Very Poor

It is considered acceptable for some critical movements in an intersection to operate in the range of 0.9 to 1.0 during the high peak periods, reflecting actual conditions in a significant proportion of suburban signalised intersections.

The ***95th Percentile (95%ile) Queue*** represents the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour; and

Average Delay is the delay time, in seconds, which can be expected over all vehicles making a particular movement in the peak hour.

The results of the SIDRA Intersection analysis are summarised at Table 2-3, below.

Table 2-3 Summary of Existing Intersection Performance

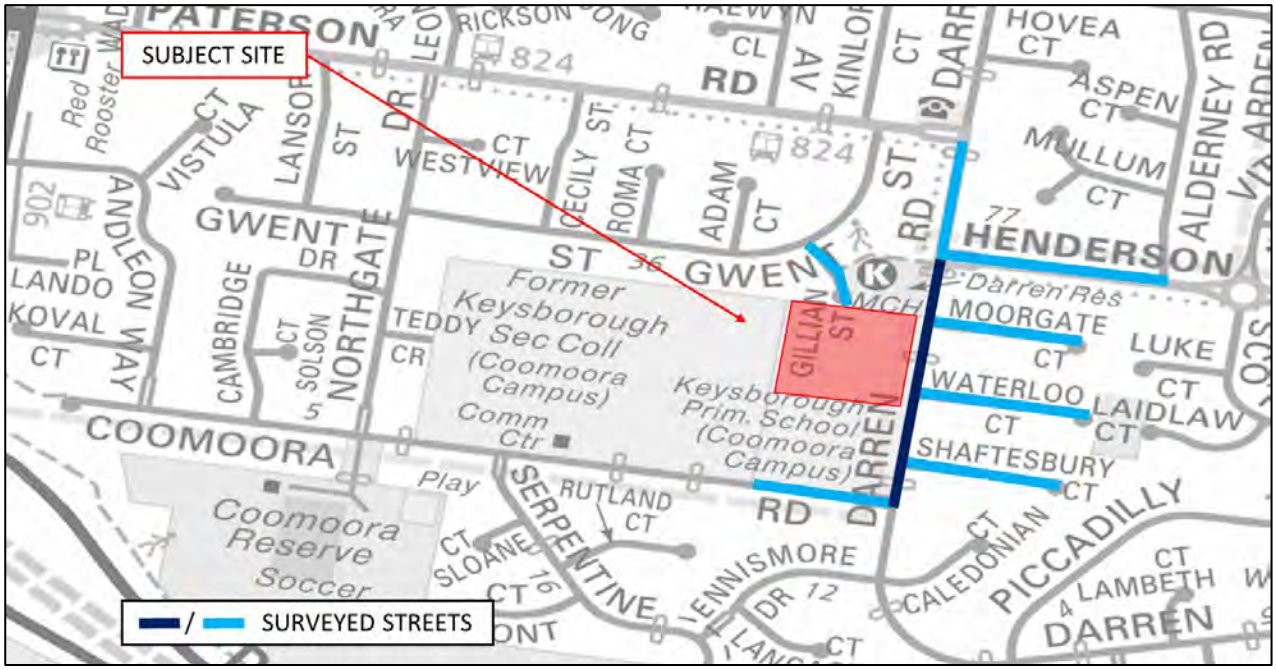
Intersection	Approach	AM Peak			PM Peak		
		D.O.S	Avg Delay	95th%ile Queue	D.O.S	Avg Delay	95th%ile Queue
Springvale Rd / Paterson Rd / Clarke Rd	Springvale Rd (S)	0.709	31.8 *s*	192 *m*	0.661	29.7 *s*	188 *m*
	Paterson Rd (E)	0.697	50.5 *s*	*78 m*	0.631	51.8 *s*	48 *m*
	Springvale Rd (N)	0.539	29.8 *s*	132 *m*	0.616	27.3 *s*	169 *m*
	Clarke Rd (W)	0.356	59.0 *s*	30 *m*	0.636	56.3 *s*	67 *m*
	Intersection	***0.709***	***34.8 s***	***192 m***	***0.661***	***32.5 s***	***188 m***
Corrigan Rd / Henderson Rd	Corrigan Rd (S)	0.512	13.0 *s*	118 *m*	0.583	19.8 *s*	138 *m*
	Corrigan Rd (N)	0.262	5.2 *s*	42 *m*	0.321	5.5 *s*	55 *m*
	Henderson Rd (W)	0.501	55.1 *s*	40 *m*	0.598	52.2 *s*	48 *m*
	Intersection	***0.512***	***16.3 s***	***118 m***	***0.598***	***19.1 s***	***138 m***

A review of the above table indicates that both intersections currently operate well below capacity with good to excellent traffic conditions during the morning and afternoon peak periods.

2.7 Existing Parking Conditions

Cardno commissioned Trans Traffic Surveys Pty. Ltd. to undertake on-street parking utilisation surveys along several streets in the vicinity of the site as shown at Figure 2-15, below.

Figure 2-15 Car Parking Survey Area



The surveys were undertaken at 30-minute intervals across the following time periods:

> Friday 7th February, 2020 3:00pm to 9:00pm; and

> Saturday 8th February, 2020 11:00am to 5:00pm

The full survey data set identified the following:

> There are 238 on-street car parking spaces within the survey area. The number of spaces that were available for public use varied between 175 and 238 spaces due to the location of time-ba. ed 'No Parking' and 'No Standing' zones during school collection times;

> A peak occupancy of 70 spaces was observed during school collection time at 3:30pm on the Friday afternoon. During this time there were 105 publicly available on-street car parking spaces.

> The parking demands observed on Friday evening (after 4:00pm) and on Saturdays were typically much lower:

- A peak occupancy of 54 spaces was observed at 4:30pm on the Friday evening, during which time there were 184 on-street car parking spaces available; and
- A peak occupancy of 33 spaces was observed at 5:30pm on the Saturday survey, during which time there were 205 on-street car parking spaces available.

With regard to parking demands in the immediate vicinity of the subject site, Cardno has extrapolated the survey data captured along Darren Road between Henderson Street and Coomoora Road as shown in dark blue at Figure 2-15. This data reveals that:

> There are 52 on-street car parking spaces along the surveyed length of road. Only 27 spaces were available for public use between 3:00pm and 4:00pm on the Friday survey due to time-based 'No Parking' and 'No Standing' zones during school collection times. All 52 spaces were available for public use for the remainder of the Friday survey and the Saturday survey.

> A peak occupancy of 15 spaces was observed during school collection time at 3:30pm on the Friday afternoon. During this time there were 12 publicly available on-street car parking spaces.

> The parking demands observed on Friday evening (after 4:00pm) and on Saturdays were typically much lower:
  - A peak occupancy of 11 spaces was observed at 4:00pm on the Friday evening, during which time there were 41 on-street car parking spaces available; and
  - A peak occupancy of 10 spaces was observed at 5:30pm on the Saturday survey, during which time there were 42 on-street car parking spaces available.

The car parking occupancy data is tabulated in Appendix B.

2.8 Crash History

V.cRoads' Open Data Portal provides access to a database containing Victorian Road Crash Statistics for crashes where at least one person was injured. The current log of crash statistics contains collision data up to 24st December 2019, though it is understood that collisions which are involved in court action where a decision has not been reached will be excluded.

CrashStats was examined for all recorded collisions within the grid network around the site (defined by Darren Road, Coomoora Road, Northgate Drive and Paterson Street) within the last 5 years of available data to determine the crash history in the vicinity of the subject site.

One (1) accident was recorded on Darren Road, as illustrated at Figure 2-16 and summarised at Table 2-4, below.

Figure 2-16 Crash Locations along Perimeter of Site - Last 5 Years

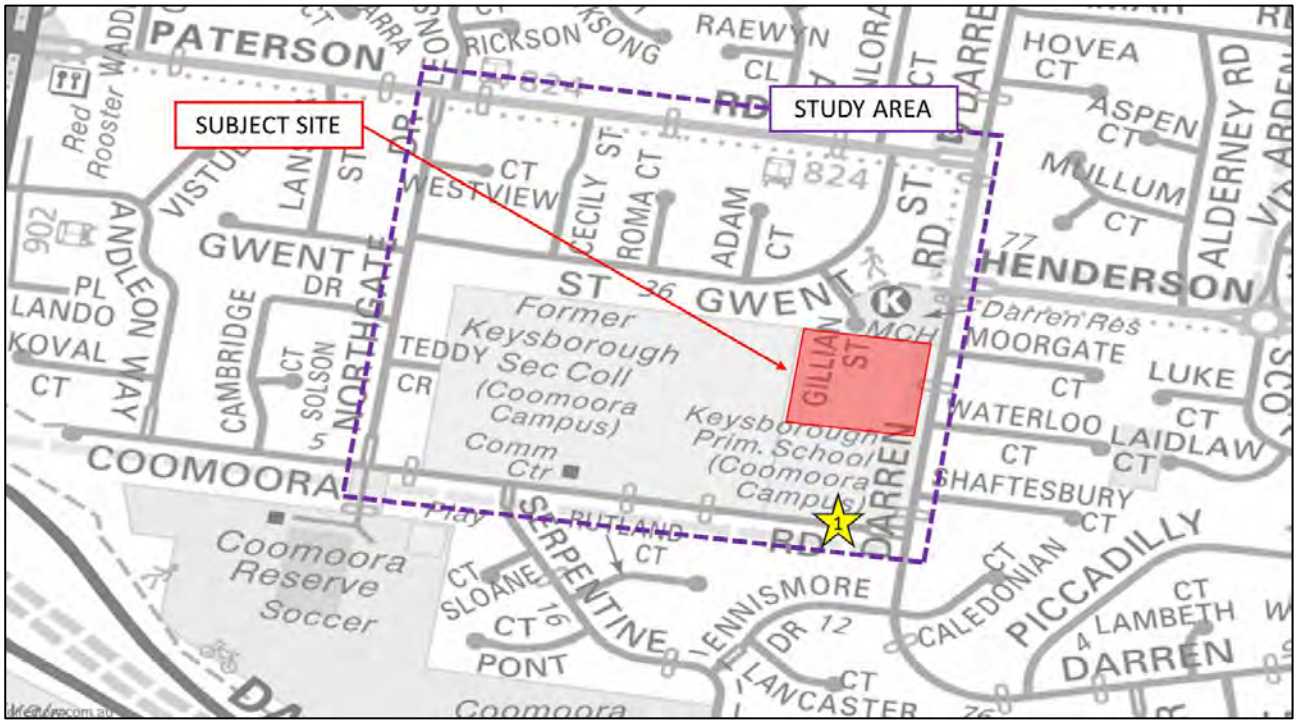


Table 2-4 Crash Details along Perimeter of Site . Last 5 Years

ID	Date	Location	Description	Severity
1	9/09/18	Darren Rd (not at intersection)	Vehicle collision with fixed object	1 Serious Injury

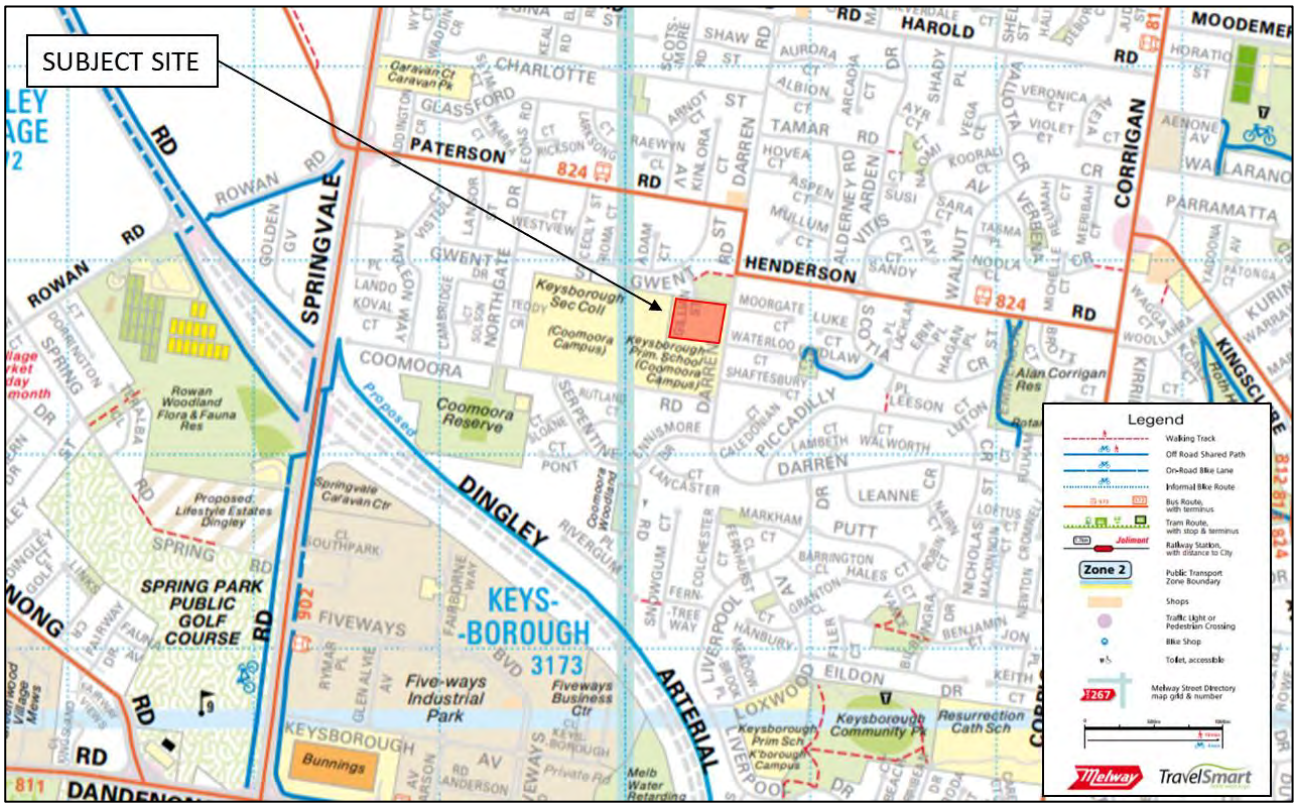
Based on the above, there is no identified accident trend along the frontages of the subject site.

2.9 Sustainable Transport

2.9.1 Travel Smart Map

The Travel Smart Map for the City of Greater Dandenong in the immediate vicinity of the site is presented at Figure 2-17, below.

Figure 2-17 Travel Smart Map



The figure indicates that the site has good access to public transport and cycling routes.

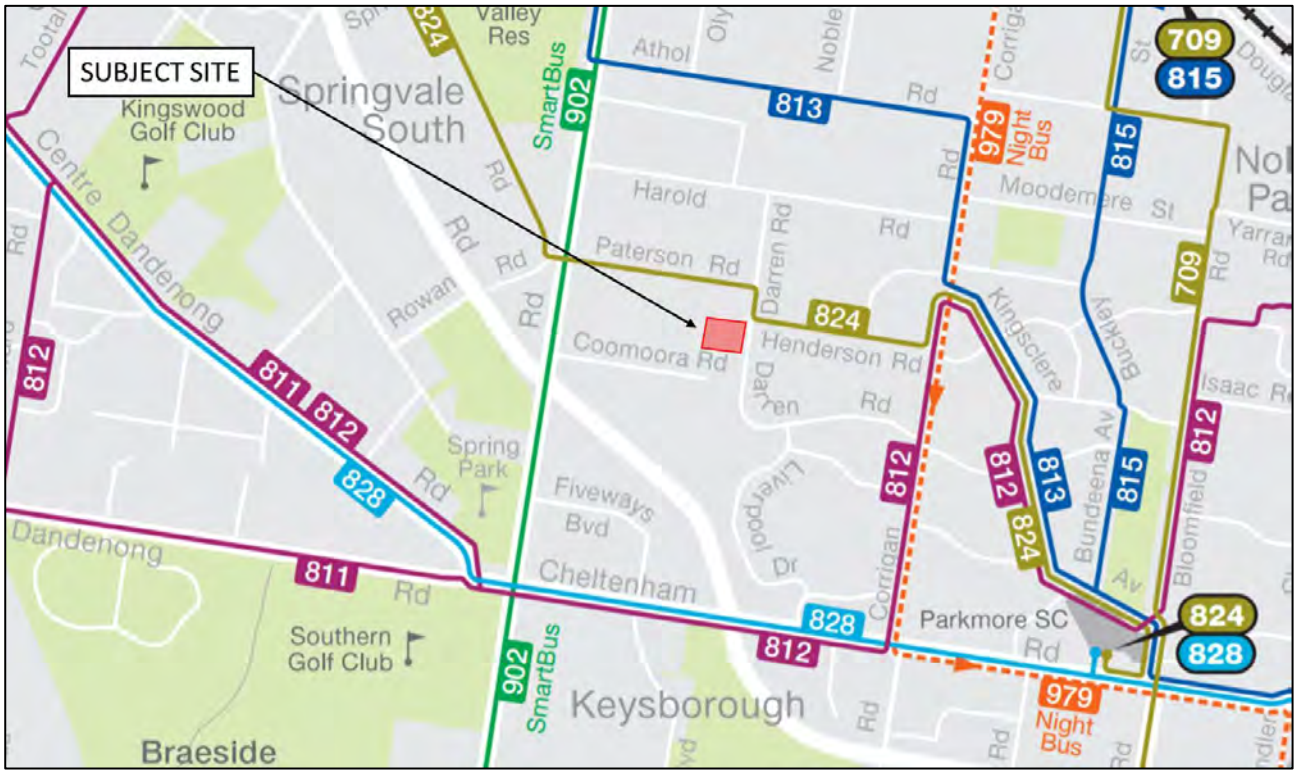
2.9.2 Public Transport

The services outlined at Table 2-5 and illustrated at Figure 2-18 are located within a convenient walking distance of the site.

Table 2-5 Public Transport Provision

Service	Route No	Route Description	Nearest Stop	Approximate Walking Time
Bus	812	Dandenong to Brighton via Parkmore Shopping Centre	Corrigan Street / Trevor Street	1,000 metres (12 mins)
	813	Dandenong to Waverley Gardens SC	Kingsclere Avenue	1,300 metres (16 mins)
	824	Moorabbin to Keysborough via Clayton and Westall	Paterson Rd	210 metres (3 mins)
	902	Chelsea . Airport West (SMART Bus)	Clarke St / Springvale Rd	1,000 metres (12 mins)
Train	Cranbourne, Pakenham and Bairnsdale Lines		Springvale Station	Via #813 Bus

Figure 2-18 Public Transport Map



2.9.3 Walkability

The subject site is located within a mature residential neighbourhood with footpaths provided on both sides of all surrounding roads.

T.. site's location has been assessed using the 'Walkscore' performance tool, which is a web based assessment tool developed in 2007 using Google maps tools. The tool takes into account the number of facilities within close proximity and provides a numerical score between 0 and 100, with a score near 100 indicating that numerous services and amenities are easily accessible to the site.

The 'Walkscore' for the subject site of 39 out of 100 indicates that the subject site is relatively car dependant.

2.9.4 Bicycle Network

A shared path is located on the northern side of the Dandenong Bypass, extending from Heatherton Road and Warrigal Road at its northern and western ends, to the Dandenong Creek and Mile Creek trails at its eastern end.

Access to this trail is available via pathway connections at the western end of Coomoora Road to the west of the site, and Liverpool Drive to the southeast of the site.

The tube counts at Section 2.5.2 indicate that the local roads proximate to the site (Darren Road, Coomoora Road and Northgate Drive) typically carry a daily traffic volume less than 3,000 vehicles per day, under which conditions the carriageways can be shared by both bicycles and vehicles.

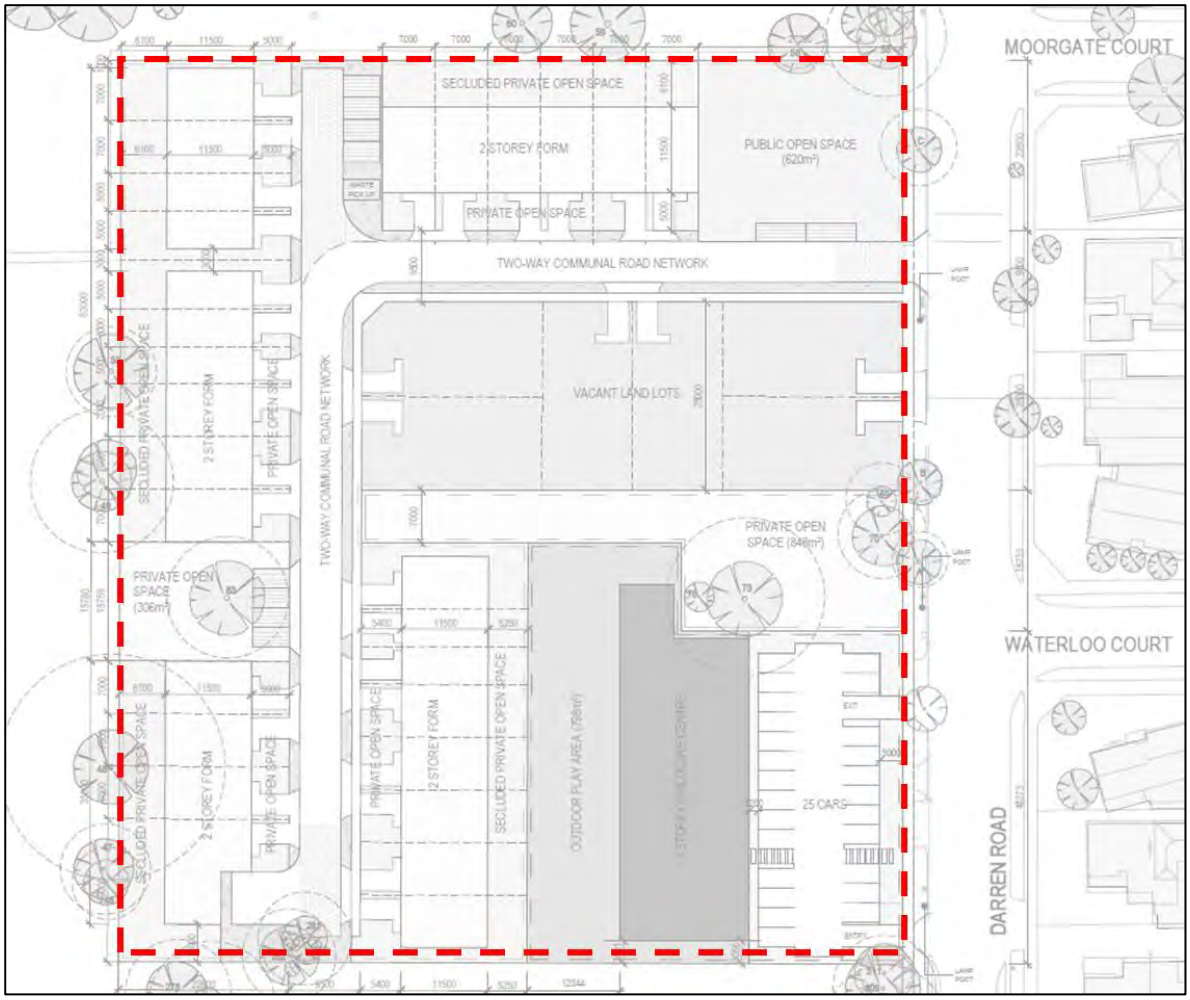
3 Prop.. ed Development

3.1 General

Paragon Development Group has lodged a planning application for a mixed-use development on the site comprising a childcare centre townhouse style dwellings and vacant land lots.

