Planning Report

2-4 The Esplanade, Inverloch

Glossop Quality System			
Author	**MM**	**Checked By**	**JG**
Date Issue	**June 2021**	**Revision Number**	

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1. Introduction

This planning report has been prepared at the request of the permit applicant, Forte Group Pty Ltd, to support a proposed retail and residential hotel[1] development at 2-4 The Esplanade, Inverloch ('the subject site').

The proposed development of a four-storey mixed use development which comprises two retail premises at ground floor level and 42 serviced apartments[2] (a mixture of studio, one and two bedroom units) above and a bar at roof top level.



Perspective Image (Source: Perspective 1)

[1] The proposal will comprise accommodation in the form of serviced apartments.

[2] Note that the rooms do not meet the planning scheme definition of 'apartments' at Clause 73.01. The rooms are described as serviced apartments because this is a more commonly used term to describe this form of accommodation.



Perspective Image (Source: Perspective 5)



Perspective Image (Source: Perspective 5)

1.1 Plans and Supporting Documentation

This report should be read in conjunction with the following:

- Architectural Plans, prepared by Cornetta Partners Architects, Revision A, dated 28 June 2021;
- Traffic Engineering Assessment, prepared by Traffix Group, dated June 2021;
- Waste Management Plan, prepared by Traffix Group, datedJune 2021;
- Arboricultural Assessment & Report, prepared by Treemap Arboriculture, dated June 2021;
- Arboricultural Inspection and Report, prepared by Arborzone, dated October 2020;
- Approved Cultural Heritage Management Plan, prepared by JEM Archaeology, dated 24 March 2020; and
- Coastal Hazard Vulnerability Assessment, prepared by Golder Associates dated 23 July 2020.
- Urban Context Report and Design Response prepared by Hansen Partnership dated June 2021.

Additionally, the following reports/ plans will be submitted under separate cover shortly:

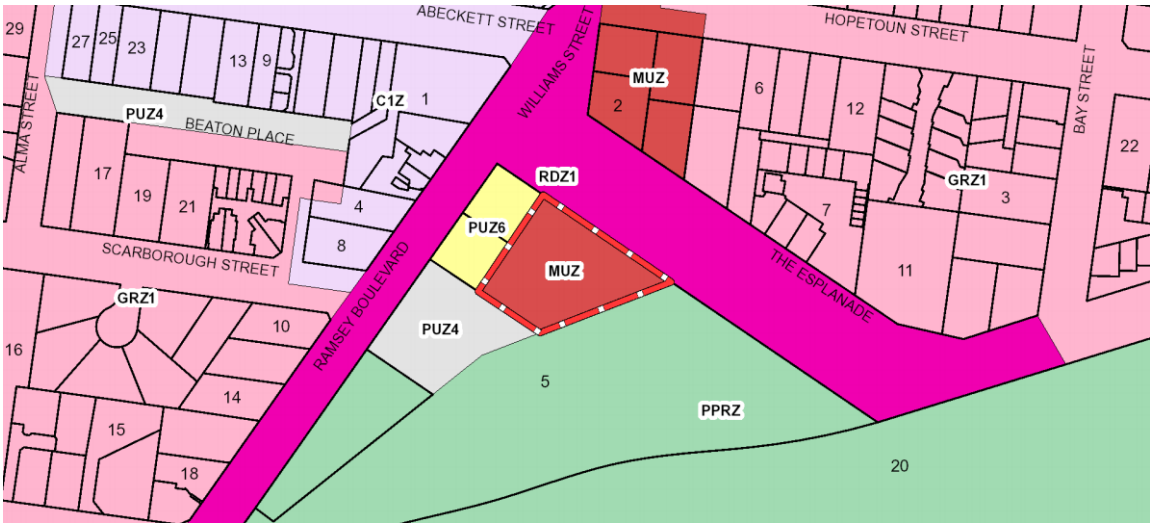
- ESD Report, prepared by Ark Resources; and
- Landscape Plan, prepared by Hansen Partnership.

1.2 The Bass Coast Planning Scheme ('the Scheme')

The subject site is zoned:

- Mixed Use Zone (MUZ).

  Relevantly, Schedule 1 to the MUZ does not contain any local variations, specific objectives to be achieved for the area and does not have a maximum building height or garden area requirement.

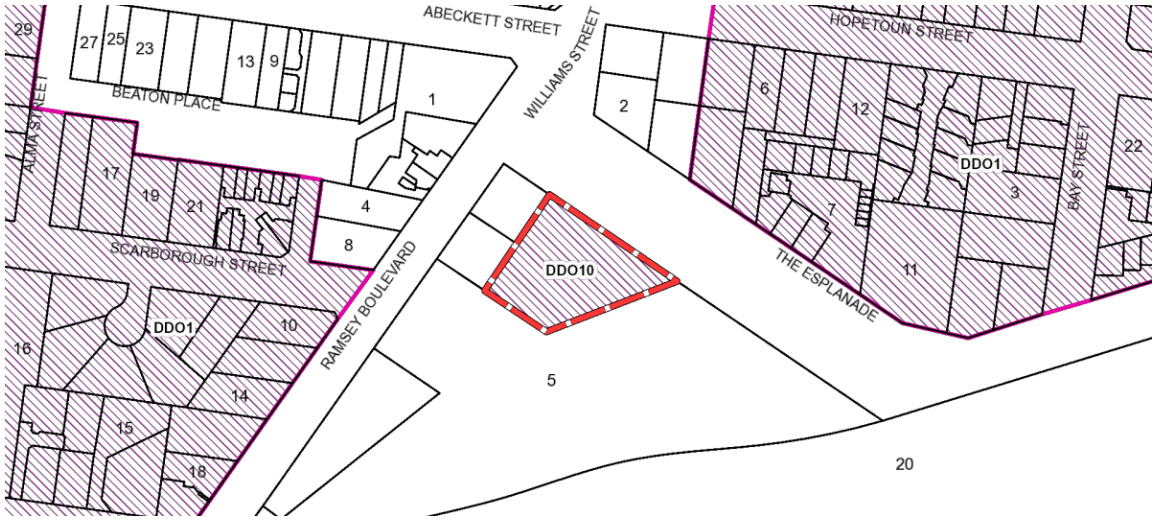


Zone overview of the subject site (source: Planning Property Reports)

The subject site is also within a:

- Design and Development Overlay – Schedule 10 (DDO10).

Relevantly, DDO10 is titled 'Inverloch Marine Site' and only relates to the subject site. Legal advice confirms the 9.5m building height and setbacks referred to in the schedule are discretionary.



Design and Development Overlay overview of the subject site (Source: Planning Property Reports)

The subject site is in an Area of Aboriginal Cultural Heritage Sensitivity. A Cultural Heritage Management Plan has been prepared and approved for the site.

The subject site is not within a Bushfire Prone Area.

1.3 Planning Permit Regulations

A planning permit is required pursuant to:

- Clause 32.04-2 (Mixed Use Zone) to use the land for a 'Retail premises'[3].
- Clause 32.04-2 (Mixed Use Zone) to use the land for 'Accommodation'[4].
- Clause 32.04-6 (Mixed Use Zone) to construct or extend a residential building. . A serviced apartment use fits within the planning scheme definition of 'residential hotel', which is nested under 'Residential building'. An application for a Residential building must meet the relevant objectives of Clause 55;
- Clause 32.04-9 (Mixed Use Zone) for buildings and works associated with a Section 2 use.

  Relevantly, there is no maximum building height requirement at Clause 32.04-11 (Mixed Use Zone).
- Clause 43.02-2 (Design and Development Overlay) to construct a building or carry out works.

  Relevantly, the 9.5m building height and setbacks referred to in the schedule are discretionary.

Additionally, pursuant to Clause 52 (Provisions that Require, Enable or Exempt a Permit) of the Scheme, the following permit requirements also apply:

- Clause 52.06 (Car Parking) – a permit is required to reduce the number of car parking spaces required for the commercial component of the development.
- Clause 52.27 (Licensed Premises), a permit is required to use the land to sell or consume liquor.
- Clause 52.29 (Land Adjacent to a Road Zone, Category 1, or a Public Acquisition Overlay for a Category 1 Road) – a permit is required to alter access to a road in a Road Zone, Category 1.

No planning permission is sought for the display of advertising signage.

1.3.1 Application Requirements

Pursuant to Clause 32.04-12 (Mixed Use Zone), the following information is required for buildings and works associated with a Section 2 land use:

- A site analysis and descriptive statement explaining how the proposal responds to the site and its context.

  Please refer to the Design Response prepared by Hachem and the Urban Context Report prepared by Hansen Partnership.
- Appropriately drawn and scaled plans.

  Please refer to the Architectural Plans prepared by Hachem and Cornetta Partners Architects.

[3] It is noted that 'Shop' is Section 1 land use subject to the leaseable floor area not exceeding 150 square metres.
[4] The proposed use of the land for a residential hotel is nested under the use of the land for accommodation.

Pursuant to Section 5.0 of Schedule 10 to Clause 43.02 (Design and Development Overlay), the following information is required:

- A landscape plan that shows:
    - The location, species and height of existing vegetation that is to be retained and/or removed.
    - How visual permeability of the site will be maintained and/or enhanced.
    - How the proposed development will be integrated with surrounding public open spaces.

  A Landscape Plan prepared by Hansen Partnership will be submitted under separate cover shortly.
- A Coastal Hazard Vulnerability Assessment

  Please refer to the Coastal Hazard Vulnerability Assessment prepared by Golder Associates.

Pursuant to Clause 52.06-7 (Car Parking), the following information is required:

- A Car Parking Demand Assessment.

  Please refer to the Traffic Engineering Assessment prepared by Traffix Group.

1.3.2 Decision Making Framework

Clause 71.02-3 (Integrated decision making) states:

> *Planning and responsible authorities should endeavour to integrate the range of planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However, in bushfire and affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.*

When considering the decision guidelines associated with the relevant planning permit requirements, the key planning considerations in this application are:

- Does the Municipal Planning Strategy and the Planning Policy Framework support the proposed development?
- Is the proposed land use acceptable and does the proposal provide for an acceptable urban design outcome having regard to the design objectives of DDO10?
- Does the proposal appropriately minimise off-site amenity impacts?
- Does the proposal satisfactorily address other relevant matters for consideration?

2. The Site and Surrounds

2.1 The Subject Site

The subject site is located at 2-4 The Esplanade, Inverloch. The Certificate of Title for the land describes it as Land in Plan of Consolidation 364310R[5].

The Certificate of Title indicates that the land is not burdened by any restrictive covenants, however, a 2.01 metre wide drainage easement runs along the rear (southern) boundary.

The subject site is irregular in shape with an area of approximately 2,522 square metres and a frontage to The Esplanade of 67.65 metres[6]. The land is generally flat.



Cadastral Map of 2-4 The Esplanade, Inverloch (Source: Land and Survey Spatial Information]

The site is currently developed with a part single/ part double storey building in the north-west portion of the site (built to the western boundary) and a shed in the south-east corner of the site. The areas to the south and east of the building are vacant, comprising part concrete hardstand and part gravel. These areas are clear of vegetation. The eastern part of the site is used to display boats. Vehicle access is provided via an existing service lane on The Esplanade. The site is currently used for boat sales and a dwelling.

[5] Vol. 10694 Fol. 704
[6] Measurements taken from the Certificate of Title.



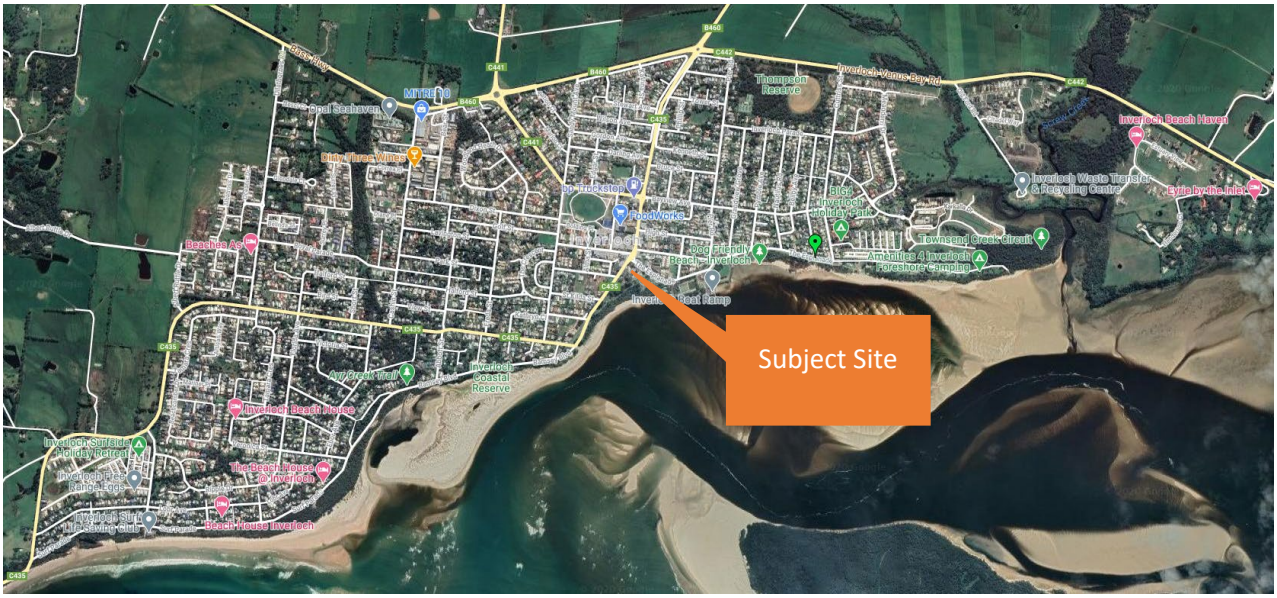
Aerial overview of 2-4 The Esplanade, Inverloch (Source: Nearmap photograph obtained 29 June 2021)



View of subject site from The Esplanade service lane.

2.2 Surrounding Area

The subject site is located at the centre of the established township area of Inverloch. It is one property east of the main vehicle route through the town, Ramsey Boulevard which turns into Williams Street. It is opposite the main commercial area, which also extends along Abeckett Street.



Aerial overview of surrounding area (Source: Nearmap photograph taken on 1 January 2005)

The characteristics of the subject site are unique. It is the only private land located along the foreshore. In some respects, it can be described as an island site with the following abuttals:

- The Esplanade and the associated service lane, on-street parking, medium strip with established vegetation and a bus stop to the north.



- Council land to the west, at 1-3 Ramsey Boulevard containing a single storey building on the corner (occupied by the South Gippsland Conservation Society) and a public car park.





- Public park land at 5 Ramsey Boulevard (Wyeth-McNamara Park) and the Inverloch Foreshore Reserve (Inverloch Glade) to the south and east.





3. Planning Assessment

3.1 Does the Municipal Planning Strategy and the Planning Policy Framework support the proposed development?

The subject site represents a unique location befitting a unique development outcome.

At a broader settlement level through Clause 11.01-1R 'Settlement – Gippsland', the Gippsland Regional Growth Plan identifies Inverloch as its own township which is part of the broader sub-regional network centred on Wonthaggi. Inverloch is identified as a township within which growth is supported.



Extract of Gippsland Regional Growth Plan as shown at Clause 11.01-1R

While Clause 11 more broadly provides general direction about the level of growth which would typically be expected (e.g. higher density development in activity centres through Clause 11.03-1S), the Local Planning Policy Framework provides more direct guidance.

At Clause 21.02 'Settlement', Inverloch is described as:

> *Town: A settlement with moderate population levels and seasonal fluctuations. Access to basic services. Sewer connections vary. Moderate to high levels of holiday home ownership in settlements closer to Melbourne or regional centres*

The 'expansion and infill capacity' for Inverloch is described as:

- *Low spatial growth capacity.*
- *Encourage growth within existing urban or appropriately zoned land, primarily through infill capacity and defined settlement boundaries.*

This is somewhat contradictory to the Strategic Directions Framework Plan shown at this Clause, which indicates that Inverloch has 'moderate spatial growth capacity', but in the context of this application as the subject site is within the defined township.

Clause 21.03 (Economic Development) recognises that tourism is a major contributor to **the local, regional** and State economies. Inverloch is identified as a business centre which provides retailing and community facilities for the local and wider population.

Clause 21.03-4 (Tourism) provides specific local policy guidance. Tourism is the pillar of the Bass Coast economy. Tourism is estimated to generate around $620 million in direct expenditure and over $1 billion in value added expenditure, and supports about 1,400 jobs annually[7].

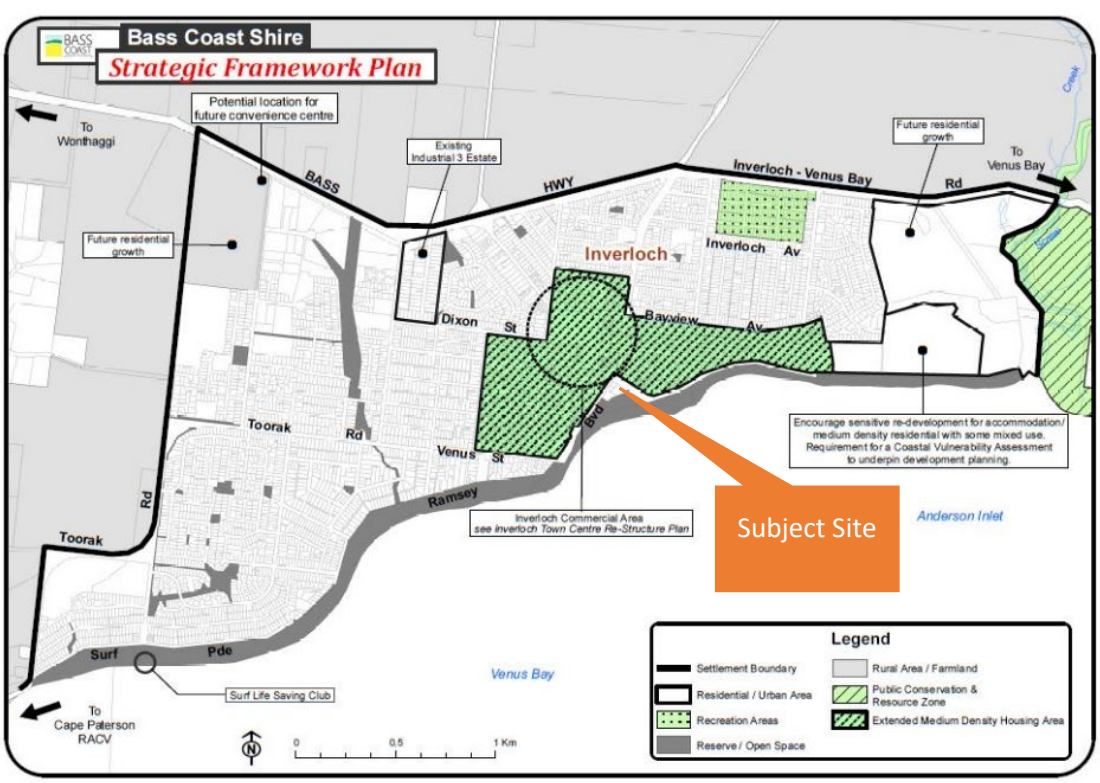
Within Inverloch, Clause 21.03-4 identifies areas zoned Mixed Use along the foreshore at Inverloch as a tourism area.

The following objectives and strategies support the proposed development:

- ***Objective 1*** *To encourage new tourist development in appropriate locations.*
  - ***Strategy 1.1*** *Support new tourist development in the tourist areas identified in this Clause*
- ***Objective 2*** *To provide diversity in tourist accommodation*
  - ***Strategy 2.2*** *Encourage the development of short-term tourist accommodation such as holiday units and cabins, particularly at Corinella, Coronet Bay, Grantville, San Remo, Cowes, and Inverloch.*
- ***Objective 4*** *To encourage sustainable year-round tourism.*
  - ***Strategy 4. 1*** *Actively promote tourist development that will contribute and reinforce the municipality as an all-year round tourist destination.*
  - ***Strategy 4.2*** *Encourage development which is innovative, attracts visitors throughout the year, is conducive to overnight stays or which leads to new tourist products or promotions.*

[7] Source: Bass Coast Rural Land Use Strategy (2014)

Clearly from the above aerial images, the site is within proximity to commercial centres, community facilities and within 200 metres of the main commercial activity area. This is confirmed by the Inverloch Strategic Framework Plan at Clause 21.08-2 'Inverloch' (a moderate growth settlement) which shows the subject site as being on the edge of the Inverloch commercial area.

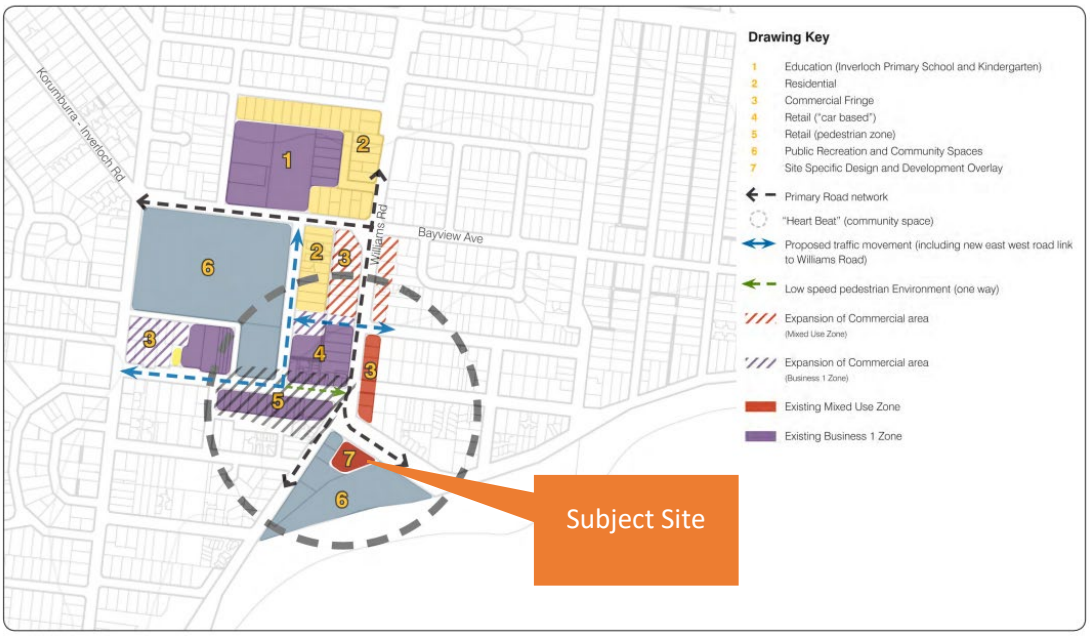


Map 1: Inverloch Strategic Framework Plan

Extract of Inverloch Strategic Framework Plan as shown at Clause 21.08-2

The *Inverloch Design Framework, February 2011*, identifies the site almost as requiring complete separate consideration.

>**Figure 4** Town Centre Re-Structure Plan



Extract from Inverloch Design Framework, February 2011

The uniqueness of the site is further confirmed by the application of the site specific Design and Development Overlay, Schedule 10 (Inverloch Marine Site, Inverloch) (DDO10) to the subject land. DDO10 was implemented through planning scheme amendment C124, the Panel Report for which in part stated that *the Panel accepts that the site is a key site in the town centre* and noted that the Council had identified the subject site as a 'key development site' as part of an earlier 2009 study.

The application of the Mixed Use Zone is arguably more determinative of a future built form outcome than the local policy settings. The Purpose of the Mixed Use Zone includes:

- *To provide for a range of residential, commercial, industrial and other uses which complement the mixed-use function of the locality.*

Although this is not an application for dwellings, it is worth remembering that another Purpose is directed towards providing for 'housing at higher densities. That is relevant given that this would also drive a particularly built form outcome that will be more intense than on other residentially land nearby.

The Zone is specifically designed to accommodate development outcomes that are more intense than other residential zones: it does not include a Garden Area requirement and the Zone schedule does not specify a maximum mandatory building height.

It is also relevant that the nearby General Residential Zone immediately to the north of the site has a higher (but mandatory) height limit (up to 12m and 3-storeys) than the DDO purports to allow. On that basis we say that the Council should feel confident in exercising its direction to vary the height limit of the DDO to facilitate this development.

Accordingly, it is considered that the Planning Policy Framework and Local Planning Policy Framework are strongly supportive of a unique development outcome being achieved on the subject land.

Therefore, it is not a question of whether the Bass Coast Planning Scheme supports a development of this nature of the land, but whether the scale of development and the design resolution is acceptable.

3.2 Are the proposed land uses acceptable and does the proposal provide for an acceptable urban design outcome having regard to the design objectives of DDO10?

The subject site is zoned Mixed Use Zone which has a Purposes that encourages *a range of residential, commercial, industrial and other uses which complement the mixed-use function of the locality*. The proposal achieves this with two retail premises at ground floor level and 42 serviced apartments above and a bar at roof top level.

The land use term 'Retail premises' encompasses a broad range of more specific land uses and notably includes 'adult sex product shop' which is a prohibited land use within the Mixed Use Zone. As such the permit preamble is sought to reflect this through the permit preamble specifying 'Use of land for retail premises (other than Adult Sex Product Shop)'. It is not considered that any other land uses need to be excluded noting that any commercial operators which to sell or consume liquor would firstly require planning permission under Clause 52.27 'Licensed Premises', while any proposal involving gaming machines would require planning permission under Clause 52.28 'Gaming'. We note that the proposed bar is ancillary to the residential hotel, notwithstanding planning permission is required pursuant to Clause 52.27.

The land use term 'Accommodation' similarly encompasses a range of more specific land uses , notable 'Residential Hotel'. Clause 73.03 defines Residential Hotel as:

> *Land used to provide Motel accommodation in serviced rooms for persons away from their normal Residential hotel place of residence. If it has at least 20 bedrooms, it may include the sale of liquor for consumption on, or off, the premises, function or conference rooms, entertainment, dancing, amusement machines, and gambling.*

Relevantly Clause 21.03 and more specifically Clause 21.03-4 identify the subject site as being within a tourism area, where the propose used in entirely appropriate.

On the above basis and considering the overall Purpose of the Mixed Use Zone, it is considered the land uses proposed are entirely acceptable.

In terms of the built form proposed, as set out the subject site is covered by DDO10 which is a site specific DDO in recognition of the subject site being a key development site. The broader consideration of whether the built form is acceptable having regard to DDO10 can be broken into several sub-considerations.

The first consideration is whether the height of the proposed development is acceptable. DDO10 contains a discretionary 9.5 metre height limit, which the proposal exceeds by 4.7 metres (14.2 metres overall height).

The design objectives and decision guidelines do not provide specific guidance for proposals which seek to develop above this discretionary height limit, but it is reasonable to suggest that the discretionary height limit is intended to help minimise any off-site amenity impacts and to ensure integration with the parklands and foreshore to the south.

The development has an overall height of 14.2 metres, comprising four storeys. The recessive fourth storey will ensure the development will read principally as a three storey building. This is relevant given the surrounding residential areas have a mandatory 3 storey/ 11 metre height limit. From a residential hierarchy perspective, the Mixed Use Zone is intended for the highest level of growth and where substantial change is predicted..

The exceedance of the discretionary height limit in the manner sought is considered acceptable subject to the proposed development achieving an acceptable urban design outcome having regard to the design objectives of DDO10.

The five design objectives for DDO10 are:

- *To create strong orientation toward the foreshore and integration with surrounding public open space, in particular, The Glades Picnic Ground.*
- *To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping.*
- *To protect and enhance the visual permeability of the site.*
- *Development should provide a high quality interface to the street and commercial frontage.*
- *To encourage a high quality design outcome with a community focus on the private land within the foreshore precinct.*

The Urban Context and Design Report prepared by Hansen Partnership outline how these five design objectives are achieved. Reliance on these is made with respect to the suitability of the proposal from an urban design perspective.

It is clear that Cornetta Partners Architects have had regard to design objectives of DDO10 in the formulation of the proposal. The outcome is a contemporary building with a coastal inspired architectural presentation. The overall architectural design of the proposed development is a suitable benchmark for other developments within the town centre. The quality of the design proposition, including the highly contemporary shaping of the proposal, design language and materials employed, the development configuration and positive contribution to the coastal and landscape character suggest that this proposal could exceed the DDO10 parameters.

Please refer to the Urban Context and Design Report prepared by Hansen Partnership for a detailed assessment of the urban design qualities of the proposal.

3.3 Does the proposal minimise off-site amenity impacts?

The proposal has carefully responded to its site context and there are no unreasonable offsite amenity impacts. The subject site's unique location ensures that traditional off-site amenity considerations such as overlooking and overshadowing are of no relevance.

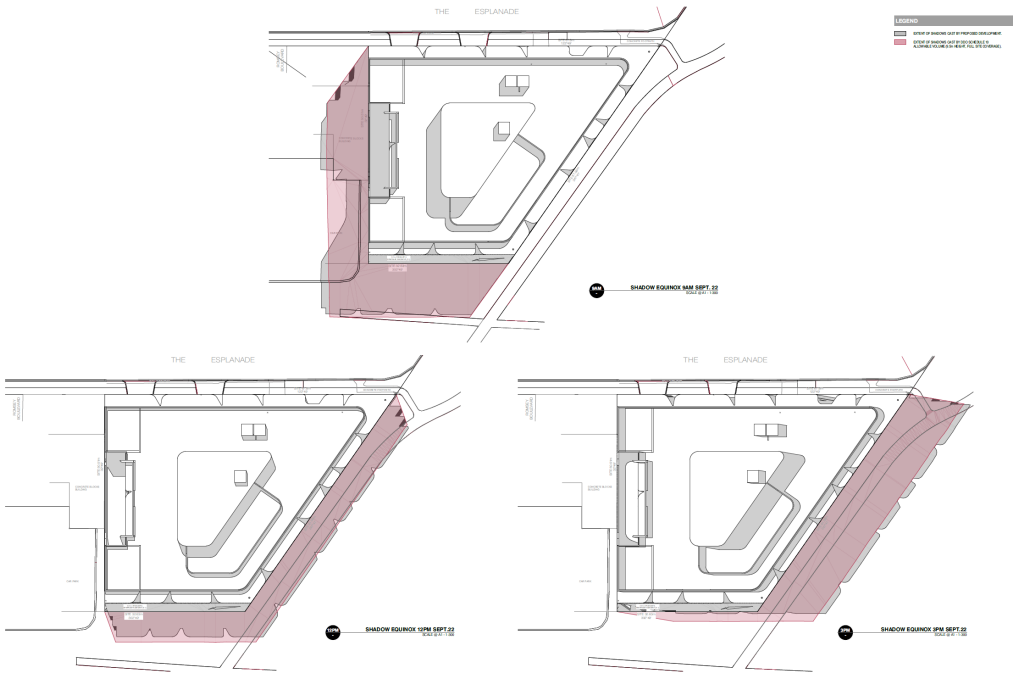
Instead, the primary considerations are whether the traffic generated by the proposed development is acceptable and whether the overshadowing of the parklands to the south is acceptable.

In relation to the former, the Traffic Engineering Assessment prepared by Traffix notes:

> The proposed development as a whole is projected to conservatively generate in the order of 24 entry or exit movements during the commuter peak hours.
>
> *This level of traffic is very small and equates to approximately one vehicle being generated to/from The Esplanade service road on average every 2.5 minutes, which will further be split across two access points.*
>
> *Accordingly, we are of the opinion that traffic associated with the proposed development will be quickly dispersed to the surrounding road network without any unreasonable detrimental impacts to the capacity and operation of The Esplanade, its service road, and the surrounding roads and intersections.*

In relation to the latter, the shadow diagrams indicated that there will be some overshadowing of Wyeth McNamara Park primarily at 9am, with this level of overshadowing decreasing as the day progresses. This level of overshadowing is entirely acceptably with this overshadowing not extending to the playground even at 9am.

The shadow diagrams also indicate there will be some overshadowing of the Glades Picnic Ground primarily in the late afternoon. While shadow will be cast over the adjacent footpath, the shadow will not extend down the embankment to the main picnic area even at 3pm. Accordingly, this too is considered acceptable. Overall, The extent of shadowing above DDO10 controls is considered acceptable because there are variations in the shadow (more and less) creating fast moving shadows.



Shadow Diagrams (Source: TPA11)

More generally, from a broader 'visual bulk' perspective and views from the neighbouring parklands perspective, reliance is placed on the Urban Design Report prepared by Hansen Partnership which has been submitted as part of the application. The proposal has been carefully curated and intelligently designed to provide an appreciation and enjoyment of the area's 'natural' elements.

The development has considered equitable development outcomes to the north west of the site by ensuring open space and habitable room windows are either setback or oriented away from the common boundary.

3.4 Does the proposal satisfactorily address other relevant matters for consideration?

As noted, the subject site is within an Area of Aboriginal Cultural Heritage Sensitivity. An Aboriginal Cultural Heritage Management Plan has been prepared for the subject site, Please refer to the approved CHMP submitted as part of the application for additional information.

The proposal will see three trees (Trees 12, 13 and 14) on the adjoining Council car park 'lost' due to encroachment into their Tree Protection Zones. The accompanying Arboricultural Assessment indicates that these trees are low retention value trees and either in poor health and/or in poor condition. A Landscape Plan prepared by Hansen Partnership will be submitted under separate cover shortly and through this it will be shown that an overall net improvement in terms of landscaping will be achieved and that accordingly this is an acceptable outcome. Please refer to the arboricultural assessment prepared by Tree Map Arboriculture and Root Investigation Report prepared by Arborzone for all arboricultural maters.

Planning permission is sought for the alteration of access onto a road in a Road Zone, Category 1, being The Esplanade. It is understood that the application will be referred to the Department of Transport for their assessment, but it is noted that the extent of vehicle access onto The Esplanade is intended to be reduced and thus the proposal represents an improvement in this regard.

The proposed development has a statutory requirement to provide 30 car parking spaces. In addition, car parking for the serviced apartments and retail premises components of the development must be provided to the satisfaction of the Responsible Authority.

A total of 48 car spaces are proposed to be provided on site for the development, allocated as follows:

- Serviced apartments – 42 spaces for guests/staff
- Food and Drink Premises (Tenancy 1) – 1 staff space
- Retail Premises (Tenancy 2) – 2 staff spaces
- Bar – 2 staff spaces
- One (1) surplus space to be allocated as the applicant see fit.

No car parking is proposed to be provided on-site for customers of the commercial component of the development. To this end, the application is seeking a reduction in the statutory car parking requirement.

The Traffic Engineering Assessment prepared by Traffix Group assesses the adequacy of the car parking supply and concludes:

- The proposed car parking provision of one (1) space to each serviced apartment will satisfy the anticipated guest and staff demands.
- Staff car parking demands associated with the retail, food and drink and bar components of the development are expected to be accommodated on-site.
- The existing use of the site is estimated to generate a demand for in the order of 5 to 10 on-street car parking spaces which can be considered as a credit for the proposed development.
- There is sufficient nearby off-site public parking in the nearby area to accommodate the likely off-site demands of customers and patrons of development.

There will not be any unreasonable impacts on the overall availability of public parking within the area as a result of the proposal.From a bicycle parking perspective, the Traffic Engineering Assessment prepared by Traffix Group states:

> *Based on a total combined floor area for the bar, retail and food and drink premises of 652m2 and 42 apartments, the statutory bicycle parking requirement is a total of 11 bicycle spaces, comprising six staff and five visitor/guest/customer bicycle spaces. A total of 12 bicycle spaces are proposed, comprising eight secure spaces at the southwest corner of the*

ground level car park in addition to four publicly accessible spaces within the setback from the property boundary at the north eastern corner of the ground floor.

Overall, we are satisfied that appropriate bicycle parking for staff and visitors/customers has been identified for the site.

Please refer to the Traffic Engineering Assessment Prepared by Traffix Group for all traffic related matters.

In terms of waste management, a Waste Management Plan has been prepared by Traffix Group which indicates that waste collection will occur kerbside on-street by private collection. The suitability of this arrangement is justified within the Waste Management Plan and accompanying Traffic Engineering Assessment.

A Sustainable Management Plan prepared by ARK Resources will be submitted under separate cover shortly, but it is noted that it will include the incorporation of the following key sustainable design initiatives into the project:

- 15Wp Solar PV array.
- 50kL Rainwater tanks to be connected to toilets.

With respect to the subject site's coastal proximity Golder Associates have prepared a Coastal Hazard and Vulnerability Assessment which concludes that overall the site *has a low vulnerability to coastal hazards, mainly due to its elevation and setback from the coastline.*

4. Conclusion

Based on the above assessment, it is considered that the proposal represents an acceptable town planning outcome and is appropriate for the following reasons:

- The proposal delivers an architectural outcome that can only be described as 'excellent' and will make a positive and worthy design legacy for the town of Inverloch.
- The development provides a true 'mixed use' outcome with a mixture of accommodation and commercial uses provided. Importantly, the development contains ground level commercial activity that will activate the public parkland and provide an attractive space for visitors to the town, or to the foreshore to take advantage of the amenity of this location.
- The Bass Coast Planning Scheme is supportive of additional higher density development occurring on the site with a more intensive development of the site expressly supported by relevant settlement planning policies and the Mixed Use zoning of the land.
- The proposal development provides for increased tourism opportunities within an identified 'tourism area'.
- The height of the development is acceptable in the context of the fourth floor being substantially recessed from The Esplanade and the development having a three storey appearance which in the context of the surrounding zoning is acceptable.
- The Urban Design Report and Design Response prepared adequately justify the proposal from an urban design perspective having particular regard to the design objectives of DDO10.
- The proposal raises no off-site amenity impacts with respect to private properties and will provide an appropriate and well resolved design outcome with regard to the abutting parkland interfaces.
- The proposal delivers several tangible benefits to the town and the proposal will overall result in a net community benefit.
- All other matters have been appropriately considered and there are no other matters which would suggest the grant of a planning permit was not acceptable.

It follows that a town planning permit should be granted for the proposal.