An extract from the site plan prepared for the proposal by Peddle Thorp Architects is presented at Figure 3-1 below.

Figure 3-1 Masterplan of Proposed Development (Extract)



The site plan indicates a childcare centre with dedicated car parking provision fronting Darren Road is proposed at the south-eastern corner of the site.

An east-west aligned private internal road is proposed to extend into the site from Darren Road, with double storey townhouses proposed on the northern side and vacant land lots proposed on the southern side.

Double storey townhouses are also proposed on both sides of a north-south aligned roadway that extends between the north and south property boundaries at the west of the site. Public open space is proposed to front Darren Road at the north-eastern corner of the site

The Development Schedule for the subject proposal is provided at Table 3-1, below.

Table 3-1 Development Schedule

Land Use	Area / No.
Dwellings (3 Bedroom Townhouses)	28 no.
Vacant Land Lots	6 no.
Childcare Centre	110 places

3.2 Car Parking

It is understood that each dwelling will be provided with an attached single car garage accessed from the internal road network. These garages will be set back at least 5.4 metres from the property boundary to allow a second vehicle park on each title.

Similarly, each of the vacant land lots is of suitable size to accommodate two (2) car parking spaces to support a 3 or more-bedroom dwelling.

On-site resident visitor car parking spaces will be provided at the northern end, and in front of the communal open space, along the north-south internal road. Further spaces are proposed to be indented on the northern side of the east-west aligned internal road in front of the public open space.

Car parking for the childcare centre is proposed in a dedicated off-street car park located along the Darren Road frontage of the site. The car park will provide twenty-five (25) spaces in a double sided car parking module arrangement.

Table 3-2 summarises the proposed on-site car parking provision.

Table 3-2 Car Parking Provision

Car Parking Spaces	No.
Residential (Townhouses)	56 no.
Residential (Vacant Land Lots)	12 no.
Childcare Centre	25 no.
Visitor Parking	10 no.
Total	**103 no.**

3.3 Access Arrangements

3.3.1 Vehicular Access

The site plan indicates vehicular access to the site will be provided in at least three (3) locations along Darren Road, comprising:

- A private two-way roadway connection to Darren Road, located approximately 25 metres south of the northern site boundary. The roadway will service the private internal road network from which most of the dwellings are accessed; and
- Two (2) single width crossovers to Darren Road towards the south of the site, that will service the off-street car park for the childcare centre. The southernmost crossover will serve as an ingress only and the northern crossover will serve as an egress only.

In addition to the above, two (2) vacant land lots at the eastern boundary of the site are likely to be provided vehicular access from Darren Road via crossover arrangements.

3.3.2 Internal Circulation

Vehicular circulation within the site is proposed via a private internal road network that will provide front loaded access to each of the garages on the site.

The internal street network will provide 5.5-metre wide carriageways that facilitate two-way vehicle movement. On-site visitor parking will be provided by way of 90-degree or parallel parking spaces that are fully indented into the kerbside.

Pedestrian footpaths are proposed to be constructed along one side of each internal road, providing access from the subject site to the existing pedestrian network along the Darren Road frontage.

Cyclists are proposed to share the internal carriageways with vehicular traffic.

4 Design Considerations

4.1 Car Parking Layout

4.1.1 Residential Component

It is understood that 68 car parking spaces will be provided throughout the site for resident use. These spaces are proposed in the following configurations:

Townhouses

> 28 spaces within single car garages. Each garage will require internal dimensions that are 3.5 metres wide by 6.0 metres long; and

> 28 tandem parking spaces located on the driveways in front of the single car garages. These spaces are 2.8 metres wide and have been set back:

- 5.4 metres from the property boundary where a footpath has been provided along the fronting road to avoid parked vehicles overhanging the footpath; or
- 5.6 metres minimum from the kerb where no footpath has been provided, to avoid vehicles overhanging the trafficable carriageways.

These driveways are accessed from the private internal road network, and provide an effective module width of 11.9 . 13.5 metres once verge is considered. This exceeds the 10.7-metre wide module width required for 2.8-metre wide spaces as outlined at Clause 52.06 of the Planning Scheme. Landscaping / fencing along the property boundaries immediately adjacent to the driveways should be kept to a minimum to assist vehicular ingress and egress.

The above dimensions would satisfy the design criteria for garages and tandem parking spaces outlined at Clause 52.06-8, Design Standard 2 of the Greater Dandenong Planning Scheme.

Vacant Land Lots

> The vacant land lots are each around 300m^2 in area, which is suitable to provide double car garages, or single car garages and tandem parking spaces, in accordance with planning scheme requirements.

In addition, ten (10) on-street parking spaces are proposed throughout the site for resident visitor use:

> The spaces at the northwest of the site are each 2.9 metres wide by 4.9 metres long and accessed from a parking aisle of 5.5 metres width, and the spaces at the west of the site are each 2.6 metres wide by 4.9 metres long and accessed from an effective aisle of 6.9 metres width once verge is considered;

> The two (2) parallel parking spaces at the east of the site are each 2.3 metres wide by 6.7 metres wide and accessed from a parking aisle greater than 3.6 metres width.

These spaces satisfy the design criteria for 90-degree and parallel parking spaces outlined at Clause 52.06-8, Design Standard 2 of the Greater Dandenong Planning Scheme.

4.1.2 Childcare Centre Component

The childcare centre car park provides twenty-five (25) 90-degree car parking spaces in a double sided parking module arrangement. Each space is 2.6 metres wide by 4.9 metres long and accessed from a parking aisle of 6.4 metres width, which satisfies the design criteria at Clause 52.06 of the Greater Dandenong Planning Scheme.

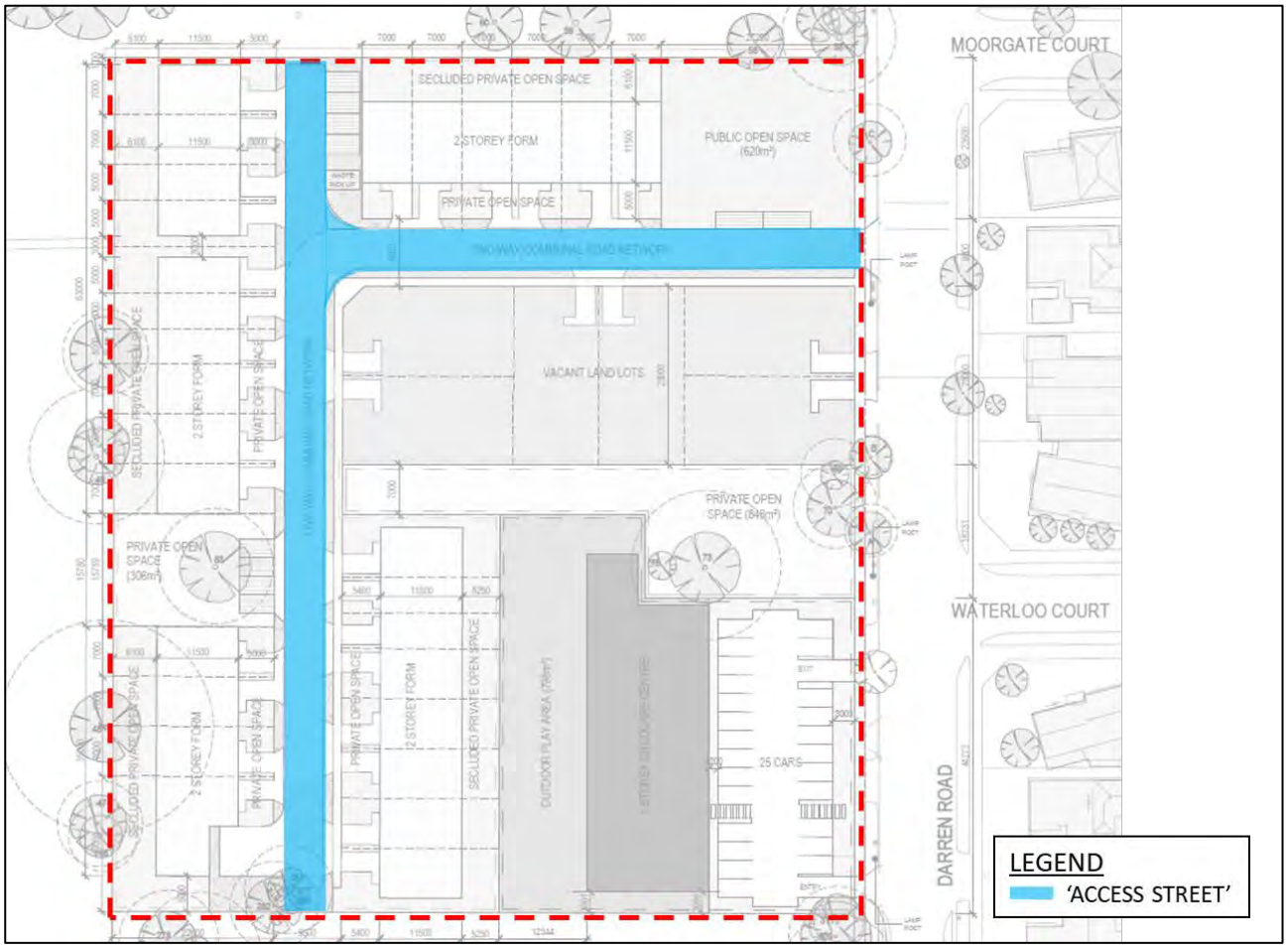
Blind aisle extensions are provided at either end of the car park to assist vehicles exiting the ‘end’ parking spaces. Further, no blind aisle is longer than 6 bays in accordance with the Australian Standard for Off-Street Car Parking (AS2890.1:2004).

4.2 Internal Road Layout

4.2.1 Road Hierarchy

The general hierarchy of the internal road network is shown at Figure 4-1 below.

Figure 4-1 Internal Road Hierarchy



All roads constructed within the site are proposed to be private.

Both roads provide a two-way trafficable carriageway width of 5.5 metres. The verge widths on either side of the carriageways vary, with footpath proposed to be provided on one side of the roadway only.

If the carriageway characteristics outlined at Clause 56.06 of the Greater Dandenong Planning Scheme are to be used as a guide, a 5.5-metre wide carriageway without kerbside parking would be best classified as an Access Street . Level 1, which has an indicative maximum traffic volume of 2,000 vehicle movements per day.

This will be more than adequate to accommodate the daily traffic volume anticipated to be generated by the dwellings fronting the internal roads, which is estimated to be well under 500 vehicle movements per day (Section 6).

4.2.1.2 Intersections

A single T-intersection is proposed where the east-west aligned laneway and north-south aligned laneway meet, which will allow only one vehicle to pass / turn at a time.

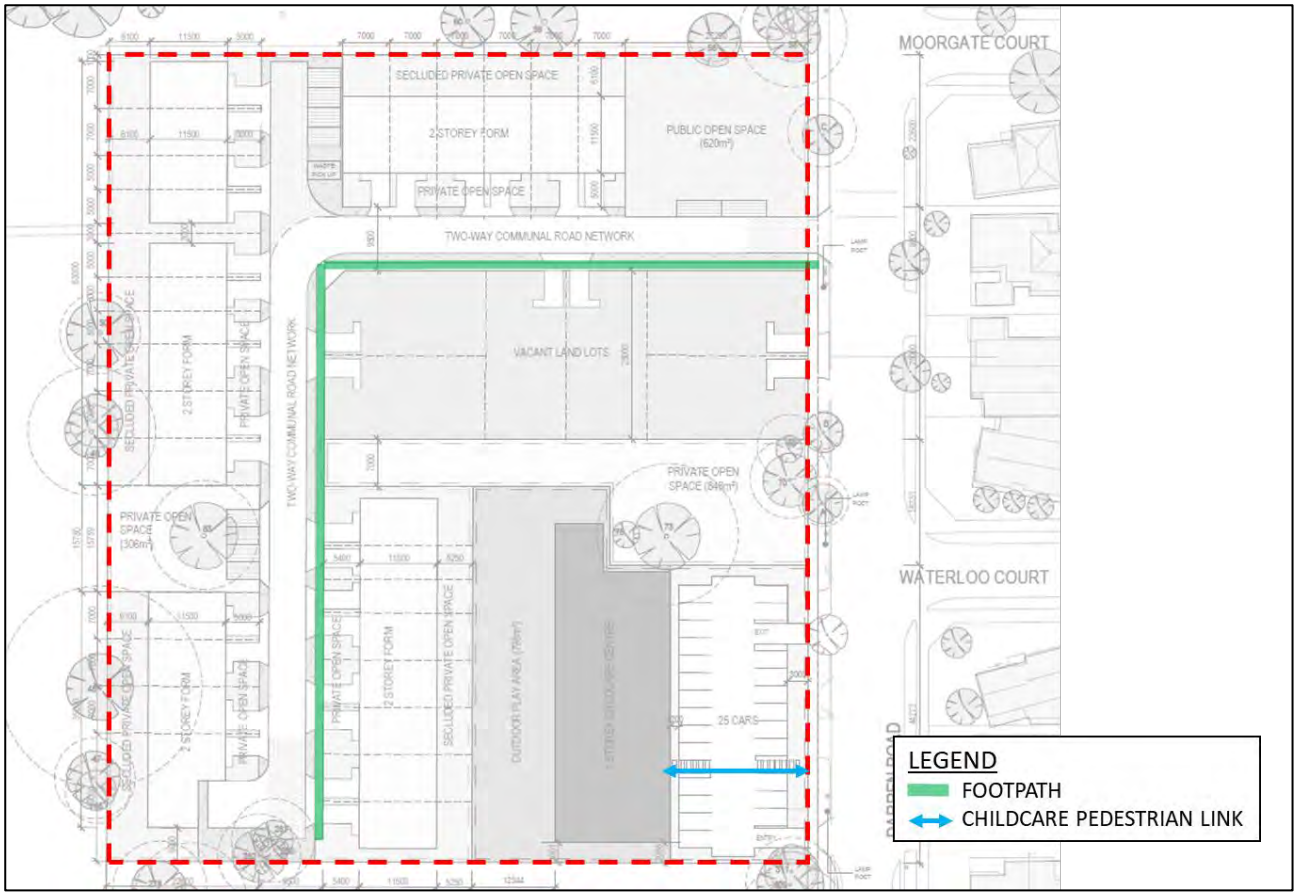
This arrangement will serve as a traffic calming measure that will assist in keeping vehicle speeds low throughout the development, and create a movement network where the carriageway can be shared by motorists, cyclists and pedestrians alike.

At the south of the site, a paved area is proposed to the west of the north-south road to provide service vehicles with an opportunity to turn around and depart the site in a forward direction.

4.2.2 Pedestrian and Cyclist Access

Pedestrian access routes throughout the site are shown at Figure 4-2 below.

Figure 4-2 Pedestrian Access Routes



Pedestrian footpaths are proposed to be constructed along both access lanes, which will link to the external footpath network provided along the Darren Road frontage of the site.

Each of the internal streets is anticipated to carry a traffic volume less than 1,000 vehicle movements per day (Section 6), under which conditions the carriageways can be shared between motorists and cyclists as per AustRoads guidelines.

Additionally, a pedestrian link is proposed through the childcare centre car park from the Darren Road frontage to the centre entrance.

4.2.3 Emergency Access

T.. CFA document 'Requirements for Water Supplies and Access for Subdivisions in Residential 1 and 2 and Township Zones (October 2006)' provides guidelines for providing emergency access throughout developments such as the subject proposal. The Neighbourhood Residential Zoning (NRZ) that applies to the site outdates the former Residential 1 and 2 zones.

The CFA document states that a typical fire appliance has a length of 7.6-metres, and requires a minimum 3.5-metre clearance horizontally and 4-metres vertically for access. Both these requirements are satisfied throughout the development.

A swept path diagram is appended to this report that demonstrates a Medium Rigid Vehicle (nom. 8.8m length) can enter the site and turn around at the paved area at the southern site boundary. This vehicle is larger than a standard fire appliance and has been presented as a 'checking' vehicle.

The northern leg of the north-south road is less than 60 metres in length and does not require a turnaround provision as per the CFA guidelines.

4.2.4 Refuse Collection

Waste is proposed to be collected from the site by a private contractor.

A swept path diagram is appended to this report that demonstrates a Small Rigid Vehicle (nom. 6.4m length) can enter the site and turn around at the paved area at the southern site boundary to depart back towards Darren Road.

Under this arrangement, waste can be collected from the frontages of the properties abutting the east-west aligned internal road and southern leg of the north-south internal road as the truck enters and exits the site.

Waste from the properties abutting the northern leg of the north-south aligned internal road will need to be moved to the waste storage area north of the T-intersection to limit reversing movements.

A Waste Management Plan (WMP) will be prepared which outlines bin capacities and collection frequency for this arrangement.

It is noted that the swept path diagram prepared to demonstrate fire appliance access through the site adopted a Medium Rigid Design Vehicle (nom. 8.8m length) confirming that larger refuse collection vehicles could service the site if desired.

4.3 Site Access

Vehicular access to the site will be provided in at least three (3) locations along Darren Road, comprising:

- A private two-way roadway connection to Darren Road, located approximately 25 metres south of the northern site boundary. The roadway will service the private internal road network from which most of the dwellings are accessed; and
- Two (2) single width crossovers to Darren Road towards the south of the site, that will service the off-street car park for the childcare centre. The southernmost crossover will serve as an ingress only and the northern crossover will serve as an egress only.

Swept path diagrams are appended to this report that demonstrate concurrent opposing vehicle movements at the private road intersection, and both inbound and outbound movements to the proposed childcare centre car park crossovers.

5 Statutor. Requirements

5.1 Car Parking Requirement

5.1.1 Statutory Requirement (Clause 52.06)

Clause 52.06 of the Greater Dandenong Planning Scheme outlines car parking requirement rates for a variety of different land uses. For residential and childcare land use, the clause outlines the following car parking requirement rates:

Residential

> 1 space to each 1 or 2-bedroom dwelling; plus

> 2 spaces to each 3-or more bedroom dwelling (with studies or studios that are separate rooms counted as bedrooms); plus

> 1 visitor space to every 5 dwellings (for developments of 5 or more dwellings).

Childcare Centre

> 0.22 spaces to each child

Applying the above rates to the subject proposal generates the parking requirement outlined in Table 5-1.

Table 5-1 Planning Scheme Car Parking Requirements . Clause 52.06-5

Land Use	Area / No	Car Parking Requirement Rate	Parking Requirement
Residents (Townhouses & Vacant Lots)	34 no.	1 space to each 1 or 2-bedroom dwelling; and 2 spaces to each 3 or more bedroom dwelling	68 no.
Resident Visitors	34 no.	1 space for visitors to every 5 dwellings for developments of 5 dwellings or more.	7 no.
Childcare Centre	110 places	0.22 spaces to each child	24 no.
Total			***99 no.***

The statutory parking requirement for the proposal is 99 spaces.

The development plan indicates each dwelling can be allocated 2 spaces which would satisfy the resident car parking requirement.

The childcare centre is proposed to be provided with a dedicated 25-space car park and 10 spaces are proposed throughout the site for resident visitor use. These provisions exceed both the respective childcare and resident visitor car parking requirements.

Accordingly, the minimum statutory car parking requirement for the proposal is met / exceeded.

5.2 Bicycle Parking Requirement – Clause 52.34

Clause 52.34 of the Greater Dandenong Planning Scheme outlines bicycle parking requirement rates for a variety of different land uses.

The clause does not stipulate bicycle parking rates for vacant lots or townhouse style developments, with the bicycle parking requirements for dwellings only applicable to developments of four or more storeys.

In any case, each of the vacant lots and townhouses proposed on the site will be provided with a garage or which is suitable for the storage of a bicycle if the tenant so desires.

6 Traffic Con... erations

6.1 Site-Generated Traffic Volume

The Road Traffic Authority of New South Wales (RTA) publication 'Guide to Traffic Generating Developments' (October, 2002) provides trip generation rates for a variety of different land uses.

For dwelling (house) and medium density residential development land uses, the guide outlines the rates at Table 6-1 below.

Table 6-1 Residential Trip Generation Rates

Dwelling	Weekday Afternoon	Weekday Evening
Dwelling Houses	9.0 per dwelling	0.85 per dwelling
Larger units and townhouses (3 or more bedrooms	5.0-6.5 per dwelling	0.5-0.65 per dwelling

To provide a conservative estimation of traffic generated by the site, the higher end of the above rates will be adopted.

Common directional splits, being 80% outbound and 20% inbound during the morning peak and 40% outbound / 60% inbound during the afternoon peak are also envisaged.

With regard to the childcare centre land use, the arrival and departure of children is generally staggered across a few hours due to parent/guardian work hours. A typical peak hour trip generation rate is around 1 vehicle movement per 'childcare place provided', which accounts for both an arrival trip (prior to signing a child in/out) and a departure trip once the child is set-down or collected. Peak hour movements are typically split 50% inbound and 50% outbound.

Table 6-2 Estimate of Site-Generated Peak Hour Traffic Volume

Land Use	Area / No.	AM Peak Hour			PM Peak Hour		
		Inbound	Outbound	Total	Inbound	Outbound	Total
Townhouses	28 no.	4	14	18	11	7	18
Lots (Houses)	6 no.	1	4	5	3	2	5
Childcare Centre	110 places	55	55	110	55	55	110
Total		***60***	***73***	***133***	***69***	***64***	***133***

6.2 Distribution of Site-Generated Traffic

The subject site has a single frontage to Darren Road along the eastern site boundary. Accordingly, all vehicular traffic generated by the site will be distributed via Darren Road.

The subject site is provided convenient access to Springvale Road via Paterson Road, or to a lesser extent via Harold Road. From here, motorists can access the surrounding localities via surface road connections.

The site will also provide convenient access to Corrigan Road via Henderson Road. This is likely to be the route most utilised by vehicles travelling to/from the city, as it provides connections to the Eastlink (M3) and Monash (M1) Freeways via Cheltenham Road and Heatherton Road.

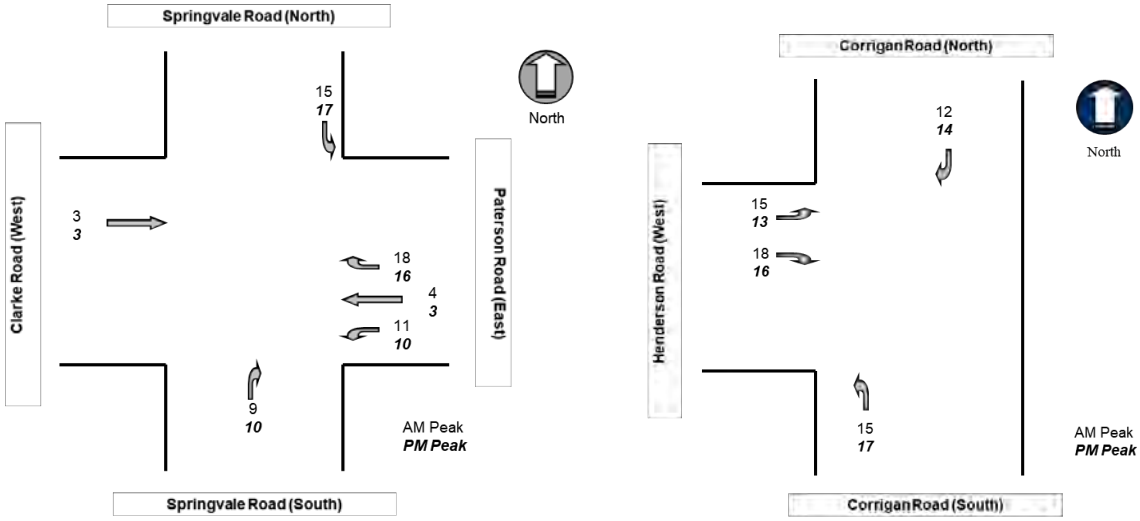
Based on the above, the distribution of site-generated traffic to the wider network has been estimated at Table 6-3.

Table 6-3 Likely Distribution of Site-Generated Traffic

Route	Direction	% Split
Springvale Road	N	25%
	S	15%
Clarke Road	W	5%
Corrigan Road	N	20%
	S	25%
Harold Road / Others	Various	5%
Total		***100%***

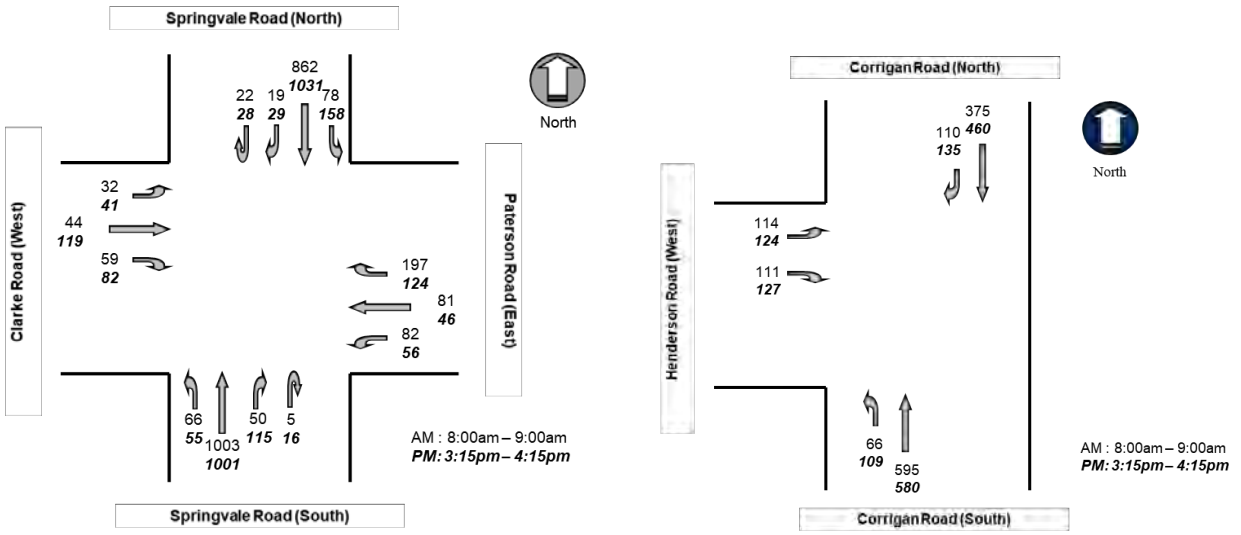
Based on the above, the likely distribution of additional peak hour vehicle movements at the Springvale Road / Paterson Rd / Clarke Road intersection, and the Corrigan Road / Henderson Road intersection, are presented at Figure 6-1, below.

Figure 6-1 Forecast Additional Site-Generated Traffic



These volumes have been combined with the base case scenarios discussed at Section 2.6.2, to represent the post-development traffic conditions at both intersections presented below.

Figure 6-2 Post-Development Traffic Conditions



6.3 Post-Development Intersection Operation

The operation of the Springvale Road / Paterson Rd / Clarke Road intersection, and the Corrigan Road / Henderson Road intersection under post-development traffic volumes has been analysed using SIDRA Intersection.

The results of the analysis and a comparison to the existing operating conditions presented in Table 2-3 are summarised in Table 6-4 below.

Table 6-4 Summary of Post-Development Intersection Performance

Intersection	Peak	Approach	Base Case			Post-Development		
			D.O.S	Avg Delay	95th%ile Queue	D.O.S	Avg Delay	95th%ile Queue
Springvale Rd / Paterson Rd / Clarke Rd	AM Peak	**Springvale Rd (S)**	0.709	31.8 *s*	192 *m*	0.728	32.8 *s*	196 *m*
		Paterson Rd (E)	0.697	50.5 *s*	*78 m*	0.727	50.4 *s*	86 *m*
		Springvale Rd (N)	0.539	29.8 *s*	132 *m*	0.560	30.7 *s*	137 *m*
		Clarke Rd (W)	0.356	59.0 *s*	30 *m*	0.386	59.0 *s*	32 *m*
		Intersection	***0.709***	***34.8 s***	***192 m***	***0.728***	***35.8 s***	***196 m***
Corrigan Rd / Henderson Rd		Corrigan Rd (S)	0.512	13.0 *s*	118 *m*	0.555	16.4 *s*	133 *m*
		Corrigan Rd (N)	0.262	5.2 *s*	42 *m*	0.265	5.7 *s*	44 *m*
		Henderson Rd (W)	0.501	55.1 *s*	40 *m*	0.556	52.8 *s*	48 *m*
		Intersection	***0.512***	***16.3 s***	***118 m***	***0.556***	***18.6 s***	***133 m***
Springvale Rd / Paterson Rd / Clarke Rd	PM Peak	Springvale Rd (S)	0.661	29.7 *s*	188 *m*	0.682	30.1 *s*	189 *m*
		Paterson Rd (E)	0.631	51.8 *s*	48 *m*	0.668	51.6 *s*	55 *m*
		Springvale Rd (N)	0.616	27.3 *s*	169 *m*	0.623	27.4 *s*	171 *m*
		Clarke Rd (W)	0.636	56.3 *s*	67 *m*	0.690	58.0 *s*	70 *m*
		Intersection	***0.661***	***32.5 s***	***188 m***	***0.690***	***32.9 s***	***189 m***
Corrigan Rd / Henderson Rd		Corrigan Rd (S)	0.583	19.8 *s*	138 *m*	0.611	21.7 *s*	144 *m*
		Corrigan Rd (N)	0.321	5.5 *s*	55 *m*	0.324	6.1 *s*	57 *m*
		Henderson Rd (W)	0.598	52.2 *s*	48 *m*	0.647	51.5 *s*	56 *m*
		Intersection	***0.598***	***19.1 s***	***138 m***	***0.647***	***20.6 s***	***144 m***

The SIDRA analysis indicates that both intersections will continue to operate well below capacity with good to excellent traffic conditions during the morning and afternoon peak periods. Potential increases to delays and queue lengths are likely to be imperceptible.

Accordingly, the analysis indicates the existing road network proximate to the site can accommodate the additional traffic generated by redevelopment of the subject site as proposed.

7 Re.. onses to Council RFI

Paragon Development Group has advised Cardno that the amended masterplan has been prepared and negotiated with Council.

Accordingly, many of the items raised by City of Greater Dandenong Council in its Request for Further Information Letter (Council Ref# PlnSM20/0001, dated 6th July, 2020) are no longer applicable.

Notwithstanding, those items are reproduced and directly addressed below.

12. Visitor parking to be provided which does not encroach on the 5.5m carriageways.

All resident visitor parking spaces are now provided by way of 90-degree or parallel parking bays that do not encroach on the private internal road network.

23. A waiver of visitor parking is not supported. Sufficient visitor parking must be provided for all properties that access via the proposed private road.

Ten (10) resident visitor car parking spaces are now provided, which exceeds the minimum statutory requirement for resident visitor parking spaces (7 no.).

24. The private road due to its design and layout can only accommodate very bespoke private waste collection (i.e. very small waste vehicles reversing extensively on site). At other similar sites (including the other end of the school) this has been indicated to be not desirable by our Waste Team (Council collection and economy's of scale result in a better environmental outcome).

The Waste Consultant has advised that a Small Rigid Vehicle (nom. 6.4m length) will be adequate to collect refuse from the site. Notwithstanding, the swept path diagrams at Appendix B indicate that larger vehicles could access the site to collect waste if the Owners Corporation desires.

29. Visitor car spaces must not encroach on the 5.5 metre wide accessway.

As per item 12, above.

30. A number of dead end streets have been proposed with no provision for turning without using crossovers.

A turnaround area has been added at the southern end of the north-south road to allow vehicles (including refuse collection vehicles and/or fire appliances) turn around and egress the site in a forward direction.

The northern leg of the north-south road is less than 60 metres in length and does not require a turnaround area as per CFA requirements.

8 Co.. lusions

Paragon Development Group is seeking planning approval for a mixed-use development comprising a childcare centre, vacant land lots and townhouses on land located at 46-62 Darren Road, Springvale South.

A copy of the ground floor development plan prepared for the site by Peddle Thorp Architects is attached as Appendix A to this report.

The proposal is summarised in a traffic engineering context as follows:

> The provision of on-site car parking spaces for resident land uses can satisfy the statutory requirement outlined at Clause 52.06 of the Greater Dandenong Planning Scheme;

> The provision of car parking spaces for the childcare centre and resident visitors exceeds the minimum statutory requirements for both land uses;

> The on-site parking layouts can or have been designed in accordance with the relevant design criteria outlined by the Australian Standard for Off-Street Car Parking (AS2890.1:2004) and Clause 52.06 of the Greater Dandenong Planning Scheme;

> A private internal road network is proposed to be provided, which has been designed appropriately for this form of development;

> The development is anticipated to generate a traffic volume that can be accommodated on the existing road network and at proximate intersections without causing any adverse traffic impacts.

Darren Road Townhouse & Childcare Centre Development

APPENDIX A

DEVELOPMENT PLAN

Cardno
Shaping the Future

LEGEND

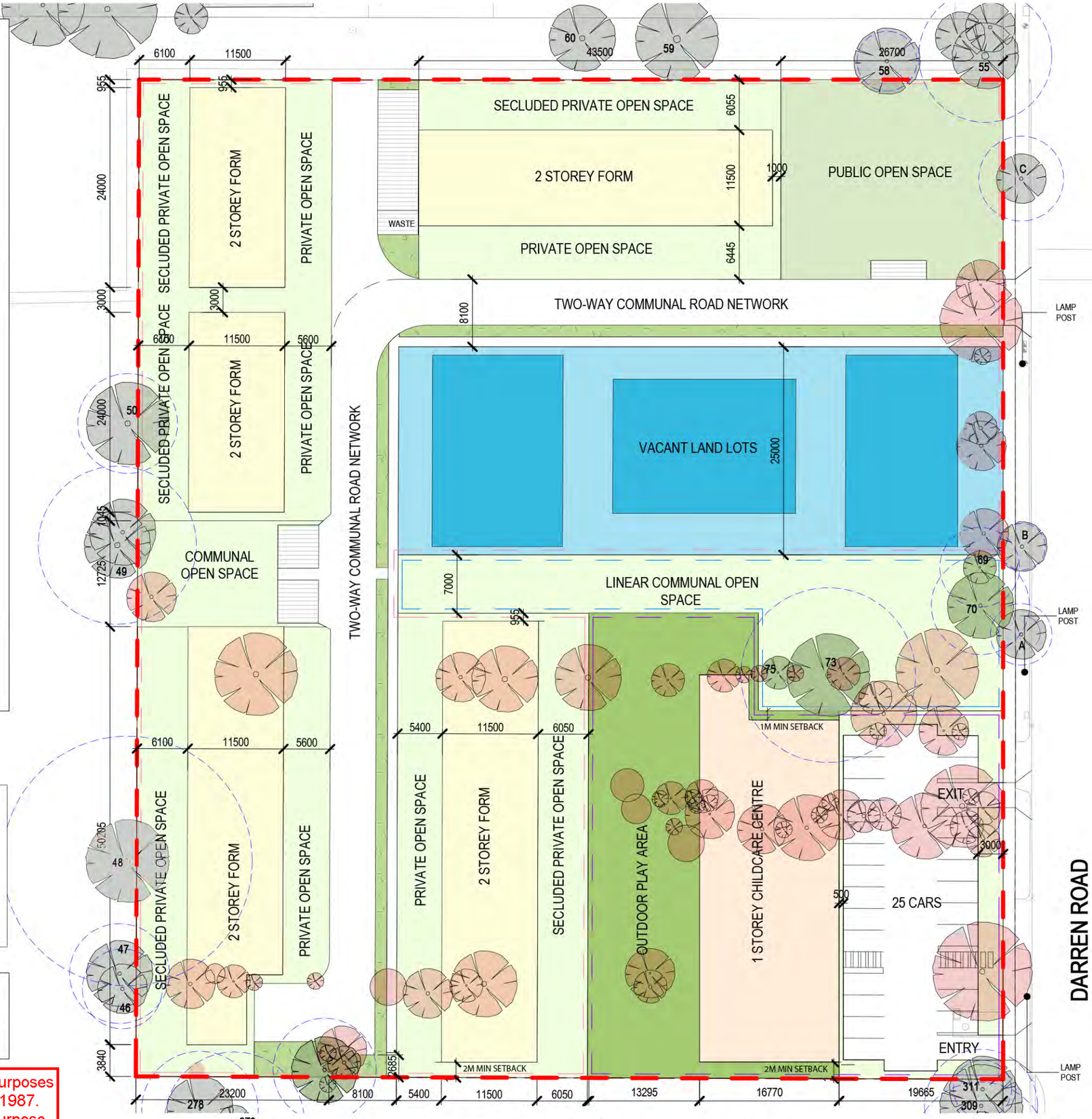
- PROPERTY BOUNDARY (1.25 ha)
- LOT 1 - RESIDENTIAL (0.918 ha)
- LOT 2 - PUBLIC OPEN SPACE (0.085 ha)
- LOT 3 - CHILDCARE (0.247 ha)
- LOT BOUNDARIES
- 2 STOREY RESIDENTIAL BUILT FORM WITH A MINIMUM 5.4 METRE FRONT SETBACK & MINIMUM 6.05 METRE REAR SETBACK
- SUGGESTED 2 STOREY RESIDENTIAL BUILT FORM ON VACANT LOTS WITH FRONT SETBACK & REAR SETBACK & SIDE SETBACK
- 1 STOREY CHILDCARE CENTRE
- PRIVATE OPEN SPACE AREAS AT GROUND LEVEL. ALL LOTS WITH GROUND LIVING TO HAVE SECLUDED PRIVATE OPEN SPACE AT REAR OF DWELLINGS
- PUBLIC OPEN SPACE AND LANDSCAPING ALONG DARREN ROAD
- PLAY AREA FOR CHILDCARE
- VACANT LAND LOTS
- PROPOSED TWO WAY COMMUNAL ROADWAY
- PROPOSED FEATURE PAVING TO COMMUNAL ROADWAY
- PRIVATE OPEN SPACE AND LANDSCAPING
- VISITOR PARKING AREA
- NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- EXISTING TREES TO NEIGHBOURING PROPERTIES (INDICATIVE LOCATION ONLY)
- TREE PROTECTION ZONE (TPZ)
- PROPOSED NEW TREES (INDICATIVE LOCATION ONLY)

NOTES

- THE LEGAL POINT OF DISCHARGE FOR THE DEVELOPMENT IS TO THE EXISTING PIT ON DARREN ROAD;
- THE MAXIMUM ALLOWABLE DISCHARGE FOR THE SITE IS 113.34L/S AND THE STORAGE REQUIRED IS 105.51 M3
- THE CHILDCARE CENTRE AND DWELLINGS WITHIN THE '2 STOREY FORM' AREA ADJACENT TO DARREN ROAD MUST BE CONSTRUCTED WITH FINISHED FLOOR LEVELS SET NO LOWER THAN 300MM ABOVE THE APPLICABLE ADJACENT FLOOD LEVEL;
- OPEN SPACE AREAS AND CAR PARKING INTERFACING DARREN ROAD MUST BE SET ON EXISTING SURFACE LEVELS;
- ANY REFERENCES TO DWELLING NUMBERS,CROSSOVER NUMBERS OR VISITOR PARKING NUMBERS WITHIN THE TRANSPORT, WASTE, STORMWATER REPORTS HAVE BEEN PREPARED FOR THE PURPOSE OF TECHNICAL ASSESSMENTS AND IS NOT REFLECTIVE OF THE ACTUAL PROPOSE NUMBER.

NOTES - TREE RETENTION / LANDSCAPING:

- TREES ARE TO BE RETAINED IN ACCORDANCE WITH THE APPROVED ARBORIST REPORT AND TREE RETENTION PLAN
- AT LEAST ONE ADVANCED CANOPY TREE WITHIN THE FRONTAGE AREA OF EACH DWELLING AND AT LEAST TWO ADVANCED CANOPY TREES TO BE PROVIDED WITHIN THE REAR YARDS OF EACH DWELLING.



PEDDLE THORP

Northbank Place East
Level 1, 525 Flinders St
Melbourne VIC 3000
Australia

P +61 3 9923 2222
F +61 3 9923 2223
E info@pta.com.au
W www.pta.com.au

ACN 006 975 668

SPRINGVALE DEVELOPMENT
46-62 Darren Road, Springvale South

PROJECT NO: 3-20-0003
REASON FOR ISSUE: PRE-APPLICATION

SITE PLAN

REVISION: K
DATE: JULY 2022
SCALE: 1:5000A3

DRAWING NO: DP-300

Darren Road Townhouse & Childcare Centre Development

APPENDIX B

CAR PARKING OCCUPANCY SURVEYS

Cardno
Shaping the Future

On-Street Car Parking Occupancy Surveys - Friday 7th February, 2020

Street	Section	Side	Restriction 1		Restriction 2		Supply	Parking Occupancy												
			Type	Times	Type	Times		3:00 PM	3:30 PM	4:00 PM	4:30 PM	5:00 PM	5:30 PM	6:00 PM	6:30 PM	7:00 PM	7:30 PM	8:00 PM	8:30 PM	9:00 PM
Darren Rd	From Paterson Rd To Henderson Rd	W	Unrestricted				5	3	4	3	3	2	2	1	1	1	1	0	0	0
			No Stopping	8am-9:30am, 2:30am-4pm School Days			6	0	0	0	0	0	0	0	1	1	1	1	1	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			5	0	0	0	0	0	0	0	1	0	0	0	0	0
			Unrestricted				7	4	5	4	4	3	3	3	3	2	1	0	0	0
	From Henderson Rd To Moorgare Ct	W	Unrestricted				16	7	8	6	6	5	5	5	5	4	4	3	3	3
		E	Unrestricted				5	3	4	3	3	2	1	0	0	0	0	0	0	0
	From Moorgare Ct To Waterloo Ct	W	Unrestricted				6	3	3	2	1	0	1	1	2	2	2	1	1	1
			No Stopping	8am-9:30am, 2:30am-4pm School Days			9	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			4	0	0	0	0	0	0	0	0	0	0	0	0	0
	From Waterloo Ct To Shaftesbury Ct	W	No Stopping	8am-9:30am, 2:30am-4pm School Days			5	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			3	0	0	0	0	0	0	0	0	0	0	0	0	0
	From Shaftesbury Ct To Coomoora Rd	W	Bus Zone	8am-4pm School Days			2	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			2	0	0	0	0	0	0	0	0	0	0	0	0	0
Coomoora Rd	From Shaftesbury Ct To #74	N	Unrestricted				12	6	7	5	4	3	3	3	3	3	3	3	3	2
		S	Unrestricted				8	4	5	4	4	3	3	3	3	2	1	0	0	0
Henderson Rd	From Darren Rd To Alderney Rd	N	Unrestricted				16	4	5	3	3	2	1	0	0	0	0	0	0	0
		S	Unrestricted				17	3	3	2	1	0	1	2	1	0	0	0	0	0
Moorgate Ct	From Darren Rd To End	N	No Stopping	8am-9:30am, 2:30am-4pm School Days			13	0	0	0	1	0	1	1	1	0	0	0	0	0
			Unrestricted				3	0	0	0	0	0	0	0	0	0	0	0	0	0
		S	Unrestricted				13	4	5	4	3	2	2	1	1	1	1	1	1	0
Waterloo Ct	From Darren Rd To End	N	Unrestricted				16	3	4	4	4	3	3	2	2	1	1	1	1	1
		S	Unrestricted				17	3	4	3	3	2	2	1	1	1	1	1	1	1
Shaftesbury Ct	From Darren Rd To End	N	Unrestricted				15	4	5	4	3	2	1	0	1	1	1	1	1	1
		S	Unrestricted				15	4	5	3	3	2	1	0	0	0	1	2	2	2
Gillian St	From Gwen St To End	W	No Stopping	9am-4:30pm Mon-Fri			2	0	0	0	0	0	0	0	0	0	0	0	0	0
			Unrestricted				4	3	3	3	3	2	1	0	1	1	1	0	0	0
		E	No Stopping	9am-4:30pm Mon-Fri			3	0	0	0	0	0	0	0	0	0	0	0	0	0
			No Stopping	9am-4:30pm Mon-Fri	Health Centre Clients Excepted		9	6	7	5	5	4	5	3	2	1	0	0	0	0