Glossop Town Planning

June 2021



Appendix A

Clause 55 Assessment

Assessment against the Standards of Clause 55

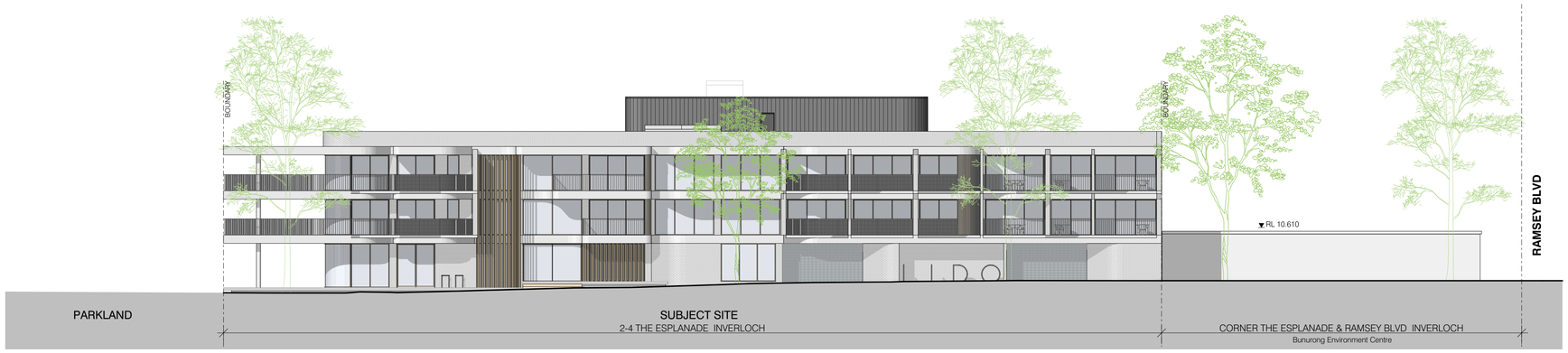
Clause No.	Assessment
Clause 55.02 Neighbourhood Character and Infrastructure	
Clause 55.02-1 Neighbourhood Character	**Standard B1 – N/A** The proposed development is for a residential hotel.
Clause 55.02-2 Residential Policy	**Standard B2 – Objective and Standard met** The proposal is consistent with the Planning Policy Framework and relevant local planning policies. A detailed assessment against the relevant policies has been provided at Section 3.1 of the report.
Clause 55.02-3 Unit Diversity	**Standard B3 – N/A** The proposed development is for a residential hotel. Notwithstanding, the development comprises a range of studio, one- and two-bedroom rooms.
Clause 55.02-4 Infrastructure	**Standard B4 – Objective and Standard met** The proposal will be connected to reticulated services including sewerage, drainage, electricity and gas (as required). Any necessary upgrades with the responsibility of the developer.
Clause 55.02-5 Integration with the Street	**Standard B5 – Objective and Standard met** The subject site is unique in that it has a frontage to The Esplanade to the north and public open to southeast and southwest. The development and been designed and sited to adequately both key interfaces.
Clause 55.03 Site Layout and Building Massing	
Clause 55.03-1 Street Setback	**Standard B6 – Objective met** There are no existing buildings on either of the abutting allotments fronting The Esplanade. The required setback is 6 metres as the site fronts a road in a Road Zone Category 1. The proposed development has a front setback of between 0 metres and 2.810 metres. The proposed development comprises commercial tenancies at ground floor and a residential hotel above. The construction of the building along the sites frontage to the esplanade will provide an activated frontage which is an outcome the planning scheme seeks to achieve.

	The subject site does not abut any existing dwellings and there is no established front setback pattern within the street.
Clause 55.03-2 Building Height	**Standard B7 – Objective and Standard met** Relevantly, there is no maximum building height requirement at Clause 32.04-11 (Mixed Use Zone). The maximum building height is 14.2 metres and four storeys. Please refer to the discussion at section 3.2 of this report and the Urban Context and Design Response prepared by Hansen Partnership.
Clause 55.03-3 Site Coverage	**Standard B8 – Objective met** The development has a proposed site coverage of 96.24%. This is acceptable having regards to the sites strategic context. It is important to recognise that the proposal is for a mixed- use development comprising a residential hotel. The proposed use is supported by the Planning Policy Framework.
Clause 55.03-4 Permeability and Stormwater Management	**Standard B9 – Objective met** The proposed permeable site area is 4.49%. A SMP, including water sensitive urban design report has been prepared for the subject site. The proposal achieves a STORM rating of 102%.
Clause 55.03-5 Energy Efficiency	**Standard B10 – Objective and Standard met** The proposed development has been sited to maximise its energy efficiency. Balconies have been sited at the edge of the building and face an area clear to the sky to maximise solar access.
Clause 55.03-6 Open Space	**Standard B11 – Objective and Standard met** The proposed development comprises communal space at levels 1 and 2 and at the rooftop. The development has been carefully designed to successfully integrate with the public open space which directly abuts the site. Please refer to the detailed discussion with the Urban Context and Design Report prepared by Hansen Partnership.
Clause 55.03-7 Safety	**Standard B12 – Objective and Standard met** No dwellings are proposed. The building entrance is readily visible from the street and appropriate security measure will in place to prevent unauthorised access to guest rooms.

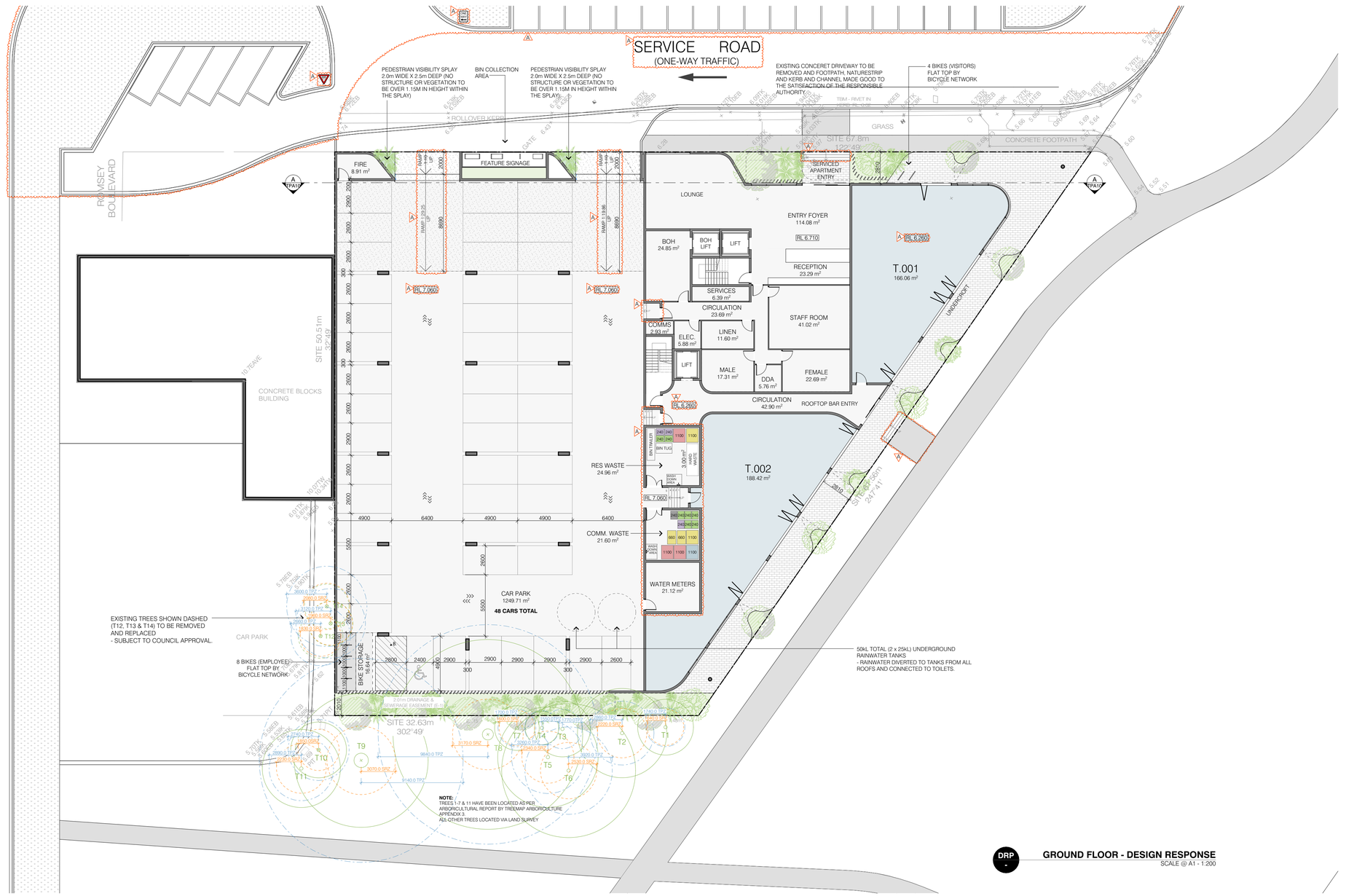
Clause 55.03-8 Landscaping	**Standard B13 – Objective and Standard met** A landscape plan is being prepared by Hansen Partnership and will be submitted under separate cover.
Clause 55.03-9 Access	**Standard B14 – Objective and Standard met** Vehicle access is to be taken via two double width crossovers to The Esplanade's service road. This includes a crossover approximately at the middle of the site's frontage and another crossover towards its western boundary. The crossovers occupy approximately 11.6 metres which accounts for 17.10% of the sites 67.8 metres frontage to the Esplanade.
Clause 55.03-10 Parking Location	**Standard B15 – Objective and Standard met** Car parking is provided at the ground floor. Please refer to the Traffic Engineering Assessment for additional information.
Clause 55.04 Amenity Impacts	
Clause 55.04-1 Side and Rear Setbacks	**Standard B17 – Objective met** **It is relevant to note that there are no existing dwellings located on adjoining properties.** Th development is setback from the southern and eastern boundary at ground floor more than 1m. The upper levels are setback from the southern boundary 2.010m. The proposed development directly abuts a car park to the west. Due to the sites interface with public open space to the south and east, there are no exiting habitable room windows or areas of private open space located adjacent to the proposed development. The proposed development will not result in any visual amenity impacts. Please refer to the detailed discussion of the proposed design response within the Urban Context and Design Response prepared by Hansen Partnership.
Clause 55.04-2 Walls on Boundaries	**Standard B18 – N/A** Sections of wall are proposed along the northern and eastern boundary. The length of walls on boundary achieves compliance with Standard B18. A variation is required for the height of walls along these boundaries. The site does not have any sensitive interfaces and the proposed walls on boundary will not result in any amenity impacts.

Clause 55.04-3 Daylight to Existing Windows	**Standard B19 – N/A** There are no existing dwellings located on adjoining properties.
Clause 55.04-4 North-facing Windows	**Standard B20 – N/A** There are no existing dwellings located on adjoining properties.
Clause 55.04-5 Overshadowing Open Space	**Standard B21 – N/A** There are no existing dwellings located on adjoining properties. Please refer to Section 3.2 of the report an the Urban Context and Design report prepared by Hansen Partnership for discussion on the overshadowing of the public open space.
Clause 55.04-6 Overlooking	**Standard B22 –N/A** There are no existing dwellings located on adjoining properties.
Clause 55.04-7 Internal Views	**Standard B23 – Objective and Standard met** There are no opportunities for internal overlooking in accordance with Standard B23.
Clause 55.04-8 Noise Impacts	**Standard B24 – Objective and Standard met** There are no external noise sources proposed in locations that would cause unreasonable amenity impacts upon neighboring units.
Clause 55.05 On-Site Amenity and Facilities	
Clause 55.05-1 Accessibility	**Standard B25 – Objective and Standard met** The development has at-grade access at ground floor level. Lift access is proposed to all levels.
Clause 55.05-2 Unit Entry	**Standard B26 – Objective and Standard met** The building entry is clearly visible from the Esplanade. .
Clause 55.05-3 Daylight to New Windows	**Standard B27 – Objective and Standard met** All new windows face an area open to the sky and with dimensions in accordance with the standard.
Clause 55.05-4 Private Open Space	**Standard B28 – N/A** No dwellings are proposed as part of the development. Each serviced apartment is provided within a balcony

Clause 55.05-5 Solar Access to Open Space	**Standard B29 – N/A** The balcony of each serviced apartment has been located to the outside of the building to ensure a high level of sunlight access and excellent outlook.
Clause 55.05-6 Storage	**Standard B30 – Objective and Standard met** No dwellings are proposed as part of the development. Adequate storage is provided within each serviced apartment for short term stays.
Clause 55.06 Detailed Design	
Clause 55.06-1 Design Detail	**Standard B31 – Objective and Standard met** Please refer the Urban Context and Design Response prepared by Hansen Partnership.
Clause 55.06-2 Front Fences	**Standard B32 – N/A** No front fence is proposed.
Clause 55.06-3 Common Property	**Standard B33 – Objective and Standard met** Communal, public, and private areas are clearly delineated on the site. The common property provided is functional and capable of efficient management.
Clause 55.06-4 Site Services	**Standard B32 – Objective and Standard met** Site services will be provided within the development and will be clearly identifiable.



N1 - **STREETSCAPE ELEVATION (NORTH)**
SCALE @ A1 - 1:200



DRP - **GROUND FLOOR - DESIGN RESPONSE**
SCALE @ A1 - 1:200

THE PROPOSAL

THE PROPOSAL IS SEEKING APPROVAL TO CONSTRUCT A 4 STOREY MIXED USE DEVELOPMENT AT 2-4 THE ESPLANADE, INVERLOCH. SPECIFICALLY, THE PROPOSAL COMPRISES;

- A GROUND LEVEL CAR PARK PROVIDING 48 CAR PARKING SPACES WITH VEHICLE ACCESS FROM THE ESPLANADE;

- 2 X RETAIL/COMMERCIAL TENANCIES (354.48M2 TOTAL) AT GROUND FLOOR WITH REASONABLE UNDERCOVER SPACE IN FRONT OF THESE TENANCIES TO ALLOW FOR ACTIVITIES AND/OR OUTDOOR DINING OPPORTUNITIES TO 'SPILL' ONTO THE STREET;

- THE MAIN PEDESTRIAN ACCESS TO THE APARTMENTS IS LOCATED IN A CENTRAL POSITION ALONG THE ESPLANADE FRONTAGE;

- COMMUNAL FACILITIES COMPRISING A BREAK-OUT ROOM AND MULTI-PURPOSE AREA ARE LOCATED ON LEVEL 1 AND 2;

- LEVELS 1 AND 2 COMPRISE A TOTAL OF 42 APARTMENTS INCLUDING 2 X STUDIOS, 26 X 1 BEDROOM AND 14 X 2 BEDROOMS. THE APARTMENT HAVE BEEN ARRANGED AROUND A CENTRAL LIFT CORE AND INTERNAL CORRIDOR;

- LEVEL 3 COMPRISES A BAR WITH ASSOCIATED ROOF TOP TERRACE/GARDEN AREA;

- THE MASSING STRATEGY HAS BEEN ARRANGED WITH AN ARTICULATED 3 STOREY WITH DEEP REESSES AND A HIGHLY RECESSIVE 4TH STOREY;

- THE MAXIMUM BUILDING HEIGHT IS 4 STOREYS (14.2M).

- THE DESIGN HAS BEEN INSPIRED BY A COMBINATION OF ANDERSON INLET AND THE FORESHORE RESERVE OF THE GLADE. THE PROPOSAL PROVIDES A SELECTION OF BUILDING FINISHES AND MATERIALS THAT MERGES BUILT FORM TO THE SURROUNDING NATURAL FEATURES. THIS PRIMARILY INCLUDES BRICK PATTERN TILES (GREY) WITH STRONG HORIZTONAL ALUMINIUM FRAMING ELEMENTS (WHITE).

ARCHITECTURAL CONTRIBUTION:

THE OVERALL ARCHITECTURAL DESIGN OF THE PROPOSED DEVELOPMENT IS A SUITABLE BENCHMARK FOR OTHER DEVELOPMENTS WITHIN THE TOWN CENTRE. THE QUALITY OF THE DESIGN PROPOSITION, INCLUDING THE HIGHLY CONTEMPORARY SHAPING OF THE PROPOSAL, DESIGN LANGUAGE AND MATERIALS EMPLOYED, THE DEVELOPMENT CONFIGURATION AND POSITIVE CONTRIBUTION TO THE COASTAL AND LANDSCAPE CHARACTER SUGGEST THAT THIS PROPOSAL COULD EXCEED THE DDO10 PARAMETERS.

THE PROPOSAL ACHIEVES DESIGN AND ARCHITECTURAL EXCELLENCE THAT CONTRIBUTE POSITIVELY TO THE LOCAL URBAN CHARACTER AND ENHANCES THE PUBLIC REALM IN THE FOLLOWING WAYS:

- THE PROPOSAL INCORPORATES A HIGHLY ACTIVATED GROUND FLOOR WITH OPENINGS, GLAZED WINDOWS AND COLONNADES FOR ACTIVITIES TO 'SPILL' ONTO THE STREET AND PARKLAND;

- THE PROPOSAL HAS BEEN ARTICULATED WITH DEEP RECESSES OF A VARIETY OF SIZES AND SHAPES ALONG THE FACADE. THIS CONCEPT WILL MINIMISE VISUAL BULK AND ENSURE THAT THE BUILT FORM WILL SUCCESSFULLY BLEND WITH THE SURROUNDING LANDSCAPE; AND

- THE DESIGN HAS BEEN INSPIRED BY COASTAL ELEMENTS FROM THE GENTLY UNDULATING WATERS OF THE OCEAN AND THE INTRICATE SHAPES AND PATTERNS OF SEASHELLS. THIS HAS BEEN ACHIEVED THROUGH THE CURVED EDGES ALONG THE FAÇADE WHICH CREATES A SENSE OF PLACE WHERE THERE IS A STRONG RELATIONSHIP BETWEEN THE PHYSICAL ENVIRONMENT AND PEOPLE'S EMOTIONAL EXPERIENCE.

CONCLUSION:

THE PROPOSED DEVELOPMENT AT 2-4 THE ESPLANADE, INVERLOCH REPRESENTS AN OUTSTANDING OPPORTUNITY TO CREATE A 'SPECIAL PLACE' AND A SYMBOLIC FORM AT THIS STRATEGICALLY IMPORTANT SITE IN INVERLOCH. THE SUBJECT SITE LENDS ITSELF TO A WELL-DESIGNED INTEGRATED MIXED USE DEVELOPMENT THAT SITS AT THE INTERFACE BETWEEN THE URBAN CONDITION OF INVERLOCH AND ITS SENSITIVE COASTAL FRINGE. IN RESPONSE TO THIS CONTEXT, AND THE VERY PARTICULAR SITE CONDITIONS - THE 'BESPOKE' DESIGN RESPONSE SPEAKS CLEARLY TO THE CONTEMPORARY AMBITIONS OF INVERLOCH AS A PROGRESSIVE, GROWING COASTAL TOWNSHIP. THE PROPOSAL HAS BEEN CONFIGURED SPECIFICALLY TO ADDRESS THE DESIGN OBJECTIVES IDENTIFIED FOR THE SITE UNDER DDO10 (INVERLOCH MARINE SITE, INVERLOCH) AND SITS HARMONIOUSLY WITHIN THE COASTAL PANORAMA - NOT INTERRUPTING THE IMPORTANT LINE OF CANOPY VEGETATION SURROUNDING THE SITE AND ASSOCIATED PARKLAND. THE FORM WILL NOT BE VISIBLE IN THE BROADER VIEWSHED, OR FROM THE COASTLINE OR INLET - WHERE SENSITIVITY IS HIGH. THE PROPOSAL SETS A PARTICULARLY HIGH DESIGN BENCHMARK THAT ENGAGES IN NARRATIVE WITH BOTH THE COASTAL AND OPEN SPACE QUALITIES OF THE FORESHORE OF INVERLOCH AND ITS ESTABLISHED URBAN CONDITION.

THE QUALITY OF THE DESIGN PROPOSITION, INCLUDING THE HIGHLY CONTEMPORARY SHAPING OF THE PROPOSAL, QUALITY DURABLE MATERIALS, AND SUCCESSFUL AMENITY OUTCOMES ENSURES THAT THE BUILDING WILL BE AN ENDURING FEATURES ON THE FORESHORE, WHICH WILL STAND THE TEST OF TIME AND PLACE.

OVERALL, THE PROPOSAL REPRESENTS AN OUTSTANDING DESIGN SOLUTION THAT WILL (OVER TIME) SYMBOLIZE HARMONY BETWEEN THE TOWNSHIP AND THE COASTLINE, AND A PROGRESSIVE FURTURE FOR THE INVERLOCH TOWN CENTRE.

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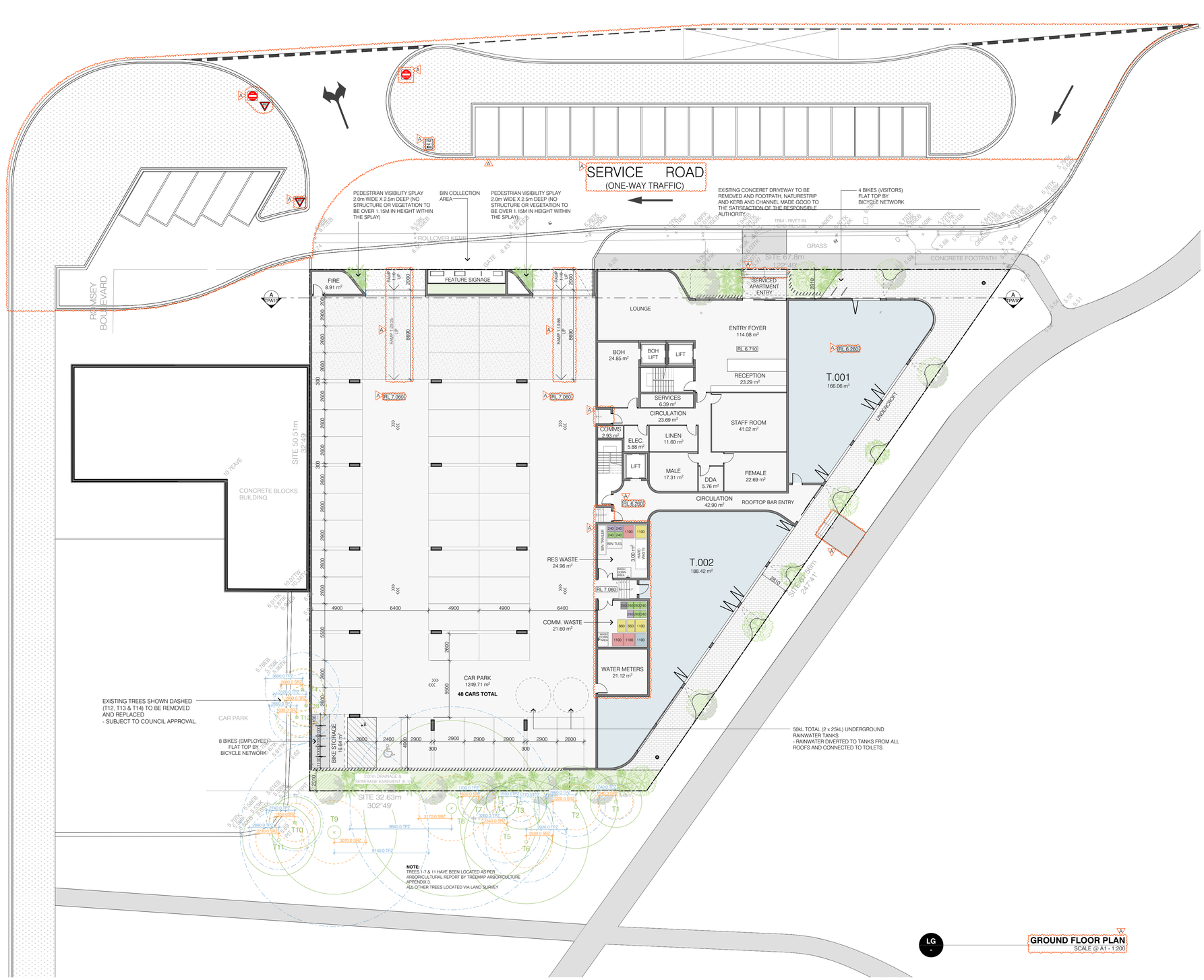
Revision
A: 28.09.2021
RESPONSE TO COUNCIL RFI

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
DESIGN RESPONSE PLAN
Scale
1:200 @ A1
Date
28.09.2021

TOWN PLANNING APPLICATION
Drawn
E.P.
Job No.
21-09
Drawing No.
TPA02
Revision
A

N



DEVELOPMENT SUMMARY

SITE AREA		2536.10 m²
SITE COVERAGE	96.24%	2440.97 m²
PERMEABILITY	4.49%	113.91 m²

No. OF RETAIL PROPOSED	2
No. OF CAR SPACES PROPOSED	48
No. OF STUDIO APARTMENTS	2
No. OF 1 BEDROOM APARTMENTS	26
No. OF 2 BEDROOM APARTMENTS	14
TOTAL APARTMENTS	42

FLOOR AREA ANALYSIS

GROUND	2189.73 m²
LEVEL 1	1891.98 m²
LEVEL 2	1891.98 m²
LEVEL 3	332.94 m²

NOTE: EXCLUDES BALCONY & TERRACE AREAS

LEGEND

EXTERNAL SURFACE FINISHES

LAWN / GROUND COVER
PEDESTRIAN PATH
DRIVEWAY
PAVING / TILES

WATER COLLECTION

DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

PRIVATE 2-WAY DRIVEWAY
VEHICLE ACCESS POINT
PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

EXISTING TREES
EXISTING TREES TO BE REMOVED
PROPOSED TREES (INDICATIVE ONLY)
PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 660 240 DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

TRAFFIC SIGNAGE

GIVE WAY SIGN
ONE WAY SIGN
NO ENTRY SIGN

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- PROPOSED LANDSCAPING IS INDICATIVE ONLY. REFER TO LANDSCAPE PLAN FOR PROPOSED PLANTING AND DETAILS.
- SITE SERVICES LOCATIONS ARE INDICATIVE ONLY.

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2-4 THE ESPLANADE
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Drawing Title
GROUND FLOOR PLAN
TOWN PLANNING APPLICATION

Scale	1:200 @ A1
Drawn	E.P.
Job No.	21-09
Date	28.09.2021
Drawing No.	TPA03
Revision	A

N



L1 — **LEVEL 1 FLOOR PLAN**
SCALE @ A1 - 1:200

SERVICED APARTMENT TYPE

REFER TO TPA08 - TYPES FOR MORE DETAIL

- TYPE A
- TYPE B
- TYPE C
- TYPE D
- TYPE E
- TYPE F
- TYPE G

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

- 1100 / 660 / 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

TRAFFIC SIGNAGE

- GIVE WAY SIGN
- ONE WAY SIGN
- NO ENTRY SIGN

NOTES

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Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
LEVEL 1 FLOOR PLAN

TOWN PLANNING APPLICATION

Scale: 1:200 @ A1
Drawn: E.P.
Job No.: 21-09
Date: 28.09.2021
Drawing No.: TPA04
Revision: A

N



LEVEL 2 FLOOR PLAN
SCALE @ A1 - 1:200

L2

SERVICED APARTMENT TYPE

REFER TO TPA08 - TYPES FOR MORE DETAIL

- TYPE A
- TYPE B
- TYPE C
- TYPE D
- TYPE E
- TYPE F
- TYPE G

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 660 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

TRAFFIC SIGNAGE

A

- GIVE WAY SIGN
- ONE WAY SIGN
- NO ENTRY SIGN

NOTES

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RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
LEVEL 2 FLOOR PLAN

TOWN PLANNING APPLICATION

Scale
1:200 @ A1

Drawn
E.P.

Job No.
21-09

Date
28.09.2021

Drawing No.
TPA05

Revision
A

N

THE ESPLANADE

ROMSEY BOULEVARD

ROLLOVER KERB

GATE

GRASS

ITEM - RIVET IN KERB IN LINE

15kWp SOLAR PV ARRAY
46 No. PV MODULES
330W 60 CELL PANELS
(1700 x 1000mm) DUAL TILTED EAST-WEST ALTERNATIVELY AT 13°

LIFT OVERRUN

ROOF

STORAGE
45.35 m²

LIFT

BAR
250.01 m²

ROOF TERRACE / GARDEN
207.01 m²

RL 16.460

13360

16900

15360

6810

15375

6825

SITE 50.51m
32°49'

SITE 32.63m
302°49'

SITE 0.56m
64°41'

10-7EAVE

CONCRETE BLOCKS BUILDING

CAR PARK

EXISTING TREES SHOWN DASHED
(T12, T13 & T14) TO BE REMOVED
AND REPLACED
- SUBJECT TO COUNCIL APPROVAL.

2.01m DRAINAGE & SEWERAGE EASEMENT (E-1)

25.15

T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 T13 T14

NOTE:
TREES 1-7 & 11 HAVE BEEN LOCATED AS PER ARBORICULTURAL REPORT BY TREEMAP ARBORICULTURE APPENDIX 3.
ALL OTHER TREES LOCATED VIA LAND SURVEY

L3 - **LEVEL 3 FLOOR PLAN**
SCALE @ A1 - 1:200

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 660 240 DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

NOTES

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A: 28.09.2021
RESPONSE TO COUNCIL RFI

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RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
LEVEL 3 FLOOR PLAN

Scale
1:200 @ A1

Date
28.09.2021

TOWN PLANNING APPLICATION

Drawn
E.P.

Job No.
21-09

Drawing No.
TPA06

Revision
A

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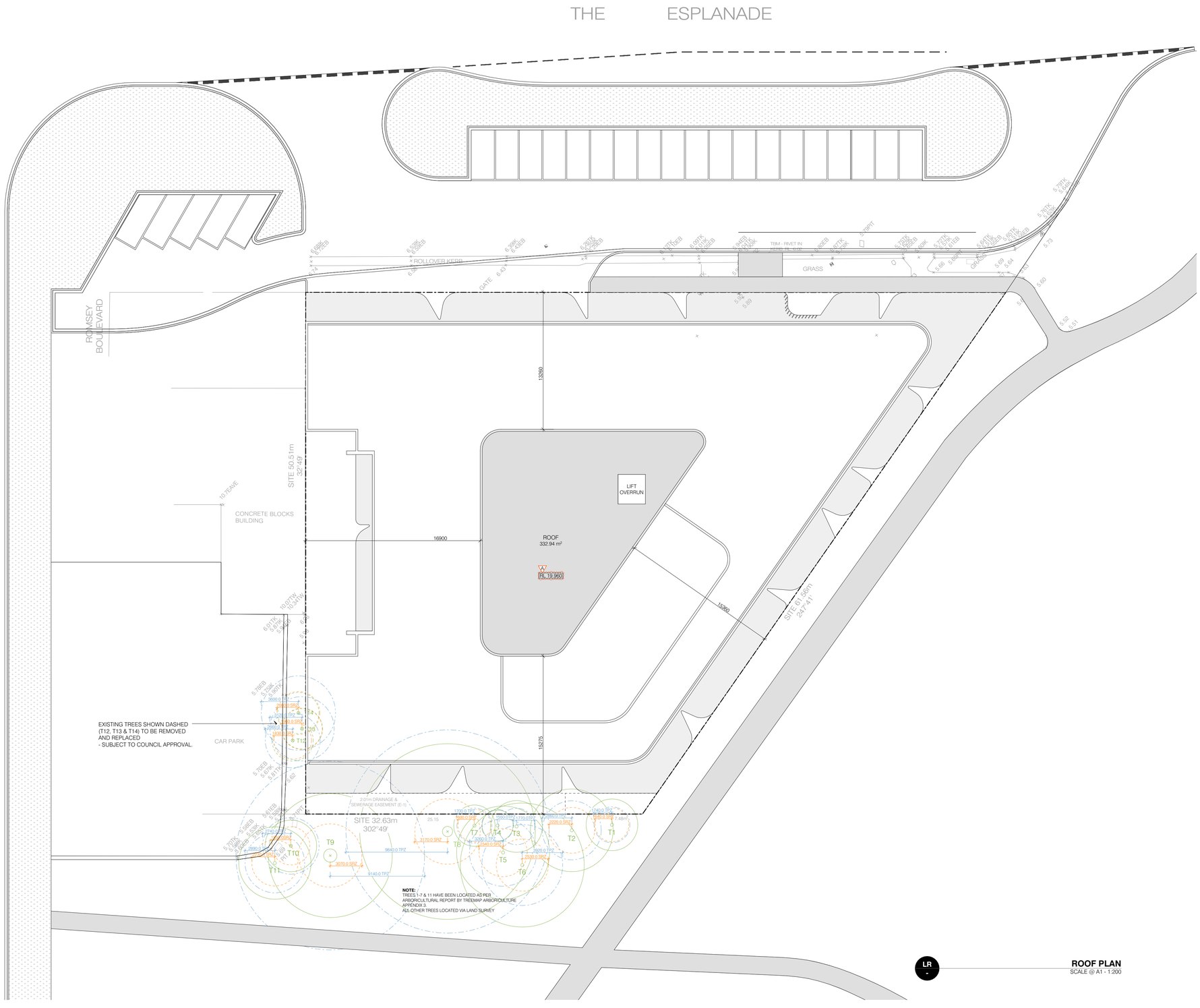

LR
-

ROOF PLAN
SCALE @ A1 - 1:200

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 | 660 | 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

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2-4 THE ESPLANADE
INVERLOCH

Drawing Title
ROOF PLAN
TOWN PLANNING APPLICATION

Scale	Drawn	Job No.
1:200 @ A1	E.P.	21-09
Date	Drawing No.	Revision
28.09.2021	TPA07	A

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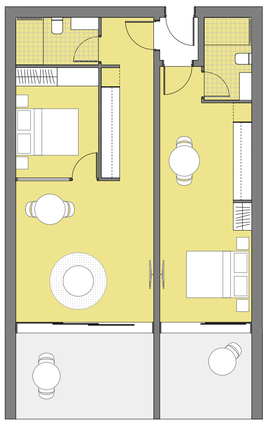
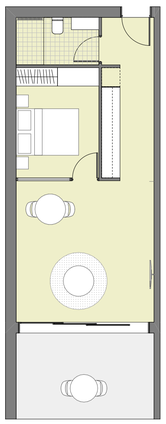


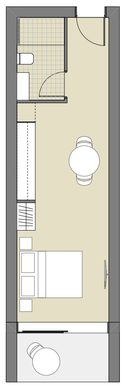
SERVICED APARTMENT TYPE A
DUAL KEY

APARTMENT AREA: 72.31m²



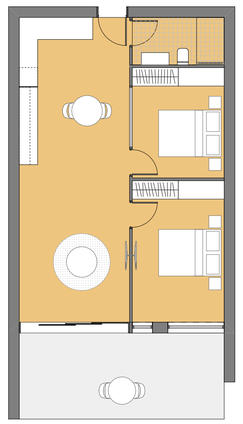
SERVICED APARTMENT TYPE B
ONE BEDROOM

APARTMENT AREA: 44.78m²



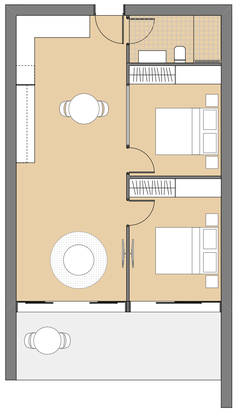
SERVICED APARTMENT TYPE C
STUDIO

AREA: 29.85m²



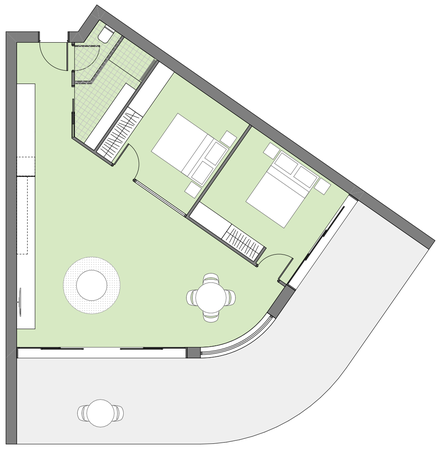
SERVICED APARTMENT TYPE D
TWO BEDROOM

APARTMENT AREA: 66.57m²



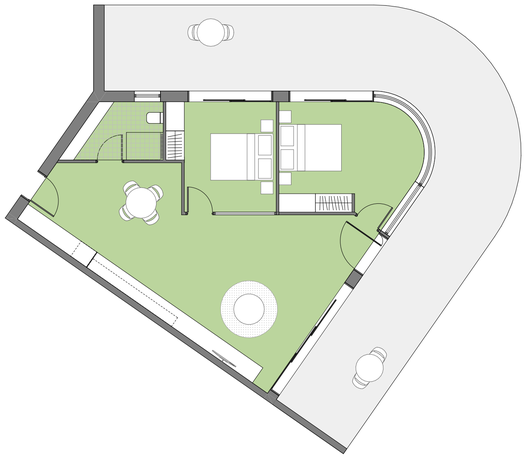
SERVICED APARTMENT TYPE E
TWO BEDROOM

APARTMENT AREA: 62.42m²



SERVICED APARTMENT TYPE F
TWO BEDROOM

APARTMENT AREA: 82.13m²



SERVICED APARTMENT TYPE G
TWO BEDROOM

APARTMENT AREA: 78.66m²

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- PROPOSED LANDSCAPING IS INDICATIVE ONLY. REFER TO LANDSCAPE PLAN FOR PROPOSED PLANTING AND DETAILS.
- SITE SERVICES LOCATIONS ARE INDICATIVE ONLY.

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Revision

A: 28.09.2021
RESPONSE TO COUNCIL RFI

Project
RETAIL & SERVICED APARTMENT BUILDING

2-4 THE ESPLANADE
INVERLOCH

Drawing Title
SERVICED APARTMENT TYPES

TOWN PLANNING APPLICATION

Scale
1:100 @ A1

Drawn
E.P.

Job No.
21-09

Date
28.09.2021

Drawing No.
TPA08

Revision
A



NORTH ELEVATION
SCALE @ A1 - 1:150



SOUTH ELEVATION
SCALE @ A1 - 1:150

EXTERNAL MATERIALS & FINISHES



M1
FACE BRICKWORK
BRAND: PGH BRICKS
RANGE: COASTAL HAMPTONS
COLOUR: GULL GREY



M2
CONCRETE PANEL
TYPE: DECORATIVE STAMPED
COLOUR: OFF-WHITE



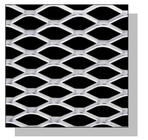
M3
ALUMINIUM CLADDING
BRAND: FAIRVIEW
TYPE: VITRACORE G2
COLOUR: PURE WHITE 9902



M4
TIMBER SCREEN / PANELS
TYPE: 300x35mm WIDE PLANKS
50x50mm WIDE BATTENS
COLOUR: NATURAL OAK



M5
BALUSTRADE
TYPE: POWDERCOATED ALUMINIUM
COLOUR: DULUX VIVID WHITE



M6
BALUSTRADE INFILL
TYPE: LARGE EXPANDED METAL MESH
COLOUR: MARINE GRADE STAINLESS STEEL



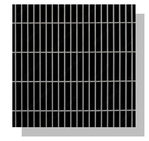
M7
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: COLORBOND RHEA



M8
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: BLACK SATIN - DULUX POWDERCOATING



M9
METAL CLADDING / ROOFING
BRAND: LYSAGHT
TYPE: ENSEAM
COLOUR: COLORBOND MONUMENT



M10
CAR PARK DOOR
TYPE: METAL GRILLE
COLOUR: MARINE GRADE STAINLESS STEEL



M11
GLAZING
COLOUR: CLEAR



M12
GLAZING
TYPE: FLUTED
COLOUR: OBSCURE

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- LANDSCAPING SHOWN IS EXISTING (SIGNIFICANT TREES) SURROUNDING SITE. INDICATIVE ONLY.

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A: 28.09.2021
RESPONSE TO COUNCIL RFI

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
ELEVATIONS - NORTH & SOUTH
TOWN PLANNING APPLICATION

Scale
1:150 @ A1

Drawn
E.P.