No. Permitted Parking Spaces at Time of Survey							*238*	*175*	*175*	*224*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*
Occupied Spaces at Time of Survey								*58*	*70*	*53*	*54*	*37*	*36*	*26*	*29*	*21*	*19*	*14*	*14*	*11*
No. Available Spaces at Time of Survey								*117*	*105*	*171*	*184*	*201*	*202*	*212*	*209*	*217*	*219*	*224*	*224*	*227*

On-Street Car Parking Occupancy Surveys - Friday 7th February, 2020 - Darren Road between Henderson Road and Coomoora Road Only

Street	Section	Side	Restriction 1		Restriction 2		Supply	Parking Occupancy												
			Type	Times	Type	Times		3:00 PM	3:30 PM	4:00 PM	4:30 PM	5:00 PM	5:30 PM	6:00 PM	6:30 PM	7:00 PM	7:30 PM	8:00 PM	8:30 PM	9:00 PM
Darren Rd	From Henderson Rd To Moorgare Ct	W	Unrestricted				16	7	8	6	6	5	5	5	5	4	4	3	3	3
		E	Unrestricted				5	3	4	3	3	2	1	0	0	0	0	0	0	0
	From Moorgare Ct To Waterloo Ct	W	Unrestricted				6	3	3	2	1	0	1	1	2	2	2	1	1	1
			No Stopping	8am-9:30am, 2:30am-4pm School Days			9	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			4	0	0	0	0	0	0	0	0	0	0	0	0	0
	From Waterloo Ct To Shaftesbury Ct	W	No Stopping	8am-9:30am, 2:30am-4pm School Days			5	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			3	0	0	0	0	0	0	0	0	0	0	0	0	0
	From Shaftesbury Ct To Coomoora Rd	W	Bus Zone	8am-4pm School Days			2	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			2	0	0	0	0	0	0	0	0	0	0	0	0	0

No. Permitted Parking Spaces at Time of Survey							*52*	*27*	*27*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*
Occupied Spaces at Time of Survey								*13*	*15*	*11*	*10*	*7*	*7*	*6*	*7*	*6*	*6*	*4*	*4*	*4*
No. Available Spaces at Time of Survey								*14*	*12*	*41*	*42*	*45*	*45*	*46*	*45*	*46*	*46*	*48*	*48*	*48*

On-Street Car Parking Occupancy Surveys - Saturday 8th February, 2020

Street	Section	Side	Restriction 1		Restriction 2		Supply	Parking Occupancy												
			Type	Times	Type	Times		3:00 PM	3:30 PM	4:00 PM	4:30 PM	5:00 PM	5:30 PM	6:00 PM	6:30 PM	7:00 PM	7:30 PM	8:00 PM	8:30 PM	9:00 PM
Darren Rd	From Paterson Rd To Henderson Rd	W	Unrestricted				5	1	0	1	1	1	2	2	1	1	1	1	0	0
			No Stopping	8am-9:30am, 2:30am-4pm School Days			6	0	1	1	1	1	1	1	1	1	1	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			5	0	2	1	1	0	0	0	0	0	0	0	0	0
			Unrestricted				7	2	0	1	0	1	2	0	1	0	0	0	1	2
	From Henderson Rd To Moorgare Ct	W	Unrestricted				16	4	5	5	6	6	6	6	5	5	5	4	4	3
		E	Unrestricted				5	0	2	1	1	0	0	0	0	0	0	0	0	0
	From Moorgare Ct To Waterloo Ct	W	Unrestricted				6	1	0	1	1	1	2	2	1	1	0	0	0	0
			No Stopping	8am-9:30am, 2:30am-4pm School Days			9	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			4	0	0	0	0	0	0	0	0	0	0	0	0	0
	From Waterloo Ct To Shaftesbury Ct	W	No Stopping	8am-9:30am, 2:30am-4pm School Days			5	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			3	1	0	1	1	1	2	1	0	0	0	0	0	0
	From Shaftesbury Ct To Coomoora Rd	W	Bus Zone	8am-4pm School Days			2	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			2	1	1	1	0	0	0	0	0	0	1	1	1	0
Coomoora Rd	From Shaftesbury Ct To #74	N	Unrestricted				12	2	2	2	2	2	2	0	1	0	0	0	0	0
		S	Unrestricted				8	3	4	4	5	5	4	5	4	3	3	3	3	3
Henderson Rd	From Darren Rd To Alderney Rd	N	Unrestricted				16	0	1	1	2	2	1	2	1	1	1	0	1	2
		S	Unrestricted				17	2	2	2	1	0	0	0	0	0	1	1	1	0
Moorgate Ct	From Darren Rd To End	N	No Stopping	8am-9:30am, 2:30am-4pm School Days			13	0	0	0	0	1	1	0	1	1	1	0	0	0
			Unrestricted				3	0	0	0	0	0	0	0	0	0	0	0	0	0
		S	Unrestricted				13	0	2	1	1	1	2	2	1	1	1	0	0	0
Waterloo Ct	From Darren Rd To End	N	Unrestricted				16	1	0	1	2	2	2	1	1	1	1	1	1	1
		S	Unrestricted				17	2	2	1	2	2	2	2	2	1	0	1	1	0
Shaftesbury Ct	From Darren Rd To End	N	Unrestricted				15	0	0	0	0	1	2	0	1	0	0	0	0	0
		S	Unrestricted				15	0	0	0	1	1	0	1	1	1	1	0	0	0
Gillian St	From Gwen St To End	W	No Stopping	9am-4:30pm Mon-Fri			2	0	0	0	0	0	0	0	1	1	1	0	0	0
			Unrestricted				4	0	0	0	0	1	1	1	1	1	1	0	0	0
		E	No Stopping	9am-4:30pm Mon-Fri			3	2	0	1	0	0	0	0	0	0	0	0	0	0
			No Stopping	9am-4:30pm Mon-Fri	Health Centre Clients Excepted		9	1	1	1	1	1	1	0	0	0	0	0	0	0

No. Permitted Parking Spaces at Time of Survey							*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*	*238*
Occupied Spaces at Time of Survey								*23*	*25*	*27*	*29*	*30*	*33*	*26*	*24*	*19*	*19*	*12*	*13*	*11*
No. Available Spaces at Time of Survey								*215*	*213*	*211*	*209*	*208*	*205*	*212*	*214*	*219*	*219*	*226*	*225*	*227*

On-Street Car Parking Occupancy Surveys - Saturday 8th February, 2020 - Darren Road between Henderson Road and Coomoora Road Only

Street	Section	Side	Restriction 1		Restriction 2		Supply	Parking Occupancy												
			Type	Times	Type	Times		3:00 PM	3:30 PM	4:00 PM	4:30 PM	5:00 PM	5:30 PM	6:00 PM	6:30 PM	7:00 PM	7:30 PM	8:00 PM	8:30 PM	9:00 PM
Darren Rd	From Henderson Rd To Moorgare Ct	W	Unrestricted				16	4	5	5	6	6	6	6	5	5	5	4	4	3
		E	Unrestricted				5	0	2	1	1	0	0	0	0	0	0	0	0	0
	From Moorgare Ct To Waterloo Ct	W	Unrestricted				6	1	0	1	1	1	2	2	1	1	0	0	0	0
			No Stopping	8am-9:30am, 2:30am-4pm School Days			9	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			4	0	0	0	0	0	0	0	0	0	0	0	0	0
	From Waterloo Ct To Shaftesbury Ct	W	No Stopping	8am-9:30am, 2:30am-4pm School Days			5	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			3	1	0	1	1	1	2	1	0	0	0	0	0	0
	From Shaftesbury Ct To Coomoora Rd	W	Bus Zone	8am-4pm School Days			2	0	0	0	0	0	0	0	0	0	0	0	0	0
		E	No Stopping	8am-9:30am, 2:30am-4pm School Days			2	1	1	1	0	0	0	0	0	0	1	1	1	0

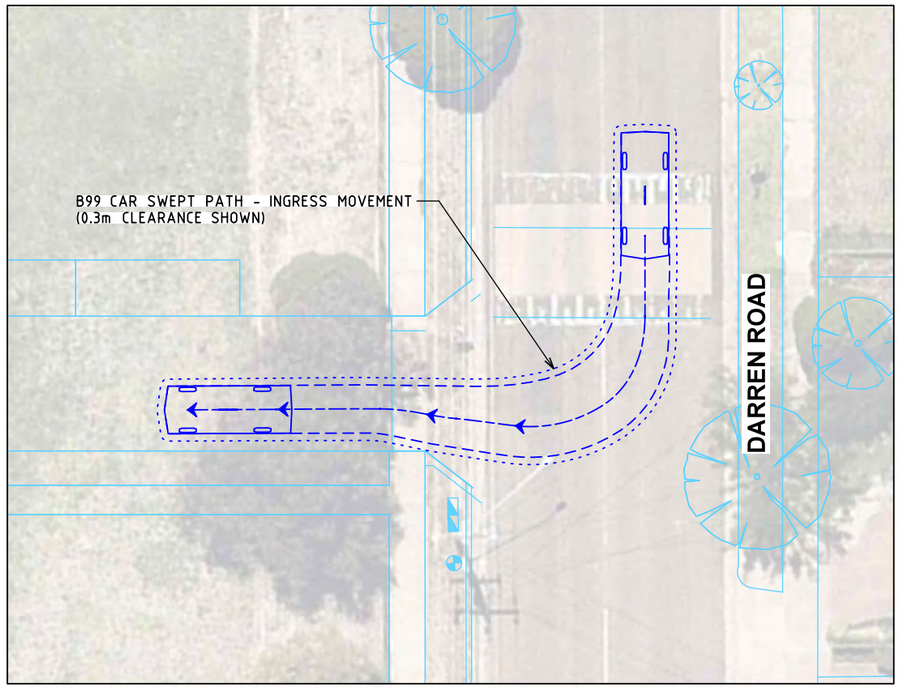
No. Permitted Parking Spaces at Time of Survey							*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*	*52*
Occupied Spaces at Time of Survey								*7*	*8*	*9*	*9*	*8*	*10*	*9*	*6*	*6*	*6*	*5*	*5*	*3*
No. Available Spaces at Time of Survey								*45*	*44*	*43*	*43*	*44*	*42*	*43*	*46*	*46*	*46*	*47*	*47*	*49*

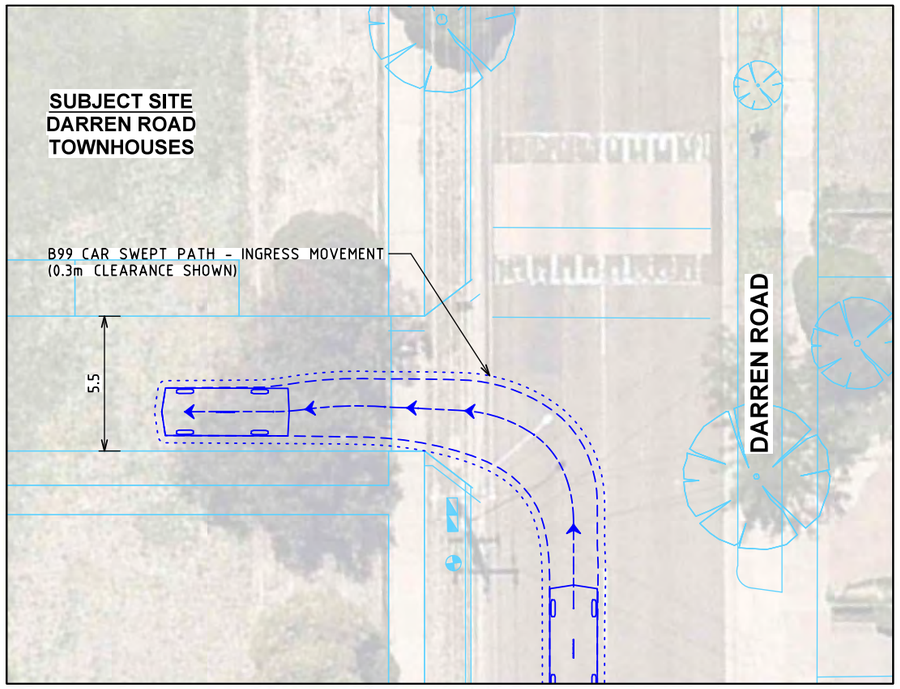
Darren Road Townhouse & Childcare Centre Development

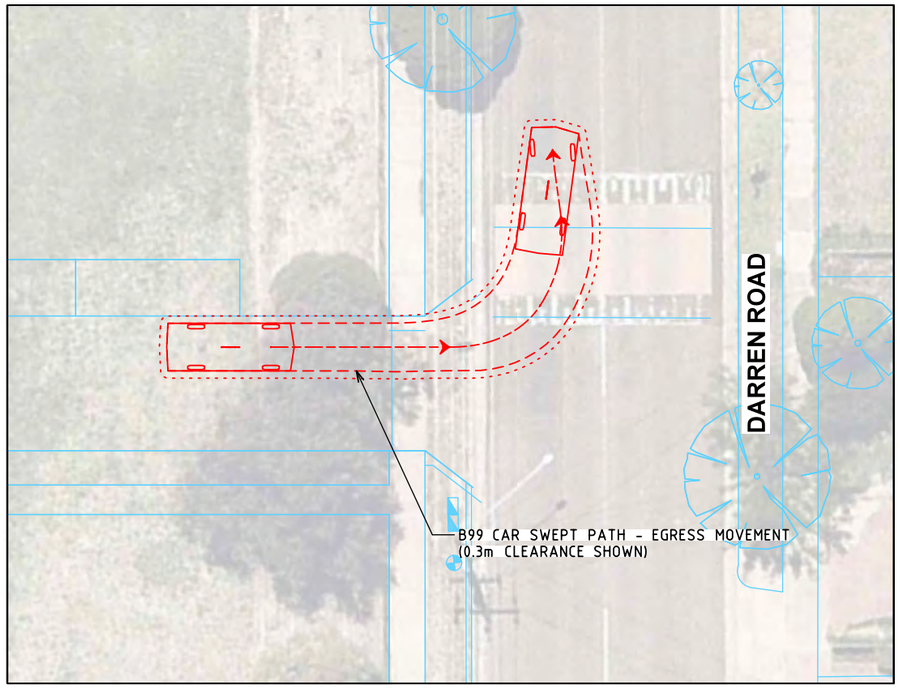
APPENDIX C

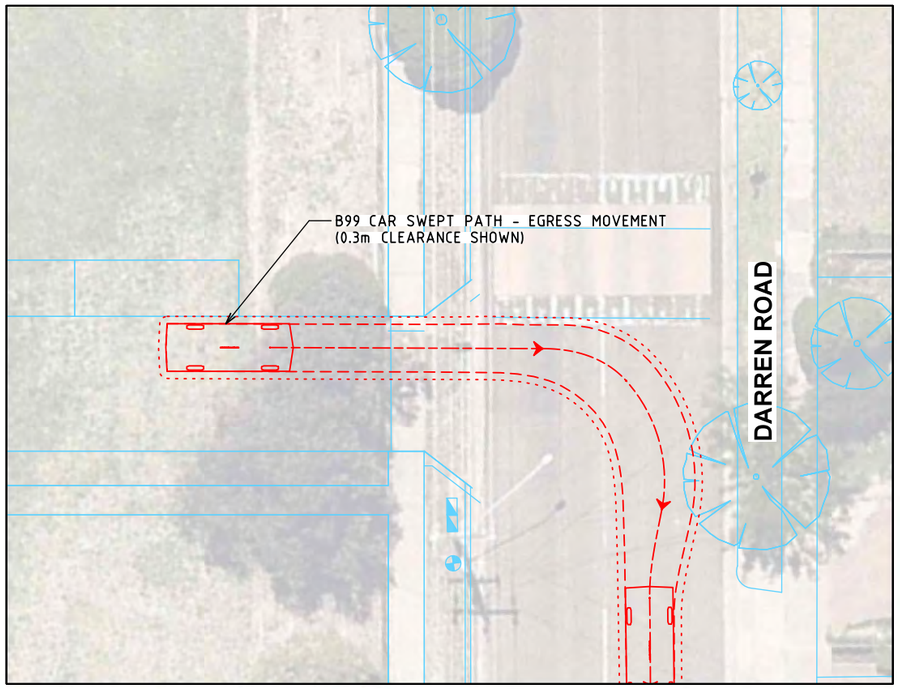
SWEPT PATH DIAGRAMS

Cardno
Shaping the Future

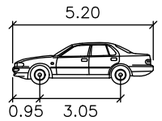






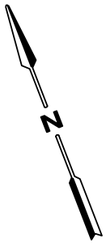


CHECKING VEHICLE



B99

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9



MELWAY MAP REF 89 A6

Cardno® Shaping the Future
ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

PARAGON DEVELOPMENT GROUPS
DARREN ROAD TOWNHOUSES
46-62 DARREN ROAD, SPRINGVALE SOUTH
SWEPT PATH ANALYSIS
B99 CAR SWEPT PATH

Drawn/Check	Date	Scale	Size
AB / SGM	01.04.2020	1:250	A3

Drawing Number	Revision
V200098-TR-SK-0001	5

BY: User:Agnieszka.Booth

DATE PLOTTED: 19/03/2021 9:09:46 AM

CAD File: M:\2020\0001_0500\V200098_Darren_Road_Townhouses\Traffic\Drafting\03 Sketches\01 CAD\V200098-TR-SK-0003.dgn

8.8m SERVICE VEHICLE SWEPT PATH - EGRESS MOVEMENT
(0.6m CLEARANCE SHOWN)

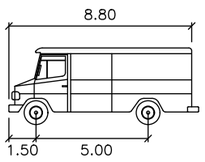
5.5

8.8m SERVICE VEHICLE SWEPT PATH - INGRESS MOVEMENT
(0.6m CLEARANCE SHOWN)