Job No.
21-09

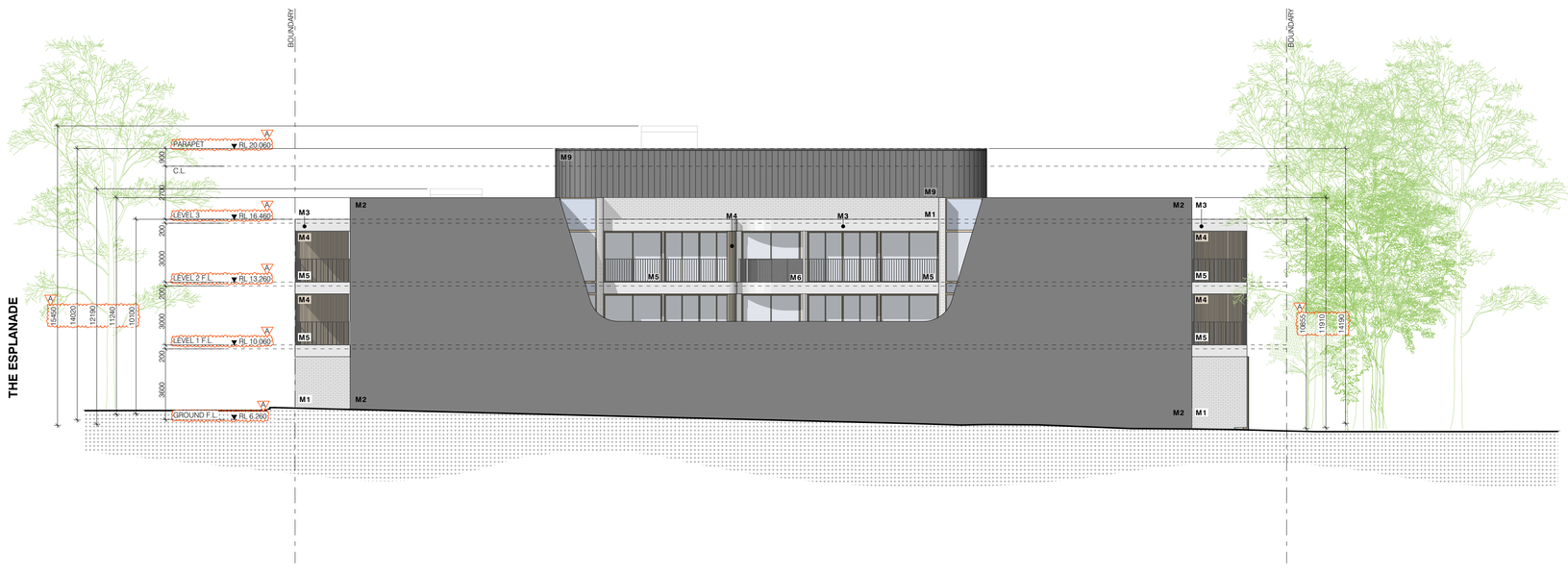
Date
28.09.2021

Drawing No.
TPA09

Revision
A



EAST ELEVATION
SCALE @ A1 - 1:150



WEST ELEVATION
SCALE @ A1 - 1:150

EXTERNAL MATERIALS & FINISHES



M1
FACE BRICKWORK
BRAND: PGH BRICKS
RANGE: COASTAL HAMPTONS
COLOUR: GULL GREY



M2
CONCRETE PANEL
TYPE: DECORATIVE STAMPED
COLOUR: OFF-WHITE



M3
ALUMINIUM CLADDING
BRAND: FAIRVIEW
TYPE: VITRACORE G2
COLOUR: PURE WHITE 9902



M4
TIMBER SCREEN / PANELS
TYPE: 300x35mm WIDE PLANKS
50x50mm WIDE BATTENS
COLOUR: NATURAL OAK



M5
BALUSTRADE
TYPE: POWDERCOATED ALUMINIUM
COLOUR: DULUX VIVID WHITE



M6
BALUSTRADE INFILL
TYPE: LARGE EXPANDED METAL MESH
COLOUR: MARINE GRADE STAINLESS STEEL



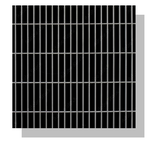
M7
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: COLORBOND RHEA



M8
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: BLACK SATIN - DULUX POWDERCOATING



M9
METAL CLADDING / ROOFING
BRAND: LYSAGHT
TYPE: ENSEAM
COLOUR: COLORBOND MONUMENT



M10
CAR PARK DOOR
TYPE: METAL GRILLE
COLOUR: MARINE GRADE STAINLESS STEEL



M11
GLAZING
COLOUR: CLEAR



M12
GLAZING
TYPE: FLUTED
COLOUR: OBSCURE

NOTES

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A: 28.09.2021
RESPONSE TO COUNCIL RFI

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
ELEVATIONS - EAST & WEST

TOWN PLANNING APPLICATION

Scale
1:150, 1:200 @ A1

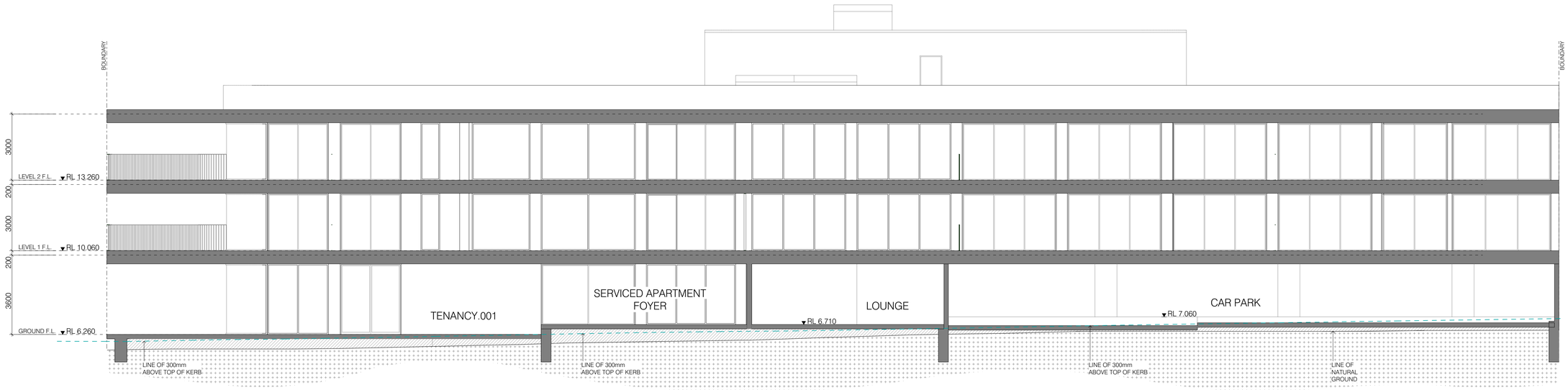
Drawn
E.P.

Job No.
21-09

Date
28.09.2021

Drawing No.
TPA10

Revision
A



A
-

SECTION A
SCALE @ A1 - 1:100

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RESPONSE TO COUNCIL RFI

Project
RETAIL & SERVICED APARTMENT BUILDING

2-4 THE ESPLANADE
INVERLOCH

Drawing Title
SECTION A

TOWN PLANNING APPLICATION

Scale
1:100 @ A1

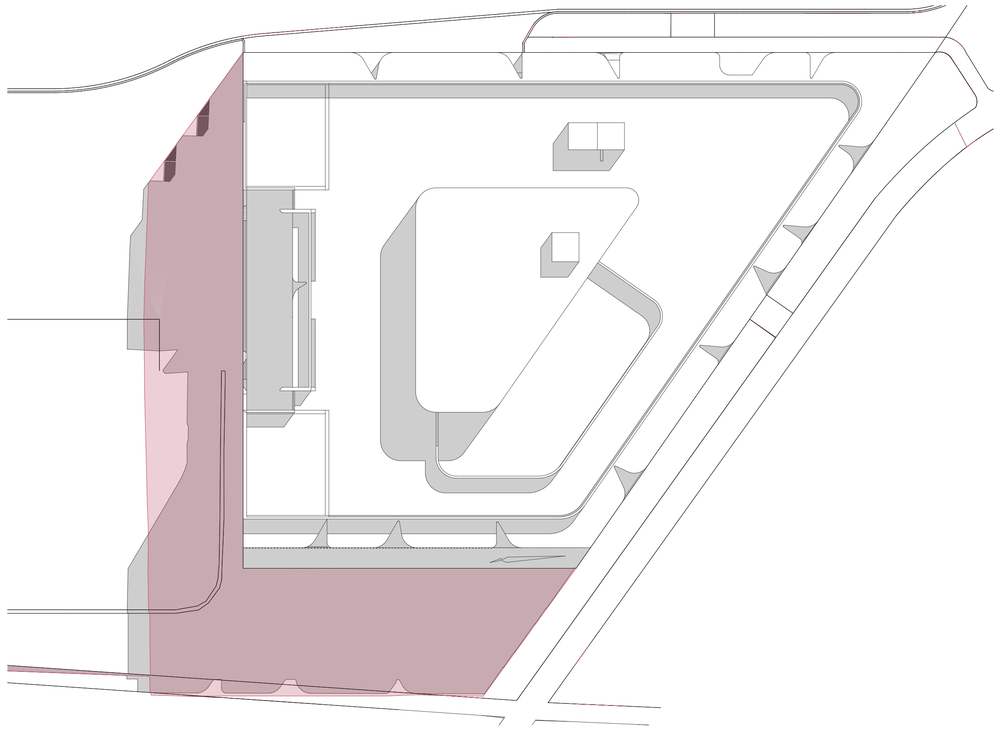
Drawn
E.P.

Job No.
21-09

Date
28.09.2021

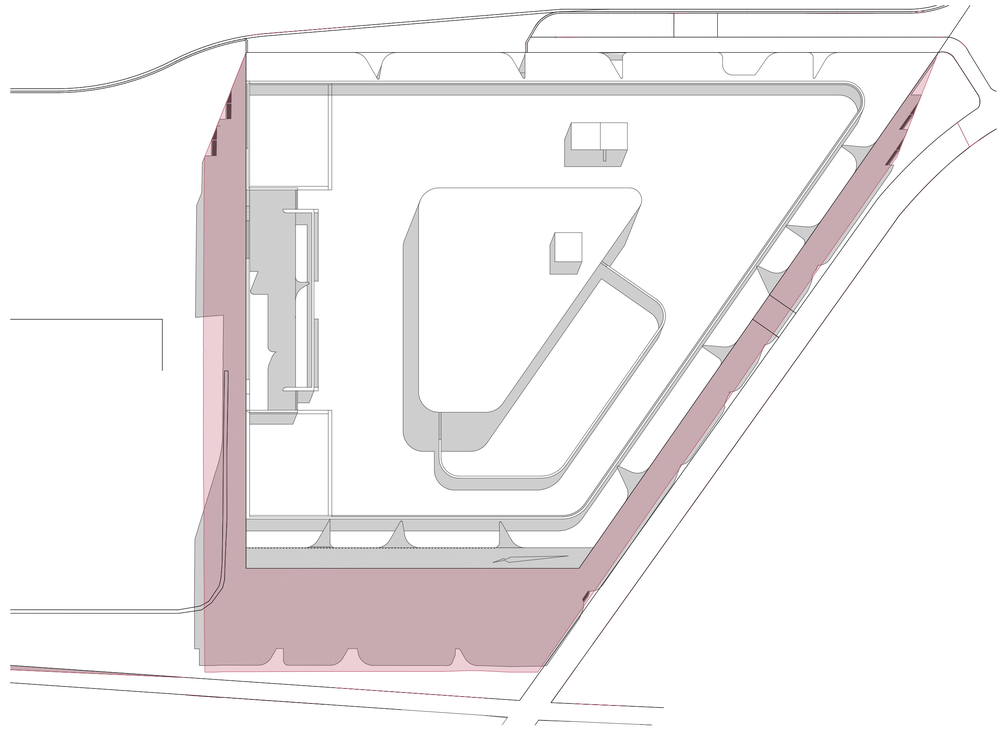
Drawing No.
TPA11

Revision
A



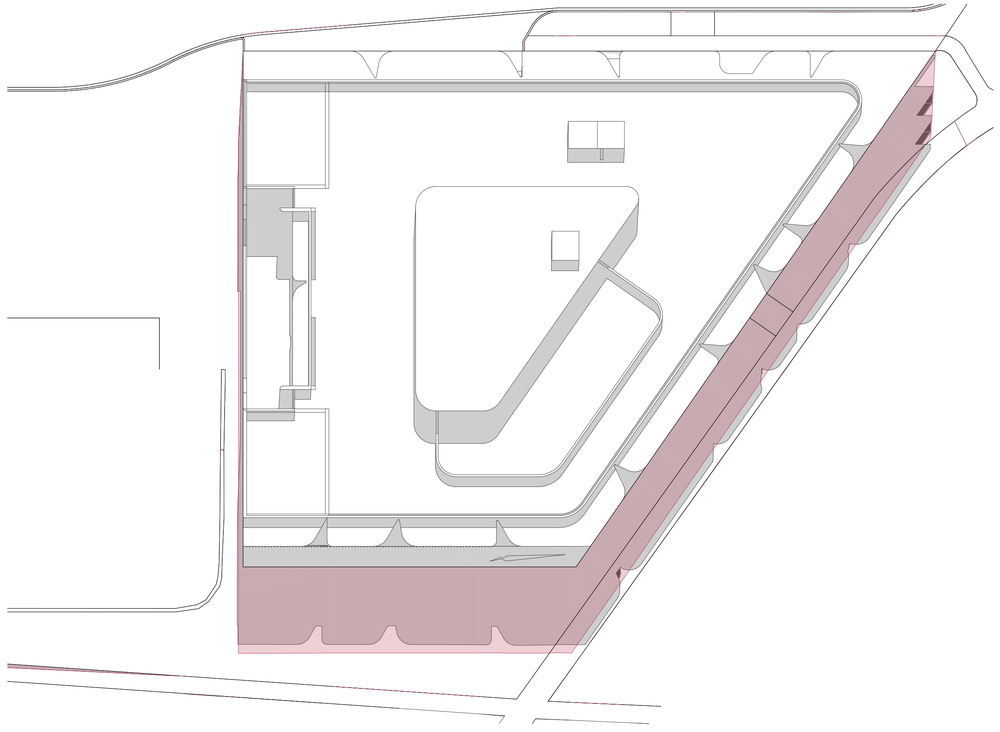
9AM
-

SHADOW EQUINOX 9AM SEPT. 22
SCALE @ A1 - 1:300



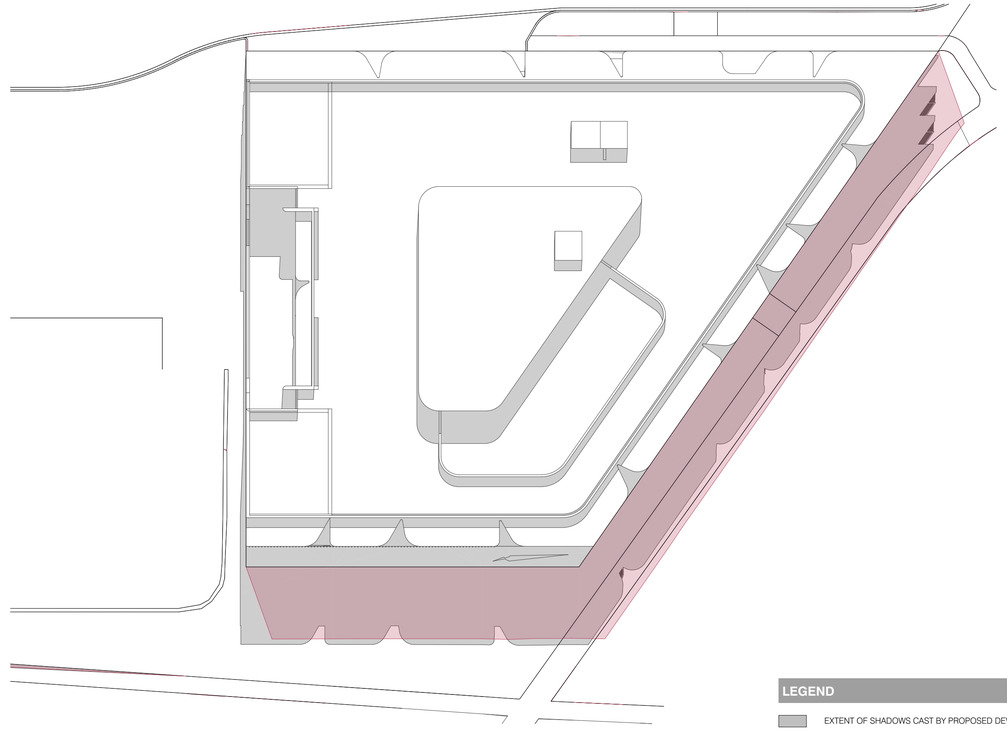
10AM
-

SHADOW EQUINOX 10AM SEPT.22
SCALE @ A1 - 1:300



11AM
-

SHADOW EQUINOX 11AM SEPT.22
SCALE @ A1 - 1:300



11AM
-

SHADOW EQUINOX 11AM SEPT.22
SCALE @ A1 - 1:300

LEGEND

- EXTENT OF SHADOWS CAST BY PROPOSED DEVELOPMENT.
- EXTENT OF SHADOWS CAST BY DDO SCHEDULE 10 ALLOWABLE VOLUME (9.5m HEIGHT, FULL SITE COVERAGE).

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Project
RETAIL & SERVICED APARTMENT BUILDING

2-4 THE ESPLANADE
INVERLOCH

Drawing Title
SHADOW DIAGRAMS

Scale
1:300 @ A1

Date
28.09.2021

TOWN PLANNING APPLICATION

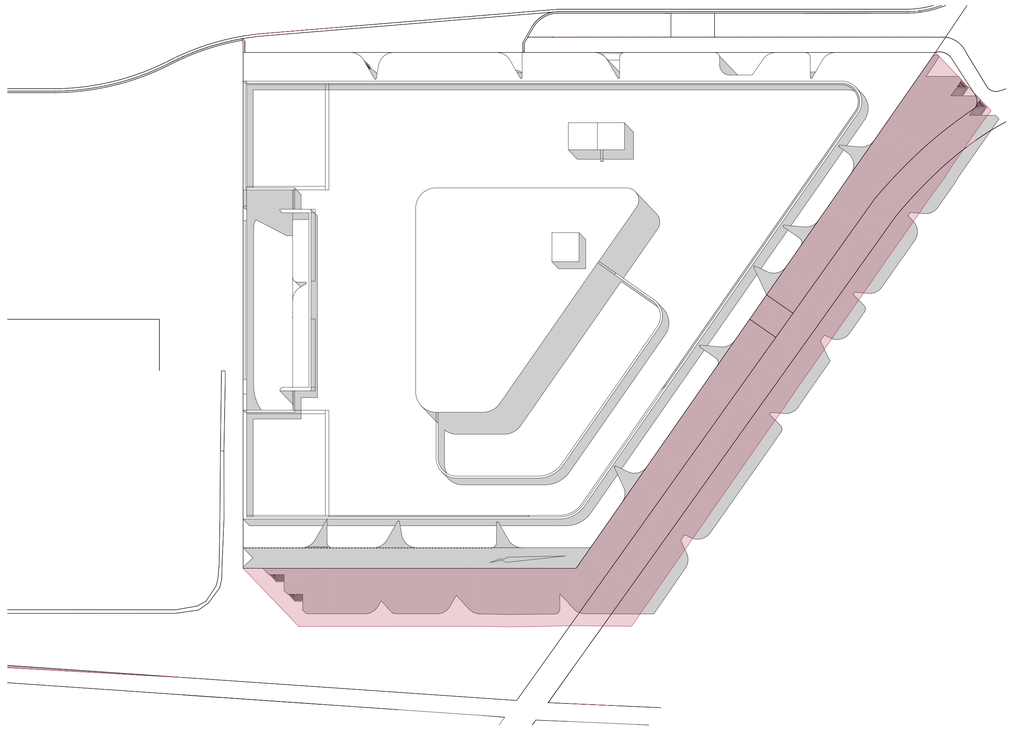
Drawn
E.P.

Job No.
21-09

Drawing No.
TPA12

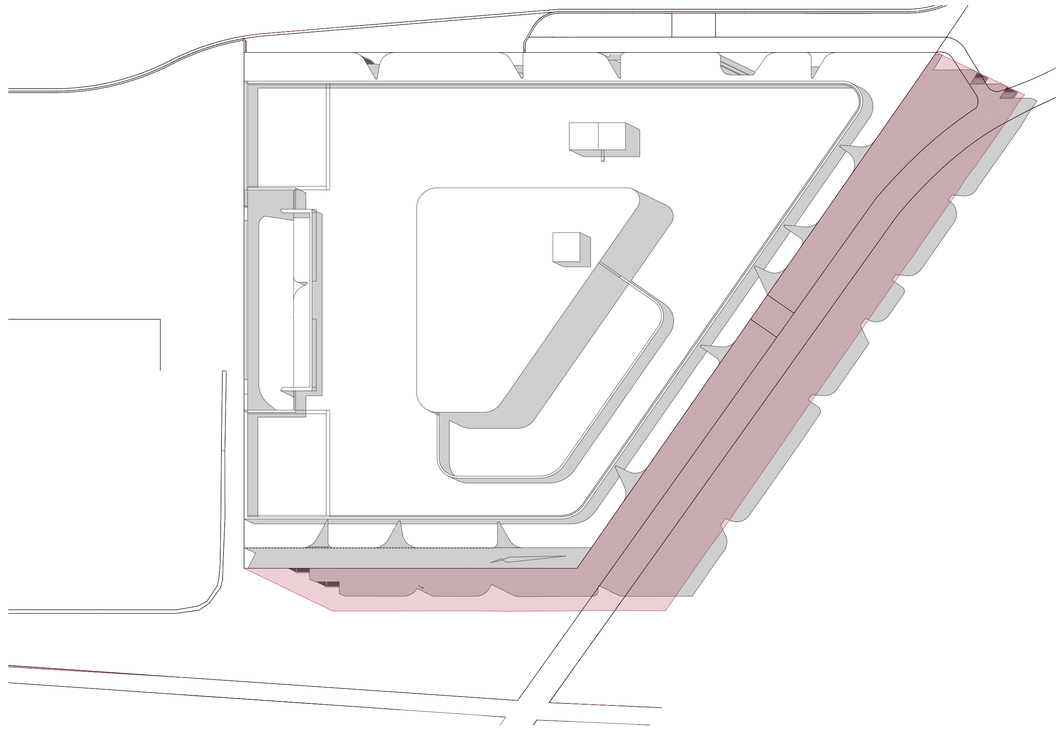
Revision
A

N



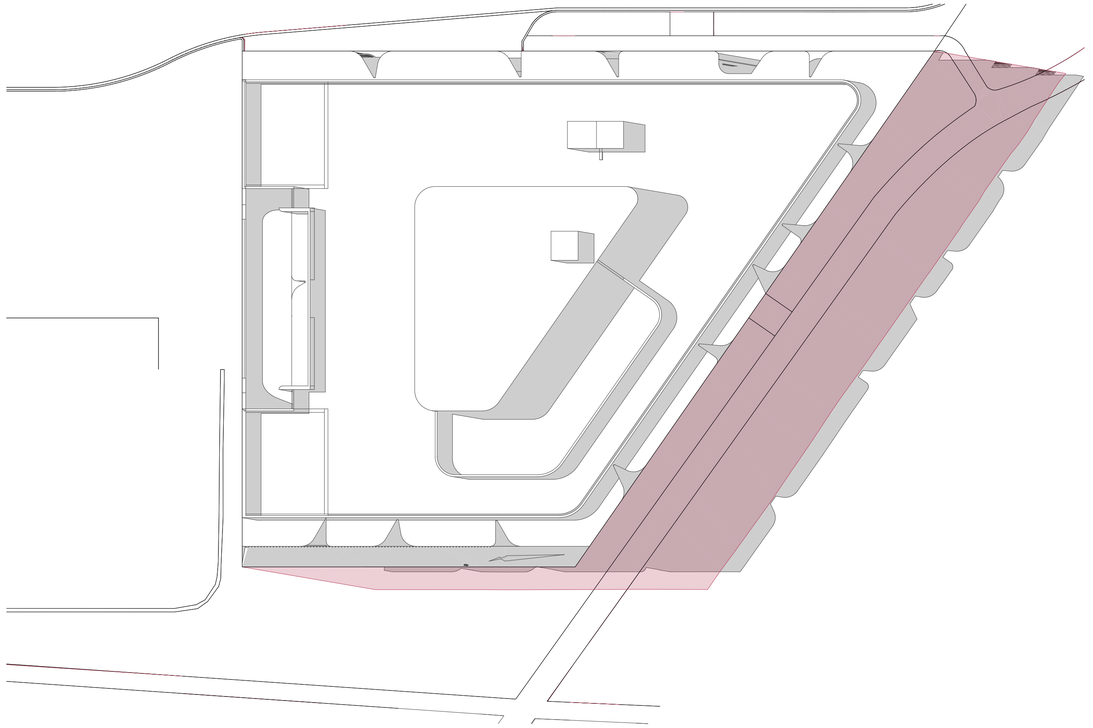
1PM
-

SHADOW EQUINOX 1PM SEPT.22
SCALE @ A1 - 1:300



2PM
-

SHADOW EQUINOX 2PM SEPT.22
SCALE @ A1 - 1:300



3PM
-

SHADOW EQUINOX 3PM SEPT.22
SCALE @ A1 - 1:300

LEGEND

- EXTENT OF SHADOWS CAST BY PROPOSED DEVELOPMENT.
- EXTENT OF SHADOWS CAST BY DDO SCHEDULE 10 ALLOWABLE VOLUME (9.5m HEIGHT, FULL SITE COVERAGE).

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Project
RETAIL & SERVICED APARTMENT BUILDING

2-4 THE ESPLANADE
INVERLOCH

Drawing Title
SHADOW DIAGRAMS

Scale
1:300 @ A1

Date
28.09.2021

TOWN PLANNING APPLICATION

Drawn
E.P.

Job No.
21-09

Drawing No.
TPA13

Revision
A

N

2-4 THE ESPLANADE, INVERLOCH

URBAN CONTEXT REPORT AND DESIGN RESPONSE

Prepared by **Hansen Partnership**
for **Forte Group Pty Ltd**

June 2021

urban planning | urban design | landscape architecture

SUBJECT SITE

Inverloch facing to the west

1.0 Introduction

1.1 Project background

The following urban context report has been prepared by Hansen Partnership on behalf of **Forte Group Pty Ltd** as part of a planning permit application for a proposed mixed use development at **2-4 The Esplanade, Inverloch.** Details of the proposed development are outlined on the architectural plans prepared by **Hachem Architects,** dated 28/06/2021. This report is based on an independent urban design assessment of the proposal.

The proposed development represents an excellent opportunity to realise Regional, State and Local Planning Policy for the development of land for this important mixed use opportunity within Inverloch. The proposal represents an appropriate form of development at a strategically important site that is commensurate with the ambitions for the site under DDO10 (Inverloch Marine Site, Inverloch). The design response has been configured to not harm the visual impact and image of the town centre of Inverloch. It is our view that the proposal sets a high benchmark and realises the coastal and open space qualities of the foreshore in Inverloch.

This report presents an analysis of the relevant built form and urban design matters, and demonstrates how the proposed development responds successfully to the key features of the urban context. The purpose of this report is to demonstrate that the proposed development will realise a positive 'fit' within its setting and is therefore one that deserves approval.

1.2 Document structure

Introduction

This section provides an introduction to the report including the document structure

Proposal

This section details the proposed development

Planning Provisions

This section provides a review of the state, local policy and planning provisions that relate to the site and surrounds

Urban Context

This section provides a description of the context which includes strategic, urban structure and landuse, access and transport, landscape and environment, and built form and architecture

Design Response

This section demonstrates how the proposal responds to the previous sections of the report

Conclusion

This section summarises the outcomes from the report

Appendix A: Photomontages

This section provides photomontage images of the proposed development



View of the site from the intersection of Williams Street and ABeckett Street



View of proposal from The Esplanade facing south-east

2.0 Proposal

The proposal is seeking approval to construct a 4 storey mixed use development at 2-4 The Esplanade, Inverloch. Specifically, the proposal comprises;

- A total of 48 car parking spaces at ground level with vehicle access from The Esplanade;
- 2 x retail/commercial tenancies (354.48m^2 total) at ground floor with reasonable undercover space in front of these tenancies to allow for activities and/or outdoor dining opportunities to 'spill' onto the street;
- The main pedestrian access to the apartments is located in a central position along The Esplanade frontage;
- Communal facilities comprising multi-purpose (86.5m^2 per level), break-out area (66.75m^2 per level) and lift lobby / break-out area (56.56 m^2 per level) at Levels 1 and 2;
- Levels 1 and 2 comprise a total of 42 apartments including 2 x studios, 26 x 1 bedroom and 14 x 2 bedrooms. The apartment have been arranged around a central lift core and internal corridor;
- Level 3 comprises a bar with associated roof top terrace/garden area;
- The massing strategy has been arranged with an articulated 3 storey with deep recesses and a highly recessive 4th storey;
- The maximum building height is 4 storeys (14.2m).
- The design has been inspired by a combination of Anderson Inlet and the foreshore reserve of The Glade. The proposal provides a selection of building finishes and materials that merges built form to the surrounding natural features. This primarily includes brick pattern tiles (grey) with strong horiztonal aluminium framing elements (white).



View of the proposal from The Glade facing to the west

3.0 Planning Provisions

3.1 Planning Policy Framework

The relevant policies relating to urban design matters in the State Planning Policy Framework include:

- Clause 11 Settlement
- Clause 12 Environmental and Landscape Values;
- Clause 13 Environmental Risks and Amenity;
- Clause 15 Built Environment and Heritage; and
- Clause 17 Economic Development.

The proposal is consistent with the ambitions set out within Planning Policy Framework, as it seeks to provide a comprehensive mixed use development on a large parcel of land within an established Commercial Area and close to public transport.

3.2 Local Planning Policy Framework

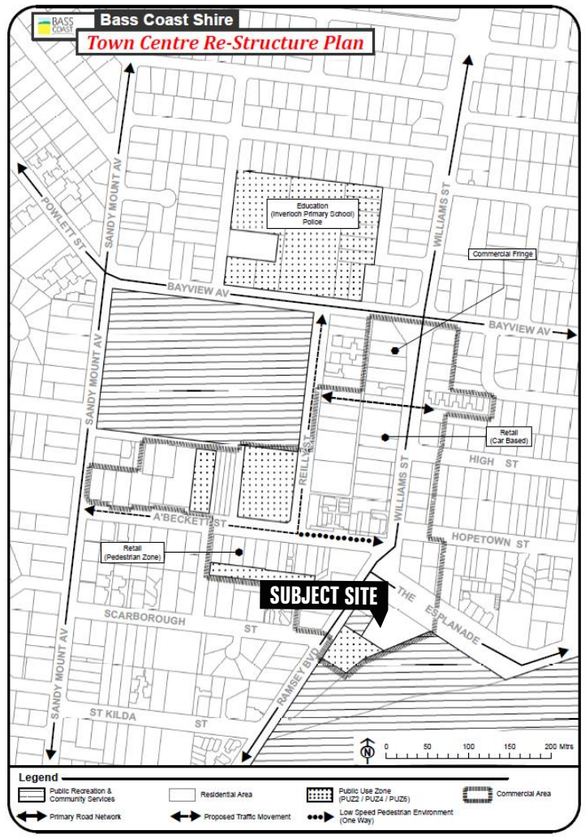
The relevant policies relating to urban design matters in the Local Planning Policy Framework include:

- Clause 21.01 Municipal Profile;
- Clause 21.02 Settlement;
- Clause 21.03 Economic Development;
- Clause 21.04 Environment;
- Clause 21.05 Landscape and Built Form;
- Clause 21.08 Moderate Growth Settlements; and
- Clause 21.10 Reference Documents

Local Planning Policy builds on the framework outlined at State level by providing more specific guidelines for the use and development of land within the Municipality. There is clear support to increase housing densities in proximity to commercial centres, and in such areas should add to the diversity of the built environment, enhance the sense of place and incorporate principles of Environmentally Sensitive Design.

Clause 21.08-2 provides specific guidance on the coastal town of Inverloch. The proposed development responds to the need for encouraging a compact town commercial town centre as defined in the Town Centre Re-Structure Plan (see right). It provides a built form that responds to its environmental and landscape features of the urban and foreshore areas with a specific focus on its architecture reflecting the coastal setting.

There is limited guidance within Clause 21.08-2 for the subject site, compared to the surrounding area. The Residential Character Areas Map identifies that development within the Town Centre (Character Area 1) immediately to the north of the site can accommodate 'built form more intense, rising to 3-4 storeys away from the residential interface' and 'opportunities for townhouse apartment style living'. To the north-east of the site is the Medium Density Housing (Character Area 1) which indicates '2-3 storey townhouse and apartment style housing'.



Map 3: Inverloch Towns Centre Re-Structure Plan in Clause 21.08

Other relevant strategies and documents

- *Inverloch Design Framework, 2011;*
- *Urban Design Charter for Victoria, 2009;*
- *Better Apartment Guidelines, 2017;*
- *The Siting and Design Guidelines for Structures on the Victorian Coast, 1998;*
- *Victorian Coastal Strategy, 2014; and*
- *Urban Design Guidelines for Victoria, 2017.*

3.3 Inverloch Design Framework 2011

The Inverloch Design Framework 2011 recognises that the subject site is within the 'Existing Mixed Use Zone' and should apply a 'Site Specific Design and Development Overlay' as shown below. Notably, the site is located at a junction of the 'Primary Road network' and within the '"Heart Beat" (community space)' area.

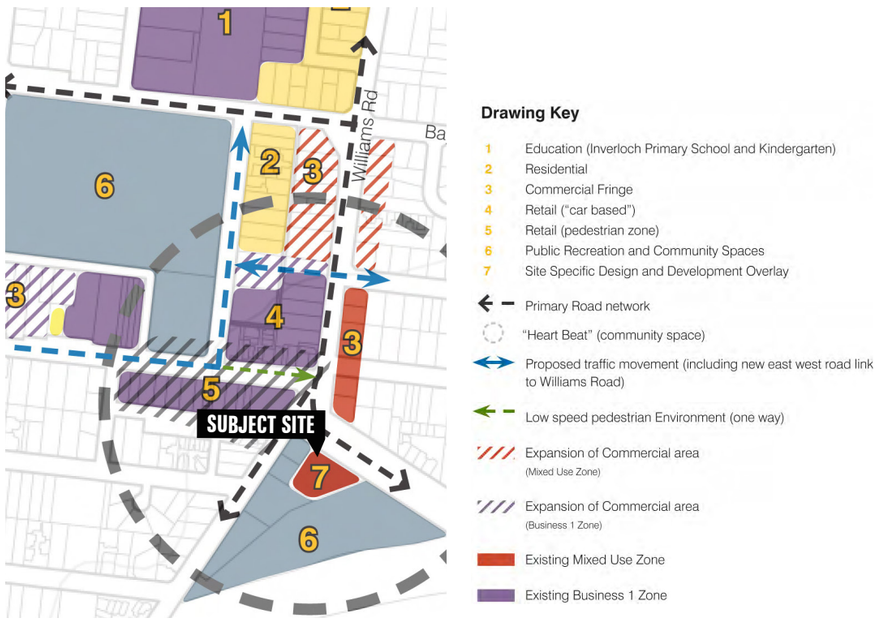


Figure 4 Town Centre Re-Structure Plan in Inverloch Design Framework 2011

3.4 Planning Provisions

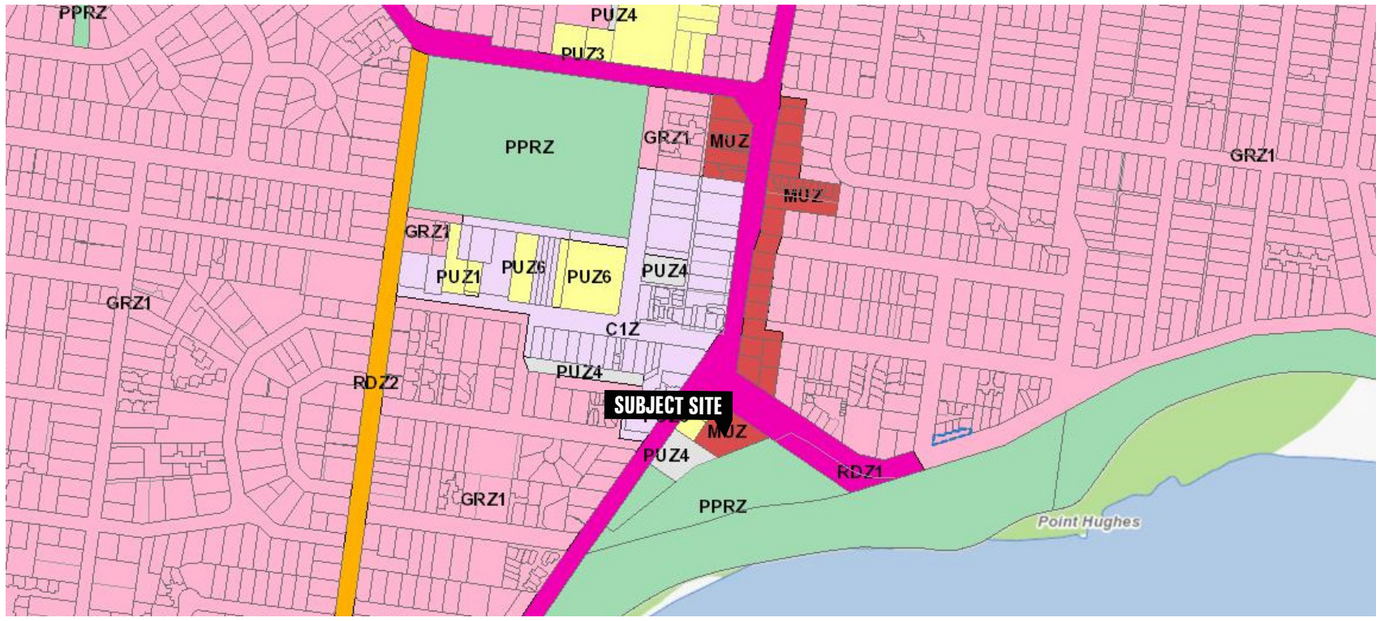
The subject site is located within a **Mixed Use Zone**. As outlined in Clause 32.04, the purpose of the zone is to:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To provide for a range of residential, commercial, industrial and other uses which complement the mixed-use function of the locality.*
- *To provide for housing at higher densities.*
- *To encourage development that responds to the existing or preferred neighbourhood character of the area.*
- *To facilitate the use, development and redevelopment of land in accordance with the objectives specified in a schedule to this zone.*

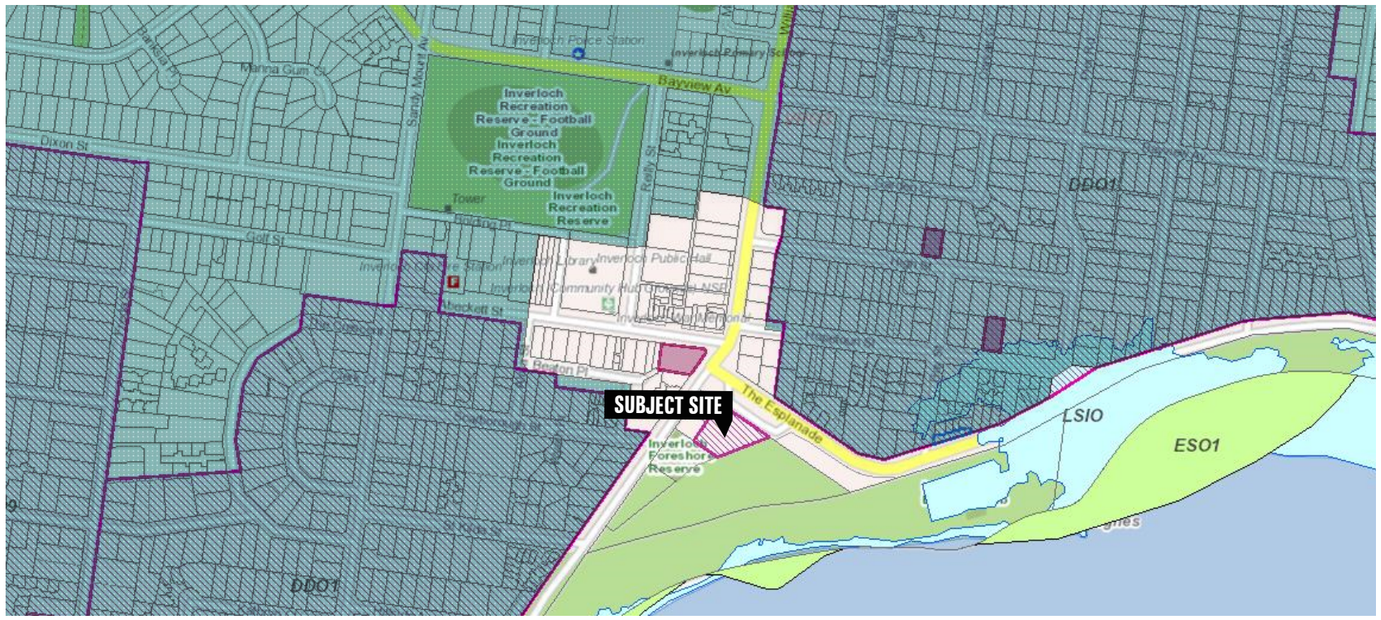
The site is affected by **Design and Development Overlay - Schedule 10 (DDO10)**. DDO10 objectives include:

- *To create strong orientation toward the foreshore and integration with surrounding public open space, in particular, The Glades Picnic Ground.*
- *To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping.*
- *To protect and enhance the visual permeability of the site.*
- *Development should provide a high quality interface to the street and commercial frontage.*
- *To encourage a high quality design outcome with a community focus on the private land within the foreshore precinct.*

DDO10 seeks a discretionary maximum height of 9.5m from natural ground to roof line, with a minimum front setback of 1.5m for the first floor. First floor residential should also achieve a minimum rear setback of 1m.



Zone Map



Overlay Map

4.0 Urban Context

In assessing the urban design merit of the proposed mixed use development, particular attention has been paid to how the presentation of new built form responds to its key landform and scenic attributes of this unique site, as well as the important landscape features. The key design considerations include:

- Strategic;
- Urban Structure & Land Use;
- Access & Transport;
- Landscape & Environment; and
- Built Form & Architecture.

Each of these considerations are addressed in the following sections of the report. A diagram and supporting text explain the context. The following chapter will provide a response to the urban context. In this regard, the assessment addresses each of the relevant parameters of the Bass Coast Planning Scheme in terms of the requirements for an urban context report and related urban design assessment matters.



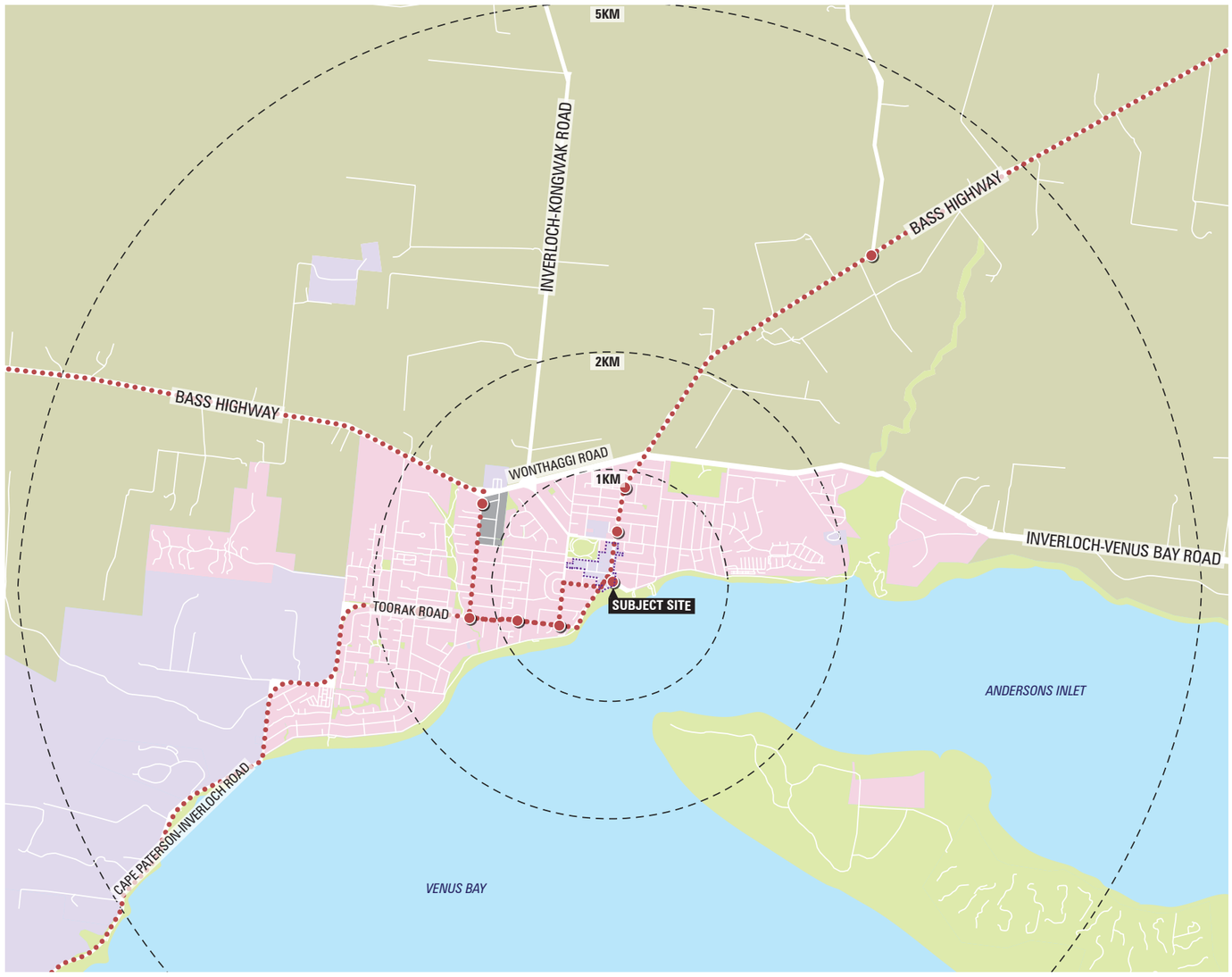
View of proposal from Glade Reserve

4.0 Urban Context

4.1 Strategic

The subject site is located in the well established Commercial Area of Inverloch. This area is provided with the highest concentration of infrastructure and services. Growth and densification of these centres is necessary to give communities access to a wide range of goods and services, provide local employment and support local economies.

The site is close to the coastline and foreshore of Anderson Inlet to the south. This being one of the natural elements contributing to the unique character of Inverloch.

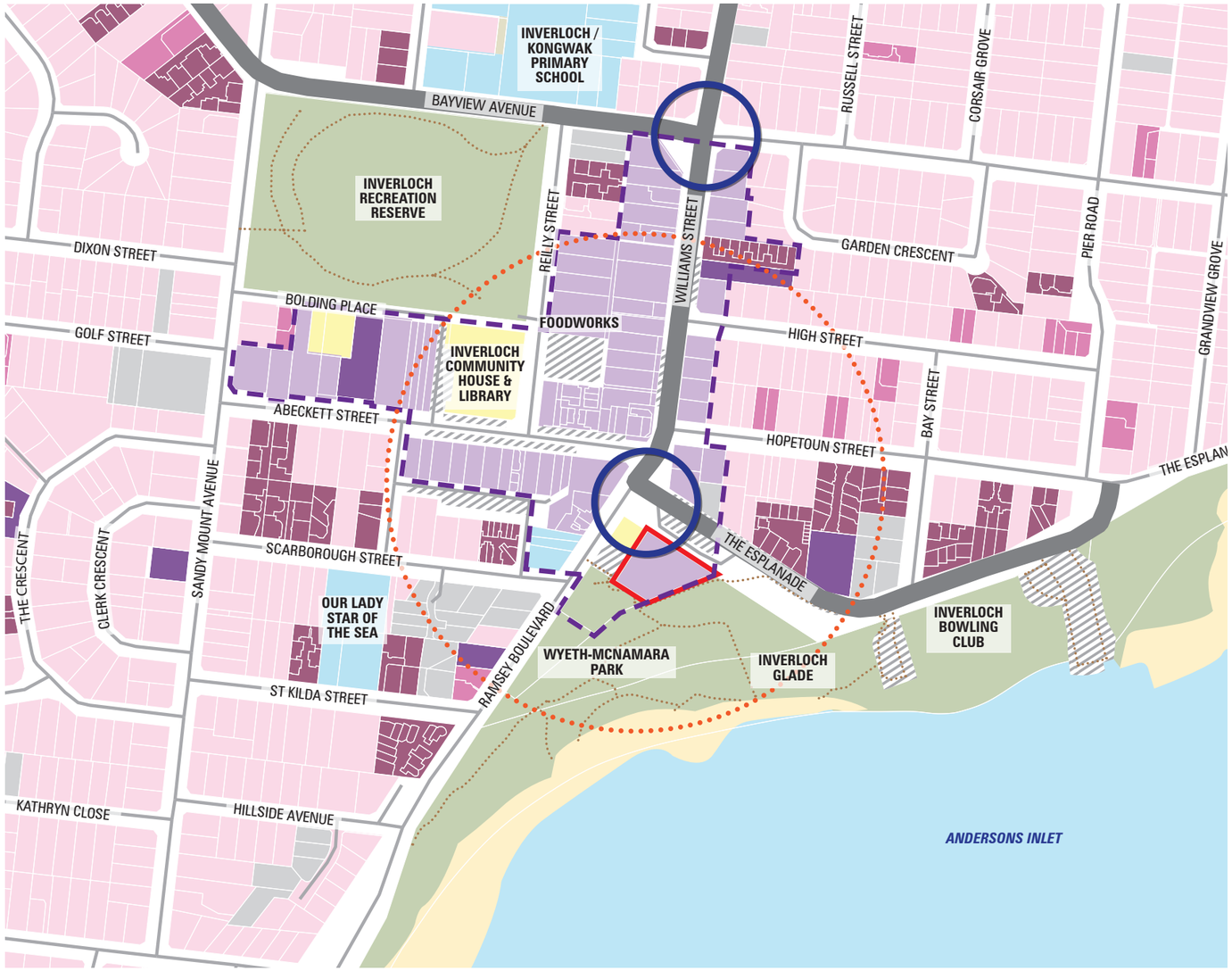


4.0 Urban Context

4.2 Urban Structure and Landuse

Urban structure and land use refers to the existing operation and configuration of parcels within the surrounding context. An appropriate design response is one which capitalises on its location and complements the surrounding development pattern with particular emphasis on the anticipated character of the area.

- The subject site comprises a reasonably large parcel of 2,536.1m^2 on a key intersection within the Commercial Area (as defined in the Town Centre Re-Structure Plan)
- The site enjoys 'island site' attributes, with interface to public open space and roads on all sides, except to the north-west. To the north-east, the site adjoins a collector road, namely The Esplanade. To the south-east and south-west, the site abuts Inverloch Glade and Wyeth-McNamara Park public open spaces. Adjoining to the west, is the Bunurong Environment Centre and a carpark.
- There is a supermarket (Foodworks) along Reilly Street, where people will be able to pick up shopping essentials.
- The site is well serviced with education, community facilities and public open space.
- Traditional housing stock is surrounds the site with instances of more recent housing developments on multiple lots closer to the Commercial Area.



4.0 Urban Context

4.4 Landscape and Environment

Any new development should also seek to enhance the streetscape condition through both built and landscape initiatives and establish an internal environment that relates to the natural characteristics of the land and contributes to the landscape and visual framework of the context.

- Anderson Inlet is one the key natural elements of the quality and attractiveness of Inverloch. The defining features of the setting include low-lying open flood plain that is highly accessible for providing a range of recreational activities. It is a significant scenic feature and ecological landscape.
- Inverloch Glade and Wyeth-McNamara Park to the immediate south-east and south-west of the site provide for informal recreation opportunities which transitions from the township to the foreshore of Anderson Inlet. Inverloch Glade consists of grassed areas, seating, BBQ areas, canopy vegetation and a sound shell currently under construction for live performances. Wyeth-McNamara Park comprises a playground, BBQ areas and canopy vegetation.
- Within the broader context, the land is generally rising from Anderson Inlet. The site is situated at a topographical low point for urban development in Inverloch. A notable high point is at the intersection of A'Beckett Street and Sandy Mount Avenue (RL 20.5), with lowest points at the foreshore of Anderson Inlet (RL 1.5-2.5).
- From further afield, views to the site at elevated ground are currently limited by existing structures and vegetation. At closer range, the site is visible from the intersection of Williams Street and The Esplanade, Inverloch Glade Park, Wyeth-McNamara Park and partly along The Esplanade from the east.
- Views to the site from the foreshore are limited due to the low topography and the extent of native vegetation (belt) along the coastline.
- The subject site does not contain any vegetation. Its immediate interface comprises a mix of native and exotic mature canopy trees. Notably, there are a 5 trees to the south and south-west that have Tree Protection Zone that extent within the boundary of the site. Most of the trees are of low retention value.
- There is large verge along The Esplanade comprising substantial canopy vegetation. There is a range of street furniture (seating, bins, bus shelter) in front of the subject site along The Esplanade.

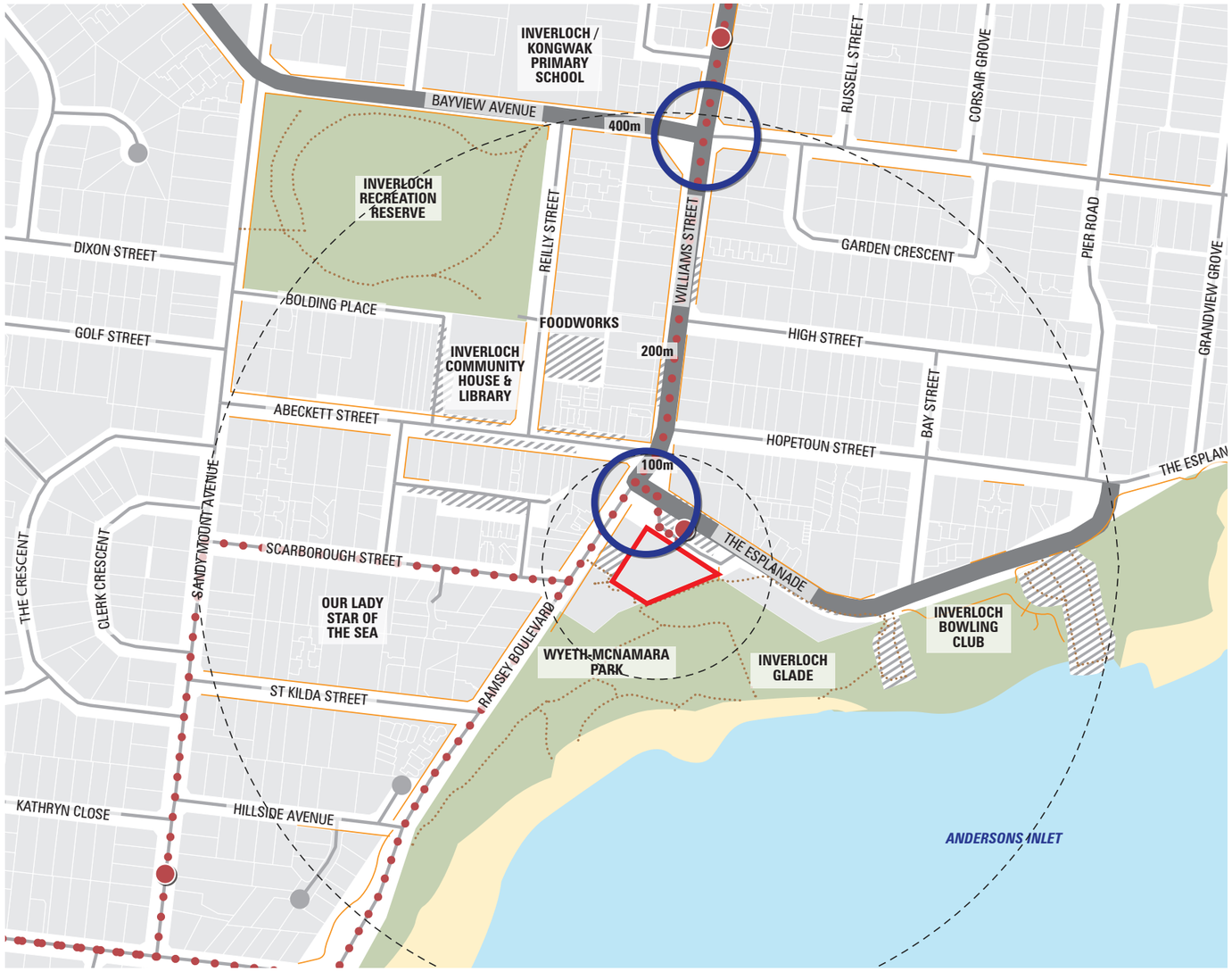


4.0 Urban Context

4.3 Access and Movement

The local street network services the urban area for both pedestrian and vehicle movement. It is important that a development establishes its own legible network and integrates well with the surrounding area. Careful design of the street edge and the thoughtful positioning of site, building and car park entries contribute to the safety, comfort and interest of the street.

- Williams Street, Bayview Avenue and The Esplanade are the main roads (collector roads) within the main commercial centre of Inverloch.
- The area has good access to public transport with bus routes along The Esplanade, Williams Street and Ramset Boulevard connecting to metropolitan Melbourne. The closest bus stop is located directly in front of the subject site.
- The area has designated bicycle routes along Williams Street and footpaths along the key streets. Pedestrian footpaths are inconsistent, with some side streets with no formal footpath on either side of the street.
- The site is currently serviced by 3 designated vehicle crossovers on the slip lane to the north-east of the site.
- Residential lots to the north along The Esplanade comprise individual crossovers from the roadway to garage and carport areas. The dwellings generally feature generous front and rear setbacks.
- There are numerous pedestrian paths/trails from Inverloch Glade and Wyeth-McNamara Park to access Anderson Inlet coastline.
- A separated split lane from The Esplanade comprises a number of carparks directly in front of the subject site.



4.0 Urban Context

4.5 Built Form and Architecture

New development should seek to achieve a comfortable 'fit' with the scale and massing of the preferred development in the area, whilst achieving the most efficient use of the land in well connected locations. This section addresses building height, massing and design language of the proposal and its surrounds.

- The subject site contain a 1-2 storey commercial building with a flat roof. The remainder of the site is dominated by at grade carpark for the sale of boats.
- Surrounding residential built form is predominantly 1 to 2 storey more domestic format. Due to the fall in topography the dwellings present as a 2 storey when viewed from the subject site. These buildings vary in style and construction era (new and old).
- Land within the Commercial Area is predominantly low in scale with single storey fine grain retail buildings. Notable taller development consist of the Foodworks and the Inverloch Esplanade Hotel with heights up to 2 storey.
- Land generally within the Commercial Area is anticipated to increase the development scale of the area 'rising to 3-4 storeys away from the residential interface' with 'opportunities for townhouse apartment style living' (Clause 21.08-2).
- Residential land outside the Commercial Area indicates capacity for '2-3 storey townhouse and apartment style housing' (Clause 21.08-2). These properties near the coast are affected by a Design and Development Overlay - Schedule 1 which seeks to ensure that views are maintained to and from the coast, there are minimal impacts of the coastline, protects and maintains the visual amenity and landscape of the coast and respond to climate change.



Legend

- Subject Site
- Commercial Area
- 1 Storey Commercial
- 2 Storey Commercial
- 1 Storey Dwelling
- 2 Storey Dwelling
- Glade Shell Shelter
- 2-3 Storey (Cl. 21.08-2)
- 3-4 Storey (Cl. 21.08-2)
- Heritage Overlay
- Connector Roads
- Local Roads
- Pedestrian Trails
- Public Open Space
- Coast
- Waterbody
- Site Specific Design and Development Overlay (Inverloch Design Framework 2011) – 9.5m

5.0 Design Response

5.1 Urban Form and Height

Strategically, the subject land is particularly well located with regard to its main road address to The Esplanade and position at the corner with Inverloch Glade and Wyeth-McNamara Park. The land is located within a Mixed Use Zone and is a significant parcel of 2,536.10m^2 in area within the Commercial Area as identified in Clause 21.08-2. Both State and Local Policy seek intensification of development in and around Activity Centres. The land within the Commercial Area has indicated opportunity for development to 3-4 storeys, with 2-3 storeys within the surrounding residential area. There are no direct residential abuttals and maintains views to and from residential properties. We consider that the subject site lends itself to a well designed higher density development and the attention drawn to the strategic corner site is such that it deserves a 'bespoke' design response.

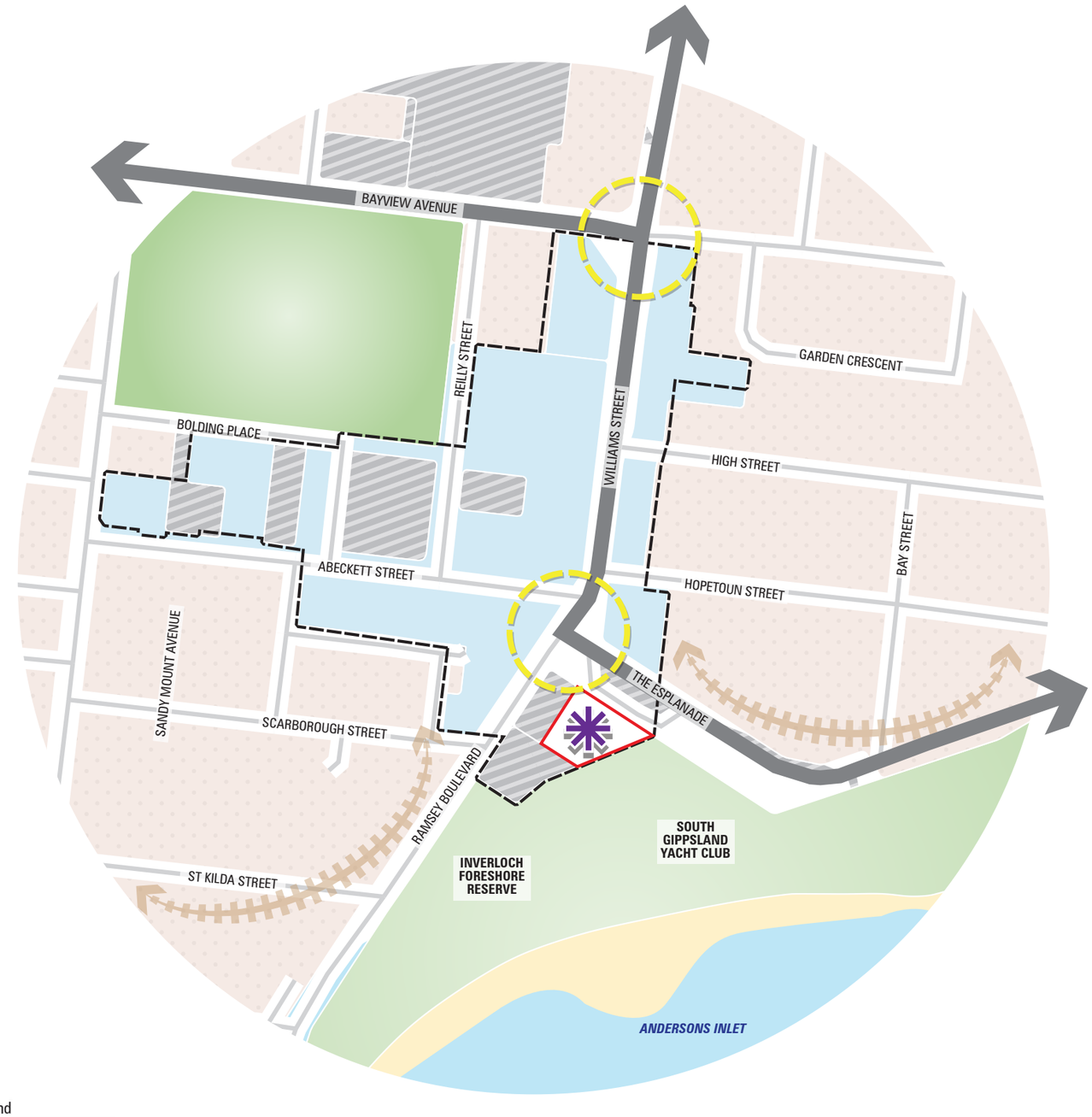
While we recognise the DDO10 indicates a 9.5m height for the site, the quality of the design proposition, including the highly contemporary shaping of the proposal, design language and materials employed, the development configuration and positive contribution to the coastal and landscape character of Inverloch.

The proposed development has been assessed against a series of urban design tests to determine a site-specific rationale for an increase in development scale to 3-4 storeys. The following key urban design tests will be discussing the following chapters:

- Visual Impact;
- Relationship with the park;
- Overshadowing; and
- Architectural Contribution.

We are satisfied that the proposal demonstrates a 'bespoke' response and one that is fitting in satisfying the objectives of DDO10:

- *To create strong orientation toward the foreshore and integration with surrounding public open space, in particular, The Glades Picnic Ground.*
- *To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping.*
- *To protect and enhance the visual permeability of the site.*
- *Development should provide a high quality interface to the street and commercial frontage.*
- *To encourage a high quality design outcome with a community focus on the private land within the foreshore precinct.*



5.0 Design Response

5.1 Urban Form and Height

Visual Impact - View 1

This view location was chosen on the basis that it is representative of views on the approach to the Town Centre along Romsey Boulevard from the south-west. As illustrated below, the proposal will be visible within this view, but will not compromise the predominant canopy tree line and upper levels will be confined to a small portion of the site. This view represents **minimal** impact.

"To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping."



Existing View



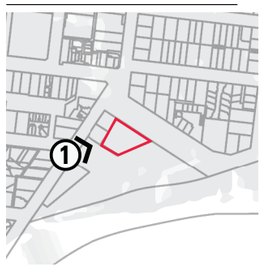
Proposed View

Legend

DDO10 - 9.5m envelope

Predominant Canopy Line

Photo Location



5.0 Design Response

5.1 Urban Form and Height

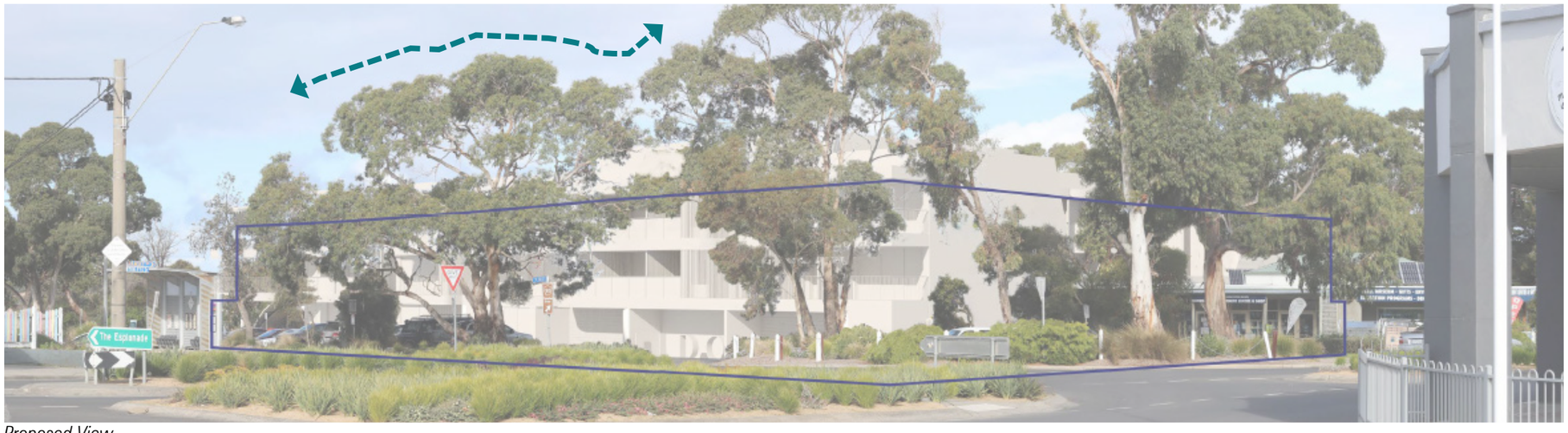
Visual Impact - View 2

This view location was chosen on the basis that it is representative of views at an intersection within the Town Centre (Williams Street/ABeckett Street). As illustrated below, the proposal will be visible within this view, but will not compromise the predominant canopy tree line and is largely concealed by significant vegetation. This view represents **minimal** impact.

"To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping."



Existing View



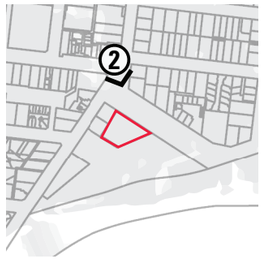
Proposed View

Legend

DDO10 - 9.5m envelope

Predominant Canopy Line

Photo Location



5.0 Design Response

5.1 Urban Form and Height

Visual Impact - View 3

This view was chosen on the basis that it is representative of views at the intersection of Williams Street/Inverloch-Korumburra Road. As illustrated below, the proposal will be largely concealed behind existing buildings and vegetation. The site and proposed development's presentation is more confined in this view and at a distance. The proposal will not compromise the predominant canopy tree line. This view represents **minimal** impact.

"To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping."



Existing View



Proposed View

Legend

DDO10 - 9.5m envelope

Predominant Canopy Line

Photo Location



5.0 Design Response

5.1 Urban Form and Height

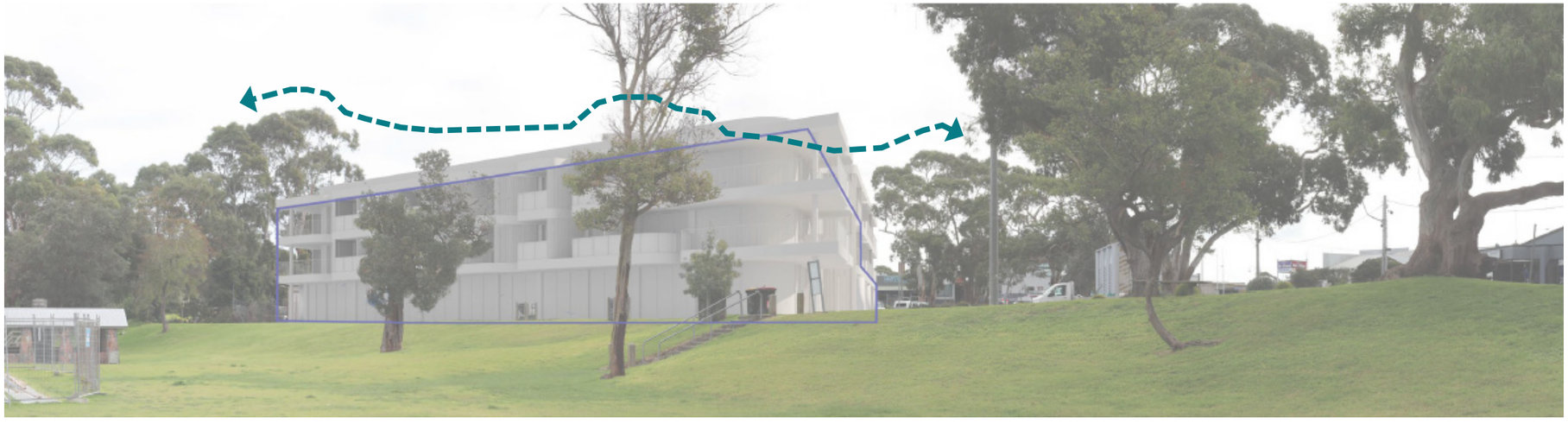
Visual Impact - View 4

This view location was chosen on the basis that it is representative of views within Inverloch Glade. As illustrated below, the proposal will clearly be visible within this view. The proposal will sit above the predominant canopy tree line, however there is little doubt that will be the case for any notable building on the site. This view represents **limited** impact.

"To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping."



Existing View



Proposed View

Legend

DDO10 - 9.5m envelope

Predominant Canopy Line

Photo Location



5.0 Design Response

5.1 Urban Form and Height

Visual Impact - View 5

This view location was chosen on the basis that it is representative of views on the approach from the east to the town centre along The Esplanade. As illustrated below, the proposal will be visible from this location. The proposal will not compromise the predominant canopy tree line and upper levels are confined to a small area on the site. This view represents **minimal** impact.

"To minimise the impact of development on surrounding areas by utilising contemporary coastal design principles and landscaping."



Existing View



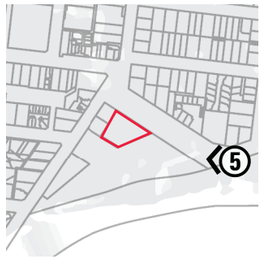
Proposed View

Legend

DDO10 - 9.5m envelope

Predominant Canopy Line

Photo Location



5.0 Design Response

5.1 Urban Form and Height

Relationship with the Park

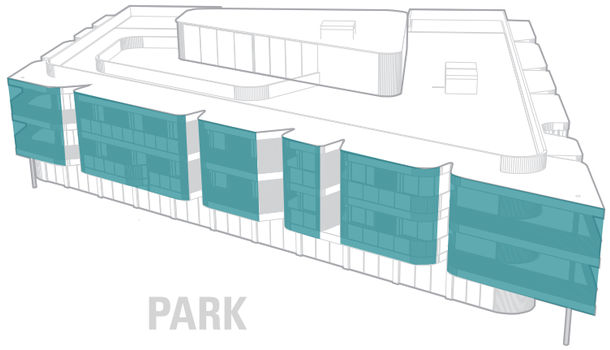
The DDO10 seeks to ensure development protect and enhance visual permeability through the site and will respond appropriately with the surrounding public open spaces. The proposal has been carefully curated and intelligently designed in response to provide an appreciation and enjoyment of the 'natural' elements. This will reinforce the development integration and will not diminish the important natural effects achieved within the parkland.

In essence, the proposal includes the following key gestures to successfully integrate with the surrounding public open spaces:

- Framing and enclosure;
- Orientation and outlook;
- Articulated edges; and
- Visual permeability.

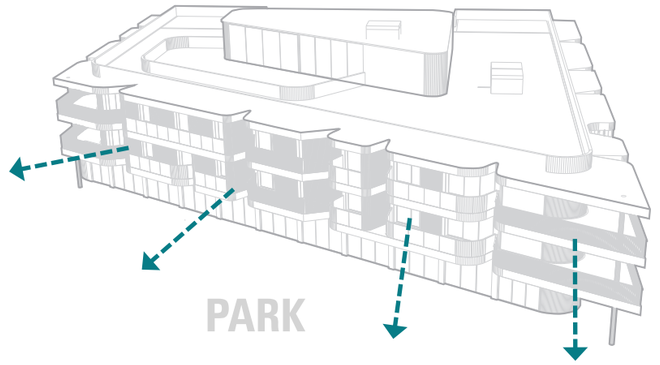
"To create strong orientation toward the foreshore and integration with surrounding public open space, in particular, The Glades Picnic Ground."

"To protect and enhance the visual permeability of the site."



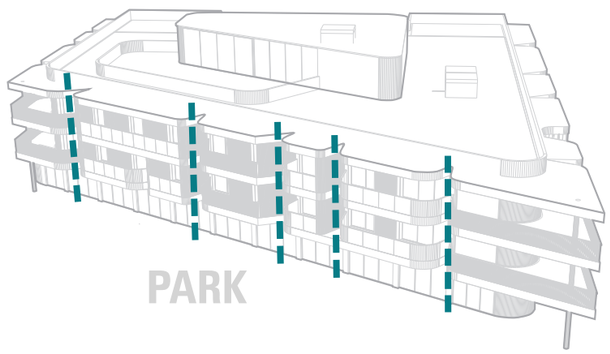
FRAMING AND ENCLOSURE

The proposal maintains a human scale through adopting a height of 3 storeys (with a recessive 4th storey) and will reinforce and frame the wide open profile of the adjoining parks. The increased width of the park allows for greater heights without appearing disproportionate.



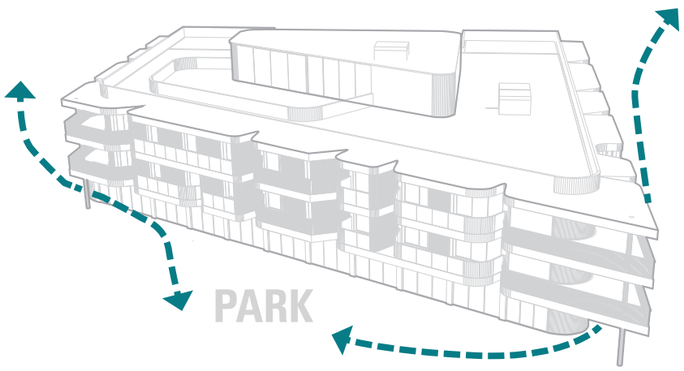
ORIENTATION AND OUTLOOK

The design is underpinned by maximising outlook and orientation to the park. This has been enhanced by the openings, windows and balconies which celebrates its relationship with the natural elements and activates the edges of the park



ARTICULATED EDGES

The proposal incorporates recessive elements to provide for greater articulation and visual interest along the park. This will minimise visual bulk and ensure that the built form will successfully blend in with the surrounding landscape.



VISUAL PERMEABILITY

The proposal provides a highly permeable and activated ground floor edges through the use of open colonnades allowing for improved connections from the town centre to the park.



View of proposal from The Esplanade at the interface with the park

5.0 Design Response

5.1 Urban Form and Height

Overshadowing

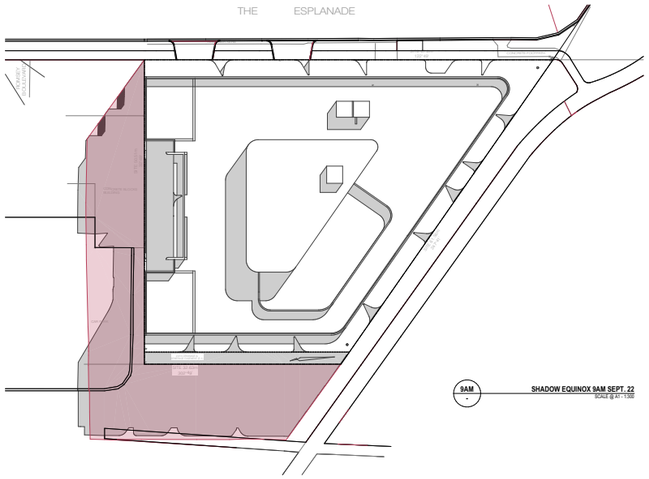
The proposal will cast shadows over the Inverloch Glade and Wyeth-McNamara Park. The extent of shadowing above DDO10 controls is not considered unreasonable because there are variations in the shadow (more and less) creating fast moving shadows.

"To create strong orientation toward the foreshore and integration with surrounding public open space, in particular, The Glades Picnic Ground."