5.5

SUBJECT SITE
DARREN ROAD
TOWNHOUSES

CHECKING VEHICLE



SERVICE VEHICLE

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

N

MELWAY MAP REF 89 A6

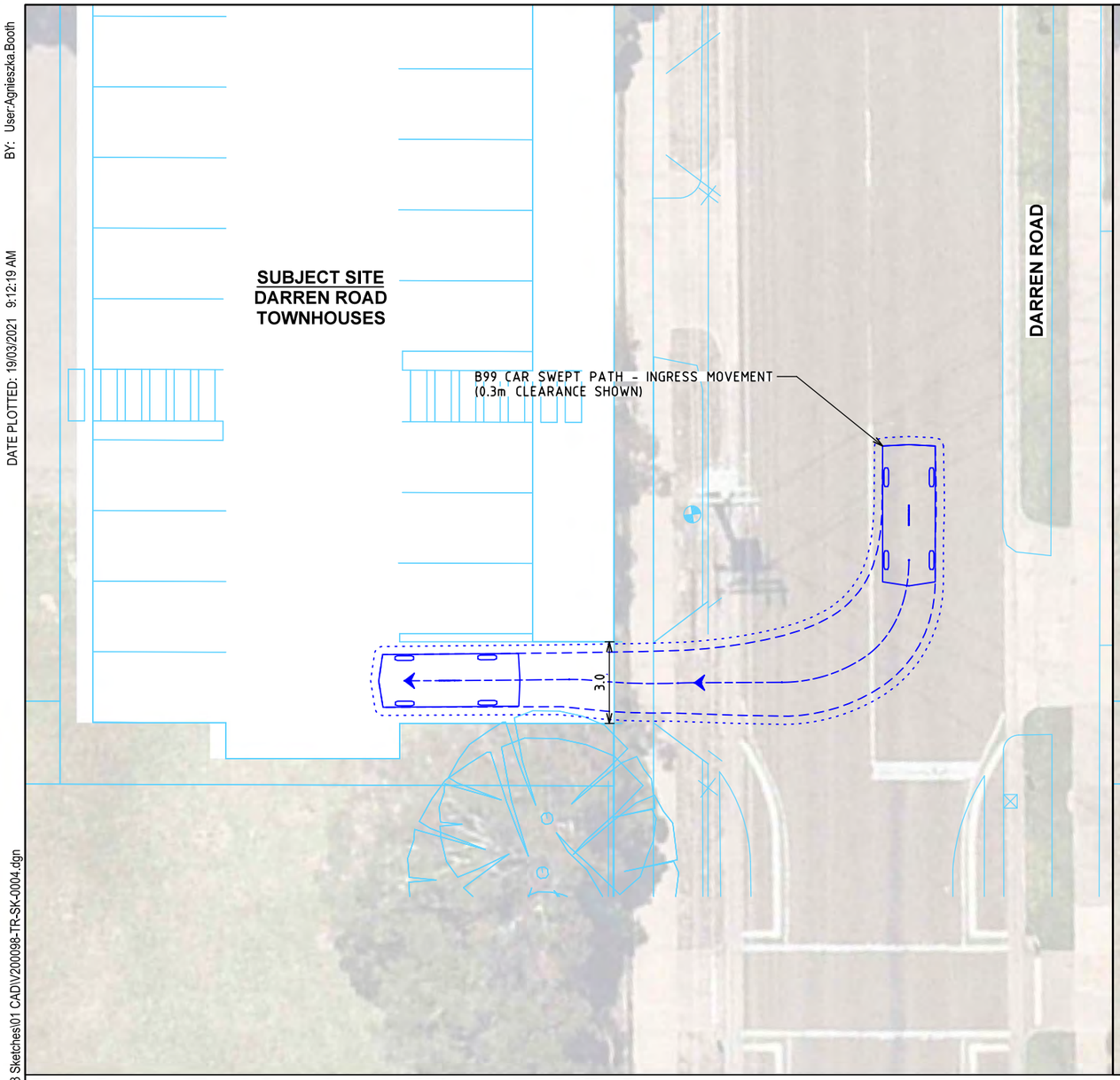
Cardno®
Shaping the Future

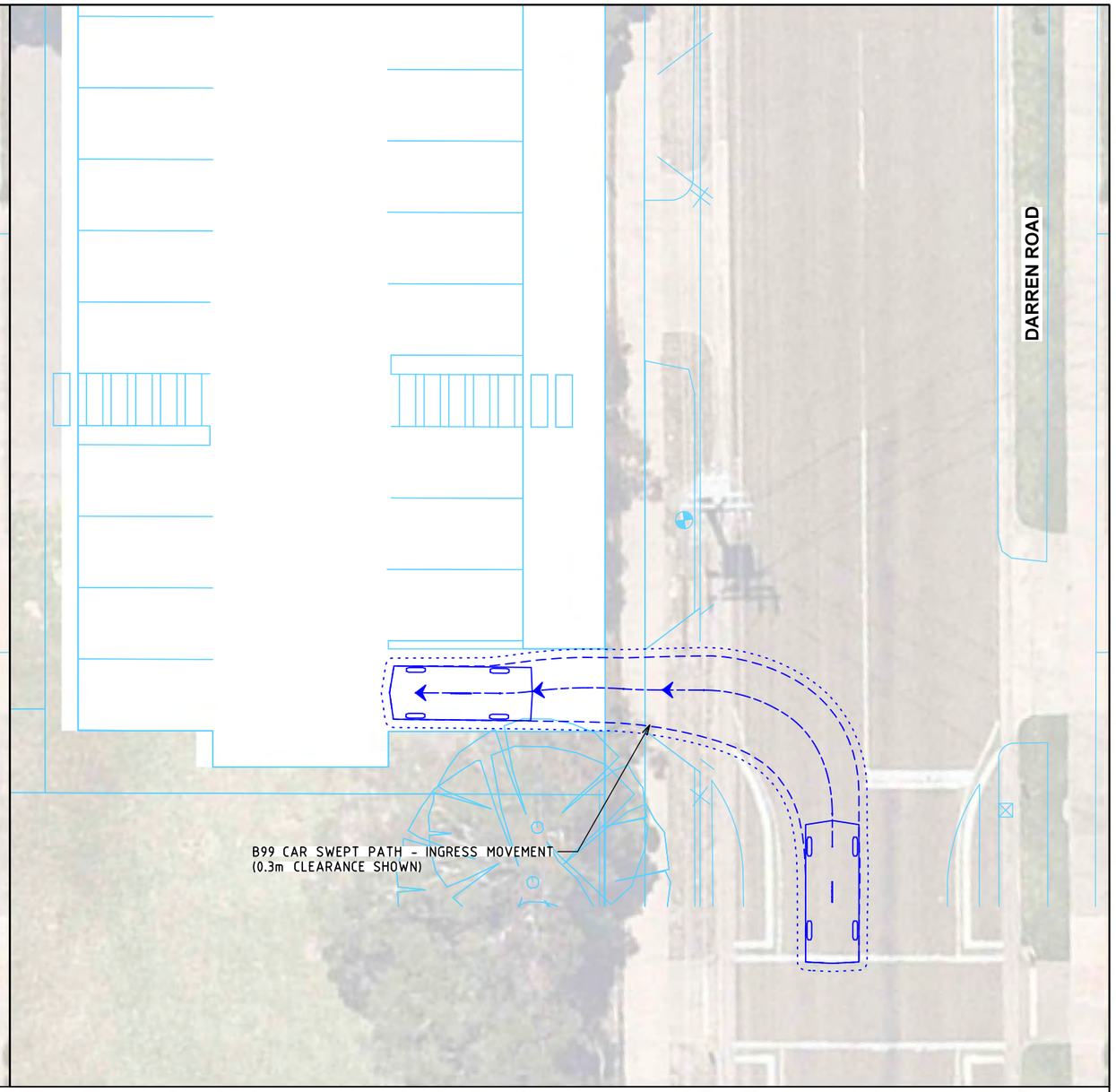
ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

PARAGON DEVELOPMENT GROUPS
DARREN ROAD TOWNHOUSES
46-62 DARREN ROAD, SPRINGVALE SOUTH
FIRE APPLIANCE ACCESS
8.8m SERVICE VEHICLE SWEPT PATH

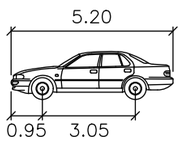
Drawn/Check	Date	Scale	Size
AB / SGM	01.04.2020	1:250	A3

Drawing Number	Revision
V200098-TR-SK-0003	5



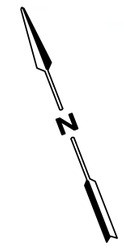


CHECKING VEHICLE



B99

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9



MELWAY MAP REF 89 A6

Cardno®
Shaping the Future
ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

PARAGON DEVELOPMENT GROUPS
DARREN ROAD TOWNHOUSES
46-62 DARREN ROAD, SPRINGVALE SOUTH
SWEPT PATH ANALYSIS
B99 CAR SWEPT PATH

Drawn/Check	Date	Scale	Size
AB / SGM	01.04.2020	1:200	A3

Drawing Number	Revision
V200098-TR-SK-0004	5

BY: User:Agnieszka.Booth

DATE PLOTTED: 19/03/2021 9:17:27 AM

CAD File: M:\2020\0001_0500\V200098_Darren_Road_Townhouses\TrafficDrafting\03 Sketches\01 CAD\V200098-TR-SK-0009.dgn

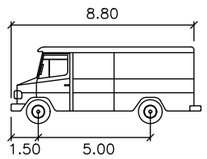
SUBJECT SITE
DARREN ROAD
TOWNHOUSES

5.5

8.8m SERVICE VEHICLE SWEPT PATH
- EGRESS MOVEMENT
(0.5m CLEARANCE SHOWN)

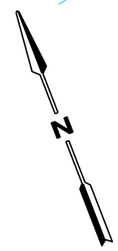
8.8m SERVICE VEHICLE SWEPT PATH
- INGRESS MOVEMENT
(0.5m CLEARANCE SHOWN)

CHECKING VEHICLE



SERVICE VEHICLE

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7



MELWAY MAP REF 89 A6

Cardno® Shaping the Future
ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

PARAGON DEVELOPMENT GROUPS
DARREN ROAD TOWNHOUSES
46-62 DARREN ROAD, SPRINGVALE SOUTH
FIRE APPLIANCE ACCESS
8.8m SERVICE VEHICLE SWEPT PATH

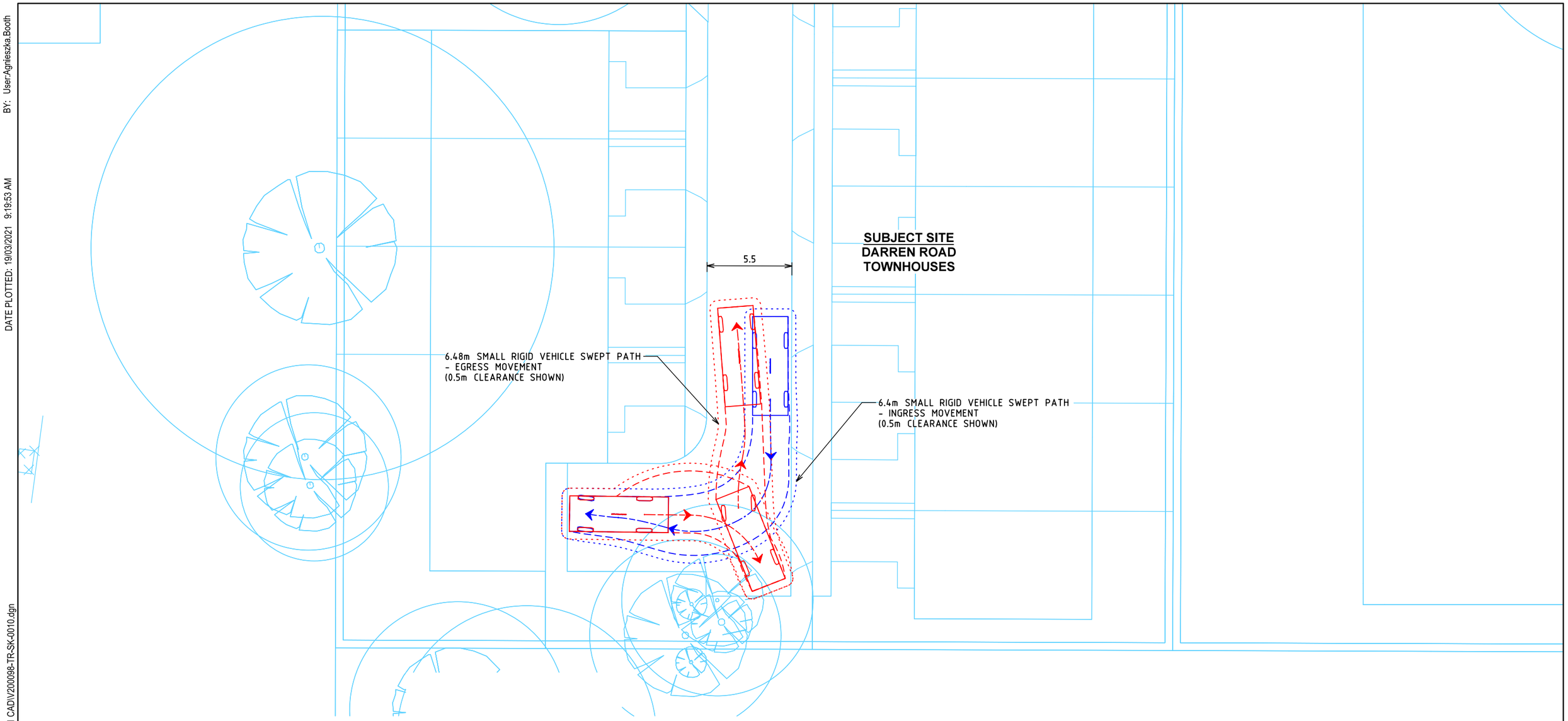
Drawn/Check	Date	Scale	Size
AB / SGM	31.07.2020	1:250	A3

Drawing Number	Revision
V200098-TR-SK-0009	4

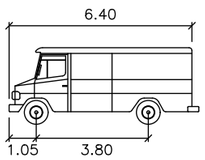
BY: User:Agnieszka.Booth

DATE PLOTTED: 19/03/2021 9:19:53 AM

CAD File: M:\2020\0001_0500\V200098_Darren_Road_Townhouses\Traffic\Drafting\03 Sketches\01 CAD\V200098-TR-SK-0010.dgn



CHECKING VEHICLE



SRV

	meters
Width	: 2.30
Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 38.0

N

MELWAY MAP REF 89 A6

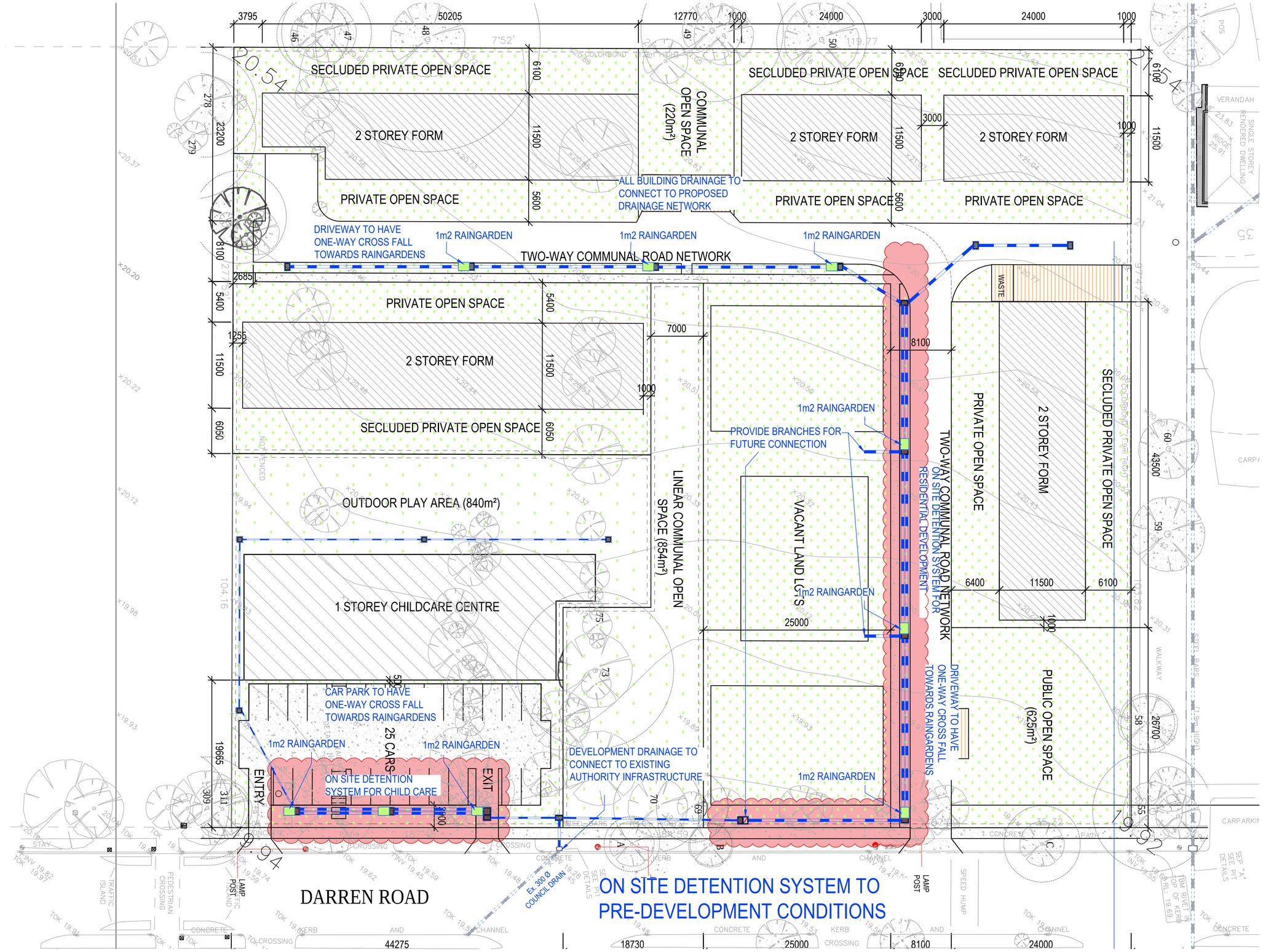
Cardno®
Shaping the Future

ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

PARAGON DEVELOPMENT GROUPS
DARREN ROAD TOWNHOUSES
46-62 DARREN ROAD, SPRINGVALE SOUTH
SWEPT PATH ANALYSIS
6.4m SMALL RIGID VEHICLE

Drawn/Check	Date	Scale	Size
AB / SGM	18.08.2020	1:250	A3

Drawing Number	Revision
V200098-TR-SK-0010	3



REV	DATE	DESCRIPTION	BY
A	17/01/2022	SCHEMATIC DRAINAGE	WD

AMENDMENTS

Client:

Architect:

EQUILIBRIUM ENGINEERING
CIVIL & STRUCTURAL CONSULTANTS
W:EQENG.COM.AU
M: 0421 900 119
E: WDU@EQENG.COM.AU

Drawn By:	WD
Designed By:	WD
Checked By:	WD
Date:	JAN 2022
Scale @ A3:	1:250

Project:

MIXED DEVELOPMENT

46-62 DARREN ROAD,
SPRINGVALE SOUTH

Drawing Title:

SCHEMATIC DRAINAGE PLAN

Project No.:	Drawing No.:	Revision
20067	C02	A

EQUILIBRIUM ENGINEERING
CIVIL & STRUCTURAL CONSULTANTS

INTERGRATED STORM WATER MANAGEMENT PLAN – 20067

46-62 Darren Road Springvale South VIC 3172

Revision 4 1/02/2022

FEBRUARY 1

EQUILIBRIUM ENGINEERING PTY LTD
Authored by: WILSON DU (EC-45082)

EQUILIBRIUM ENGINEERING
CIVIL & STRUCTURAL CONSULTANTS

Table of Contents

Introduction

Equilibrium Engineering Consulting Engineers was engaged by Paragon Properties to provide a Water Sensitive Urban Design analysis for the proposed development of 42 Units and a Child Care Center at 46-62 Darren Road, Springvale South 3172.

This report is based on the drawing set provided by Paragon Properties on the 28th of Aug 2020.
The following documents explicates the WSUD recommendations of this report:

1. Best Practice Environmental Management Guidelines for Urban Stormwater (CSIRO 1999) (BPEMG)
2. WSUD Engineering Procedures: Stormwater (CSIRO 2005 EPS)
3. WSUD Maintenance Guidelines – A guide for asset managers (Melbourne Water)

Background – Site Layout Analysis

The proposed development Consists of 42 units and a Childcare centre with the following attributes:

Total Site Area:	12,471m2	Denoted by red dashed line
Building envelope area for 34 units:	3,456m2	Denoted in yellow and blue(landlots)
Driveway for units & landlots	612m2	
Childcare Centre roof area:	725m2	Denoted in brown
Childcare Centre Carpark:	6,40m2	Denoted in white
Road and Carparks:	1,112m2	Denoted in white
Footpath and cross overs:	177m2	
Permeable area/garden:	5,574 m2	Denoted in green

The site area is divided up into the following catchment areas and highlights the boundaries considered as shown in Figure 1.0

Figure 1.0 subject site and catchment areas.

MUSIC model analysis

For the MUSIC assessment the following treatments have been provided to meet the Required Removal Rate from Typical Urban Load and to meet Best Practice. The treatments are detailed further in the next section of this report.

1. 34 units is to include a 3,000L Rainwater.
2. The main driveway to the units is to be treated by a 6m2 Rain garden.
3. The Childcare Centre is to utilise a 15,000Liter Rainwater Tank.
4. The Childcare Carpark is to be treated via a 3m2 Rain garden

The treatment train is demonstrated in Figure 2.0 which achieves the Required Removal Rate from Typical Urban Load. Summarised in Table 1.0 below

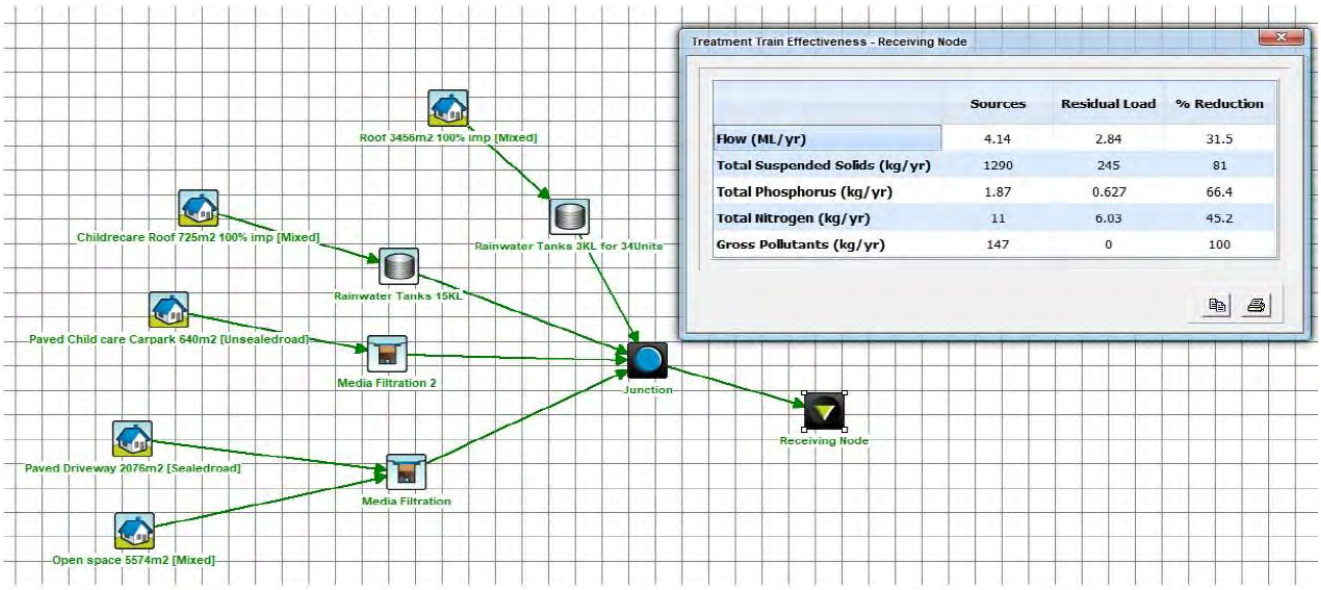


Figure 2.0 MUSIC treatment train

MUSIC Pollutant Removal Rate Achieved

Pollutant	Required Removal Rate from Typical Urban Load	Removal Rate Achieved	Best Practice Achieved
Total Suspended Solids (TSS)	80%	81	Yes
Total Phosphorus (TP)	45%	66.4	Yes
Total Nitrogen (TN)	45%	45.2	Yes
Gross Pollutants (GP)	70%	100	Yes

Table 1.0 MUSIC output results summary

Design concept:

The proposed development achieves the Water-Sensitive Urban Design (WSUD) objectives of the City of Greater Dandenong by water harvesting, re-use, and biofiltration. A MUSIC assessment on the above property has been undertaken to demonstrate in-operation compliance with best-practice stormwater treatment objectives as set out in the Urban Stormwater Best Practice Environmental Management Guidelines[1]. The proposed plans achieved and exceed required pollutant removal rates with the following parameters:

• Rainwater shed from all roof areas will be collected to rainwater tanks with a minimum of 3000L capacity for each unit.

• Leaf diverting rain heads and first flush diverters should be included upstream of the tank to divert the initial sediment flow when rain events occur from flowing into the tank.

• Balconies are excluded from rainwater collection areas as they can gather more residual pollutants (e.g. food scraps, cigarettes etc.) than most roofs.

• The rainwater tank will serve all toilets in the development. In addition to stormwater benefits, this capture of water provides water saving benefits.