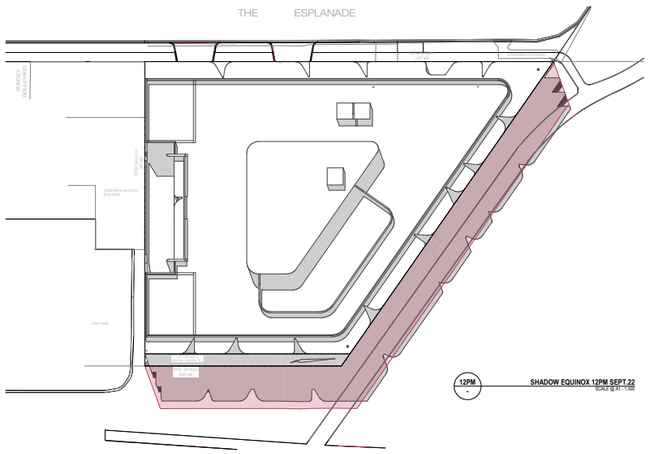
Legend

- Extent of shadows cast by proposal
- Extent of shadows cast by DDO10 - 9.5m and 100% site coverage

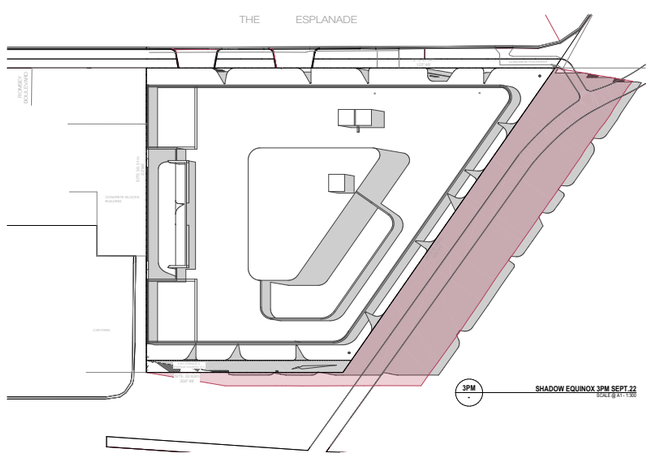
9.00am (Equinox)



12.00pm (Equinox)



3.00pm (Equinox)



5.0 Design Response

5.1 Urban Form and Height

Architectural Contribution

The overall architectural design of the proposed development is a suitable benchmark for other developments within the town centre. The quality of the design proposition, including the highly contemporary shaping of the proposal, design language and materials employed, the development configuration and positive contribution to the coastal and landscape character suggest that this proposal could exceed the DDO10 parameters.

The proposal achieves design and architectural excellence that contribute positively to the local urban character and enhances the public realm in the following ways:

- The proposal incorporates a highly activated ground floor with openings, glazed windows and colonnades for activities to 'spill' onto the street and parkland;
- The proposal has been articulated with deep recesses of a variety of sizes and shapes along the façade. This concept will minimise visual bulk and ensure that the built form will successfully blend with the surrounding landscape; and
- The design has been inspired by coastal elements from the gently undulating waters of the ocean and the intricate shapes and patterns of seashells. This has been achieved through the curved edges along the façade which creates a sense of place where there is a strong relationship between the physical environment and people's emotional experience.

"Development should provide a high quality interface to the street and commercial frontage."

"To encourage a high quality design outcome with a community focus on the private land within the foreshore precinct."

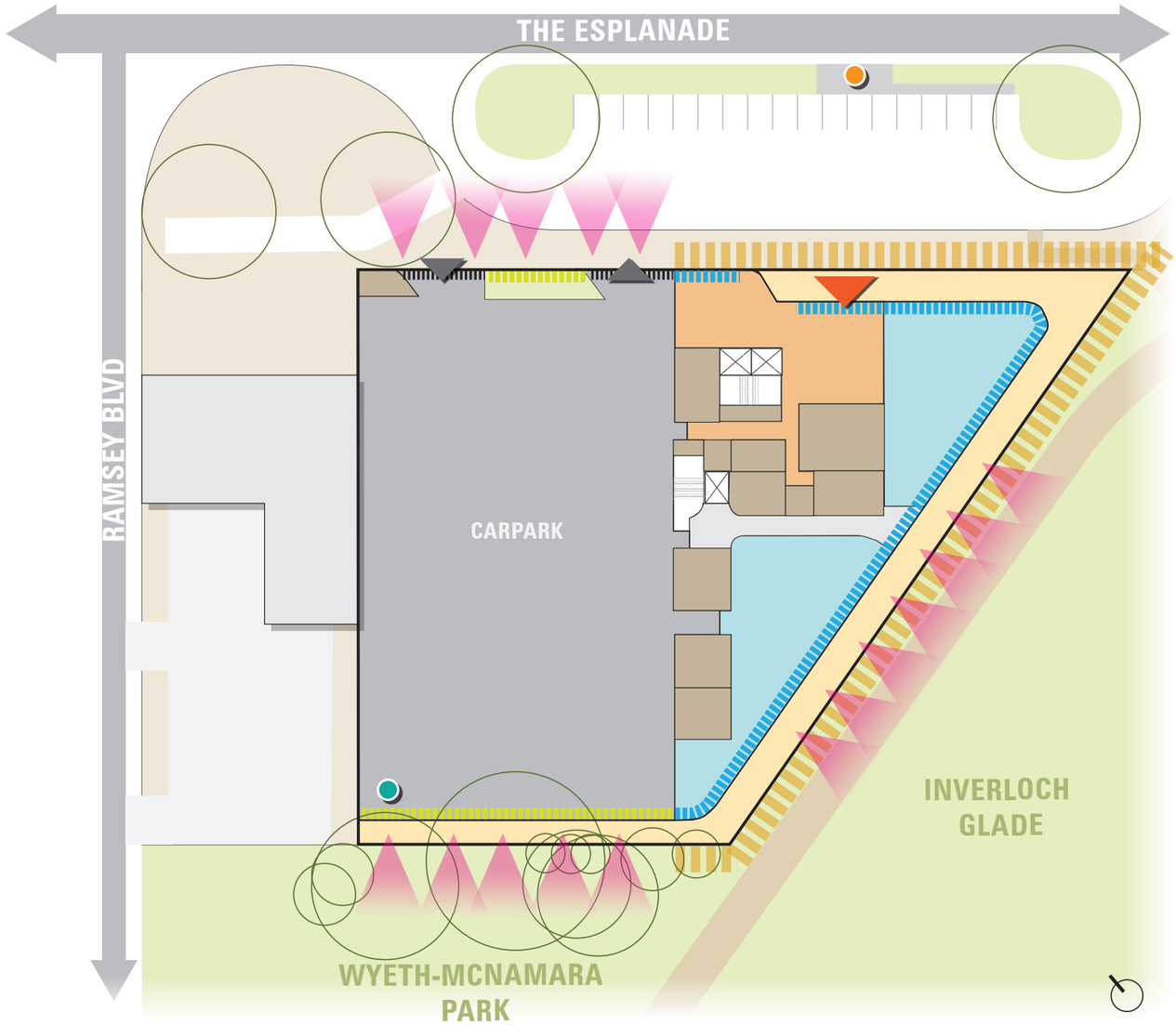


5.0 Design Response

5.2 Site Planning

The site planning strategy is underpinned by the site's main road address to The Esplanade and position at the corner with Inverloch Glade and Wyeth-McNamara Park. It seeks to maximise activation to the public interfaces of the site, retain existing vegetation and carefully place development within a landscape setting. Each of these elements is balanced to support a functional arrangement on the land. Successful site planning in this instance is achieved in a number of different ways as follows:

- The proposed development presents a successful activated and diverse street frontage at the ground level to commercial tenancies, and a lounge and foyer area along The Esplanade and the main public open space at the Inverloch Glade.
- The proposal maximises street level activation by located vehicle access to a confined away from the exposed corner of The Esplanade and Inverloch Glade. Upper levels to all public interfaces have been designed with an outlook for passive surveillance opportunities to these edges.
- The main pedestrian entry is clearly located along The Esplanade which is a logical location directly accessible to the bus stop and town centre;
- The proposed site planning strategy has sought to retain the existing vegetation surrounding the site including the preservation of the 2 mature trees within Wyeth-McNamara Park to the south;
- The vehicle entrance has been broken up with feature signage to provide a certain level of activation at this location.
- The proposed lift core is located centrally within the site providing opportunities for outlook and surveillance to The Esplanade, Inverloch Glade and Wyeth-McNamara Park.

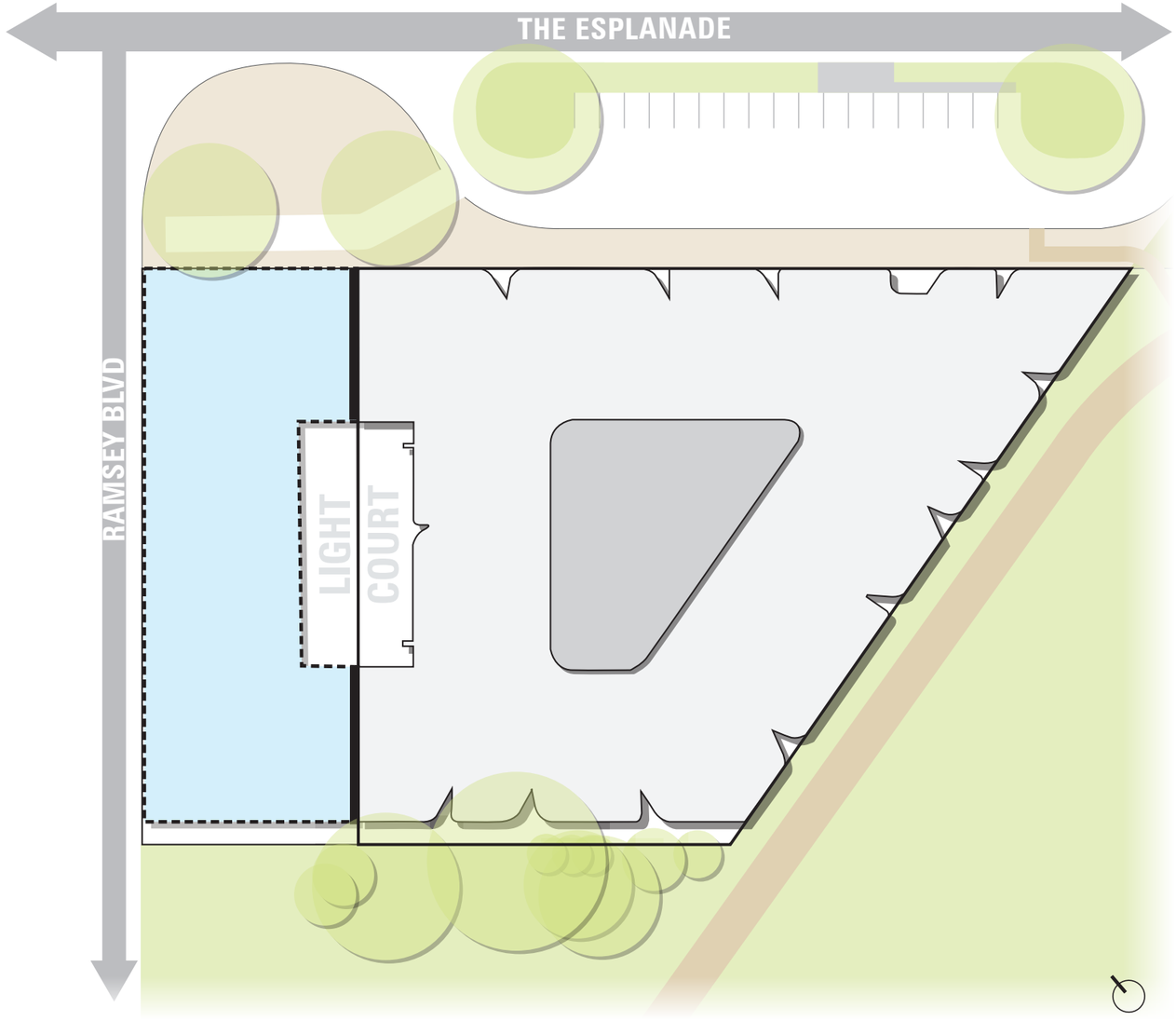


5.0 Design Response

5.3 Equitable Development

The layout of the proposed development is entirely appropriate, and has been sensibly arranged with respect to equitable development opportunities.

The proposal has been built on the boundary to the north-western to allow a reciprocal response for subsequent future development on the neighbouring site. Notwithstanding, the current zoning of the neighbouring site is Public Use Zone and unlikely to redevelop for residential purposes.



Potential development on adjoining site

5.0 Design Response

5.4 Materials and Finishes

The selected materials and finishes as it presents to the public realm of The Esplanade, Inverloch Glade and Wyeth-McNamara Park enjoys a contemporary suite of materials and finishes that is of a high contemporary quality.

The facade composition has been broken down into a series of parts through varying materiality and texture.

At ground level, the proposal comprises glazing, doors and openings providing an appropriate level of engagement to the public realm. Along Wyeth-McNamara Park, the proposal has timber battens to provide a level of visual interest and articulation, whilst concealing the car parking area.

Level 1 to 2 (mid-section) has been constructed with strong horizontal white framing elements that are highly articulated with deep recesses and a series of windows, balconies and openings. Timber battens has been applied in various locations along the façade to provide a natural, coastal 'feel' to the public realm.

Level 3 (upper most level) has a dark metal cladding which is contrasting with the levels below, resulting in a highly recessive and subservient appearance.

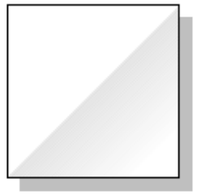
The relationship between the different parts achieves a harmonious appearance and does not present overwhelming scale.



M1
FACE BRICKWORK
BRAND: PGH BRICKS
RANGE: COASTAL HAMPTONS
COLOUR: GULL GREY



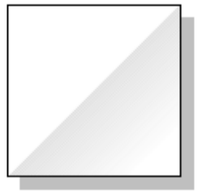
M2
CONCRETE PANEL
TYPE: DECORATIVE STAMPED
COLOUR: OFF-WHITE



M3
ALUMINIUM CLADDING
BRAND: FAIRVIEW
TYPE: VITRACORE G2
COLOUR: PURE WHITE 9902



M4
TIMBER SCREEN / PANELS
TYPE: 300x35mm WIDE PLANKS
50x50mm WIDE BATTENS
COLOUR: NATURAL OAK

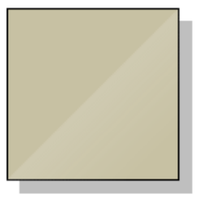


M5
BALUSTRADE
TYPE: POWDERCOATED ALUMINIUM
COLOUR: DULUX VIVID WHITE



M6
BALUSTRADE INFILL
TYPE: LARGE EXPANDED METAL MESH
COLOUR: MARINE GRADE STAINLESS STEEL





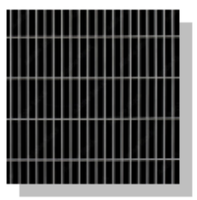
M7
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: COLORBOND RHEA



M8
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: BLACK SATIN - DULUX POWDERCOATING



M9
METAL CLADDING / ROOFING
BRAND: LYSAGHT
TYPE: ENSEAM
COLOUR: COLORBOND MONUMENT



M10
CAR PARK DOOR
TYPE: METAL GRILLE
COLOUR: MARINE GRADE STAINLESS STEEL



M11
GLAZING
COLOUR: CLEAR



M12
GLAZING
TYPE: FLUTED
COLOUR: OBSCURE



5.0 Design Response

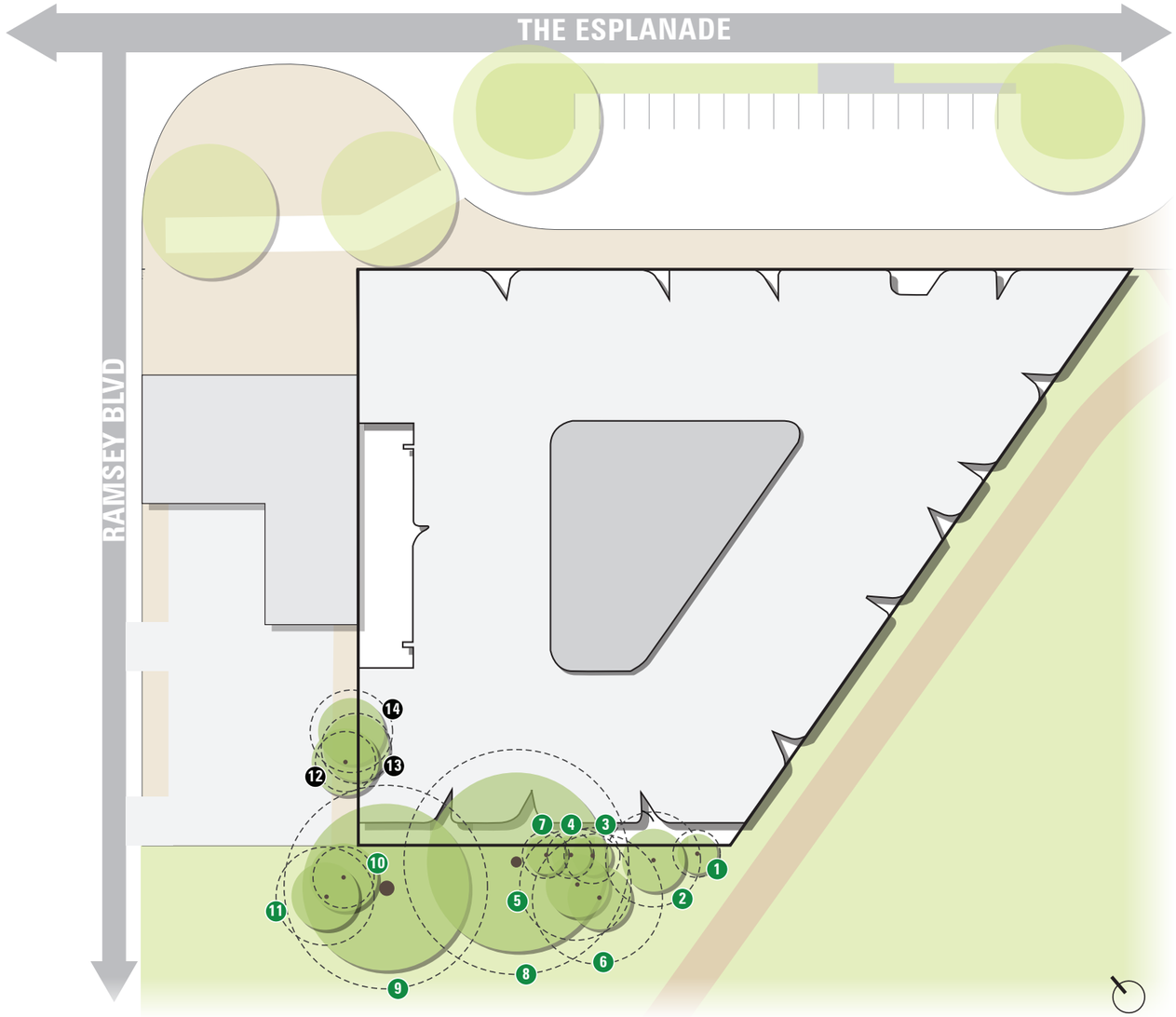
5.5 Vegetation

The landscape response for the proposed development is particularly important in the context of the site's location adjoining the Inverloch Glade and Wyeth-McNamara Park.

The arborist did not identify any canopy trees on the subject site. There were 14 canopy trees within close proximity to the site, none were identified as being of high rating. The arborist's report noted 11 trees of 'low' status and 3 tree of 'moderate' status. Given the footprint of the proposal, the design illustrates retention of such 9 'low' and all 'moderate' specimens.

The removal of 3 'low value' trees are located within the carpark of the neighbouring property and as such will be replaced with new canopy trees in a sustainable natural ground condition.

The proposal is intended to create an attractive and high quality landscape for the amenity of residents and visitors. It will provide a positive green outlook and influence the green framing of the site when viewed from both the town centre and adjoining parklands.



11 Existing tree to be retained

11 Existing tree to be removed and replaced - subject to council approval

Tree protection zone

6.0 Conclusion

The proposed development at 2-4 The Esplanade, Inverloch represents an outstanding opportunity to create a 'special place' and a symbolic form at this strategically important site in Inverloch. The subject site lends itself to a well-designed integrated mixed use development that sits at the interface between the urban condition of Inverloch and its sensitive coastal fringe. In response to this context, and the very particular site conditions – the 'bespoke' design response speaks clearly to the contemporary ambitions of Inverloch as a progressive, growing coastal township. The proposal has been configured specifically to address the design objectives identified for the site under DDO10 (Inverloch Marine Site, Inverloch) and sits harmoniously within the coastal panorama – not interrupting the important line of canopy vegetation surrounding the site and associated parkland. The form will not be visible in the broader viewshed, or from the coastline or inlet – where sensitivity is high. The proposal sets a particularly high design benchmark that engages in narrative with both the coastal and open space qualities of the foreshore of Inverloch and its established urban condition.

The quality of the design proposition, including the highly contemporary shaping of the proposal, quality durable materials, and successful amenity outcomes ensures that the building will be an enduring features on the foreshore, which will stand the test of time and place.

Overall, the proposal represents an outstanding design solution that will (over time) symbolize harmony between the township and the coastline, and a progressive furture for the Inverloch Town Centre.



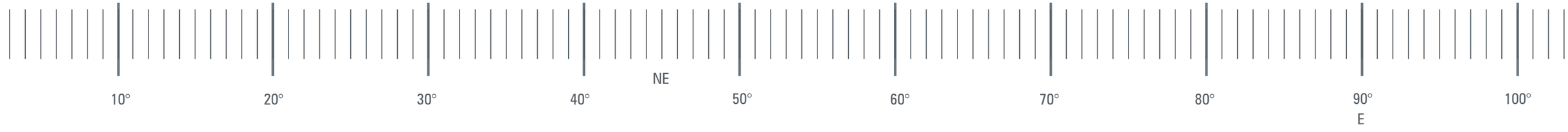
View of proposal from The Esplanade

APPENDIX A: PHOTOMONTAGES

2-4 The Esplanade, Inverloch

Photomontage 1
Existing view





View location 1 - from Ramsey Blvd & Scarborough St, Inverloch facing North East towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.22 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389316.4640
n: 5722954.5450
rl: 6.5880

Approx. distance to proposed site
61 m



Proposed site

Camera location

project ref: 2020.0304
dwg no.: VIA-002
date: 15/06/21
revision: P2

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w hansenpartnership.com.au

2-4 The Esplanade, Inverloch

Photomontage 1
Proposal and DDO10 Comparison



10° 20° 30° 40° NE 50° 60° 70° 80° 90° E 100°

View location 1 - from Ramsey Blvd & Scarborough St, Inverloch facing North East towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
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Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.22 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389316.4640
n: 5722954.5450
rl: 6.5880

Approx. distance to proposed site
61 m

Design and Development Overlay outline - Schedule 10 (DDO10) - 9.5m

Proposed site

Camera location



project ref: 2020.0304
dwg no.: VIA-003
date: 15/06/21
revision: P2

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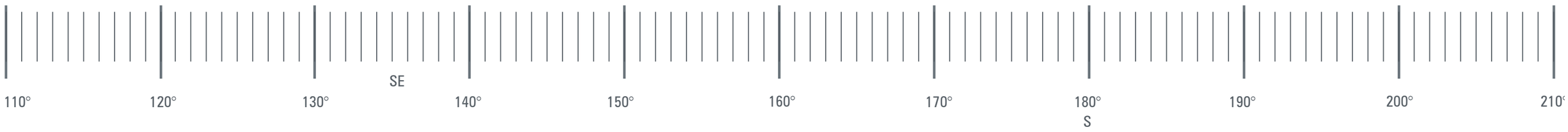
2-4 The Esplanade, Inverloch

Photomontage 2
Existing view

hansen





View location 2 - from Abeckett St , Inverloch facing South towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.13 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389392.9980
n: 5723080.6140
rl: 8.4970

Approx. distance to proposed site
77 m

Proposed site
Camera location



project ref: 2020.0304
dwg no.: VIA-004
date: 15/06/21
revision: P

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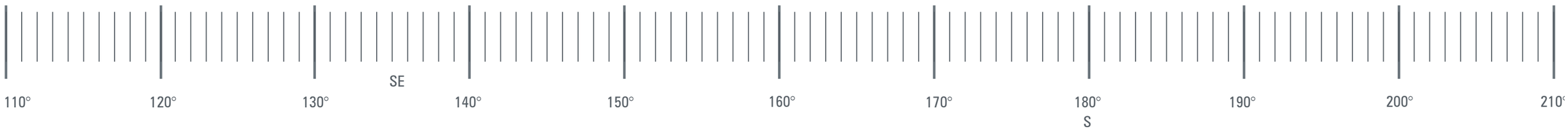
2-4 The Esplanade, Inverloch

Photomontage 2
Proposal and DDO10 Comparison

hansen





View location 2 - from Abeckett St , Inverloch facing South towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.13 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389392.9980
n: 5723080.6140
rl: 8.4970

Approx. distance to proposed site
77 m

Design and Development Overlay outline - Schedule 10 (DDO10) - 9.5m

Proposed site

Camera location



project ref: 2020.0304
dwg no.: VIA-005
date: 15/06/21
revision: P2

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2-4 The Esplanade, Inverloch

Photomontage 3
Existing view

hansen





View location 3 - from Bayview Ave & Williams St , Inverloch facing South towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
12.52 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389438.8290
n: 5723329.4260
rl: 16.9260

Approx. distance to proposed site
326 m

Proposed site
Camera location



project ref: 2020.0304
dwg no.: VIA-006
date: 15/06/21
revision: P2

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2-4 The Esplanade, Inverloch

Photomontage 3
Proposal and DDO10 Comparison





View location 3 - from Bayview Ave & Williams St , Inverloch facing South towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
12.52 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389438.8290
n: 5723329.4260
rl: 16.9260

Approx. distance to proposed site
326 m

Design and Development Overlay outline - Schedule 10 (DDO10) - 9.5m

Proposed site

Camera location



project ref: 2020.0304
dwg no.: VIA-007
date: 15/06/21
revision: P2

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2-4 The Esplanade, Inverloch

Photomontage 4
Existing view

hansen



NW

270° W | 280° | 290° | 300° | 310° | 320° | 330° | 340° | 350° | 0° N

View location 4 - from The Esplanade , Inverloch facing North West towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.48 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389503.6510
n: 5722927.6790
rl: 2.9600

Approx. distance to proposed site
59 m

Proposed site
Camera location



project ref: 2020.0304
dwg no.: VIA-008
date: 15/06/21
revision: P2

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w hansenpartnership.com.au

2-4 The Esplanade, Inverloch

Photomontage 4
Proposal and DDO10 Comparison

hansen



270° W | 280° | 290° | 300° | 310° NW | 320° | 330° | 340° | 350° | 0° N

View location 4 - from The Esplanade , Inverloch facing North West towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.48 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389503.6510
n: 5722927.6790
rl: 2.9600

Approx. distance to proposed site
59 m

Proposed site
Camera location



project ref: 2020.0304
dwg no.: VIA-009
date: 15/06/21
revision: P2

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2-4 The Esplanade, Inverloch

Photomontage 5
Existing view





View location 5 - from The Esplanade , Inverloch facing West towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.45 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389596.5790
n: 5722931.5070
rl: 3.9050

Approx. distance to proposed site
141 m

Proposed site
Camera location



project ref: 2020.0304
dwg no.: VIA-010
date: 15/06/21
revision: P2

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2-4 The Esplanade, Inverloch

Photomontage 5
Proposal and DD010 Comparison



240° 250° 260° 270° W 280° 290° 300° 310° NW 320° 330°

View location 5 - from The Esplanade , Inverloch facing West towards proposed site

Photomontage created by:
TT - B.LA
Images created using:
3ds max 2020, corona renderer 5, autocad 2020, adobe photoshop, illustrator & indesign cc 2020
Method used to collect relevant data:
Photo locations obtained on site by Geocomp Consulting pty ltd on the 16/07/20
Camera:
Canon EOS 5Ds Digital SLR
Camera lens:
Canon EF 50mm f/1.8 USM

Photograph taken:
01.45 pm on the 16/07/20
Photo taken at:
160cm above ground level

View location:
e: 389596.5790
n: 5722931.5070
rl: 3.9050

Approx. distance to proposed site
141 m

Design and Development Overlay outline - Schedule 10 (DD010) - 9.5m

Proposed site

Camera location



project ref: 2020.0304
dwg no.: VIA-011
date: 15/06/21
revision: P2

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ABN 20 079 864 | ACN 079 864 716

2-4 The Esplanade, Inverloch

July 2021

Client Name : Forte Group Pty Ltd.

Title : Landscape Plans for Town Planning

Drawing Register :

LCD-001 Landscape Plan - Ground Level
LCD-002 Landscape Plan - Level 1
LCD-003 Landscape Plan - Level 3
LCD-004 Landscape Plan - Plant Schedule & Palette, Example Imagery & Materials

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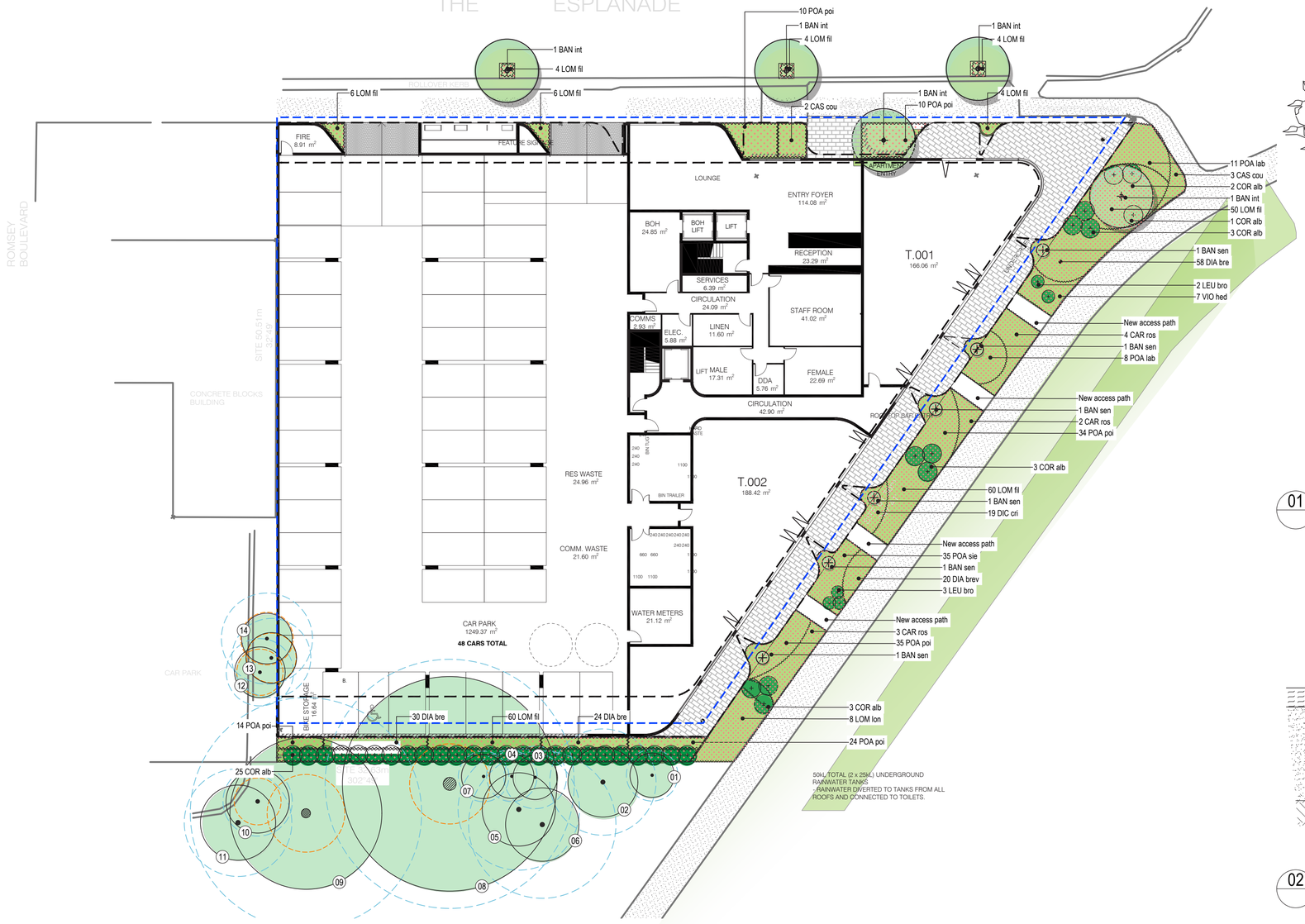
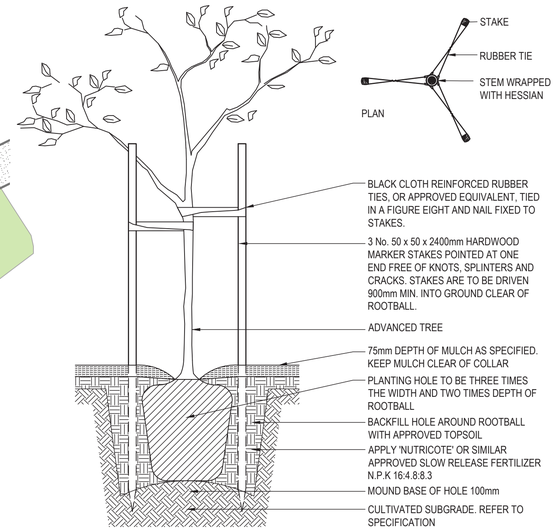
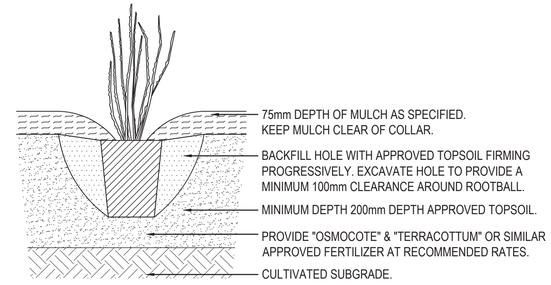


01 LANDSCAPE PLAN - GROUND LEVEL
SCALE 1:200@A1 1:400@A3

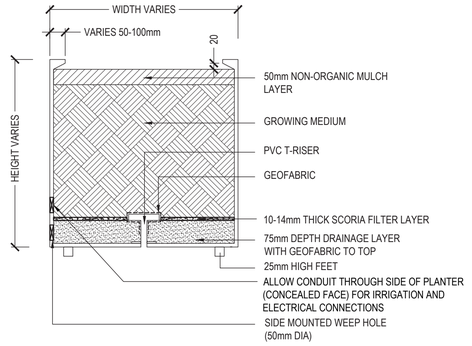
* All proposed landscaping within adjoining park subject to Council approval and specifications



01 ADVANCED TREE PLANTING DETAIL
SCALE 1:20 @A1 1:40 @A3



02 SHRUB DETAIL
SCALE 1:20 @A1 1:40 @A3



03 TYPICAL LIGHT FRAME PLANTER DETAIL
SCALE 1:10 @A1 1:20 @A3

NOTE:

IN ACCORDANCE WITH ARBORICULTURAL INSPECTION AND REPORT BY PETER BATEMAN, ASS. DIP. HORT. BURNLEY ARBORZONE PROFESSIONAL TREE SERVICES, OCTOBER 2020

TREE NO.14: 4.07M² ALLOWABLE TPZ ENCHROACHMENT
BASEMENT FLOOR OVER = 15.30M²

TREE NO.13: 3.05M² ALLOWABLE TPZ ENCHROACHMENT
BASEMENT FLOOR OVER = 13.06M²

TREE NO.12: 2.23M² ALLOWABLE TPZ ENCHROACHMENT
BASEMENT FLOOR OVER = 4.66M²

GROUND FLOOR WOULD NEED TO BE CUT TO BLUE LINES TO COMPLY

TREE NO.8: 30.4M² ALLOWABLE TPZ ENCHROACHMENT
GROUND FLOOR + BASEMENT BELOW IS OVER = 50.87M² (ASSUMING BASEMENT BELOW CUT BACK AS REQUIRED) CUT BACK GROUND FLOOR OR ARBORIST TO JUSTIFY

TREE NO.9: 26.24M² ALLOWABLE TPZ ENCHROACHMENT
GROUND FLOOR COMPLIES = 10.67M²

EXISTING TREE SCHEDULE

Tree No.	Botanical Name	Common Name	TPZ(m)	SRZ(m)	Note
1	*Syzygium paniculatum*	Magenta Cherry	2.04	1.64	Park tree
2	*Eucalyptus consideniana*	Yertchuck	4.20	2.22	Park tree
3	*Syzygium paniculatum*	Magenta Cherry	2.46	1.77	Park tree
4	*Syzygium paniculatum*	Magenta Cherry	2.00	1.55	Park tree
5	*Corymbia maculata*	Spotted Gum	4.80	2.34	Park tree
6	*Corymbia maculata*	Spotted Gum	5.76	2.53	Park tree
7	*Syzygium paniculatum*	Magenta Cherry	2.00	1.60	Park tree
8	*Eucalyptus saligna*	Sydney Blue Gum	9.84	3.17	Park tree
9	*Eucalyptus viminalis*	Manna Gum	9.14	3.07	Park tree
10	*Callistemon viminalis*	Weeping Bottlebrush	2.74	1.85	Park tree
11	*Banksia integrifolia*	Coast Banksia	4.25	2.23	Park tree
12	*Callistemon viminalis*	Weeping Bottlebrush	2.66	1.83	Neighbour's tree
13	*Callistemon salignus*	Willow Bottlebrush	3.12	1.96	Neighbour's tree
14	*Callistemon salignus*	Willow Bottlebrush	3.60	2.08	Neighbour's tree

In accordance with Arboricultural Assessment & Report by Treemap Arboriculture

* Refer to arboricultural & inspection report prapared by Arbozone, October 2020 for root investigation findings

WARNING

BEWARE OF UNDERGROUND SERVICES. THE LOCATIONS OF UNDERGROUND SERVICES ARE INDICATIVE ONLY. THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.DIAL B4 U DIG PH: 1100

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK. REPORT ALL DISCREPANCIES TO SUPERINTENDENT PRIOR TO CONSTRUCTION. FIGURED DIMENSIONS TO BE TAKEN INPREFERENCE TO SCALED DRAWINGS. ALL DRAWINGS MAY NOT BE REPRODUCED OR DISTRIBUTED WITHOUT PRIOR PERMISSION FROM THE LANDSCAPE ARCHITECT.