• Multiple Rain gardens will be treating sections of the concrete driveway with at total size of 5m2, the size of each individual raingarden will be proportionate to the impervious area being treated. Multiple rain gardens are to be placed strategically in order not to impede on the 100year ARI overland flows of the development.

• The development is not expected to have any chemical pollutants or toxicants where stormwater runoff would impact the local environment.

• The design has included vegetated landscaping to all private open spaces (POS). The lawn area will assist with retaining moisture and evapotranspiration in the immediate environment. This will contribute towards cooling and improving the local habitat and providing an attractive and enjoyable space.

• See appendices for MUSIC Areas proof and MUSIC modelling parameters.

Storm Water Drainage System

The driveways will be graded with a one-way crossfall towards the rain gardens for treatment and into the Onsite Detention System as shown in the red clouded section in figure 3.0. A 'V' shaped channel will be formed between the road and the path /communal spaces. The driveways will be graded towards Darren Road to form an overland flow path to cater for the 1% AEP events. This will bypass the raingardens and flow over the driveways towards Darren Road.

All buildings will be connected to the proposed main drainage line as shown in Appendix E

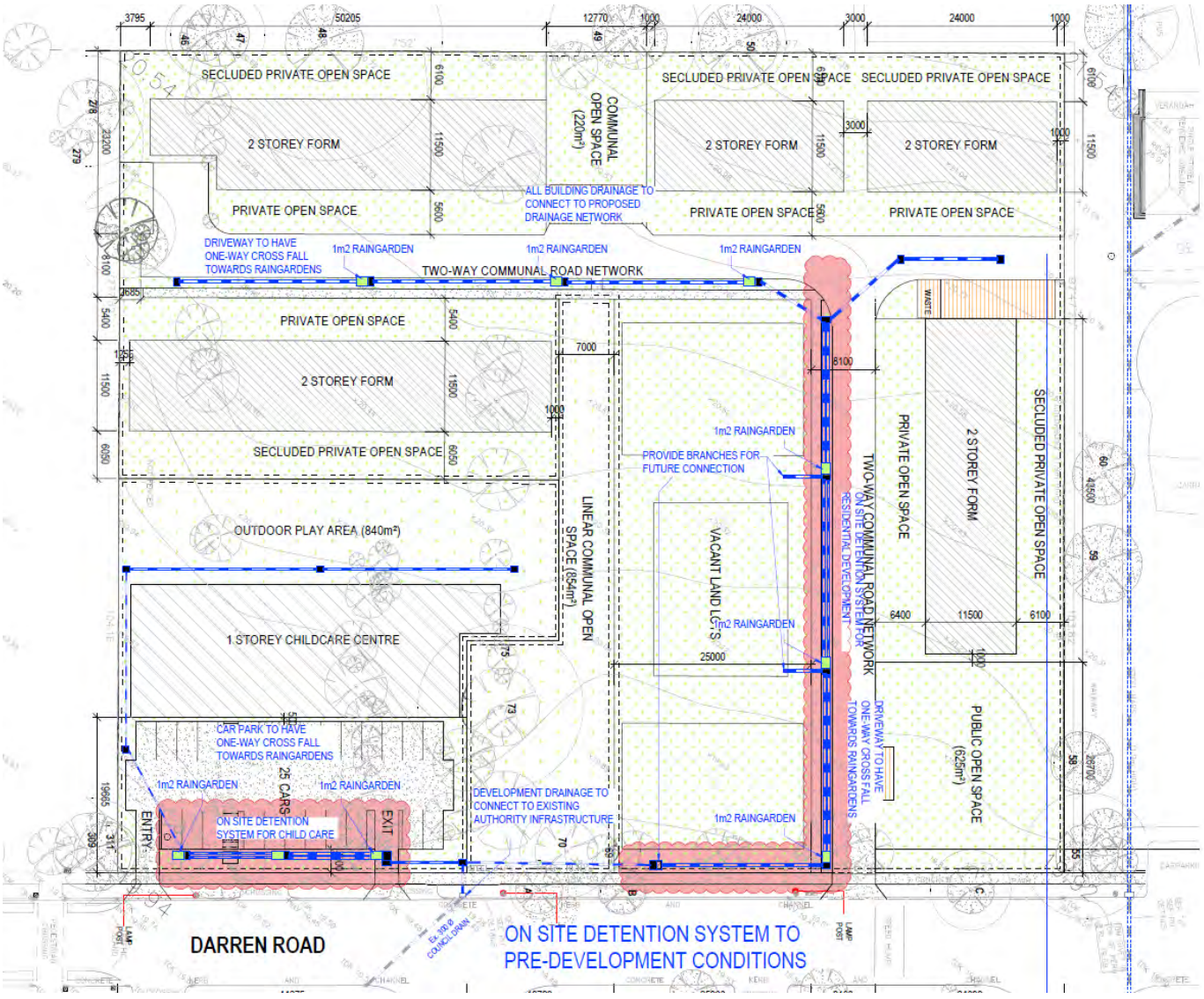


Figure 3.0 Residential Development drainage layout

A similar concept is applied to the carpark of the Childcare Center. Where a one-way cross fall graded towards the soft landscaping will be treated via raingardens into the Onsite Detention System as shown in the red clouded section in figure 4.0. The major storm events will bypass the raingardens on to Darren Road.

Refer to appendix E for details.

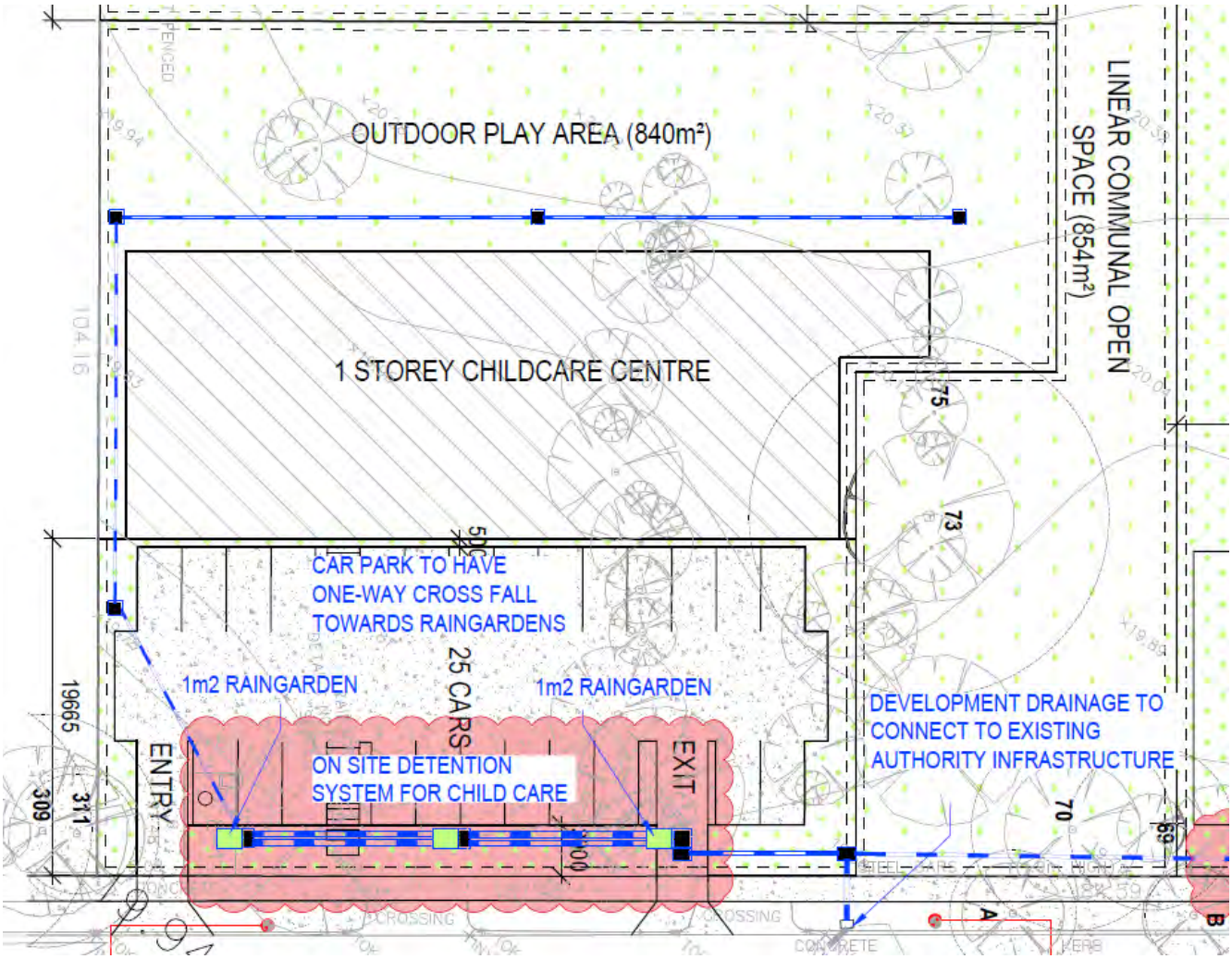


Figure 4.0 Childcare Center drainage layout

Site Management

The following is intended to inform the site management plan in matters relating to stormwater management. Relevant principles per the EPA Environmental Guidelines for Major Construction Sites[1], and measures as per Urban Stormwater Best Practice Environmental Management Guidelines[2] Section 6.3 are shown below.

The site management plan should restrict runoff to adjoining properties and ensure minimal earth disturbance occurs during construction. Additionally, building waste, dangerous chemicals and food waste must be managed to prevent damage to flora and fauna, or build up or blockage in drains and nearby creeks.

Item	Associated Issue	Measure
Fences	Porous fences allow stormwater runoff to carry sediment across the site and discharge into the stormwater network.	Mesh fabric and silt fences to be installed on fences where site includes slopes greater than 1:20. Hay bales may also be suitable for larger sites.
Pit inlets	Without sediment filters, pit inlets allow sediment to enter the stormwater network causing sediment build-up downstream.	Sediment traps or drain filters should be installed on all pit inlets.
Downpipes	Localised flooding due to lack of site drainage.	Temporary downpipes to be installed as soon as roofing is installed to minimise overland flow across the site (see plastic tube roll image below). These should be connected to the rainwater tank where possible.
Vehicle traffic on site	Areas of vehicle traffic are subject to disturbance of soil.	Use stabilised vehicle entrances, with crushed rock or other suitable material. Include rumble grates, track mats (where access is over sand), and physically remove mud from tyres of vehicles prior to leaving the site.
Mounded earth	Unsecured mounds create significant issues with sedimentation after rainfall.	Use erosion control blankets for mounded earth. Ensure correct installation and incorporate secondary measures such as silt fences on steep sites.
Bins	Where suitable bins are not provided, litter can be washed from the site.	Ensure appropriate bins are provided for construction workers and staff, particularly where food is consumed.

Waste material	Pollution of stormwater can occur where appropriate disposal methods for waste materials are not established on site.	Provide separate bins for paints and solvents to allow safe removal and disposal at accredited locations. Ensure all staff are aware of correct disposal methods.
Stockpiles	Incorrect stockpiling can lead to stormwater contamination, and site pollution.	Locate stockpiles away from drainage paths, and construct stockpiles with gentle slopes (max 1:2).

In addition, the contractor will be required to:

- **Identify and document,** prior to construction commencing, where these measures will be installed, and how erosion and loose waste will be managed.
- **Install tarps on site waste bins** every night.
- **Avoid overfilling vehicles** or cover all soil loads being taken offsite.
- **Sweep up the site** every day when works occur on site to ensure loose waste does not blow around the site and into the surrounding streets.
- **Ensure erosion and sediment control measures are maintained** through weekly checks – maintenance measures may include removing sediment trapped in filters and topping up gravel on the vehicle entry path.

1 *EPA Environmental Guidelines for Major Construction Sites, Victorian Environmental Protection Authority 1996* http://www.epa.vic.gov.au/~/media/Publications/480.pdf

2 *Urban Stormwater: Best Practice Environmental Management Guidelines*, CSIRO, 1999, http://www.publish.csiro.au/pid/2190.htm

Maintenance Plan

The following maintenance schedule is to be used as a guide for rainwater tank maintenance. It is based on average maintenance requirements for rainwater tanks in Victoria, and timings may need to be adjusted to suit specific site assets. Regular inspections should be undertaken every three months. Inspection and maintenance of all rainwater tanks will be the responsibility of the owner's corporation.
Refer to the Melbourne Water WSUD Maintenance Guidelines for further details.
For all WSUD requirements and reports please refer to the SMP report.

Item	What to check for	Action	Frequency
Tank inlet	Tank inlet is not blocked by accumulated debris	Physically remove debris build up	1-3 months
First flush device and filters	First flush device and filters are not blocked, and flow is not limited by litter or sediment accumulation	Physically remove litter and sediment from first flush device, or if it contains a flush-out valve, use water to remove sediment.	1-3 months
Tank outlet	Tank outlet is not restricted by sediment.	Flush tank as required.	1-3 months
Mosquito screens	Mosquito screens are not torn or loose	Replace mosquito screens if necessary. Put screens back carefully, ensuring they are tightly refitted.	1-3 months
Pumps	Water around pump equipment. Water pressure.	Replace seals where leaks are noted. Clean pumps as required to maintain pump pressure. Refer to pump manufacturer's maintenance requirements.	1-3 months
Roof and gutters	Accumulated debris in gutters. Discolouration of tank water, or notable odours.	Physically remove accumulated debris, including leaf and other plant material. More regular maintenance may be required where there are overhanging trees.	3-6 months
Overhanging trees	Vegetation overhanging roof and gutters	Prune overhanging trees where possible to reduce vegetation build up and chance of blockages in tank network.	3-6 months
Tank	Tank defects or damage. Sediment and sludge build up in tank, or sulphide/rotten egg odours.	Replace defect or damaged tank as necessary. Remove accumulated sediment and sludge from tank. Clean tank if required.	2-3 years

Raingardens

The following maintenance schedule is to be used as a guide for raingarden maintenance. It is based on average maintenance requirements for raingardens in Victoria, and timings may need to be adjusted to suit specific site assets. Regular inspections should be undertaken every three months. Inspection and maintenance of all raingardens will be the responsibility of the owner's corporation. Refer to the Melbourne Water WSUD Maintenance Guidelines for further details[3].

Item	What to check for	Action	Frequency
Inlet	No evidence of erosion, blockage, damage or standing water.	Clear inlet of accumulated sediment or debris. Eroded areas should be locally re-profiled or reinforced, and re-planted if necessary. Refer to Water By Design (2012) *Rectifying Vegetated Stormwater Treatment Assets* if the erosion is either recurring or severe.	Storm events 3 months
Outlet	No evidence of erosion, blockage, damage or standing water. Outlet freely draining.	Clear outlet of accumulated sediment or debris. Refer to Water by Design (2012) *Rectifying Vegetated Stormwater Treatment Assets* if standing (backwatering into the raingarden) is present.	Storm events 3 months
Other structures	No evidence of erosion and damage to other structures, e.g. pits, pipes, access ramps, walls and rock protection.	Repair minor damage to structures. Eroded areas should be repaired (reinforced). This may involve minor re-profiling or re-planting works. For severe damage, i.e. where flows have scoured down the side of a structure refer to Water by Design (2012) *Rectifying Vegetated Stormwater Treatment Assets.*	3 months
Hydraulic conductivity	Filter media is draining freely. No water ponded on the surface of the raingarden for more than 12 hours after rainfall.	If water is ponded on the surface of the raingarden for more than 12 hours after rainfall, refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets. Note: the disposal of raingarden filter material must comply with EPA Victoria guidelines for the disposal of contaminated soil.	Storm events

Sediment accumulation	No major sediment accumulation on surface of the raingarden.	Accumulated sediment to be removed from the surface of the raingarden and the system replanted as required.	Annually
Filter media surface	No surface scour, depressions	Filter surface to be repaired. This may involve evening out the surface, importing additional filter media and replanting.	3 months
Fine sediment surface crust	No impermeable or clayey surface on the filter media. No major surface crusting (<3mm depth across less than 10% of the filter area is permissible).	Repair surface layer by scarify filter media surface, re-profiling and re-establishing vegetation, if required. If the problem persists refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets.	3 months
Mulch layer	Even depth and distribution of the mulch layer. Surface of the mulch layer is at least 100mm below the top of the outflow pit. Much is not touching the plant stems.	Re-distribute or replace mulch that has been washed out or displaced. This may involve retaining mulch using jute mats or nets. Remove mulch that is touching plant stems.	3 months
Algal or moss growth	No major algal growth (less than 10% of the raingarden area is permissible). No moss growth.	If significant patches of algal growth or moss persist across the surface of the raingarden (i.e. greater than 10% of the surface) then refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets.	3 months
Inspection opening	Water level is below filter media layer. No sediment accumulation in underdrain system.	Refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets if standing water is present in the filter media layer. Flush the underdrain system using low pressure water to remove accumulated sediment.	Annually

Vegetation cover - filter media	Greater than 90% vegetation cover. Plants healthy, free from disease and vigorously growing.	Remove any dead or diseased vegetation. Replant individual bare patches (greater than 5% of the area) using either new plants or by dividing and translocating existing plants.	3 months
Weeds - filter media	Less than 10% of the filter media surface area and batters covered in weeds.	Physically remove weeds from filter media surface. Do not use herbicides as these may harm the raingarden vegetation and contaminate the filter media. Refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets if weed ingress is a persistent problem (i.e. weed coverage is persistently greater than 30%).	3 months
Litter	Filter media surface free of litter (i.e. less than 1 piece of litter per 4m2).	Remove all litter and excessive debris.	3 months
Pests	No damage by pest animals and insects.	Seek specialist advice if persistent insect damage is observed. Refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets if there is evidence of pest animal damage.	3 months

[3] *WSUD maintenance guidelines: Inspection and maintenance activities,* Melbourne Water Corporation, 2013, http://www.melbournewater.com.au/Planning-and-building/Forms-guidelines-and-standard- drawings/Documents/WSUD-Maintenance-Inspection-and-maintenance-activity-guidelines.pdf

Appendix A - Policy Objectives

For information only, the objectives of the stormwater management policy are shown below:

To achieve the best practice water quality performance objectives set out in the Urban Stormwater Best Practice Environmental Management Guidelines (BPEMG), CSIRO 1999 (or as amended). The BPEMG objectives are outlined in the following table:

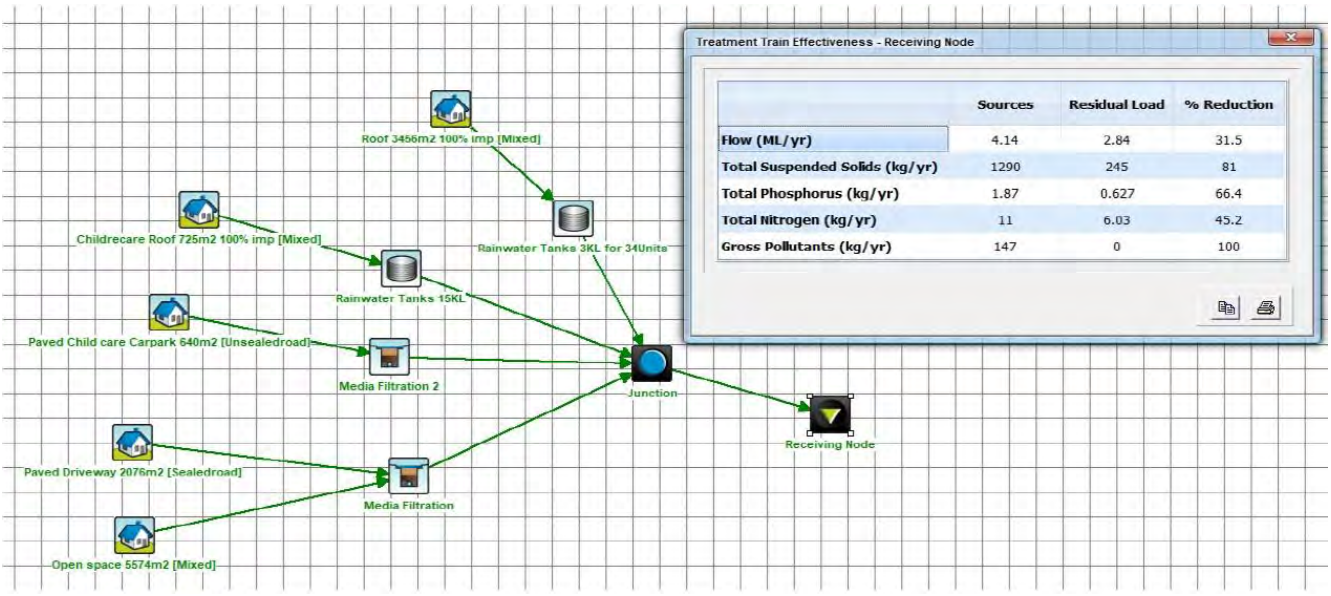
Pollutant	Required Removal Rate from Typical Urban Load
Total Suspended Solids (TSS)	80%
Total Phosphorus (TP)	45%
Total Nitrogen (TN)	45%
Gross Pollutants (GP)	70%

Table 2.0 - BPEMG Objectives

To promote the use of water sensitive urban design, including stormwater re-use.
To mitigate the detrimental effect of development on downstream waterways, by the application of best-practice stormwater management through water sensitive urban design for new development.
To minimize peak stormwater flows and stormwater pollutants to improve the health of water bodies including creeks, rivers and bays.