STATUS

FOR TOWN PLANNING
NOT FOR CONSTRUCTION

NO.	REVISION	DATE
P	FOR TOWN PLANNING	11/11/2020
P1	FOR TOWN PLANNING	12/07/2021

LEGEND

- EXTENT OF WORKS (E.O.W)
- BASEMENT OUTLINE
- LEVEL 1 OUTLINE
- PROPOSED EVERGREEN TREES
- EXISTING TREE
- Tree Protection Zone(TPZ)
- Structural Root Zone (SRZ)
- PROPOSED SHRUBS/CLIMBERS
- PROPOSED GARDEN BED PLANTING
- FEATURE PAVING TYPE 1
- FEATURE PAVING TYPE 2
- WATER BODY

REFER TO LCD-004 FOR PROPOSED PLANT SCHEDULE

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Melbourne VIC 3000
Tel. +61 3 9654 8844
Fax. +61 3 9654 8088
Email info@hansenpartnership.com.au
Web www.hansenpartnership.com.au

hansen

CLIENT
Forte Group

PROJECT
2-4 The Esplande, Inverloch

DRAWING TITLE
LANDSCAPE PLAN
GROUND LEVEL

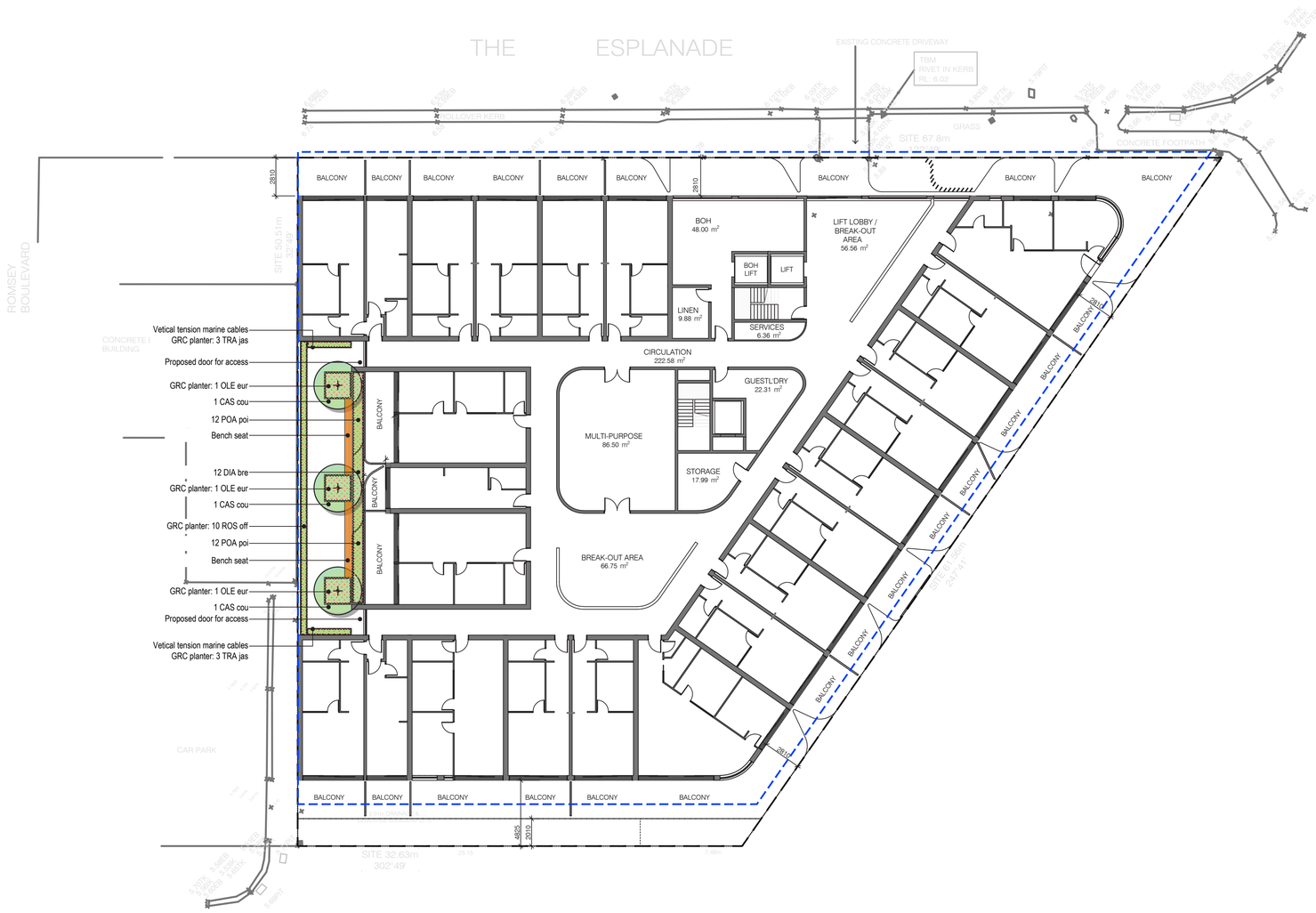
DRAWN	CHECKED	SCALE A1	SCALE A3
ND	LD	1:200	1:400

0 2 6 10
1 4 8 15m

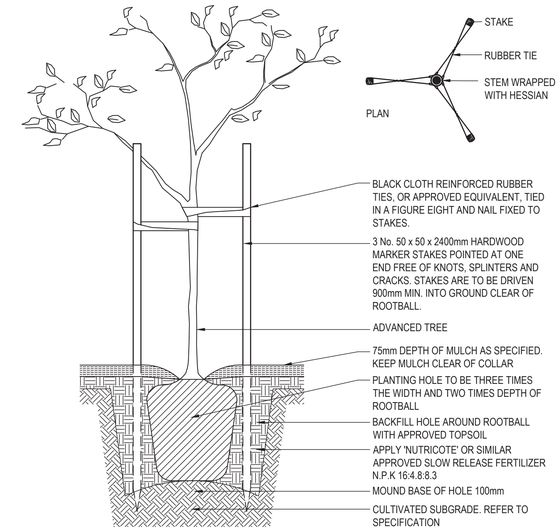
PLOT DATE	JOB NUMBER	CLIENT REF
09/07/2021	20.0304	-

DRAWING NUMBER REV

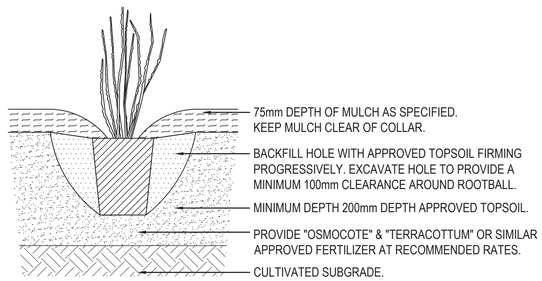
LCD-001 P



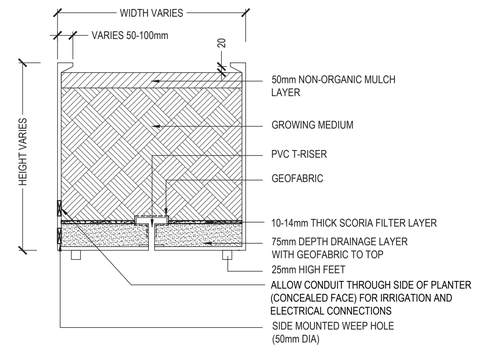
01 LANDSCAPE PLAN - LEVEL 1
SCALE 1:200@A1 1:400@A3



02 ADVANCED TREE PLANTING DETAIL
SCALE 1:20 @A1 1:40 @A3



03 SHRUB DETAIL
SCALE 1:20 @A1 1:40 @A3



03 TYPICAL LIGHT FRAME PLANTER DETAIL
SCALE 1:10 @A1 1:20 @A3

WARNING

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STATUS

FOR TOWN PLANNING
NOT FOR CONSTRUCTION

NO.	REVISION	DATE
P	FOR TOWN PLANNING	11/11/2020
P1	FOR TOWN PLANNING	12/07/2021

LEGEND

EXTENT OF WORKS E.O.W
BASEMENT OUTLINE
PROPOSED GARDEN BED PLANTING
PROPOSED EVERGREEN TREES
TIMBER BENCH SEAT

REFER TO LCD-004 FOR PROPOSED PLANT SCHEDULE

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Fax. +61 3 9654 8088
Email info@hansenpartnership.com.au
Web www.hansenpartnership.com.au

hansen

CLIENT
Forte Group

PROJECT
2-4 The Esplande, Inverloch

DRAWING TITLE
LANDSCAPE PLAN
LEVEL 1

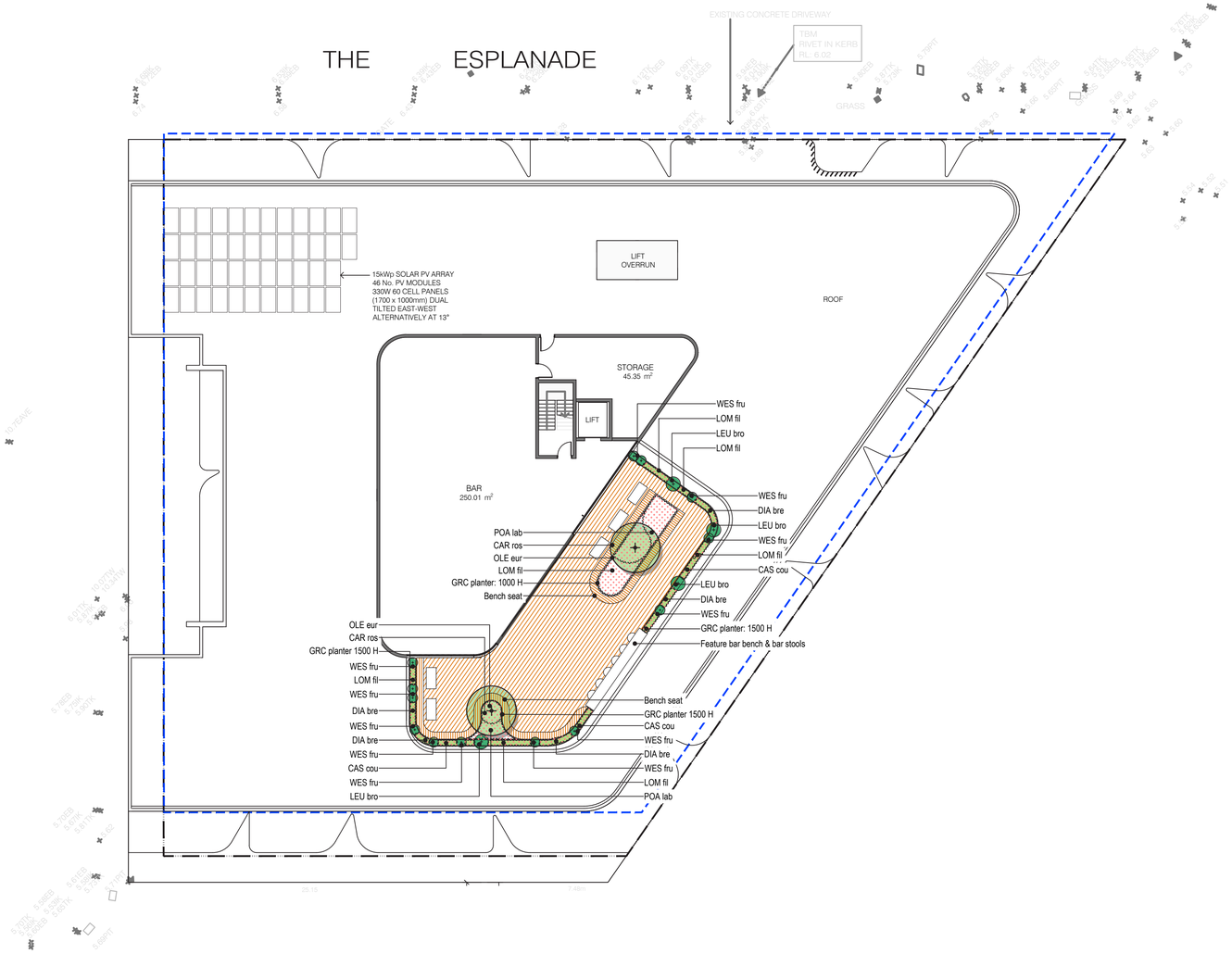
DRAWN	CHECKED	SCALE A1	SCALE A3
ND	LD	1:200	1:400

0 2 6 10
1 4 8 15m

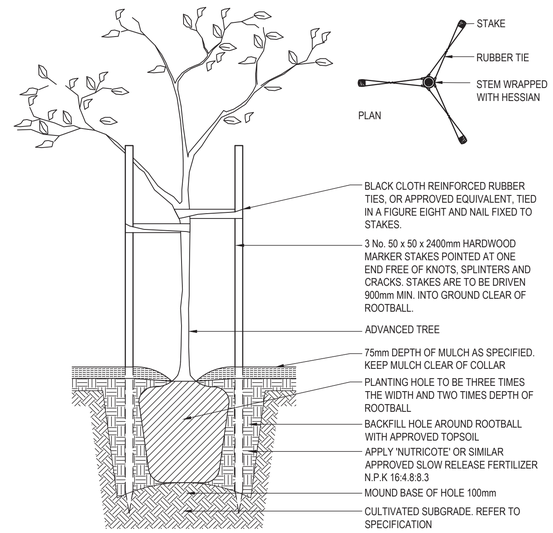
PLOT DATE	JOB NUMBER	CLIENT REF
09/07/2021	20.0304	-

DRAWING NUMBER REV

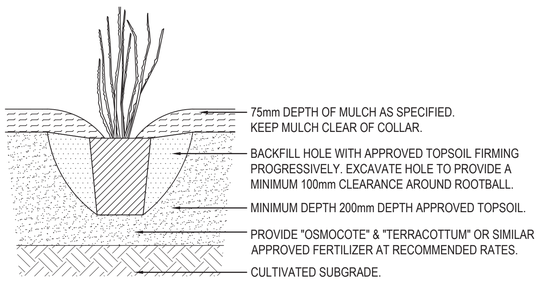
LCD-002 P



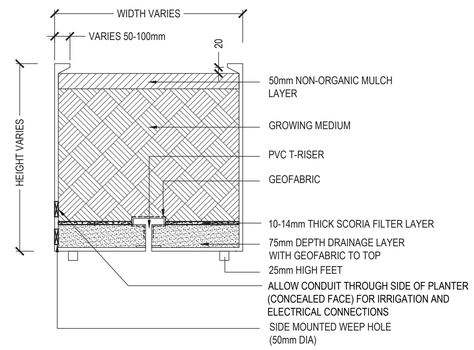
01 LANDSCAPE PLAN - LEVEL 3
SCALE 1:200@A1 1:400@A3



02 ADVANCED TREE PLANTING DETAIL
SCALE 1:20 @A1 1:40 @A3



03 SHRUB DETAIL
SCALE 1:20 @A1 1:40 @A3



03 TYPICAL LIGHT FRAME PLANTER DETAIL
SCALE 1:10 @A1 1:20 @A3

WARNING

BEWARE OF UNDERGROUND SERVICES. THE LOCATIONS OF UNDERGROUND SERVICES ARE INDICATIVE ONLY. THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. DIAL B4 U DIG PH: 1100

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK. REPORT ALL DISCREPANCIES TO SUPERINTENDENT PRIOR TO CONSTRUCTION. FIGURED DIMENSIONS TO BE TAKEN INPREFERENCE TO SCALED DRAWINGS. ALL DRAWINGS MAY NOT BE REPRODUCED OR DISTRIBUTED WITHOUT PRIOR PERMISSION FROM THE LANDSCAPE ARCHITECT.

STATUS

FOR TOWN PLANNING
NOT FOR CONSTRUCTION

NO.	REVISION	DATE
P	FOR TOWN PLANNING	11/11/2020
P1	FOR TOWN PLANNING	12/07/2021

LEGEND

- EXTENT OF WORKS (E.O.W)
- BASEMENT OUTLINE
- PROPOSED GARDEN BED PLANTING
- PROPOSED EVERGREEN TREES
- PROPOSED SHRUBS/CLIMBERS
- TIMBER BENCH SEAT
- DECK ON ELEVATED RAIL SYSTEM

REFER TO LCD-004 FOR PROPOSED PLANT SCHEDULE

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hansen

CLIENT
Forte Group

PROJECT
2-4 The Esplande, Inverloch

DRAWING TITLE
LANDSCAPE PLAN
LEVEL 3

DRAWN	CHECKED	SCALE A1	SCALE A3
ND	LD	1:200	1:400

0 2 6 10
1 4 8 15m

PLOT DATE	JOB NUMBER	CLIENT REF
09/07/2021	20.0304	-

DRAWING NUMBER REV

LCD-003 P

PROPOSED PLANTING SCHEDULE

	Code	Botanical Name	Common Name	Typical height x Width (m)	Spacing	Installed Size	Quantity
	Trees						
*	**BAN int**	*Banksia integrifolia*	Coast Banksia	12 x 5m	As shown	2.2 m high, 35mm calliper	5
	BAN sen	*Banksia integrifolia fastigiata 'Sentinel'*	Banksia sentinel	2.5 x 1.0m	As shown	1.8m high	6
	OLE eur	*Olea europaea 'Tolley's Upright'*	Tolley's upright olive	7 x 4m	As shown	2.5m high	5
	Shrubs						
*	**COR alb**	*Correa alba*	White Correa	1.5 x 0.5m	As shown	150mm pot	37
*	**LEU bro**	*Leucophyta brownii*	Cushion Bush	1 x 1m	As shown	150mm pot	9
	WES wes	*Westringia fruticosa 'WES06'*	LOW HORIZON TM Westringia	0.30 x 0.70m	As shown	150mm pot	13
	Grasses and Groundcover						
	CAR ros	*Carpobrotus rossii*	Australian pig-face	0.2 x 2m	4/m2	100mm pot	14
*	**CAS cou**	*Casuarina 'Cousin It'*	Cousin It Sheoak	0.2 x 1.5m	0.5m spacing	100mm pot	11
*	**DIA bre**	*Dianella brevicaulis*	Short-stalk Flax-lily	0.5 x 0.5m	4/m2	100mm pot	161
*	**DIC cri**	*Dichelachne crinita*	Dichelachne grass	0.8 x 0.5m	4/m2	100mm pot	19
*	**LOM fil**	*Lomandra filiformis*	Wattle Mat-rush	0.3 x 0.3m	4/m2	100mm pot	255
*	**LOM lon**	*Lomandra longifolia*	Spiny-headed Mat-rush	1.5 x1.5m	4/m2	100mm pot	8
*	**POA sie**	*Poa sieberiana*	Grey Tussock grass	0.5 x 0.5m	4/m2	100mm pot	35
*	**POA lab**	*Poa labillardieri*	Common Tussock-grass	1 x 1m	4/m2	100mm pot	24
*	**POA poi**	*Poa poiformis*	Blue Tussock-grass	0.45 x 0.45m	4/m2	100mm pot	127
*	**VIO hed**	*Viola hederacea*	Ivy-leaf Violet	0.2 x 1m	4/m2	100mm pot	7
	Climbers						
	TRA jas	*Trachelospermum jasminoides*	Star Jasmine	6.0 x 0.5m	As shown	100mm pot	6

*Plants on City of Bass Coast 'Indigenous Plants of Bass Coast Shire' booklet

TREES







SHRUBS







GRASSES & GROUNDCOVERS









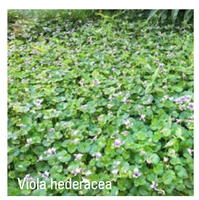








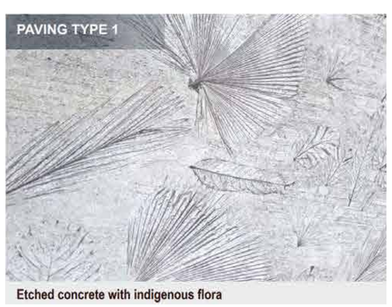




CLIMBERS



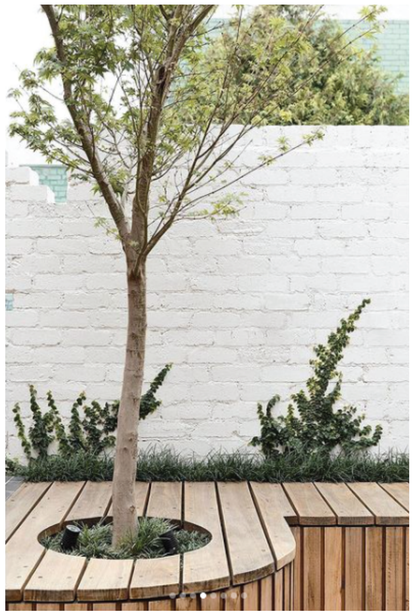
MATERIALS PALETTE







EXAMPLE IMAGERY





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STATUS

FOR TOWN PLANNING
NOT FOR CONSTRUCTION

NO.	REVISION	DATE
P	FOR TOWN PLANNING	11/11/2020
P1	FOR TOWN PLANNING	12/07/2021

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CLIENT
Forte Group

PROJECT
2-4 The Esplande, Inverloch

DRAWING TITLE
PLANT SCHEDULE & PALETTE
EXAMPLE IMAGERY & MATERIALS

DRAWN	CHECKED	SCALE A1	A3
ND	LD		

PLOT DATE	JOB NUMBER	CLIENT REF
09/07/2021	20.0304	-

DRAWING NUMBER — REV

LCD-004 P

TOWN PLANNING APPLICATION

PHOTOGRAPHIC ANALYSIS

AERIAL
SITE PHOTOS

ARCHITECTURAL DRAWINGS

TPA01 NEIGHBOURHOOD SITE & DESCRIPTION PLAN
TPA02 DESIGN RESPONSE PLAN
TPA03 GROUND FLOOR PLAN
TPA04 LEVEL 1 FLOOR PLAN
TPA05 LEVEL 2 FLOOR PLAN
TPA06 LEVEL 3 FLOOR PLAN
TPA07 ROOF PLAN
TPA08 SERVICED APARTMENT TYPES
TPA09 ELEVATIONS - NORTH & SOUTH
TPA10 ELEVATIONS - EAST & WEST
TPA11 SHADOW DIAGRAMS

SUPPLEMENTARY DOCUMENTS

EXTERNAL MATERIALS & FINISHES SCHEDULE
PERSPECTIVE IMAGE 1
PERSPECTIVE IMAGE 2
PERSPECTIVE IMAGE 3
PERSPECTIVE IMAGE 4
PERSPECTIVE IMAGE 5
PERSPECTIVE IMAGE 6
PERSPECTIVE IMAGE 7



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JOB No.
21-09

REVISION
A: 28.06.2021

PROPOSED RETAIL AND SERVICED APARTMENT DEVELOPMENT AT

2-4 THE ESPLANADE INVERLOCH



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A: 28.06.2021

AERIAL

2-4 THE ESPLANADE INVERLOCH











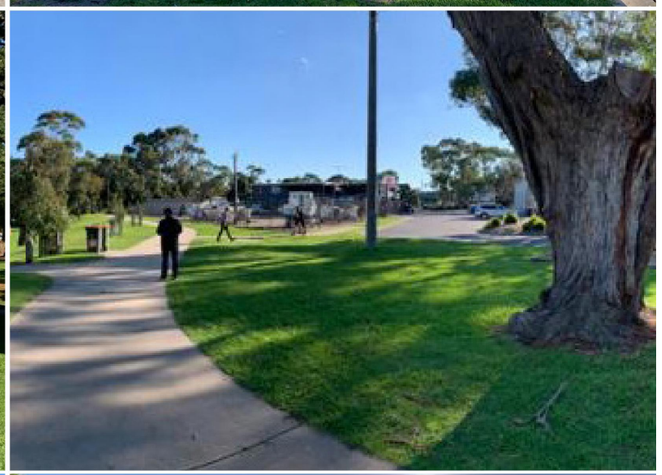

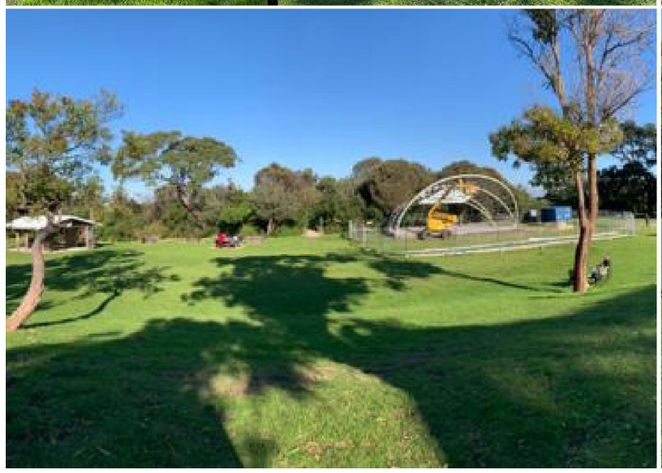

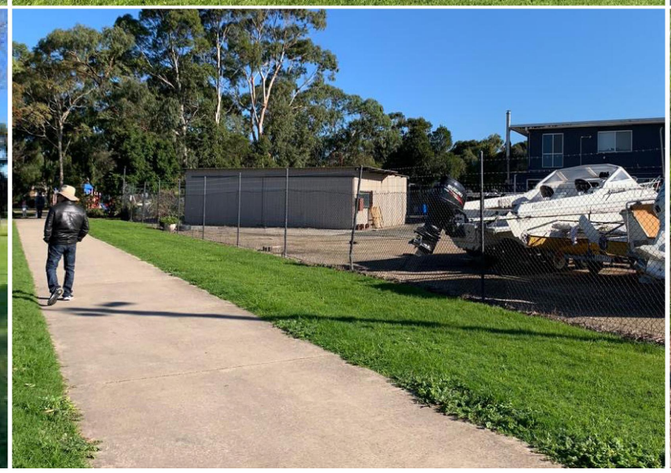



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SITE PHOTOS

2-4 THE ESPLANADE INVERLOCH



NOTE:
TREES 1-7 & 11 HAVE BEEN LOCATED AS PER ARBORICULTURAL REPORT BY TREEMAP ARBORICULTURE APPENDIX 3.
ALL OTHER TREES LOCATED VIA LAND SURVEY

NSDP -

EXISTING CONDITIONS SURVEY
SCALE @ A1 - 1:200

ORIENTATION & SLOPE

- (A) SITE HAS NORTH TO SOUTH ORIENTATION WITH EXCELLENT ACCESS TO NORTH SUNLIGHT
- (B) THE SITE IS RELATIVELY FLAT. THE FALL IS APPROX. 1.0m FROM NORTH-WEST (HIGH POINT) TO SOUTH-EAST (LOW POINT)

VEGETATION & ACCESS

- (C1) THERE ARE NO EXISTING TREES ON THE SUBJECT SITE
- (C2) THERE ARE NO EXISTING STREET TREES
- (C3) THERE ARE EXISTING STREET TREES ON NEIGHBOURING LAND AT CLOSE PROXIMITY TO THE SUBJECT SITE.
- (D1) PEDESTRIAN ACCESS IS AVAILABLE FROM THE ESPLANADE
- (D2) VEHICULAR ACCESS IS AVAILABLE FROM THE ESPLANADE
- (E) EXISTING STREET CROSSOVER

DRAINAGE & SERVICES

- (F) DRAINAGE POINT TO BE CONFIRMED - MOST LIKELY AT REAR OF SITE
- (G) SITE HAS ACCESS TO INFRASTRUCTURE (SEWER, WATER SUPPLY, ELECTRICITY, GAS AND TELEPHONE)

FENCE, BOUNDARIES & EASEMENTS

- (H1) CONCRETE BLOCK WALL ON BOUNDARY
- (H2) STEEL PICKETS FENCE
- (H3) CHAIN & WIRE FENCE
- (H4) PALING FENCE
- (H5) NO FENCE
- (I) THE SITE IS AFFECTED BY A 2.01m WIDE DRAINAGE & SEWERAGE EASEMENT (ALONG THE SOUTHERN BOUNDARY)

LOCATION / USE OF SURROUNDING BUILDINGS

- (J1) SINGLE STOREY CONCRETE BLOCK BUILDING
- (J2) CAR PARK
- (J3) PARKLAND

TOPOGRAPHY

- (K) LEVELS AT SITE BOUNDARIES GENERALLY FOLLOW THE TOPOGRAPHY OF THE LAND

SPOS / HABITABLE ROOM WINDOWS

- (L) THERE IS NO SECLUDED OPEN SPACE ON ADJOINING OR NEARBY PROPERTIES
- (M) THERE ARE NO HABITABLE ROOM WINDOWS WITHIN 9.0m OF THE SITE

NEARBY PUBLIC OPEN SPACE

RAINBOW PARK
DISTANCE (APPROX.): 0.02 KM

WYETH-MCNAMARA PARK
DISTANCE (APPROX.): 0.03 KM

INVERLOCH OVAL
DISTANCE (APPROX.): 0.3 KM

PARK & RECREATION RESERVE BETWEEN ROYAL PDE & BASS HWY
DISTANCE (APPROX.): 7.19 KM

PUBLIC TRANSPORT

NA

LOCAL SCHOOLS - PRIMARY

INVERLOCH PRIMARY SCHOOL
BAYVIEW AVENUE, INVERLOCH, VIC 3996
DISTANCE (APPROX.): 0.43 KM

LOCAL SCHOOLS - SECONDARY

NA

LOCAL SCHOOLS - UNIVERSITIES

NA

LOCAL SHOPS

INVERLOCH COMMUNITY FARMERS MARKET
DISTANCE (APPROX.): 0.05 KM

STRIP SHOPPING ALONG RAMSEY BOULEVARD
DISTANCE (APPROX.): 0.06 KM

STRIP SHOPPING ALONG ABECKETT STREET
DISTANCE (APPROX.): 0.1 KM

STRIP SHOPPING ALONG WILLIAM STREET
DISTANCE (APPROX.): 0.12 KM

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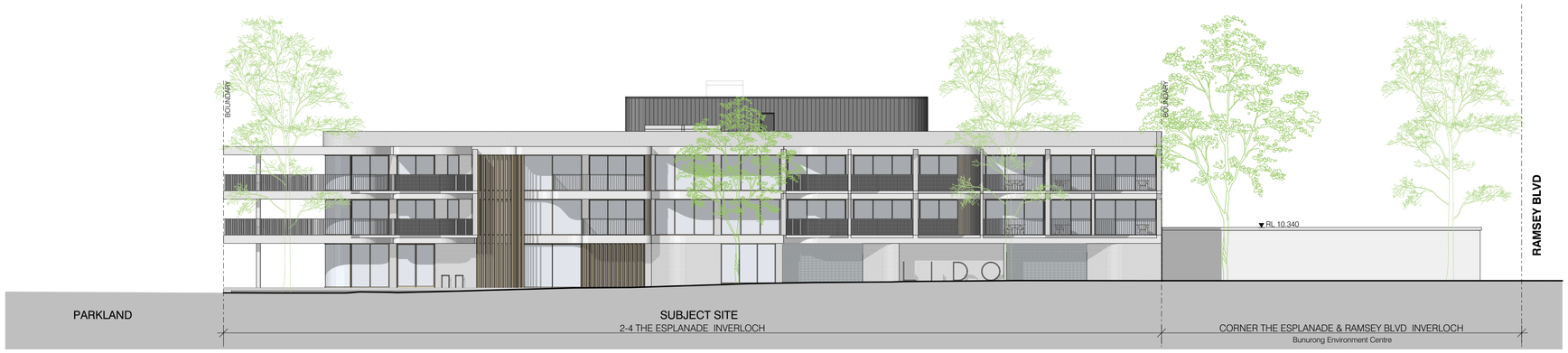
Revision
A: 28.06.2021
TOWN PLANNING SUBMISSION

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
NEIGHBOURHOOD SITE & DESCRIPTION PLAN
TOWN PLANNING APPLICATION

Scale: 1:100, 1:200 @ A1
Drawn: E.P.
Job No.: 21-09
Date: 28.06.2021
Drawing No.: TPA01
Revision: A

N



N1 - **STREETSCAPE ELEVATION (NORTH)**
SCALE @ A1 - 1:200



NOTE:
TREES 1-7 & 11 HAVE BEEN LOCATED AS PER ARBORCULTURAL REPORT BY TREEMAP ARBORICULTURE APPENDIX 3.
ALL OTHER TREES LOCATED VIA LAND SURVEY

DRP - **GROUND FLOOR - DESIGN RESPONSE**
SCALE @ A1 - 1:200

THE PROPOSAL

THE PROPOSAL IS SEEKING APPROVAL TO CONSTRUCT A 4 STOREY MIXED USE DEVELOPMENT AT 2-4 THE ESPLANADE, INVERLOCH. SPECIFICALLY, THE PROPOSAL COMPRISES;

- A GROUND LEVEL CAR PARK PROVIDING 48 CAR PARKING SPACES WITH VEHICLE ACCESS FROM THE ESPLANADE;

- 2 X RETAIL/COMMERCIAL TENANCIES (354.48M2 TOTAL) AT GROUND FLOOR WITH REASONABLE UNDERCOVER SPACE IN FRONT OF THESE TENANCIES TO ALLOW FOR ACTIVITIES AND/OR OUTDOOR DINING OPPORTUNITIES TO 'SPILL' ONTO THE STREET;

- THE MAIN PEDESTRIAN ACCESS TO THE APARTMENTS IS LOCATED IN A CENTRAL POSITION ALONG THE ESPLANADE FRONTAGE;

- COMMUNAL FACILITIES COMPRISING A BREAK-OUT ROOM AND MULTI-PURPOSE AREA ARE LOCATED ON LEVEL 1 AND 2;

- LEVELS 1 AND 2 COMPRISE A TOTAL OF 42 APARTMENTS INCLUDING 2 X STUDIOS, 26 X 1 BEDROOM AND 14 X 2 BEDROOMS. THE APARTMENT HAVE BEEN ARRANGED AROUND A CENTRAL LIFT CORE AND INTERNAL CORRIDOR;

- LEVEL 3 COMPRISES A BAR WITH ASSOCIATED ROOF TOP TERRACE/GARDEN AREA;

- THE MASSING STRATEGY HAS BEEN ARRANGED WITH AN ARTICULATED 3 STOREY WITH DEEP REESSES AND A HIGHLY RECESSIVE 4TH STOREY;

- THE MAXIMUM BUILDING HEIGHT IS 4 STOREYS (14.2M).

- THE DESIGN HAS BEEN INSPIRED BY A COMBINATION OF ANDERSON INLET AND THE FORESHORE RESERVE OF THE GLADE. THE PROPOSAL PROVIDES A SELECTION OF BUILDING FINISHES AND MATERIALS THAT MERGES BUILT FORM TO THE SURROUNDING NATURAL FEATURES. THIS PRIMARILY INCLUDES BRICK PATTERN TILES (GREY) WITH STRONG HORIZTONAL ALUMINIUM FRAMING ELEMENTS (WHITE).

ARCHITECTURAL CONTRIBUTION:

THE OVERALL ARCHITECTURAL DESIGN OF THE PROPOSED DEVELOPMENT IS A SUITABLE BENCHMARK FOR OTHER DEVELOPMENTS WITHIN THE TOWN CENTRE. THE QUALITY OF THE DESIGN PROPOSITION, INCLUDING THE HIGHLY CONTEMPORARY SHAPING OF THE PROPOSAL, DESIGN LANGUAGE AND MATERIALS EMPLOYED, THE DEVELOPMENT CONFIGURATION AND POSITIVE CONTRIBUTION TO THE COASTAL AND LANDSCAPE CHARACTER SUGGEST THAT THIS PROPOSAL COULD EXCEED THE DDO10 PARAMETERS.

THE PROPOSAL ACHIEVES DESIGN AND ARCHITECTURAL EXCELLENCE THAT CONTRIBUTE POSITIVELY TO THE LOCAL URBAN CHARACTER AND ENHANCES THE PUBLIC REALM IN THE FOLLOWING WAYS:

- THE PROPOSAL INCORPORATES A HIGHLY ACTIVATED GROUND FLOOR WITH OPENINGS, GLAZED WINDOWS AND COLONNADES FOR ACTIVITIES TO 'SPILL' ONTO THE STREET AND PARKLAND;

- THE PROPOSAL HAS BEEN ARTICULATED WITH DEEP RECESSES OF A VARIETY OF SIZES AND SHAPES ALONG THE FACADE. THIS CONCEPT WILL MINIMISE VISUAL BULK AND ENSURE THAT THE BUILT FORM WILL SUCCESSFULLY BLEND WITH THE SURROUNDING LANDSCAPE; AND

- THE DESIGN HAS BEEN INSPIRED BY COASTAL ELEMENTS FROM THE GENTLY UNDULATING WATERS OF THE OCEAN AND THE INTRICATE SHAPES AND PATTERNS OF SEASHELLS. THIS HAS BEEN ACHIEVED THROUGH THE CURVED EDGES ALONG THE FAÇADE WHICH CREATES A SENSE OF PLACE WHERE THERE IS A STRONG RELATIONSHIP BETWEEN THE PHYSICAL ENVIRONMENT AND PEOPLE'S EMOTIONAL EXPERIENCE.

CONCLUSION:

THE PROPOSED DEVELOPMENT AT 2-4 THE ESPLANADE, INVERLOCH REPRESENTS AN OUTSTANDING OPPORTUNITY TO CREATE A 'SPECIAL PLACE' AND A SYMBOLIC FORM AT THIS STRATEGICALLY IMPORTANT SITE IN INVERLOCH. THE SUBJECT SITE LENDS ITSELF TO A WELL-DESIGNED INTEGRATED MIXED USE DEVELOPMENT THAT SITS AT THE INTERFACE BETWEEN THE URBAN CONDITION OF INVERLOCH AND ITS SENSITIVE COASTAL FRINGE. IN RESPONSE TO THIS CONTEXT, AND THE VERY PARTICULAR SITE CONDITIONS - THE 'BESPOKE' DESIGN RESPONSE SPEAKS CLEARLY TO THE CONTEMPORARY AMBITIONS OF INVERLOCH AS A PROGRESSIVE, GROWING COASTAL TOWNSHIP. THE PROPOSAL HAS BEEN CONFIGURED SPECIFICALLY TO ADDRESS THE DESIGN OBJECTIVES IDENTIFIED FOR THE SITE UNDER DDO10 (INVERLOCH MARINE SITE, INVERLOCH) AND SITS HARMONIOUSLY WITHIN THE COASTAL PANORAMA - NOT INTERRUPTING THE IMPORTANT LINE OF CANOPY VEGETATION SURROUNDING THE SITE AND ASSOCIATED PARKLAND. THE FORM WILL NOT BE VISIBLE IN THE BROADER VIEWSHED, OR FROM THE COASTLINE OR INLET - WHERE SENSITIVITY IS HIGH. THE PROPOSAL SETS A PARTICULARLY HIGH DESIGN BENCHMARK THAT ENGAGES IN NARRATIVE WITH BOTH THE COASTAL AND OPEN SPACE QUALITIES OF THE FORESHORE OF INVERLOCH AND ITS ESTABLISHED URBAN CONDITION.

THE QUALITY OF THE DESIGN PROPOSITION, INCLUDING THE HIGHLY CONTEMPORARY SHAPING OF THE PROPOSAL, QUALITY DURABLE MATERIALS, AND SUCCESSFUL AMENITY OUTCOMES ENSURES THAT THE BUILDING WILL BE AN ENDURING FEATURES ON THE FORESHORE, WHICH WILL STAND THE TEST OF TIME AND PLACE.

OVERALL, THE PROPOSAL REPRESENTS AN OUTSTANDING DESIGN SOLUTION THAT WILL (OVER TIME) SYMBOLIZE HARMONY BETWEEN THE TOWNSHIP AND THE COASTLINE, AND A PROGRESSIVE FURTURE FOR THE INVERLOCH TOWN CENTRE.

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Revision
A: 28.06.2021
TOWN PLANNING SUBMISSION

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
DESIGN RESPONSE PLAN
Scale
1:200 @ A1
Date
28.06.2021

TOWN PLANNING APPLICATION
Drawn
E.P.
Job No.
21-09
Drawing No.
TPA02
Revision
A

N



LG
-

GROUND FLOOR PLAN
SCALE @ A1 - 1:200

DEVELOPMENT SUMMARY

SITE AREA		2536.10 m²
SITE COVERAGE	96.24%	2440.97 m²
PERMEABILITY	4.49%	113.91 m²

No. OF RETAIL PROPOSED	2
No. OF CAR SPACES PROPOSED	48
No. OF STUDIO APARTMENTS	2
No. OF 1 BEDROOM APARTMENTS	26
No. OF 2 BEDROOM APARTMENTS	14
TOTAL APARTMENTS	42

FLOOR AREA ANALYSIS

GROUND	2189.73 m²
LEVEL 1	1891.98 m²
LEVEL 2	1891.98 m²
LEVEL 3	332.94 m²

NOTE: EXCLUDES BALCONY & TERRACE AREAS

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 660 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- PROPOSED LANDSCAPING IS INDICATIVE ONLY. REFER TO LANDSCAPE PLAN FOR PROPOSED PLANTING AND DETAILS.
- SITE SERVICES LOCATIONS ARE INDICATIVE ONLY.

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RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
GROUND FLOOR PLAN
TOWN PLANNING APPLICATION

Scale
1:200 @ A1

Drawn
E.P.

Job No.
21-09

Date
28.06.2021

Drawing No.
TPA03

Revision
A

N



NOTE:
TREES 1-7 & 11 HAVE BEEN LOCATED AS PER ARBORICULTURAL REPORT BY TREEMAP ARBORICULTURE APPENDIX 3.
ALL OTHER TREES LOCATED VIA LAND SURVEY

L1 -

LEVEL 1 FLOOR PLAN
SCALE @ A1 - 1:200

SERVICED APARTMENT TYPE

REFER TO TPA08 - TYPES FOR MORE DETAIL

- TYPE A
- TYPE B
- TYPE C
- TYPE D
- TYPE E
- TYPE F
- TYPE G

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND
  - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 | 660 | 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- PROPOSED LANDSCAPING IS INDICATIVE ONLY. REFER TO LANDSCAPE PLAN FOR PROPOSED PLANTING AND DETAILS.
- SITE SERVICES LOCATIONS ARE INDICATIVE ONLY.

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A: 28.06.2021
TOWN PLANNING SUBMISSION

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
LEVEL 1 FLOOR PLAN
TOWN PLANNING APPLICATION

Scale
1:200 @ A1

Drawn
E.P.

Job No.
21-09

Date
28.06.2021

Drawing No.
TPA04

Revision
A

N



L2
-

LEVEL 2 FLOOR PLAN
SCALE @ A1 - 1:200

SERVICED APARTMENT TYPE

REFER TO TPA08 - TYPES FOR MORE DETAIL

- TYPE A
- TYPE B
- TYPE C
- TYPE D
- TYPE E
- TYPE F
- TYPE G

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND
  - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 | 660 | 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS
REFER WMP FOR FURTHER DETAILS

NOTES

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Drawing Title
LEVEL 2 FLOOR PLAN

Scale
1:200 @ A1

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Drawing No.
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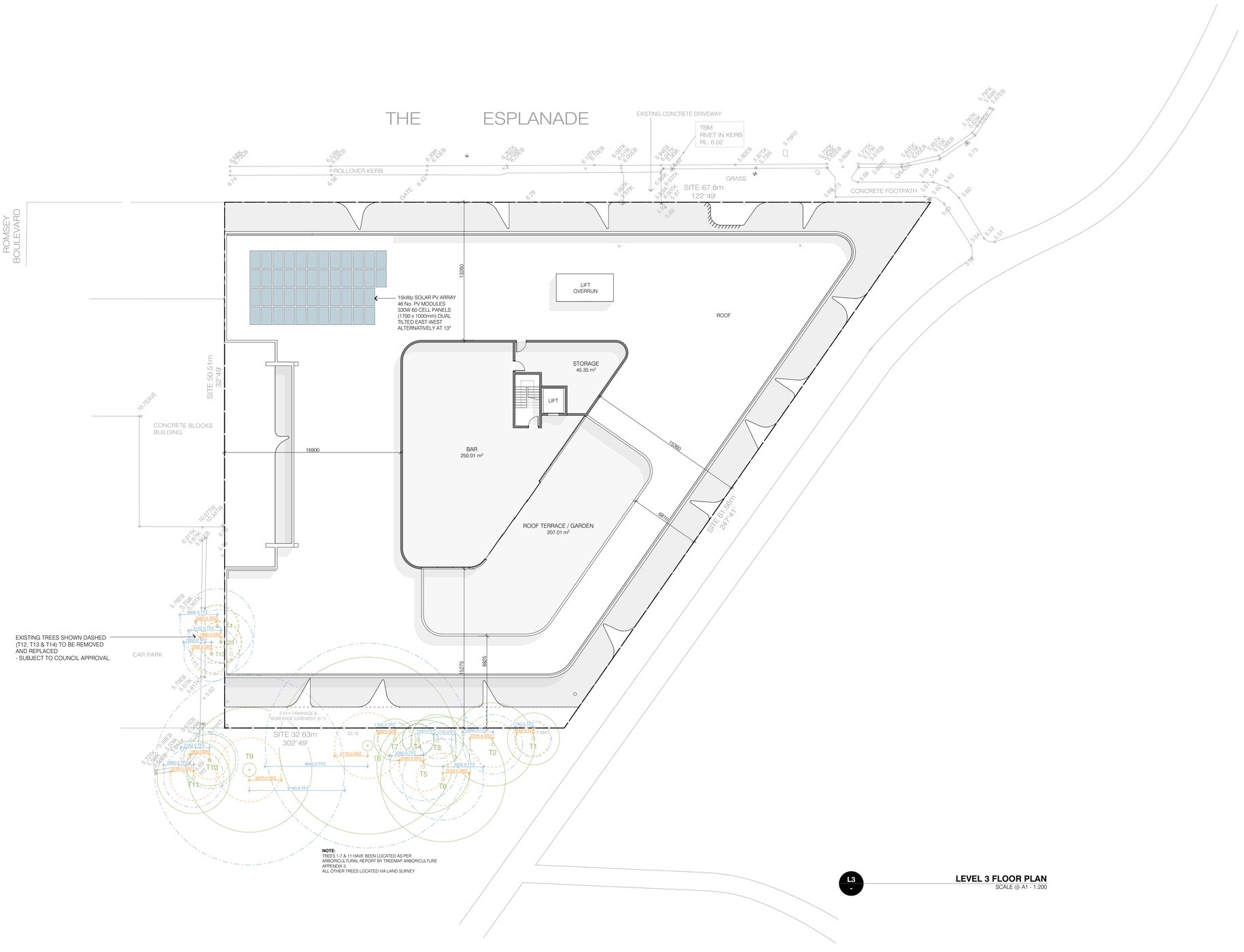
N



NOTE:
TREES 1-7 & 11 HAVE BEEN LOCATED AS PER ARBORICULTURAL REPORT BY TREEMAP ARBORICULTURE APPENDIX 3.
ALL OTHER TREES LOCATED VIA LAND SURVEY

L3 -

LEVEL 3 FLOOR PLAN
SCALE @ A1 - 1:200

LEGEND

EXTERNAL SURFACE FINISHES
- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION
- DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT
- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING
- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE
1100 | 660 | 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

NOTES
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Drawing Title
LEVEL 3 FLOOR PLAN
Scale
1:200 @ A1
Date
28.06.2021

TOWN PLANNING APPLICATION
Drawn
E.P.
Job No.
21-09
Drawing No.
TPA06
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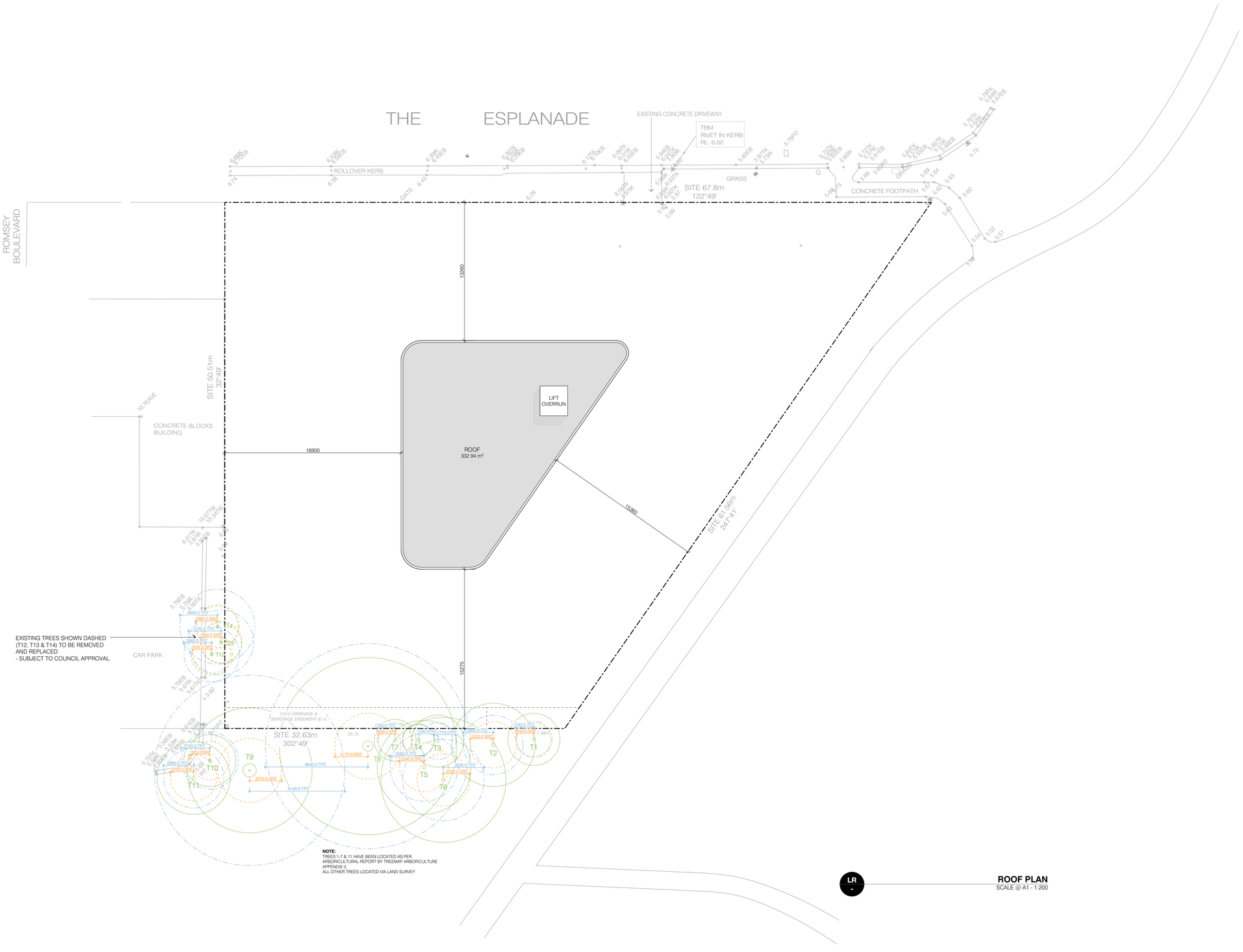
N



LR
-

ROOF PLAN
SCALE @ A1 - 1:200

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND
  - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 | 660 | 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS
REFER WMP FOR FURTHER DETAILS

NOTES

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Drawing Title
ROOF PLAN

Scale
1:200 @ A1

Date
28.06.2021

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21-09

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TPA07

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A

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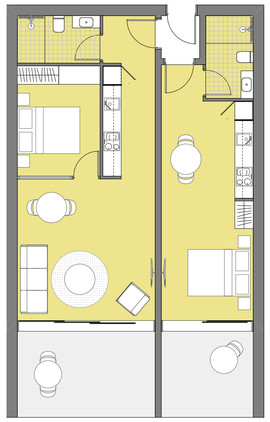
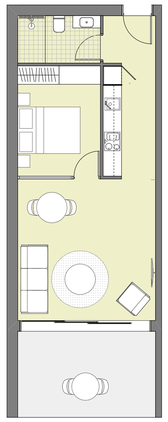


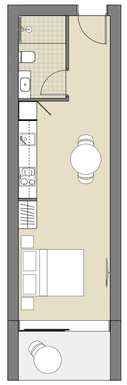
SERVICED APARTMENT TYPE A
DUAL KEY

APARTMENT AREA: 72.31m²



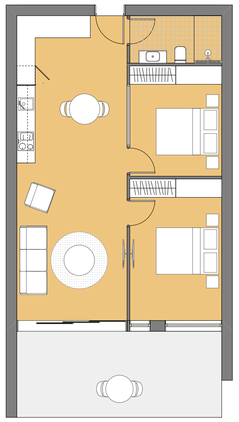
SERVICED APARTMENT TYPE B
ONE BEDROOM

APARTMENT AREA: 44.78m²



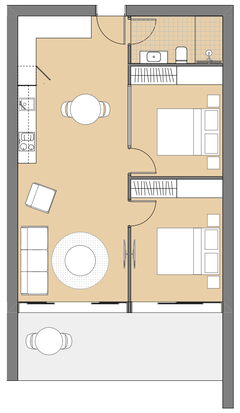
SERVICED APARTMENT TYPE C
STUDIO

AREA: 29.85m²



SERVICED APARTMENT TYPE D
TWO BEDROOM

APARTMENT AREA: 66.57m²



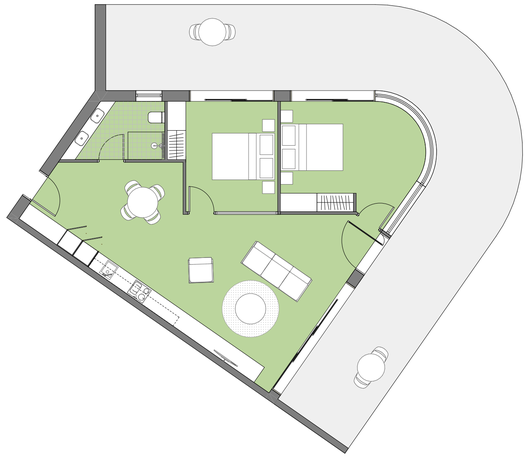
SERVICED APARTMENT TYPE E
TWO BEDROOM

APARTMENT AREA: 62.42m²



SERVICED APARTMENT TYPE F
TWO BEDROOM

APARTMENT AREA: 82.13m²



SERVICED APARTMENT TYPE G
TWO BEDROOM

APARTMENT AREA: 78.66m²

NOTES

- BALCONY GEOMETRY INDICATIVE ONLY. BALCONIES VARY - REFER TO FLOOR PLANS FOR EXACT GEOMETRY

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2-4 THE ESPLANADE
INVERLOCH

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SERVICED APARTMENT TYPES

TOWN PLANNING APPLICATION

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1:100 @ A1

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Job No.
21-09

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28.06.2021

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TPA08

Revision
A



N -

NORTH ELEVATION
SCALE @ A1 - 1:150



S -

SOUTH ELEVATION
SCALE @ A1 - 1:150

EXTERNAL MATERIALS & FINISHES



M1
FACE BRICKWORK
BRAND: PGH BRICKS
RANGE: COASTAL HAMPTONS
COLOUR: GULL GREY



M2
CONCRETE PANEL
TYPE: DECORATIVE STAMPED
COLOUR: OFF-WHITE



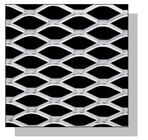
M3
ALUMINIUM CLADDING
BRAND: FAIRVIEW
TYPE: VITRACORE G2
COLOUR: PURE WHITE 9902



M4
TIMBER SCREEN / PANELS
TYPE: 300x35mm WIDE PLANKS
50x50mm WIDE BATTENS
COLOUR: NATURAL OAK



M5
BALUSTRADE
TYPE: POWDERCOATED ALUMINIUM
COLOUR: DULUX VIVID WHITE



M6
BALUSTRADE INFILL
TYPE: LARGE EXPANDED METAL MESH
COLOUR: MARINE GRADE STAINLESS STEEL



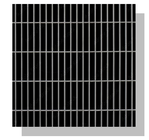
M7
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: COLORBOND RHEA



M8
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: BLACK SATIN - DULUX POWDERCOATING



M9
METAL CLADDING / ROOFING
BRAND: LYSAGHT
TYPE: ENSEAM
COLOUR: COLORBOND MONUMENT



M10
CAR PARK DOOR
TYPE: METAL GRILLE
COLOUR: MARINE GRADE STAINLESS STEEL



M11
GLAZING
COLOUR: CLEAR



M12
GLAZING
TYPE: FLUTED
COLOUR: OBSCURE

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- LANDSCAPING SHOWN IS EXISTING (SIGNIFICANT TREES) SURROUNDING SITE. INDICATIVE ONLY.

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2-4 THE ESPLANADE
INVERLOCH

Drawing Title
ELEVATIONS - NORTH & SOUTH
TOWN PLANNING APPLICATION

Scale	Job No.
1:150 @ A1	21-09
Drawn	
E.P.	
Date	Drawing No. / Revision
28.06.2021	TPA09 / A



E
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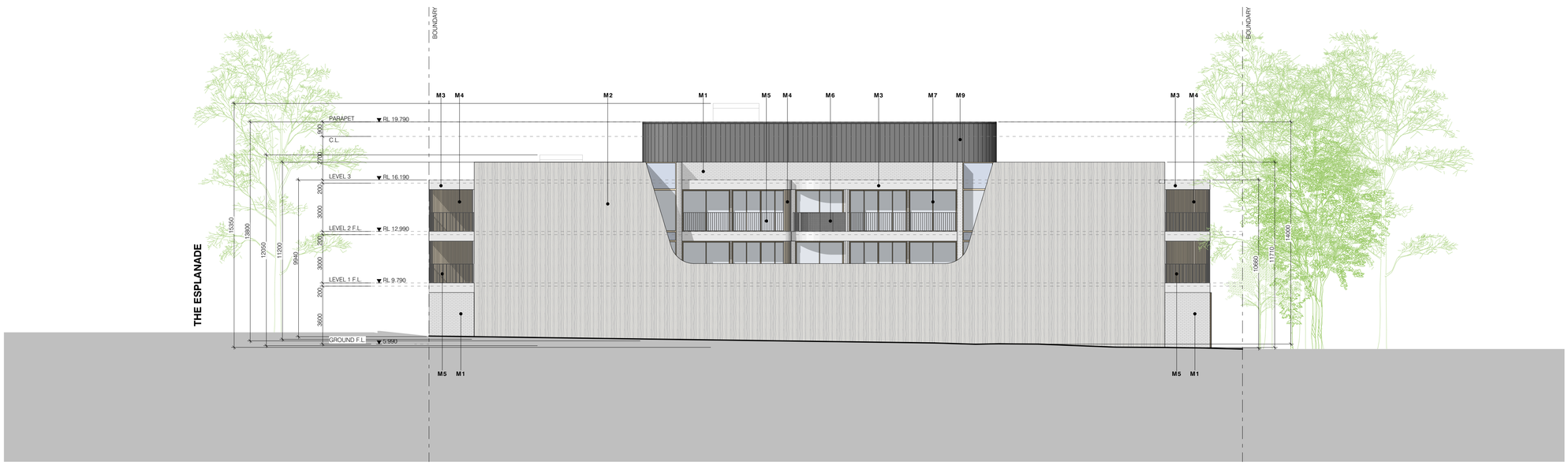
EAST ELEVATION
SCALE @ A1 - 1:150



W
-

WEST ELEVATION
SCALE @ A1 - 1:150

EXTERNAL MATERIALS & FINISHES



M1
FACE BRICKWORK
BRAND: PGH BRICKS
RANGE: COASTAL HAMPTONS
COLOUR: GULL GREY



M2
CONCRETE PANEL
TYPE: DECORATIVE STAMPED
COLOUR: OFF-WHITE



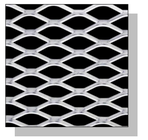
M3
ALUMINIUM CLADDING
BRAND: FAIRVIEW
TYPE: VITRACORE G2
COLOUR: PURE WHITE 9902



M4
TIMBER SCREEN / PANELS
TYPE: 300x35mm WIDE PLANKS
50x50mm WIDE BATTENS
COLOUR: NATURAL OAK



M5
BALUSTRADE
TYPE: POWDERCOATED ALUMINIUM
COLOUR: DULUX VIVID WHITE



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BALUSTRADE INFILL
TYPE: LARGE EXPANDED METAL MESH
COLOUR: MARINE GRADE STAINLESS STEEL



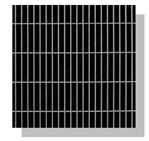
M7
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: COLORBOND RHEA



M8
WINDOW & EXT. DOOR FRAMES
TYPE: ALUMINIUM POWDERCOATED
COLOUR: BLACK SATIN - DULUX POWDERCOATING



M9
METAL CLADDING / ROOFING
BRAND: LYSAGHT
TYPE: ENSEAM
COLOUR: COLORBOND MONUMENT



M10
CAR PARK DOOR
TYPE: METAL GRILLE
COLOUR: MARINE GRADE STAINLESS STEEL



M11
GLAZING
COLOUR: CLEAR



M12
GLAZING
TYPE: FLUTED
COLOUR: OBSCURE

NOTES

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INVERLOCH

Drawing Title
ELEVATIONS - EAST & WEST

TOWN PLANNING APPLICATION

Scale
1:150, 1:200 @ A1

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21-09

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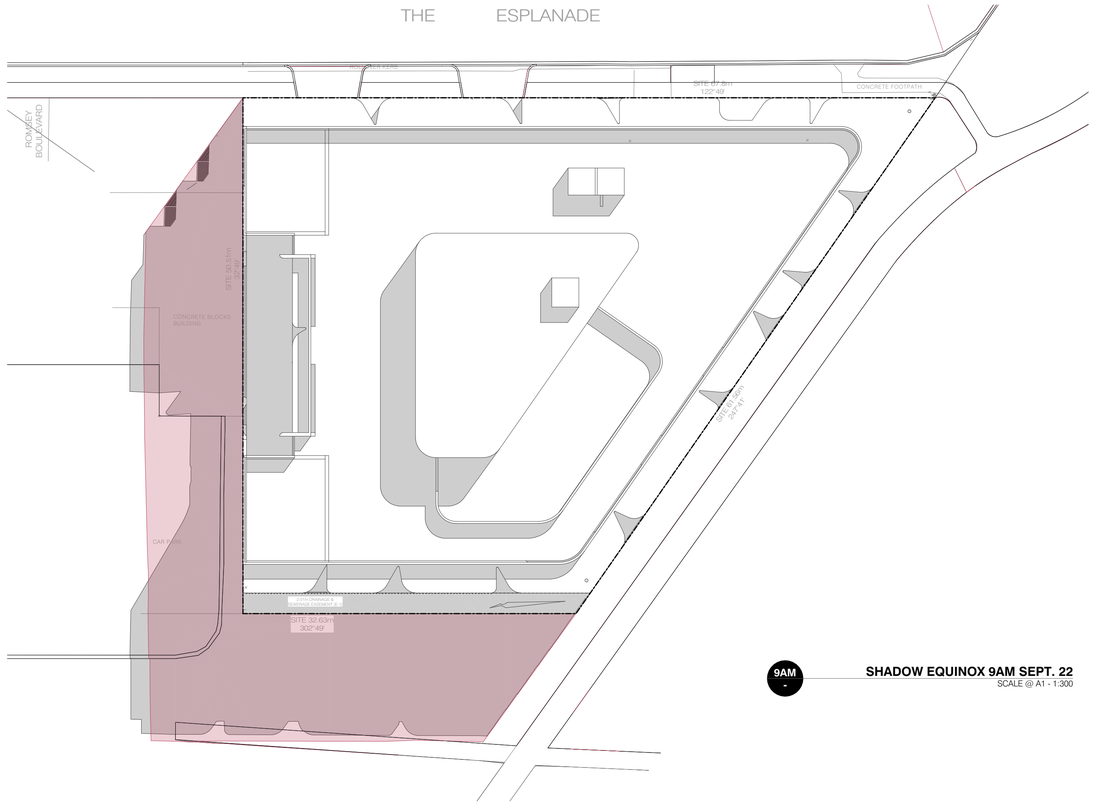
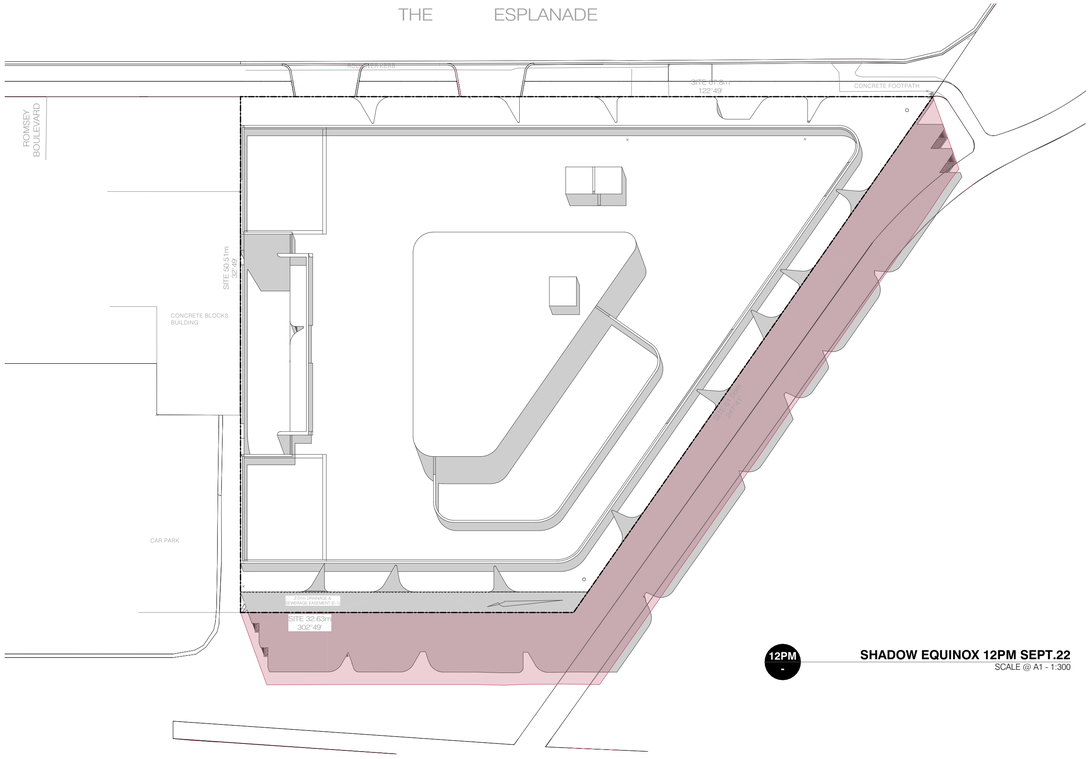


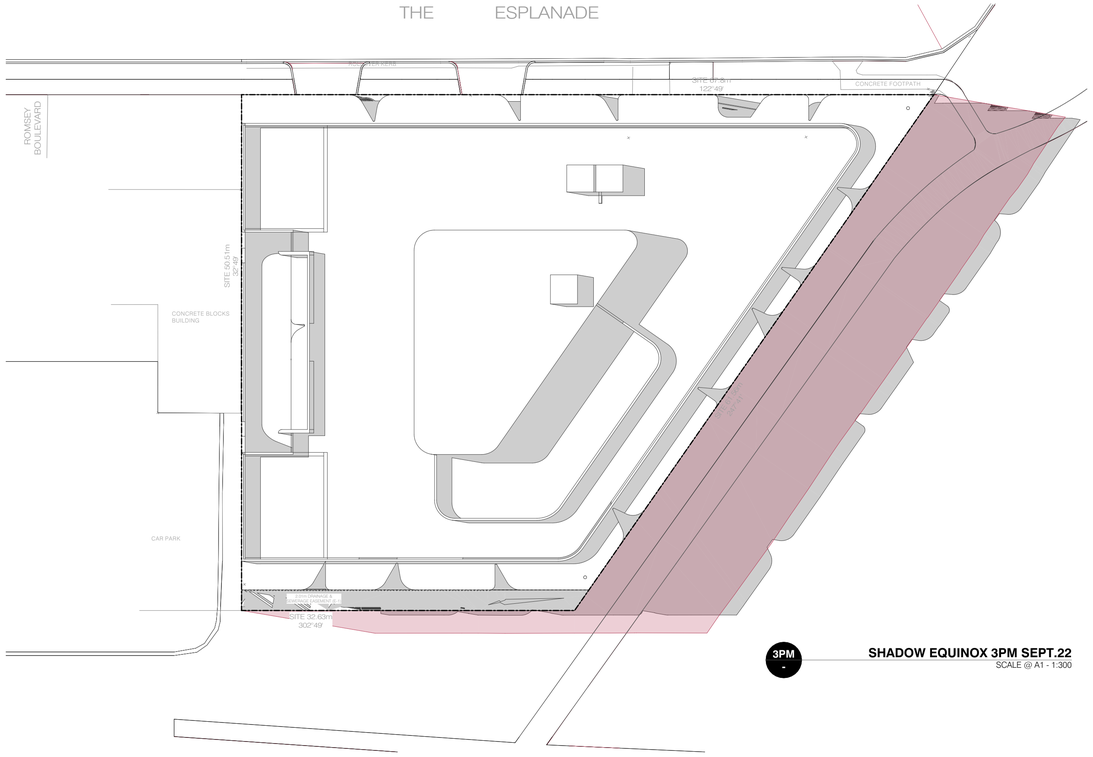
9AM -

SHADOW EQUINOX 9AM SEPT. 22
SCALE @ A1 - 1:300



12PM -

SHADOW EQUINOX 12PM SEPT.22
SCALE @ A1 - 1:300



3PM -

SHADOW EQUINOX 3PM SEPT.22
SCALE @ A1 - 1:300

LEGEND

- EXTENT OF SHADOWS CAST BY PROPOSED DEVELOPMENT.
- EXTENT OF SHADOWS CAST BY DDO SCHEDULE 10 ALLOWABLE VOLUME (9.5m HEIGHT, FULL SITE COVERAGE).

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INVERLOCH

Drawing Title
SHADOW DIAGRAMS
TOWN PLANNING APPLICATION

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PERSPECTIVE IMAGE 1

2-4 THE ESPLANADE INVERLOCH



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PERSPECTIVE IMAGE 2

2-4 THE ESPLANADE INVERLOCH



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PERSPECTIVE IMAGE 3

2-4 THE ESPLANADE INVERLOCH



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PERSPECTIVE IMAGE 4

2-4 THE ESPLANADE INVERLOCH



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PERSPECTIVE IMAGE 5

2-4 THE ESPLANADE INVERLOCH



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PERSPECTIVE IMAGE 6

2-4 THE ESPLANADE INVERLOCH



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PERSPECTIVE IMAGE 7

2-4 THE ESPLANADE INVERLOCH

Traffix Group

Traffic Engineering Assessment

Proposed Mixed Use Development

2-4 The Esplanade, Inverloch

Prepared for
Forte Group

June 2021

G28679R-02B

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Melbourne Victoria 3000

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Table of Contents

1. Introduction 5

2. Existing Conditions 5

2.1. Subject Site 5

2.2. Road Network 7

2.3. Public Transport 8

2.4. Existing Car Parking Conditions 9

3. The Proposal 10

4. Traffic Engineering Assessment 11

4.1. Statutory Car Parking Requirement 11
4.1.1. Car Parking Demand Assessment 13

4.2. Allowing Fewer Spaces 14
4.2.1. Car Parking Deficiency Associated with the Existing Use of the Land 15
4.2.2. Availability of Alternative Car Parking in the Locality of the Land 15

4.3. Summary – Car Parking 16

4.4. Car Parking Layout and Access Design 16

5. Bicycle Considerations 18

6. Traffic Considerations 19

6.1. Traffic Generation and Distribution 19

6.2. Traffic Impact 19

7. Loading and Waste Considerations 20

7.1. Loading Arrangements 20

7.2. Waste Collection 20

8. Conclusions 21

List of Figures

Figure 1: Locality Plan 5
Figure 2: Land Use Zoning Map 6
Figure 3: The Esplanade – View East 7
Figure 4: The Esplanade – View West 7
Figure 5: The Esplanade Service Road – View East 7
Figure 6: The Esplanade Service Road – View West 7
Figure 7: Bass Coast Public Transport Map 8

Figure 8: Spot Car Parking Survey Area 9

List of Tables

Table 1: Development Breakdown 10
Table 2: Statutory Car Parking Requirement 12

List of Appendices

Appendix A Spot Car Parking Survey Results

Appendix B Proposed Development Plans

1. Introduction

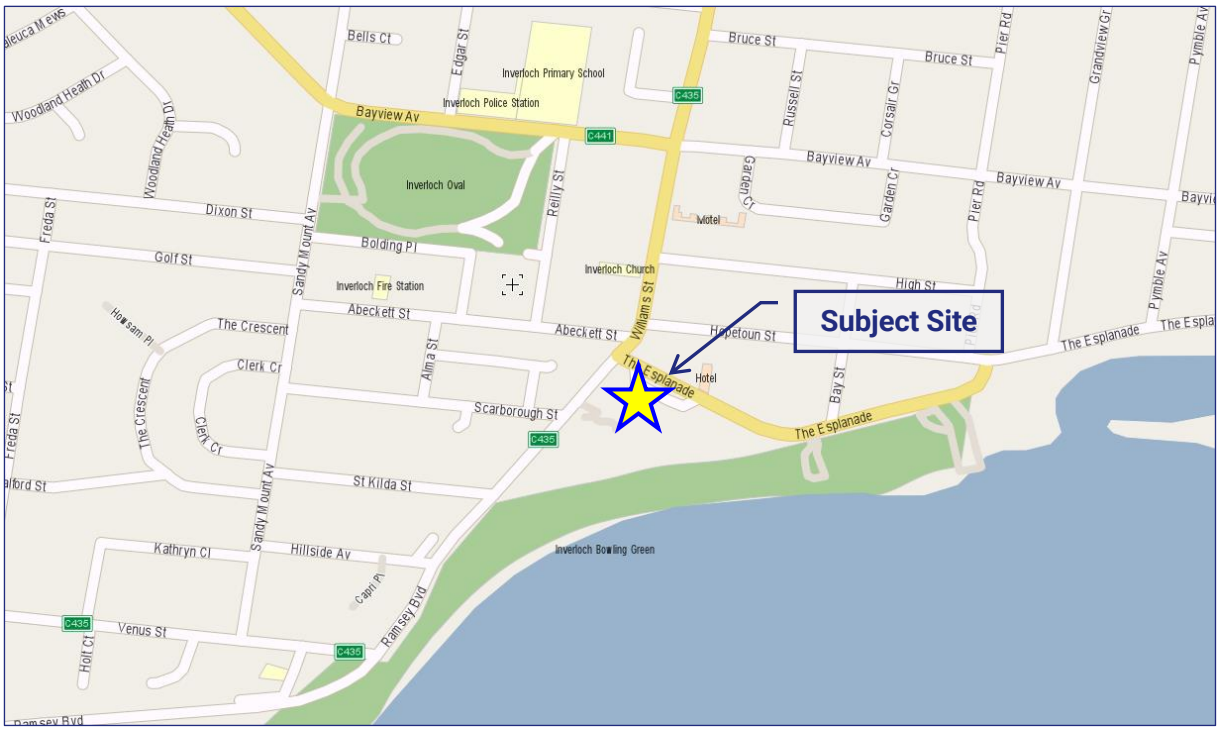
Traffix Group has been engaged by Forte Group to undertake a Traffic Engineering Assessment for the Proposed Mixed Use Development at 2-4 The Esplanade, Inverloch.

In particular, this report provides a detailed traffic engineering assessment of the parking and traffic matters associated with the proposed development.

2. Existing Conditions

2.1. Subject Site

The subject site is located on the south side of a service road along The Esplanade in Inverloch as presented in the locality map at Figure 1.



Source: https://www.street-directory.com.au/

Figure 1: Locality Plan

The site is currently occupied by a boat sales dealership which includes an associated boat service garage. No car parking is provided on-site for customers, with the boat service garage and setback area predominantly used for storing/servicing boats. An open gravel area is provided at the rear (southern) of the site which can accommodate informal staff car parking.

The site is currently provided with vehicle access at three locations as follows:

- a crossover located at approximately the middle of the site's frontage to The Esplanade service road, associated with access to the sales yard (generally for boat trailers),

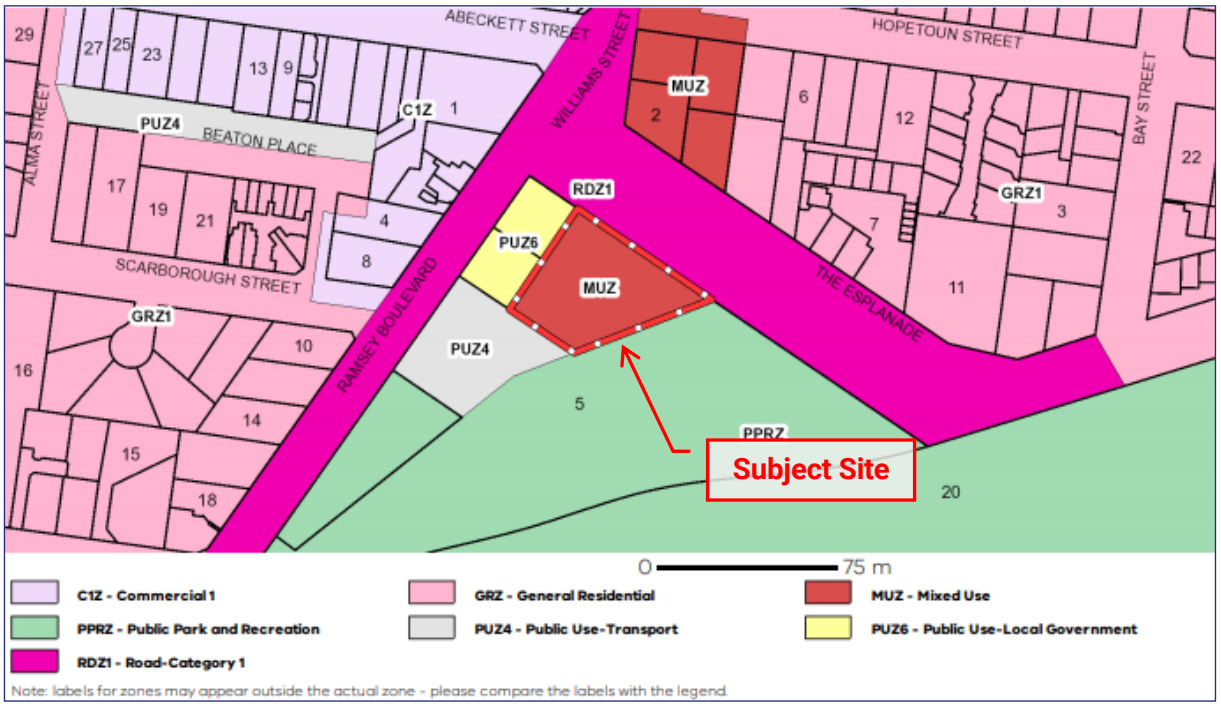
- an access to the boat service garage from The Esplanade service road, located at the western end of the site, and
- an access at the southwestern corner of the site via a public car park, which in turn is accessed via Ramsey Boulevard.

The existing use currently operates between 8.30am–5.00pm Monday to Friday and 9am–1pm Saturday. Based on a review and measurements using aerial imagery, the existing use comprises of the following approximate floor areas:

- 300m^2 main sales building/office,
- 1,100m^2 external boat display area, and
- 300m^2 boat service garage.

The site is zoned 'Mixed Use (MUZ)' under the Bass Coast Planning Scheme, as indicated in the land zoning map at Figure 2.

Land uses surrounding the site are generally a mixture of residential, commercial, and public park and recreation, with some public use zones abutting the site's southern and western boundaries. Significant nearby land-uses include the Bunurong Environment Centre which abuts the site's western boundary.