Appendix B - MUSIC output and Findings

Figure 2.0 subject site and catchment areas.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	4.14	2.84	31.5
Total Suspended Solids (kg/yr)	1290	245	81
Total Phosphorus (kg/yr)	1.87	0.627	66.4
Total Nitrogen (kg/yr)	11	6.03	45.2
Gross Pollutants (kg/yr)	147	0	100

Figure 2.0 MUSIC treatment train

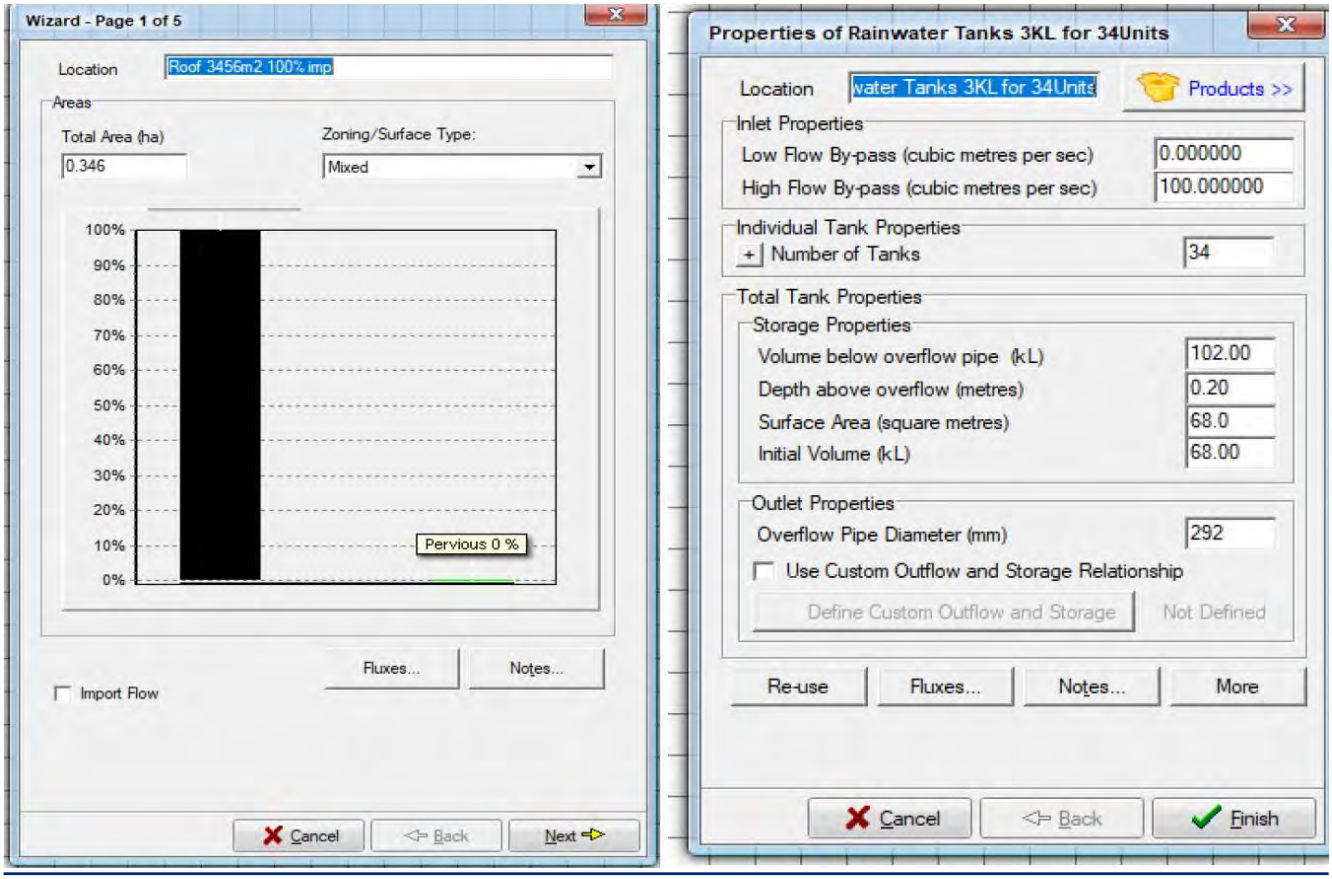


Figure 2.1 MUSIC treatment for 34 units

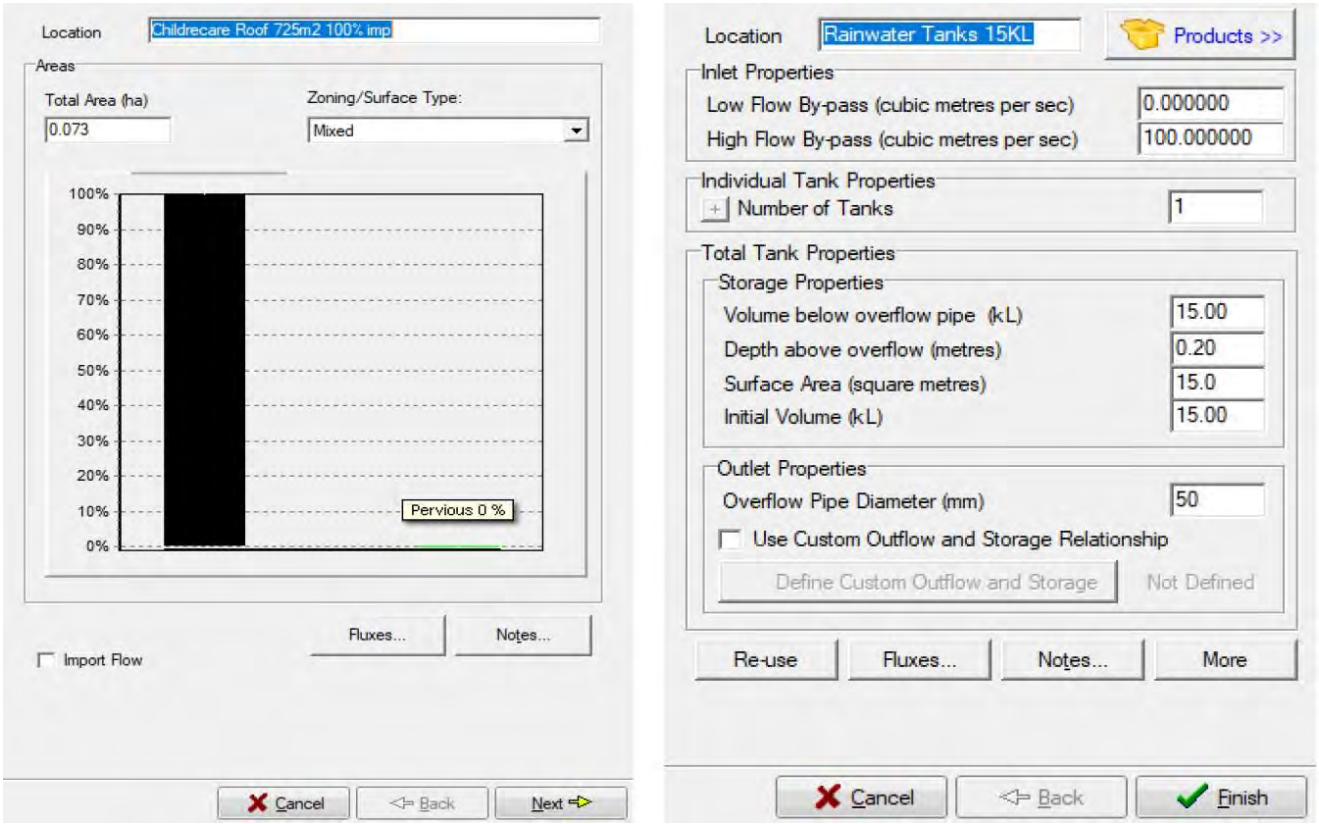


Figure 2.2 MUSIC treatment for Childcare Centre

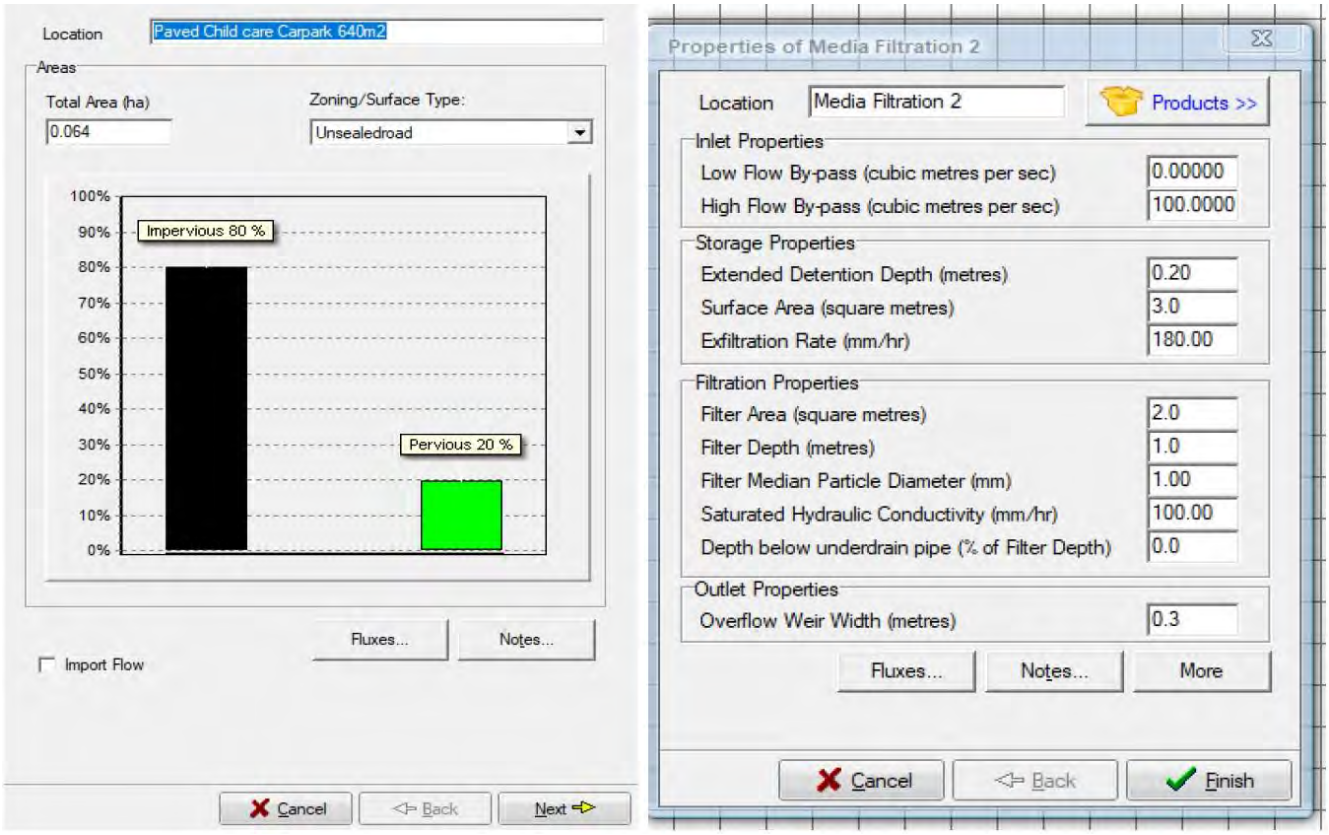


Figure 2.3 MUSIC treatment for Childcare Carpark

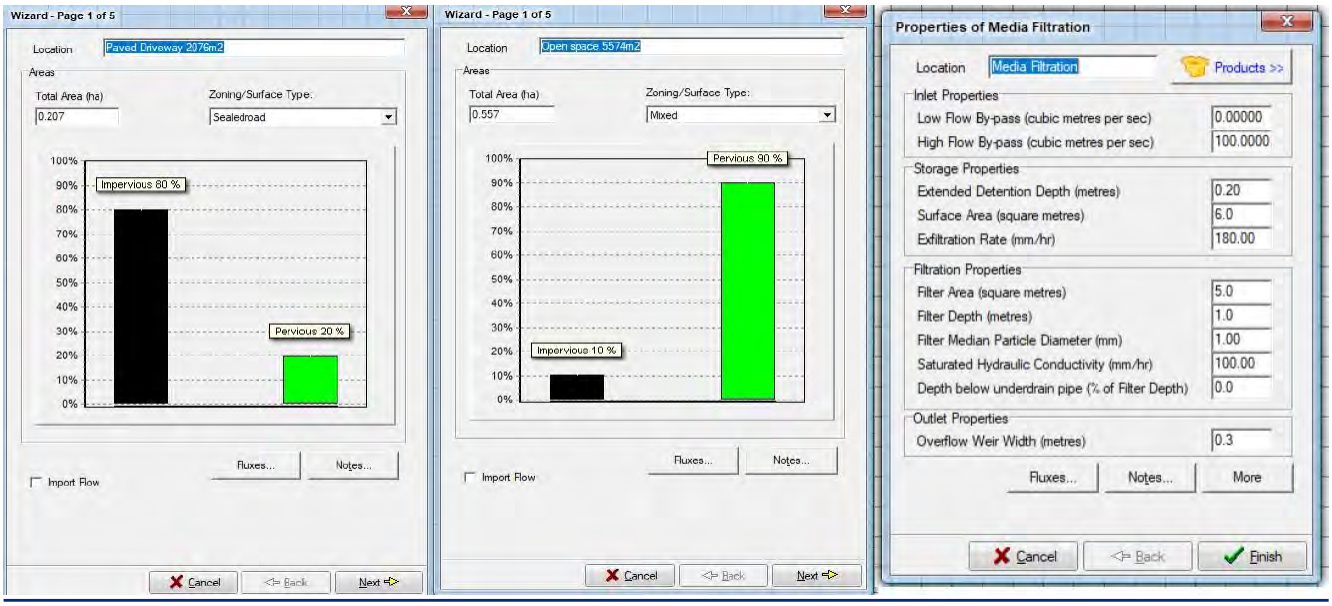


Figure 2.4 MUSIC treatment for Driveway and Open space

Appendix C - Storm water treatment details - Rainwater Tanks

Rainwater Harvesting

Rainwater tanks collect stormwater run-off from impervious surfaces such as roofs, reducing the amount that enters our waterways. They are fitted with an overflow mechanism, meaning that once a tank is full the excess water is redirected into the stormwater drainage system.

Rainwater tanks that are only used for watering gardens are much less efficient than tanks used for flushing toilets.

Advantages and Limitations

Advantages of rainwater tanks are that they:

- minimise water usage when used in the toilet, laundry or garden
- reduce strain on the stormwater drainage system
- retain water close to source
- reduce site run-off and flood peaks

Limitations of rainwater tanks are that they only provide benefits when the tank water is used frequently, creating space to capture more water each time it rains.

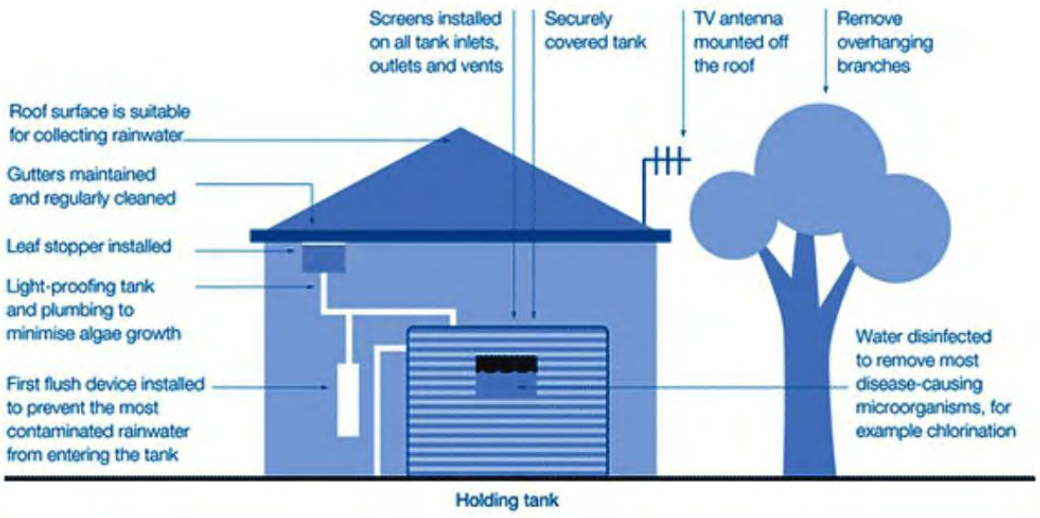


Figure 3.0 Components of Rainwater Tank system[4]

4 E*xtracted from WSUD storm water management,* Melbourne Water Corporation, 2013, https://www.melbournewater.com.au/planning-and-building/stormwater-management/options-treating-stormwater/rainwater-tanks

Rainwater Filtration

Rainwater Filtration requirements depend upon intended end-use. See the following table for required quality levels across typical end-uses:

	Required Quality			
End Use	Clear	Odourless	Low in dissolved solids	No human pathogens, toxins or heavy metals
Garden/lawn irrigation				
Toilet flushing	✓	✓		
Clothes washing	✓	✓		
Showering/bathing	✓	✓	✓	
Drinking	✓	✓	✓	✓

Table 3 - Required Rainwater Quality for Different End Uses [5]

	Filter		
Fixture/ Use	Tannin filter (if tannins from overhanging trees expected)	Sediment filter (eg. 20 micron)	Sub 1 micron absolute filter
Irrigation and outdoor			
Hot water system	✓		
Toilet cistern/washing machine	✓		
Drinking water outlets (cold)	✓	✓	✓

Table 4 - Required Rainwater Filtration for Different End Uses [5]

Further considerations:

- The simplest tank system is where downpipes can flow directly into the top of a water tank as shown above. Where a number of downpipes from around the building are collecting water for the same tank that is not underground, a charged pipe system might be required, where by water sits in the downpipes to the level of the top of the tank. When more water enters the downpipes, the existing water in the pipes will enter the tank as the water level stays balanced.
- Rainwater tank systems may either be wet (charged) or dry. Charged systems are systems where the pipes from the gutter go down the wall and underground, then up into the tank. They are 'wet' because the size of buildings and/or the placement of tanks away from buildings mean that there are long runs of pipe underground which remain full of water. Dry systems are systems where the pipe network is designed to run direct from the gutter into the tank. The pipes drain out after rain and do not hold water when rainfall stops.
- Charged tank systems should incorporate 1mm aperture **screens on all openings** to ensure pipes do not become breeding grounds for mosquitoes.
- A **first flush device** that diverts the initial most polluted 1-2 minutes of runoff from the roof into the garden should be incorporated in the system prior to the tank.

- **Connection to toilets** or other regularly used end-uses should ensure that tanks are run down regularly. This leaves spare capacity to collect new rainfall water and hence reduces the level of rain from the roofs going down the drains.
- **Tank to mains switches** which can divert water supply from tanks to mains need to be incorporated in any design, in the event that tanks empty or become near empty. Automated switch-over is ideal but having good access to switches in the event of failure of the automated switches is also a good design consideration.

5 **https://www.yourhome.gov.au/water/rainwater**

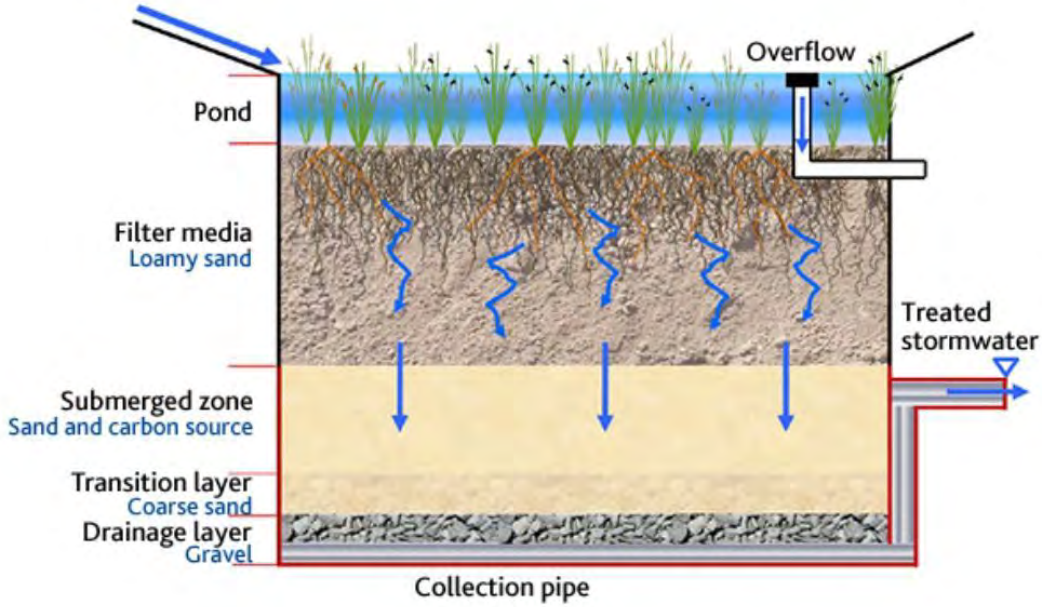
Appendix D – Raingardens

Raingardens are specially-designed garden beds that filter stormwater runoff from surrounding areas or stormwater pipes. Raingardens are also called bioretention systems because they use soil, plants and microbes to biologically treat stormwater.

How raingardens work

Although they may look similar to a normal garden, raingardens are designed to stop stormwater run-off from polluting our waterways with nutrients, rubbish and sediment:

1. Water collects and settles on the garden surface
2. Water soaks through the plants and filter media, trapping rubbish and sediment on the surface
3. Plants use the nutrients in the stormwater, and toxins stick to the soil
4. The soil and plant roots work together to naturally filter the water and remove pollutants



- Rectangle shapes are often the simplest and cheapest to construct.
- They should not be built too close to permanent structures, as filtration of water into surrounding soils may affect building foundations. Lining may be used if nearby infrastructure is sensitive to infiltration.
- Raingardens require layers of filter media and plants above a slotted pipe connected to the stormwater mains or stormwater outfall. An overflow pipe should also be located nearby should the raingarden clog up and/or be inundated beyond design capacity. A heavy mulch or gauze type matting over the top of the ground is also useful to reduce erosion of surface layers during high rainfall events.
- The plants and filter media should physically, chemically and biologically remove pollutants from the water. The filter media may include scoria, screenings or loamy sand. Water takes longer to infiltrate in clay soils than sandy soils.
- Mulch can be used as an additional layer to the raingarden as a weed control system. However unwashed gravel mulch can clog pipes so it should be avoided.

Extracted from WSUD storm water management, Melbourne Water Corporation, 2013, https://www.melbournewater.com.au/planning-and-building/stormwater-management/options-treating-stormwater/raingardens

Plant Selection

Plant selection This should be guided by expert opinion, based on the particular project conditions. The plant species that are commonly used in raingardens can be grouped into three general categories:

Category	Example plant species
Tolerant of both wet and dry conditions once established	Carex appressa (tall sedge)
Tolerant of dry conditions once established	Ficinia nodosa Lomandra longifolia Juncus amibilis
Prefer more constant conditions without wet/dry extremes	Goodenia ovate Juncus flavidis

Note: Other plant species may be appropriate for a particular system and these should be guided by expert opinion.

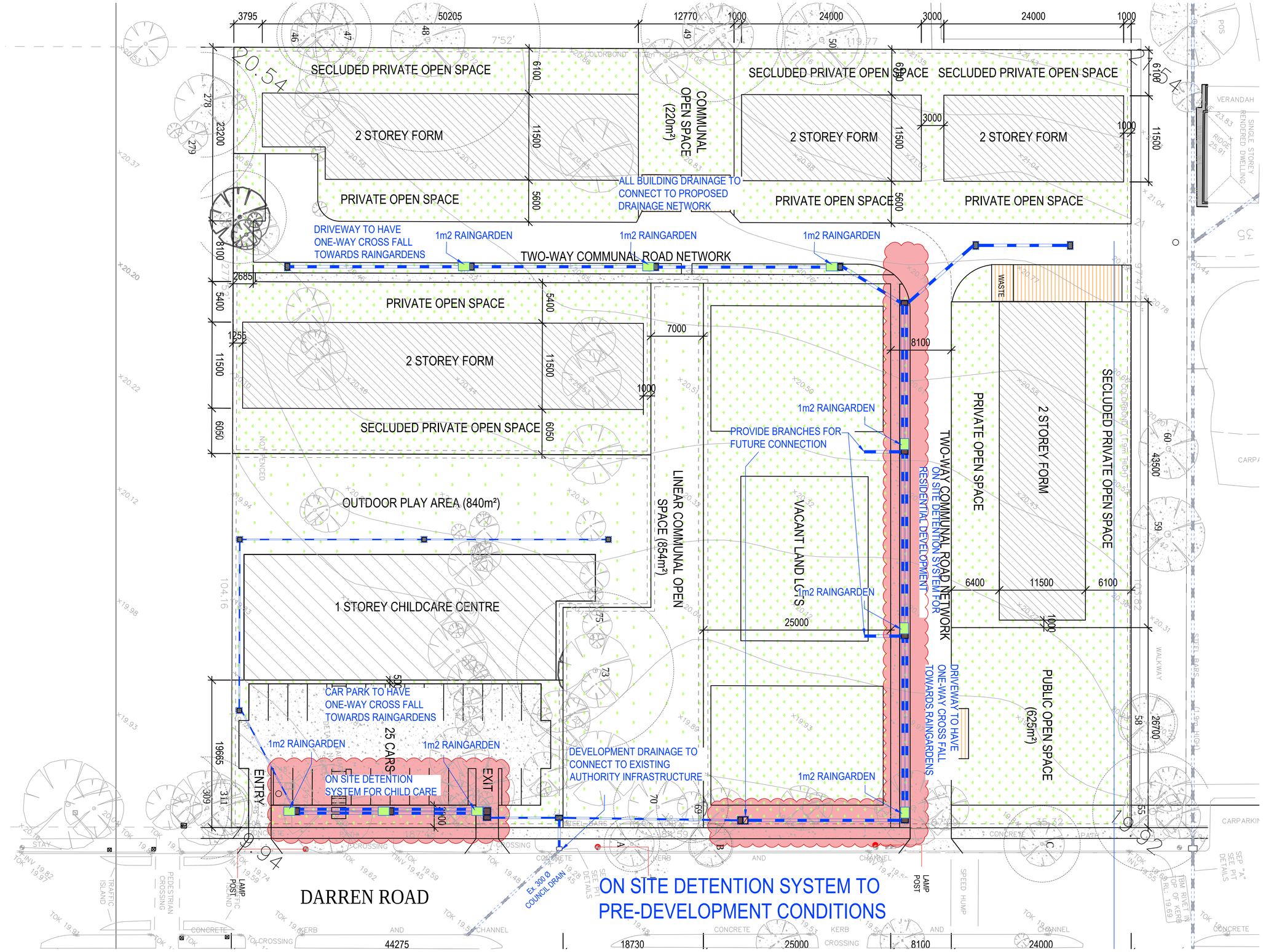
At least 50% of the plants chosen for a bioretention system should have the following characteristics for effective nutrient removal (FAWB, 2009):

- high root density
- extensive fibrous root systems (no bulbs)
- vigorous growth
- tolerant of freely draining soils
- drought and inundation tolerant

Extracted from WSUD storm water management, Melbourne Water Corporation, 2013, https://www.melbournewater.com.au/planning-and-building/stormwater-management/options-treating-stormwater/raingardens

Appendix E - Drainage network

Extracted from WSUD storm water management, Melbourne Water Corporation, 2013, https://www.melbournewater.com.au/planning-and-building/stormwater-management/options-treating-stormwater/raingardens



REV	DATE	DESCRIPTION	BY
A	17/01/2022	SCHEMATIC DRAINAGE	WD

AMENDMENTS

Client:

Architect:

EQUILIBRIUM ENGINEERING
CIVIL & STRUCTURAL CONSULTANTS
W:EQENG.COM.AU
M: 0421 900 119
E: WDU@EQENG.COM.AU

Drawn By:	WD
Designed By:	WD
Checked By:	WD
Date:	JAN 2022
Scale @ A3:	1:250

Project:

MIXED DEVELOPMENT

46-62 DARREN ROAD,
SPRINGVALE SOUTH

Drawing Title:

SCHEMATIC DRAINAGE PLAN

Project No.:	Drawing No.:	Revision
20067	C02	A

Leigh Design

waste management plans for all urban developments

Leigh Design Pty Ltd
ABN 37 139 522 437
PO Box 115
Carnegie VIC 3163

P +61 3 8516 5399
E leo@leighdesign.com.au
I www.leighdesign.com.au

Waste Management Plan

Proposed Development:

46-62 Darren Road, Springvale South, Victoria

Prepared for:

46 Darren Pty Ltd

Document Control

Report Date: 31 March 2021 (supersedes all prior reports)

Prepared By: Leonardo Russi, BEng (Mech), MEng (Env)

TABLE OF CONTENTS

WASTE MANAGEMENT SUMMARY

- The Operator, as defined below, shall be responsible for managing the waste system and for developing and implementing adequate safe operating procedures.
- Waste shall be stored within the development (hidden from external view).
- Users shall sort their waste and dispose garbage and recyclables directly into their respective collection bins.
- Waste shall be collected within the development.
- A private contractor shall provide waste collection services.

GLOSSARY

Operator: refers to the Owners Corporation and Facility Management, who shall manage site operations (via cleaners, staff and contractors, if required).

User: refers to residents and facility staff, who shall utilise the waste system.

1 SPACE AND SYSTEM FOR WASTE MANAGEMENT

1.1 Development Description and Use

This development shall consist of residential townhouses and a Childcare Centre (refer to Table 1).

1.2 Estimated Garbage and Recycling Generation

The following table summarises the waste estimate (m^3/week):

Table 1: Waste Estimate

Waste Source	Base Qty (est.)	Garbage	Commingled Recycling
Townhouses	No. of units = 28	3.92	3.36
Childcare	Build. area (m^2) = 770	2.70	0.92
TOTAL (m^3/wk)		**6.62**	**4.28**

Notes:
- Residential waste figures are based on Council's requirements.
- Commercial waste figures are based on adjusted Sustainability Victoria Guidelines and on information from similar facilities.

1.3 Collection Services

Residential Waste: It is understood that the development's internal roads do not suit Council's kerbside collection strategy. Therefore, a private contractor shall be required to collect waste.

Commercial Waste: Based on the anticipated waste volume, a private contractor shall be required to collect waste.

For both residential and commercial waste, the Operator shall choose a waste collection provider, negotiate a service agreement, and pay for these services.

1.4 Location, Equipment, and System Used for Managing Waste

The waste management system is summarised as follows:

- Dwelling receptacles for garbage and recycling.
- Tenancy receptacles at internal areas.
- Childcare Bin Store located at Ground Level (to future fit-out detail).
- Collection bins (kept within the above Bin Store and within the garage of each dwelling - refer to Table 2).

The various collection waste-streams are summarised as follows:

Garbage: General waste shall be placed in tied plastic bags and stored within bins. However, if organics separation is required in future, dedicated organics bins shall be provided.

Recycling: All recyclables shall be commingled into a single type of collection bin (for loose paper, cardboard, glass, aluminium, steel, and plastics). However, if glass separation is required in future, dedicated glass bins shall be provided.

Green Waste: Garden organics shall be collected and disposed by the future landscape maintenance contractor.

Compost: At this development, composting is considered impractical, as there would be minimal onsite demand for compost. However, residents shall consider composting within private courtyards at Ground Level.

Other Waste Streams: The disposal of hard/electronic/liquid and other wastes (polystyrene, batteries, paint, chemicals and detox items, etc) shall be organised with the assistance of the Operator.

The following table summarises bin quantity/capacity, collection frequency, and area requirements (based on Table 1):

Table 2: Bin Schedule and Collection Frequency

Waste Source	Waste Stream	Bin Qty	Bin Litres	Collections per Week	Net Area m^2
Townhouses (dedicated bins)	Garbage	28	140	1	$1m^2$ per dwelling
	Comm. Recyc.	28	240	Fortnightly	
Commercial (shared bins)	Garbage	2	660	2	2.4
	Recycling	1	660	2	1.2
	Hard/Other Waste	-	-	At Call	2.0
Net Waste Storage Area (excludes circulation), m^2:					**33.6**

Notes:

- The Operator shall organise hard/other waste collections (as required). For residences, these wastes shall remain within each dwelling between collections.
- Private bins shall be sourced by the Operator (either purchased from a supplier or leased from the collection contractor).
- Subject to stakeholders' preference/capability (and as built constraints), bin sizes and quantities can be changed. Also, recyclables can be either commingled or split into bins for separate recycling streams.

1.5 Planning Drawings, Waste Areas, and Management of the Waste System

The plans shall illustrate sufficient space for onsite bin storage, as required by the above schedule.

Notwithstanding the above, collection days shall be staged appropriately and the Operator shall stipulate procedures for effective management of the available space.

1.6 Collection Bin Information

The following bins shall be utilised (see Sect. 4.4 for signage requirements):

Table 3: Bin Details

Capacity (litres)	Height (mm)	Width (across front, mm)	Depth (side on, mm)	Empty Weight (kg)	Average* Gross Weight (kg)
140	930	535	615	11	30
240	1060	585	730	13	45
660	1250	1240	780	43	130

Notes:

- * = Average Gross Weight is based on domestic waste studies (which vary subject to locality and waste-type). Expect greater weight for wet or compacted waste.
- Use the above details as a guide only – variations will occur. The above is based on Sulo plastic (HDPE) flat-lid bins.

Table 4: Dandenong Colour Coding

Bin	Garbage	Commingled Recycling	Green Waste
Lid	Red	Yellow	Lime
Body	Black	Black	Black

Note: For private bins, AS4123.7 bin colours can be adopted. Private bins shall be labelled to identify the waste generator and site address.

2 ACCESS FOR USERS, COLLECTORS, AND COLLECTION VEHICLES

2.1 User Access to Waste Facilities

Residents shall dispose sorted garbage and recyclables into designated collection bins located within their respective tenement.

Childcare staff shall dispose sorted waste into collection bins located within their Bin Store.

Note: If required, the Operator shall have access to the Bin Store to rotate the bins, ensuring that empty bins are available along the circulation area so that users are able to reach them.

2.2 Collection Arrangements and Access to Waste Facilities

Townhouses:

- Prior to the collection, residents shall place their bins outside their premises (bins shall await collection next to the garage of each dwelling, except in the case of units not facing the proposed Two-way Communal Road Network, in which case, bins shall be placed in a designated waste pickup area in the vicinity of such dwellings). Once collected, residents shall move the bins back into their premises (bins shall not be left-out more than a 24 hour period).
- A private contractor shall collect waste along the proposed Two-way Communal Road Network.
- The waste collection shall be carried-out by rear-lift vehicles (nom. 8.8m long and 4m operational height).

Childcare:

- A private contractor shall collect waste within the tenancy carpark.
- Collection staff (driver and assistant) shall have access to the Bin Store and transfer bins to the truck and back to the store.
- The waste collection shall be carried-out by rear-lift vehicles (nom. 6.4m long, 2.1m high, and 6.4 tonnes gross vehicle mass, needing a 2.3m height clearance when lifting 660L bins).

3 AMENITY, LOCAL ENVIRONMENT, AND FACILITY DESIGN

3.1 Noise Minimisation Initiatives

- Collection bins shall feature rubber wheels for quiet rolling during transfers.
- Waste areas shall meet BCA and AS2107 acoustic requirements.
- Local laws shall be observed for all operations in public and private areas.
- For private services, the hours of waste collections shall be as specified in Council's local laws. Also, Section 5 of the Victorian EPA Noise Control Guideline Publication 1254 (see below) shall be observed to protect the acoustic amenity of the development and surroundings.

Victorian EPA Noise Control Guideline Publication 1254 October 2008 (excerpt)

[Section] 5. Domestic [and Commercial] Refuse Collection

The main annoyance produced by domestic refuse collections occurs in the early morning (i.e. before 7:00am). Therefore, if possible, routes should be selected to provide the least impact on residential areas during that time.

Collection of refuse should be restricted to the following criteria:

- Collection occurring once a week should be restricted to the hours: 6am to 6pm Monday to Saturday.
- Collections occurring more than once a week should be restricted to the hours: 7am to 6pm Monday to Saturday.
- Compaction should only be carried out while on the move.
- Bottles should not be broken up at the point of collection.
- Routes which service entirely residential areas should be altered regularly to reduce early morning disturbance.
- Noisy verbal communication between operators should be avoided where possible.

3.2 Litter Reduction and Prevention of Stormwater Pollution

The Operator shall be responsible for:

- Promoting adequate waste disposal into the bins (to avoid waste-dumping).
- Securing the waste areas (whilst affording access to users/staff/contractors).
- Preventing overfilled bins, keeping lids closed and bungs leak-free.
- Abating any site litter and taking action to prevent dumping and/or unauthorised use of waste areas.
- Requiring the collection contractor to clean-up any spillage that might occur when clearing bins.

The above will minimise the dispersion of site litter and prevent stormwater pollution (thus avoiding impact to the local amenity and environment).

3.3 Ventilation, Washing, and Vermin-Prevention Arrangements

Townhouses:

- As bins shall be stored within garages, these areas shall be ventilated to reduce odour.
- Residents shall regularly clean their bin areas. Also, bin-lids shall be kept closed.
- The Operator shall engage a suitable contractor to wash bins in a mobile bin-wash vehicle.

Childcare:

Waste areas shall feature:

- Ventilation in accordance with Australian Standard AS1668.
- Impervious flooring (also, smooth, slip-resistant, and appropriately drained).
- A graded bin wash area, hosecock, hose, and a suitable floor-waste connected in accordance with relevant authority requirements (alternatively, the Operator shall engage a suitable contractor to wash bins in a mobile bin-wash vehicle). The bin and wash areas may overlap, as stored bins can be moved so that a bin can be washed.

The Operator shall regularly clean waste areas/equipment. Also, access doors and bin-lids shall be kept closed.

3.4 Design and Aesthetics of Waste Storage Areas and Equipment

Waste shall be placed within collection bins and stored in designated onsite areas (hidden from external view). Following waste collection activities, bins shall be returned to the storage areas as soon as practicable.

Waste facilities shall be constructed of durable materials and finishes, and maintained to ensure that the aesthetics of the development are not compromised. These facilities and associated passages shall be suitably illuminated (this provides comfort, safety, and security to users, staff, and contractors). Any access doors shall feature keyless opening from within.

The design and construction of waste facilities and equipment shall conform to the Building Code of Australia, Australian Standards, and local laws.

4 MANAGEMENT AND SUSTAINABILITY

4.1 Waste Sorting, Transfer, and Collection Responsibilities

Garbage shall be placed within tied plastic bags prior to transferring into the collection bins. For nappy disposal, sturdy plastic bags shall be used. Cardboard shall be flattened and recycling containers un-capped, drained, and rinsed prior to disposal into the appropriate bin. Bagged recycling is not permitted.

Refer to Section 2 for waste transfer requirements and collection arrangements.

4.2 Facility Management Provisions to Maintain & Improve the Waste System

The Operator shall manage site operations (refer to the glossary in page 2).

It shall be the responsibility of the Operator to maintain all waste areas and components, to the satisfaction of users, staff, and the relevant authority (users shall maintain their internal waste receptacles).

The Operator shall ensure that maintenance and upgrades are carried-out on the facility and components of the waste system. When required, the Operator shall engage an appropriate contractor to conduct services, replacements, or upgrades.

4.3 Arrangements for Protecting Waste Equipment from Theft and Vandalism

It shall be the responsibility of the Operator to protect the equipment from theft and vandalism. This shall include the following initiatives:

- Secure the waste areas.
- Label the bins according to property address.
- Waste shall be collected within the subject site.

4.4 Arrangements for Bins/Equipment Labelling and Ensuring Users and Staff are Aware of How to Use the Waste System Correctly

- The Operator shall provide appropriate signage for the bins. Signage is available at the following internet address: www.sustainability.vic.gov.au.
- The Operator shall publish/distribute “house rules” and educational material to:
  - Inform users/staff about the waste management system and the use/location of the associated equipment (provide the summary in page 2 of this report).
  - Improve facility management results (lessen equipment damage, reduce littering, and achieve cleanliness).
  - Advise users/staff to sort and recycle waste with care to reduce contamination of recyclables.

4.5 Sustainability and Waste Avoidance/Reuse/Reduction Initiatives

The *Environment Protection Act 1970* includes principles of environment protection and guidance for waste management decision making. Also, the *Sustainability Victoria Act 2005* established Sustainability Victoria as the statutory authority for delivering programs on integrated waste management and resource efficiency.

From a design perspective, the development shall support the acts by providing an adequate waste system with ability to sort waste.

The Operator shall promote the observance of the acts (where relevant and practicable) and encourage users and staff to participate in minimising the impact of waste on the environment. For improved sustainability, the Operator shall consider the following:

- Observe the waste hierarchy in the *Environment Protection Act 1970* (in order of preference): a) waste avoidance, b) reuse, c) recycle, d) recovery of energy, e) treatment, f) containment, and g) disposal.
- Peruse the Sustainability Victoria website: www.sustainability.vic.gov.au.
- Participate in Council and in-house programs for waste minimisation.
- Establish waste reduction and recycling targets; including periodic waste audits, keeping records, and monitoring of the quantity of recyclables found in landfill-bound bins (sharing results with users/staff).

4.6 Waste Management Plan Revisions

For any future appropriate Council request, changes in legal requirements, changes in the development's needs and/or waste patterns (waste composition, volume, or distribution), or to address unforeseen operational issues, the Operator shall be responsible for coordinating the necessary Waste Management Plan revisions, including (if required):

- A waste audit and new waste strategy.
- Revision of the waste system (bin size/quantity/streams/collection frequency).
- Re-education of users/staff.
- Revision of the services provided by the waste collector(s).
- Any necessary statutory approval(s).

5 SUPPLEMENTARY INFORMATION

- The Operator shall observe local laws and ensure that bins aren't overfilled or overloaded.
- Waste incineration devices are not permitted, and offsite waste treatment and disposal shall be carried-out in accordance with regulatory requirements.
- For bin traffic areas, either level surfaces (smooth and without steps) or gentle ramps are recommended, including a roll-over kerb or ramp. Should ramp gradients, bin weight, and/or distance affect the ease/safety of bin transfers, the Operator shall consider the use of a suitable tug.
- The Operator and waste collector shall observe all relevant OH&S legislation, regulations, and guidelines. The relevant entity shall define their tasks and:
  - Comply with Worksafe Victoria's Occupational Health and Safety Guidelines for the Collection, Transport and Unloading of Non-hazardous Waste and Recyclable Materials (June 2003).
  - Assess the Manual Handling Risk and prepare a Manual Handling Control Plan for waste and bin transfers (as per regulatory requirements and Victorian COP for Manual Handling).
  - Obtain and provide to staff/contractors equipment manuals, training, health and safety procedures, risk assessments, and adequate personal protective equipment (PPE) to control/minimise risks/hazards associated with all waste management activities. As a starting point, these documents and procedures shall address the following:

Task (to be confirmed)	Hazard (TBC)	Control Measures (TBC)
Sorting waste and cleaning the waste system	Bodily puncture. Biological & electrical hazards	Personal protective equipment (PPE). Develop a waste-sorting procedure
Bin manual handling	Sprain, strain, crush	PPE, staff training. Maintain bin wheel-hubs. Limit bin weight. Provide mechanical assistance to transfer bins
Bin transfers and emptying into truck	Vehicular strike, run-over	PPE. Develop a Hazard Control Plan for transfers and collections. Maintain visibility. Use a mechanical bin-tipper
Truck access (reversing & manoeuvring)	Vehicular incident, strike, run-over	PPE. Use a trained spotter. Develop a truck-manoeuvring and traffic-control procedure

Note: The above shall be confirmed by a qualified OH&S professional who shall also prepare site-specific assessments, procedures, and controls (refer to Section 6).

6 CONTACT INFORMATION

City of Greater Dandenong (local Council), ph 03 9239 5100

Urban Waste Pty Ltd (private waste collector), ph 0429 309 269

Kartaway (private waste collector), ph 1300 362 362

FJP Safety Advisors Pty Ltd (OH&S consultant), ph 03 9255 3660

Electrodrive Pty Ltd (tug & trailer supplier – for bin transfers), ph 1800 033 002

Sulo MGB Australia (bin supplier), ph 1300 364 388

One Stop Garbage Shop (bin supplier), ph 03 9338 1411

Note: The above includes a complimentary listing of contractors and equipment suppliers. The stakeholders shall not be obligated to procure goods/services from these companies. Leigh Design does not warrant (or make representations for) the goods/services provided by these suppliers.

7 LIMITATIONS

The purpose of this report is to document a Waste Management Plan, as part of a Planning Permit Application.

This report is based on the following conditions:

- Operational use of the development (excludes demolition/construction stages).
- Drawings and information supplied by the project architect.
- The figures presented in this report are estimates only. The actual amount of waste will depend on the development's occupancy rate and waste generation intensity, the user's disposition toward waste and recycling, and the Operator's approach to waste management. The Operator shall make adjustments, as required, based on actual waste volumes (if the actual waste volume is greater than estimated, then the number of bins and/or the number of collections per week shall be increased, STCA).
- This report shall not be used to determine/forecast operational costs, or to prepare feasibility studies, or to document operational/safety procedures.