Source: VicPlan

Figure 2: Land Use Zoning Map

2.2. Road Network

The Esplanade, in the vicinity of the site, is zoned 'Road Zone Category 1 (RDZ1)' under the Planning Scheme and is under the control of Council.

In the vicinity of the site, The Esplanade accommodates a single lane for traffic in each direction in addition to angled parking along its north side. A bus stop is located along its southern side near the site.

Angled parking along The Esplanade's north side is generally unrestricted.

The default urban speed limit of 50km/h applies to The Esplanade.

The Esplanade, in the vicinity of the site, is shown in Figure 3 and Figure 4.



Figure 3: The Esplanade – View East



Figure 4: The Esplanade – View West

A **service road** abuts the southern side of The Esplanade. This service road is also zoned RDZ1 and is under the control of Council.

The service road has a carriageway that is approximately 6m wide which accommodates simultaneous two-way traffic. In addition, indented 90-degree parking is along the northern side. The Esplanade service road is shown in Figure 3 and Figure 4.



Figure 5: The Esplanade Service Road – View East



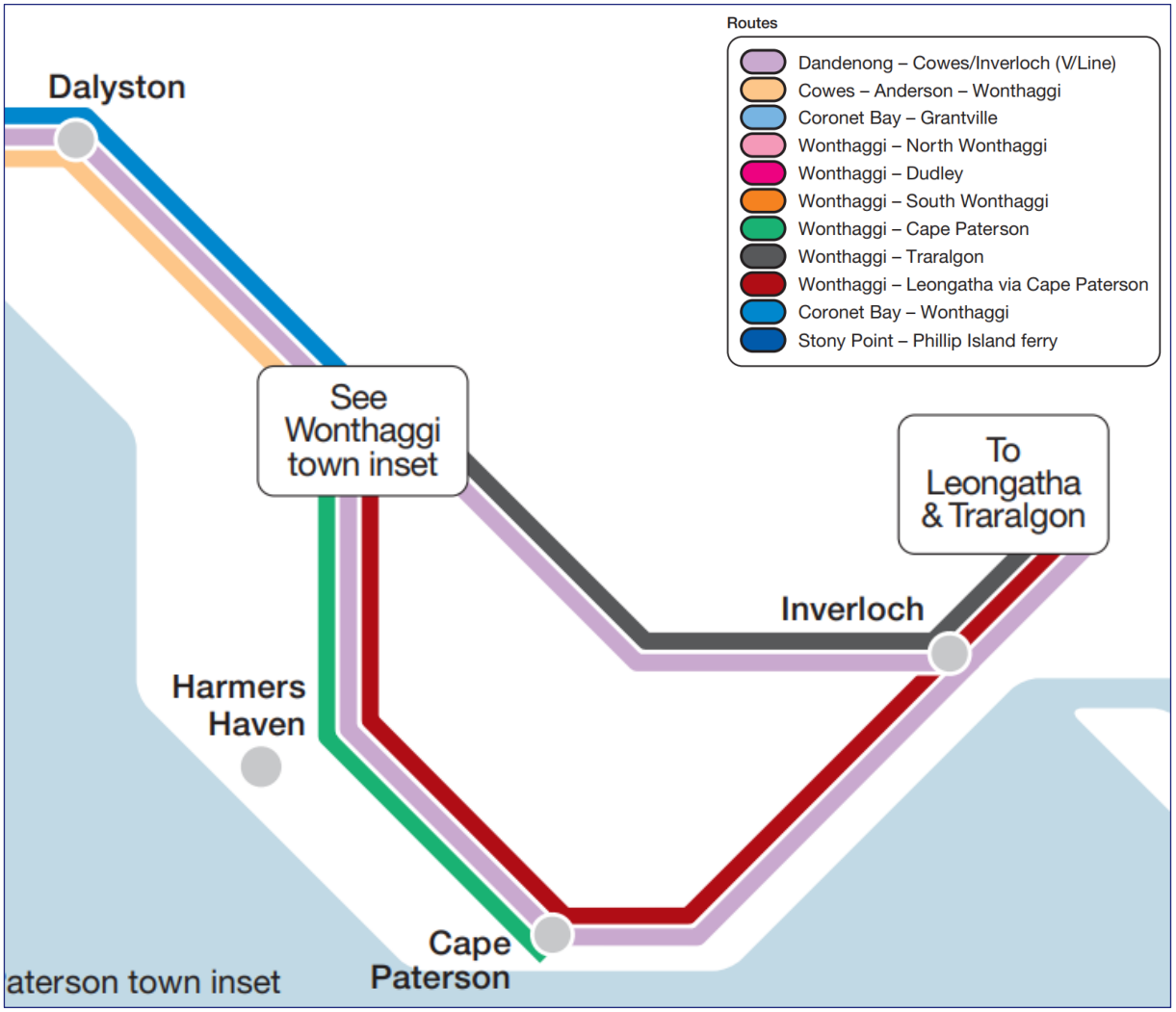
Figure 6: The Esplanade Service Road – View West

2.3. Public Transport

The site has good accessibility to public transport, with a bus stop located adjacent the site's frontage to The Esplanade.

This bus stop provides a stop for services that travel to Leongatha, Traralgon and Wonthaggi, in addition to a V/Line coach service to Melbourne.

The above public transport services also provide connections with other services as shown at Figure 5.



Source: Public Transport Victoria, ptv.vic.gov.au

Figure 7: Bass Coast Public Transport Map

2.4. Existing Car Parking Conditions

Spot parking occupancy surveys were conducted by Traffix Group as part of our involvement with the previous application to establish the general existing on-street car parking demands in the vicinity of the site.

A map of the parking survey area is shown at Figure 8.

The spot parking surveys were undertaken on:

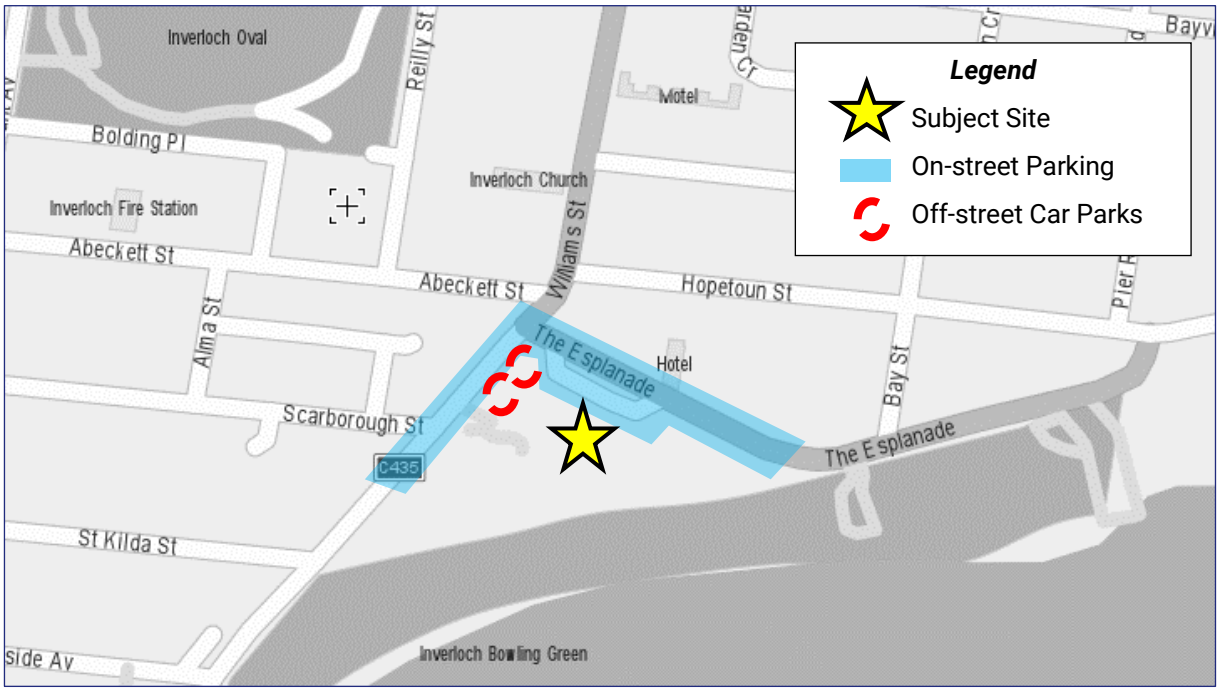
- Tuesday 30th June, 2020 at 1:45pm, and
- Wednesday 8th July, 2020 at 12noon.

In summary, the results of the spot car parking surveys found a total of 115 public parking spaces located within the overall survey area, including 91 on-street spaces and 24 spaces within off-street public car parks.

The peak occupancy during the surveyed times occurred at 1:45pm on Tuesday 30th June. At this time, a total of 50 vacant spaces were recorded within the survey area (65 parked vehicles, 56% occupancy).

Whilst the surveys may not be representative of typical peak conditions in Inverloch due to the time of year, the surveys occurred during the winter school holiday period when it was still relatively busy within the township. It is also noted that these spot surveys were undertaken immediately prior to Stage 3 lockdowns commencing in Victoria. Accordingly, it is possible that traffic and parking was more heavily utilised as a result of individuals/families attempting to avoid metropolitan Melbourne Covid related restrictions.

As detailed summary of the parking surveys is attached at Appendix A.



Source: https://www.street-directory.com.au/

Figure 8: Spot Car Parking Survey Area

3. The Proposal

It is proposed to develop the subject site for the purposes of a four-storey mixed use development, including commercial tenancies at ground level, serviced apartments above and a bar at the rooftop level. The development breakdown is summarised in Table 1.

Table 1: Development Breakdown

Use		Quantity / Size
Serviced Apartments	Studio	2
	One-bedroom	26
	Two-bedroom	14
	TOTAL	**42**
Bar		60 patrons ($296m^2$)
Food and Drink Premises (Tenancy 1)		$167m^2$
Retail Premises (Tenancy 2)		$189m^2$

Car parking for 48 spaces, including one disabled car space, is to be provided on-site at ground level within an under-croft car park.

Vehicle access is to be taken via two double width crossovers to The Esplanade's service road. This includes a crossover approximately at the middle of the site's frontage and another crossover towards its western boundary.

Car parking is proposed to be allocated as follows:

- 42 spaces for serviced apartments (i.e. one to each apartment),
- three (3) spaces for employees of the food and drink/retail premises,
- two (2) spaces for employees of the rooftop bar, and
- one (1) surplus space that can be allocated as the applicant sees fit.

Eight bicycle parking spaces via four horizontal rails are proposed within the ground floor car park at the southwestern corner of the site. Additionally, two double-side rails are to be provided externally within the building setback for visitors/customers.

A copy of the development plans is attached at Appendix B.

4. Traffic Engineering Assessment

4.1. Statutory Car Parking Requirement

Clause 52.06 of the Planning Scheme sets out the statutory requirements for car parking. The purpose of Clause 52.06 is:

- *To ensure that car parking is provided in accordance with the State Planning Policy Framework and Local 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.*

The proposed serviced apartments are considered to be included within the land-use category of 'residential hotel'. This use is not specified under Clause 52.06-5 and therefore car parking must be provided to the satisfaction of the Responsible Authority.

Similarly, 'retail premises' does not have a specified car parking rate under Clause 52.06-5 and therefore car parking must be provided to the satisfaction of the Responsible Authority.

The statutory car parking requirement for the proposed development based on the rate set out under Clause 52.06-5 of the Planning Scheme is summarised in Table 2.

Table 2: Statutory Car Parking Requirement

Use		Quantity	Parking Rate (Column A)	Parking Requirement(1)
Serviced Apartments	Studio	2	To the satisfaction of the Responsible Authority	-
	One-bedroom	26		
	Two-bedroom	14		
Bar		60 patrons	0.4 spaces to each patron permitted	24 spaces
Food and Drink Premises (Tenancy 1)		167m^2	4 spaces to each 100m^2 leasable floor area	6 spaces
Retail Premises (Tenancy 2)		189m^2	To the satisfaction of the Responsible Authority	-

(1) Clause 52.06-5 specifies that where a car parking calculation results in a requirement that is not a whole number, the number of spaces should be rounded down to the nearest whole number

Table 2 indicates that the proposed development has a statutory requirement to provide 30 car parking spaces. In addition, car parking for the serviced apartments and retail premises components of the development must be provided to the satisfaction of the Responsible Authority.

A total of 48 car spaces are proposed to be provided on site for the development, allocated as follows:

- Serviced apartments – 42 spaces for guests/staff
- Food and Drink Premises (Tenancy 1) – 1 staff space
- Retail Premises (Tenancy 2) – 2 staff spaces
- Bar – 2 staff spaces
- One (1) surplus space to be allocated as the applicant see fit.

No car parking is proposed to be provided on-site for customers of the commercial component of the development. To this end, the application is seeking a reduction in the statutory car parking requirement which is discussed in the following section.

4.1.1. Car Parking Demand Assessment

Serviced Apartments

Our experience suggests that residential hotel or serviced apartment developments typically generate car parking demands in the range of 0.3 to 1.0 space per room/apartment (inclusive of staff demands). Rates at the lower end of the scale are for developments within inner city suburbs that have very good accessibility to public transport, whilst higher rates are for more outer suburbs or regional locations where there a lower degree of access to public transport.

Given the site's regional location and high likelihood that guests will arrive by car, a rate of 1 car space per room/apartment (inclusive of staff demands) is recommended. This equates to a car parking demand for 42 spaces.

We note that this is a conservative upper limit car parking demand when the serviced apartments are fully booked, which, based on our experience, is rarely the case for a typical hotel or serviced apartments building. We also note that there is expected to be no overlap between guest arrivals and guest departures given that typical check-out and check-in times are at 10am and 2pm, respectively.

Based on the preceding, the proposed level of on-site car parking provision for the serviced apartments is appropriate for the proposed development.

Retail and Food & Drink Premises

It is our experience that retail tenancies such as the one proposed typically generates car parking at the same rate as a 'shop' use, which has a statutory car parking requirement for 4 spaces to each 100m^2 of leasable floor area under Clause 52.06-5 of the Planning Scheme. Application of this rate to the proposed retail floor area (i.e. 189m^2) results in a projected parking demand for 7 spaces.

As mentioned earlier, the food and drink premises has a statutory parking demand for 6 spaces.

Based on our experience, the combined retail/food and drink premises demand is likely to comprise a long-term (staff) demand for approximately three (3) spaces (i.e. approximately 1 space to each 100m^2 floor area) and a short-term (customer) demand for up to 10 spaces (i.e. 3 spaces to each 100m^2).

The provision of three (3) on-site staff spaces therefore meets the likely long-term parking demands associated with staff.

Short-term customer parking demands will need to be accommodated off-site, noting that the site's location within a commercial area means that the majority of customers associated with the retail tenancies are likely to be people who are already within the area for other purposes. As such, the actual off-site parking demand associated with retail/food and drink customers is likely to be less than 10 spaces. However, for the purposes of a conservative assessment, we will adopt 10 spaces as the anticipated off-site demand for customer parking.

Bar

As mentioned earlier, the proposed bar has a statutory requirement to provide 24 car spaces.

The bar is expected to peak in the evening when parking in the nearby area is expected to be in lower demand compared to during the day. Whilst there may be some patron demand for the bar during the afternoon depending on operating hours, it is anticipated to be significantly lower than the evening peak evening demand.

Similarly, to the retail/food and drink premises uses as discussed earlier, it is unlikely that the bar would generate considerable additional parking demands for car parking. Instead, it is expected that patrons of the bar will be guests of the serviced apartments, nearby residents of Inverloch and/or guests that are staying at other accommodation in the Inverloch township. These patrons are likely to walk to the bar from their residence/accommodation or park within on-street/off-street parking facilities in the nearby area as part of a combined trip with another use in town centre.

Accordingly, it is anticipated that the bar will only generate a small additional demand for parking associated with employees of the site which is likely to be accommodated by the two designated on-site employee car spaces.

Nevertheless, for the purposes of a conservative assessment, we will assume that the bar could generate up to 30% of its statutory parking demand for patrons (after deducting two spaces for employees), i.e. a demand for up to (6) patron car parking spaces.

4.2. Allowing Fewer Spaces

Clause 52.06-7 sets out a series of factors that should be considered when assessing the appropriateness of providing fewer car spaces on the site than are likely to be generated by the use. The relevant decision factors in this case are detailed as follows:

- *The Car Parking Demand Assessment.*
- *The availability of alternative car parking in the locality of the land, including:*
  - *Public car parks intended to serve the land.*
  - *On street parking in non residential zones.*
  - *Streets in residential zones specifically managed for non-residential parking.*
- *Any car parking deficiency associated with the existing use of the land.*
- *Any other relevant consideration.*

4.2.1. Car Parking Deficiency Associated with the Existing Use of the Land

As mentioned earlier, the existing use on the site comprises boat sales and a boat servicing garage.

Under Clause 73.03 of the Planning Scheme, the existing use would fall under the land-use term 'Motor vehicle, boat or caravan sales', which falls under the broader land-use term 'retail premises'. As also mentioned earlier, 'retail premises' is not a listed land-use term under Table 1 of Clause 52.06, with parking being required to be provided to the satisfaction of the responsible authority.

Based on our experience, our observations and the results of the spot car parking surveys mentioned earlier, it is anticipated that the existing use generates an off-site car parking demand for in the order of five to ten spaces, which could include in the order of five staff and five customer car spaces at peak time of operation. It is noted that, at the time of our spot car parking surveys, the existing use on the site was operating and generating a demand for car parking. In particular, it was observed that the majority of staff and customers utilise on-street parking along The Esplanade's service road adjacent to the site rather than the informal on-site areas.

Whilst the proposed development will likely result in a reduction in off-site demand for long-term public parking associated with staff, there is expected to be a small increased reliance for short-term parking associated with customers/visitors as mentioned previously.

The proposed development is estimated to conservatively generate a peak off-site demand for up to 16 spaces, noting this conservatively assumes the retail/food and drink customer and bar patron demands peak at the same time which is unlikely. In fact, there is unlikely to be much overlap in operating hours between the bar and the ground level tenancies.

Furthermore, when considering the estimated off-site demands currently generated by the existing business on the site, the proposal is conservatively expected to result in a net increased demand for only in the order of 6 to 11 public car spaces.

4.2.2. Availability of Alternative Car Parking in the Locality of the Land

As mentioned earlier, Traffix Group undertook spot car parking surveys within approximately 150m walking distance from the site. Importantly, these spot car parking surveys were undertaken during school holiday periods, noting that this is typically when peak parking demands are generated due to Inverloch being a popular holiday destination.

As mentioned earlier, the spot car parking surveys revealed that there were no less than 50 available spaces within the surveyed area. It is also noted that the existing use on the site was operating at the times of these surveys. Accordingly, without the use in operation, it is likely that there would have been even more spaces available in the vicinity of the site.

In any case, the 50 available nearby public car spaces would easily be able to meet the predicted net increased demand for 6 to 11 public car parking spaces. As mentioned earlier, this is likely to be less given that customers/visitors would likely combine their trips with visits to other uses in the nearby area.

4.3. Summary – Car Parking

Based on the foregoing assessment, we are of the opinion that:

- The proposed car parking provision of one (1) space to each serviced apartment will satisfy the anticipated guest and staff demands.
- Staff car parking demands associated with the retail, food and drink and bar components of the development are expected to be accommodated on-site.
- The existing use of the site is estimated to generate a demand for in the order of 5 to 10 on-street car parking spaces which can be considered as a credit for the proposed development.
- There is sufficient nearby off-site public parking in the nearby area to accommodate the likely off-site demands of customers and patrons of development.
- There will not be any unreasonable impacts on the overall availability of public parking within the area as a result of the proposal.
- Sufficient justification has been presented for a permit to be issued for a parking reduction under Clause 52.06-7 of the Planning Scheme.

4.4. Car Parking Layout and Access Design

As part of our involvement in this project, Traffix Group has provided design advice to the Architect to ensure that the proposed development achieves an acceptable car parking and access layout.

We have assessed the proposed car parking layout and access arrangements against the relevant requirements of Clause 52.06-9 of the Planning Scheme and the Australian Standards (where relevant). The following is noted:

Car Spaces

- The majority of car parking spaces (with the exception of the disabled car spaces and car spaces along the southern boundary) are measured to be 2.6m wide, 4.9m long and accessed from an aisle that is at least 6.4m wide, in accordance with the requirements of the Clause 52.06-9 (Design Standard 2)

  The car spaces along the southern boundary of the site that are located adjacent or partially adjacent to the 5.5m wide accessway are to be 2.9m wide and 4.9m long, in accordance with an interpolation of values shown at Table 2 of Clause 52.06-9 (Design Standard 2).
- The disabled car space is measured to be 2.4 wide and 4.9m long, noting that 0.5m of the space length is permitted to encroach into the adjacent access aisle in accordance with the requirements of the Planning Scheme. This generally satisfies what is suggested under the Australian Standard for off-street car parking for people with disabilities (AS2890.6-2009) and the requirements of the Planning Scheme.

  The shared area adjacent to the abovementioned disabled space is provided with similar dimensions, noting that, whilst part of the shared area is obstructed by a column, the obstructed part of the shared area is located in an area that will not be required for access

to/from the disabled space. Accordingly, we are satisfied that appropriate vehicle access will be possible for the disabled space and adjacent shared area.

- Where located adjacent to a wall, 300mm clearance has been provided to car spaces in accordance with Diagram 1 of Clause 52.06-9 (Design Standard 2).
- A minimum headroom clearance of at least 2.5m is to be provided above the disabled car parking space and adjacent shared area, in accordance with the suggestions of the relevant Australian Standard. All other spaces are to be provided with a minimum headroom clearance in excess of 2.2m, exceeding the suggestions of the Australian Standard for Off-street Car Parking (AS2890.1-2004) and exceeding the requirements of Clause 52.06-9 (Design Standard 1).
- A limited number of car spaces within the northern portion of the car park are to be graded at no steeper than 1:16, in accordance with the suggestions of the relevant Australian Standard.
- Columns identified adjacent to standard car parking spaces are located between 0.25m and 1.25m from the front end of the space in accordance with the clearance envelope under Clause 52.06-9 (Design Standard 2).

Access

- The proposed driveways to The Esplanade's service road are to be generally 6.1m wide (wall to wall), with a small section measured to be 5.8m in width which we understand to be associated with entry/exit gates. We are satisfied that simultaneous two-way vehicle access will be possible in accordance with the intent of the of the Planning Scheme requirement.
- Sight triangles are to be provided at the boundary of the departure (western) side of both access driveways in accordance with the requirements of the Planning Scheme. A sight triangle is not required on the eastern side given the width of the accessway.
- Grades within the first 5m of the site's frontage are to be no steeper than 1:16, in accordance with the requirements of Clause 52.06-9 (Design Standard 3).

Based on the foregoing, we are satisfied that the proposed car parking layout and access arrangements are appropriate for the proposed development and will provide for convenient and accessible car parking.

5. Bicycle Considerations

Clause 52.34 of the Planning Scheme outlines the statutory bicycle parking requirements for a range of land uses.

The statutory bicycle parking rates for the proposed land-uses are as follows:

Retail Premises[1]

- 1 to each 300m^2 of leasable floor area for staff
- 1 to each 500m^2 of leasable floor area for customers

Residential Building

In developments of four or more storeys, 1 to each 10 lodging rooms for:

- employees of the serviced apartments, and
- guests of the serviced apartments.

Based on a total combined floor area for the bar, retail and food and drink premises of 652m^2 and 42 apartments, the statutory bicycle parking requirement is a total of 11 bicycle spaces, comprising six staff and five visitor/guest/customer bicycle spaces.

A total of 12 bicycle spaces are proposed, comprising eight secure spaces at the southwest corner of the ground level car park in addition to four publicly accessible spaces within the setback from the property boundary at the northeastern corner of the ground floor. All bicycle parking spaces are in the form of double-sided horizontal rails.

It is noted that guests of the serviced apartments are unlikely to require a bicycle parking space. Accordingly, the eight bicycle parking spaces identified on-site is anticipated to accommodate the likely demand for employee bicycle parking in addition to any unlikely small demand associated with guests of the serviced apartments.

The four bicycle parking spaces at ground level within the setback will be adequate to accommodate bicycle parking for visitors/customers of the proposed development.

Overall, we are satisfied that appropriate bicycle parking for staff and visitors/customers has been identified for the site.

[1] The land-use terms 'shop', 'food and drink premises' and 'bar' are nested within the broader land-use term 'retail premises'.

6. Traffic Considerations

6.1. Traffic Generation and Distribution

Retail/Food and Drink/Bar

For the purposes of this assessment, it is conservatively assumed that each of the proposed spaces associated with staff of the commercial use will generate one 'in' and 'out' vehicle movement during the AM and PM commuter peak hours respectively, i.e. a total of three 'in' and three 'out' movements during the AM and PM commuter peak hours respectively.

Employees associated with the bar are likely to enter and exit outside of the commuter peak periods and outside of the likely arrival/departure periods for serviced apartment guests.

Serviced Apartments

Serviced apartment staff and guest arrivals/departures are expected to be spread throughout the morning and afternoon/evening periods and will not necessarily peak during the commuter peak hours.

For the purposes of a conservative assessment, we will assume 50% turnover of the total on-site car parking provision (42 spaces) for the serviced apartments in any one peak hour which equates to 21 vehicle movements per hour.

Total

Based on the foregoing, the proposed development as a whole is projected to conservatively generate in the order of 24 entry or exit movements during the commuter peak hours.

6.2. Traffic Impact

This level of traffic is very small and equates to approximately one vehicle being generated to/from The Esplanade service road on average every 2.5 minutes, which will further be split across two access points.

Accordingly, we are of the opinion that traffic associated with the proposed development will be quickly dispersed to the surrounding road network without any unreasonable detrimental impacts to the capacity and operation of The Esplanade, its service road, and the surrounding roads and intersections.

7. Loading and Waste Considerations

7.1. Loading Arrangements

Clause 65.01 of the Planning Scheme specifies the following with respect to loading considerations:

Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:

- *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.*

Given the relatively small size of the proposed retail and food and drink tenancies, deliveries to the site are expected to be small and infrequent in nature and will most likely be undertaken by small vans or by personal vehicles associated with the occupants/employees of the tenancy.

Deliveries for the site associated with the serviced apartment use are anticipated to require access by vehicles such as large vans/small trucks.

Based on the preceding, it is considered appropriate for such loading vehicles up to 2.2m in height to utilise the available on-site parking allocated to each use. Any larger vehicles would utilise the on-street parking provision along the service road, noting any loading activities are expected to be infrequent in nature.

It is noted that the existing use, within the service road, accommodates a boat garage as mentioned earlier. These boats, which would typically be larger than a large van/small truck, would need to reverse into the garage bays via the service road, noting that these movements would be more frequent when compared with infrequent servicing/loading activities associated with the proposed uses. Accordingly, the proposed development would likely result in an improvement for the service road compared to existing conditions.

7.2. Waste Collection

A Waste Management Plan has been prepared by Traffix Group for the development. The Waste Management Plan states that waste associated with the proposed development is to be collected by a private contractor. In particular, we understand that on collection days, bins are to be transferred to the frontage of the site for collection, with the private waste truck propping along The Esplanade service road adjacent to the site. The private contractor will then unload bins directly at the frontage of the site. Bins can then be wheeled back to the bin store area.

We are satisfied that the proposed waste collection arrangements are appropriate for the proposed development.

8. Conclusions

Having undertaken a detailed traffic engineering assessment of the proposed mixed use development at 2-4 The Esplanade, Inverloch, we are of the opinion that:

- The proposed car parking provision of one (1) space to each serviced apartment will satisfy the anticipated guest and staff demands.
- Staff car parking demands associated with the retail, food and drink and bar components of the development are expected to be accommodated on-site.
- The existing use of the site is estimated to generate a demand for in the order of 5 to 10 on-street car parking spaces which can be considered as a credit for the proposed development.
- There is sufficient nearby off-site public parking in the nearby area to accommodate the likely off-site demands of customers and patrons of development.
- There will not be any unreasonable impacts on the overall availability of public parking within the area as a result of the proposal.
- Sufficient justification has been presented for a permit to be issued for a parking reduction under Clause 52.06-7 of the Planning Scheme.
- The proposed car parking layout and access arrangements are appropriate for the proposed development and will provide for convenient and accessible parking.
- Appropriate bicycle parking for staff has been identified and appropriate provisions can be accommodated for visitors/customers in the building setback if required.
- The proposed loading/waste collection arrangements are appropriate for the proposed development.
- There are no traffic engineering reasons why a Planning Permit should not be issued for the proposed development at 2-4 The Esplanade, Inverloch.

Appendix A

Spot Car Parking Survey Results

Supervised By: Aniq Mian
Surveyed By: Kane Bullock

Survey Dates & Times: See below

Location	Restriction	Capacity Min - Max	Tuesday 30th June, 2020	Wednesday 8th July, 2020
			1:45pm	12noon
ON-STREET CARPARKING				
THE ESPLANADE				
South Side				
Service Road (adjacent to the site)	No Stopping	-	0	0
	Unrestricted	16	10	8
	Disabled	1	0	0
	No Stopping	-	0	0
Ramsey Boulevard to South Gippsland Yacht Club Car Park	No Stopping	-	0	0
	Bus Zone	-	0	0
	No Stopping	-	0	0
	Unrestricted	20	2	0
	No Stopping	-	0	0
North Side				
Ramsey Boulevard to Bay Street	No Stopping	-	0	0
	Unrestricted	9	4	9
	Unrestricted	6	4	2
	Unrestricted	8	4	0
	Unrestricted	4	2	0
	No Stopping	-		0
THE ESPLANADE	Capacity	64 - 64	64	64
	Total Number of Cars Parked		26	19
	Total Number of Vacant Spaces		38	45
	Percentage Occupancy		41%	30%
RAMSAY BOULEVARD				
East Side				
The Esplanade to southern side of off-street car park (Immediately South of South Gippsland Conservation Society Building)	No Stopping	-	0	0
	1P	3	1	2
	No Stopping	-	0	0
Southern side of off-street car park (Immediately South of South Gippsland Conservation Society Building) to #14 Ramsey Boulevard	No Stopping	-	0	0
	Unrestricted	13	11	13
	No Stopping	-	0	0

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Supervised By: Aniq Mian
Surveyed By: Kane Bullock

Survey Dates & Times: See below

Location	Restriction	Capacity Min - Max	Tuesday 30th June, 2020	Wednesday 8th July, 2020
			1:45pm	12noon
West Side				
#14 Ramsey Boulevard to Scarborough Street	No Stopping	-	0	0
	Unrestricted	5	2	0
	No Stopping	-	0	0
Scarborough Street to The Esplanade	No Stopping	-	0	0
	1P	6	5	1
	No Stopping	-	0	0
THE ESPLANADE	Capacity	27 - 27	27	27
	Total Number of Cars Parked		19	16
	Total Number of Vacant Spaces		8	11
	Percentage Occupancy		70%	59%
SUMMARY => ON-STREET CARPARKING				
Spaces Available		91 - 91	91	91
Total Number of Cars Parked			45	35
Total Number of Vacant Spaces			46	56
Percentage Occupancy			49%	38%
OFF-STREET CARPARKING				
South Gippsland Conservation Society Car Park (north of building)	2P 9am-5pm Mon-Fri 9am-12noon Sat	5	3	2
Public Car Park (South of South Gippsland Conservation Society Building)	Disabled	1	1	0
	Unrestricted	18	16	15
SUMMARY => OFF-STREET CARPARKING				
Spaces Available		24 - 24	24	24
Total Number of Cars Parked			20	17
Total Number of Vacant Spaces			4	7
Percentage Occupancy			83%	71%

Note: Suitable parking spaces are spaces that could be used by customers or visitors of the development and excludes 'No Stopping' areas, 'Loading Zones' and 'No Parking' areas during the relevant enforcement periods

LEGEND: Suitable | Unsuitable

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Appendix B

Proposed Development Plans



LG
-

GROUND FLOOR PLAN
SCALE @ A1 - 1:200

DEVELOPMENT SUMMARY

SITE AREA		2536.10 m²
SITE COVERAGE	96.24%	2440.97 m²
PERMEABILITY	4.49%	113.91 m²

No. OF RETAIL PROPOSED	2
No. OF CAR SPACES PROPOSED	48
No. OF STUDIO APARTMENTS	2
No. OF 1 BEDROOM APARTMENTS	26
No. OF 2 BEDROOM APARTMENTS	14
TOTAL APARTMENTS	42

FLOOR AREA ANALYSIS

GROUND	2189.73 m²
LEVEL 1	1891.98 m²
LEVEL 2	1891.98 m²
LEVEL 3	332.94 m²

NOTE: EXCLUDES BALCONY & TERRACE AREAS

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 660 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- PROPOSED LANDSCAPING IS INDICATIVE ONLY. REFER TO LANDSCAPE PLAN FOR PROPOSED PLANTING AND DETAILS.
- SITE SERVICES LOCATIONS ARE INDICATIVE ONLY.

CORNETTA PARTNERS ARCHITECTS
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Revision
A: 28.06.2021
TOWN PLANNING SUBMISSION

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
GROUND FLOOR PLAN
TOWN PLANNING APPLICATION

Scale
1:200 @ A1

Drawn
E.P.

Job No.
21-09

Date
28.06.2021

Drawing No.
TPA03

Revision
A

N

Traffix Group

Our Reference: G28679L-03B

29 September 2021

Forte Group Pty Ltd
46-50 Keon Parade
THOMASTOWN VIC 3191

Attention: William Tan

Dear William,

2-4 The Esplanade, Inverloch – Proposed Mixed Use Development Response to Council Traffic Concerns

Introduction

We refer to the proposed mixed use development at 2-4 The Esplanade, Inverloch. A planning permit application (No. 210247) was submitted to Bass Coast Shire Council (Council) in July 2021. This application was accompanied by a Traffic Engineering Assessment report prepared by Traffix Group (our ref: G28679R-02B dated 28/06/21).

Council, in a letter dated 2 September 2021, requested additional information on the application including further details regarding the proposed access arrangements and management of the service road along The Esplanade that abuts the subject the site.

Our response to Council's request is provided following.

Council's Request

Council's letter at Item 2 (Traffic) states the following:

The proposed accessway location will create a quasi cross-roads between:

- *The Esplanade,*
- *The Esplanade service road,*
- *Bunarong car parking area, and*
- *New accessway (proposed for this development).*

The proposed location of the accessway into the development's car park will also restrict access to the existing Bunarong Centre car parking area. The submitted traffic report does not acknowledge this traffic conflict point.

Options that must be considered (but not limited to) include:

- *Relocation of the accessway to the centre of the property, away from the intersection with The Esplanade.*
- *Reconfiguration of the service road to be one-way traffic operation, with accompanying line marking and signage.*

- *Inclusion of splitter islands and line marking to better delineate the accessway from the existing intersection and the entrance to the Bunarong car parking area.*
- *Reconfiguration of the Bunarong car parking area to avoid the conflict with the proposed accessway.*

More detail regarding the proposed accesssway including traffic control devices and signage is to be submitted for our review.

We note that the Bunarong car park is located immediately northwest of the site and is accessed the asphalt verge of the service road.

Our Response

The development site currently has vehicle access at the same location as the proposed western access and therefore it is not a new access location that is proposed. Furthermore, the existing use would have vehicles reversing to/from this access, sometimes with boats. In this respect, the development will offer an improvement given that vehicles will always be entering and existing in a forward direction and therefore have better visibility of the Bunarong car park access. We are therefore not worsening an existing situation in our opinion.

Nevertheless, we have considered the concerns raised by Council and the four suggested options for management of vehicle arrangements along the service road and near the access for the site and Bunarong car park.

We are of the opinion that the most suitable option is to convert the existing service road to one-way operation in a westbound direction, with entry via the eastern connection and exit via the western connection. This proposed one-way arrangement would reduce the potential for conflicting vehicle movements near the access to the site and Bunarong car park. Furthermore, by designating the western connection of the service road as 'No Entry', it would prevent a potential existing movement of concern where vehicles can drive straight from the Williams Road left-turn slip road directly across the Esplanade into the service road.

The proposed one-way arrangement will include new signage and linemarking along the service road as shown in the Signage and Linemarking Plan attached at Appendix A.

To maintain vehicle access to the existing Bunarong car park, the existing access' asphalt verge adjacent to the western end of the site's service road frontage will be retained. To the east of the development's proposed eastern access, a grass verge with a new footpath link is proposed.

A 'Give Way' sign is proposed to be installed for vehicles exiting the Bunarong car park to reinforce priority to vehicles already on the service road. A one-way sign will also reinforce the one-way direction of the service road for vehicles exiting both the development site and the Bunarong car park.

Amended Plans

The amended plans, prepared by Cornetta Partners Architects (dated 28 September 2021), propose minor amendments to grading at both entrances within the ground level car park. The amended plans show 2 metre long 1:10 grades followed by grades of between approximately 1:20 or 1:29 adjacent to car spaces.

The proposed grades are compliant with the relevant design standards under Clause 52.06-9 of the Planning Scheme and the Australian Standard for off-street parking (AS/NZS 2890.1:20040 as follows:

- The first 5 metres within the site is no steeper than 1:10 in accordance with Clause 52.06-9 of the Planning Scheme (Design Standard 3).
- Car spaces are to be graded at no steeper than 1:16 (perpendicular to the angle of parking), in accordance with the guidelines under AS/NZS 2890.1:2004.

The remainder of the car park layout is unchanged compared to the previous plans that were submitted to Council and supported by our Traffic Engineering Assessment report. Accordingly, we are still satisfied that that the proposed car parking layout and access arrangements are appropriate and accord with the relevant design standards

Conclusion

Based on above, we are satisfied that appropriate and improved access is to be provided for the development site, with consideration of the existing Bunarong car park access and proposed one-way management of the service road as demonstrated by the Signage and Linemarking as attached at Appendix A.

Furthermore, we are satisfied that the proposed minor amendments to grades within the car park are appropriate and accord with the relevant design standards.

Please contact Brent Chisholm at Traffix Group if you require any further information.

Yours faithfully,

TRAFFIX GROUP PTY LTD



BRENT CHISHOLM

Associate

Appendix A

Signage and Linemarking Plan

SIGN SCHEDULE

#2	GIVE WAY	R1-2
#13	ONE WAY ←	R2-2(L)
#15	NO ENTRY	R2-4
#16	ONLY ↖	R2-14(L)



PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY

WARNING
BEWARE OF ALL SERVICES/ASSETS
THE LOCATIONS OF ALL SERVICES/ASSETS ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE
NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES/ASSETS ARE SHOWN

ISSUE	ISSUE DESCRIPTION	ISSUE DATE
A	SIGNAGE AND LINEMARKING PLAN - INITIAL ISSUE	15 SEP 2021

GENERAL NOTES
1 BASE INFORMATION FROM FEATURE SURVEY (TPA03 GROUND.DWG) / AERIAL PHOTOGRAPH (SOURCE: MAPSHARE SEP 2021)
2 ALL DIMENSIONS ARE TO FACE OF KERB & CHANNEL
3 MAIN ROAD - THE ESPLANADE (SPEED ZONE 50km/h)

DESIGNED S O'KEEFE 15 SEP 2021
CHECKED/APPROVED B CHISHOLM 15 SEP 2021
FILE NAME G28679-01-00 dgn

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2-4 THE ESPLANADE
INVERLOCH
BASS COAST SHIRE
SIGNAGE AND LINEMARKING PLAN

SCALE 1:500 (A3) 0 2.5 5 7.5 10
SHEET No.
DWG No. G28679-01-01

SIGN SCHEDULE

#2	GIVE WAY	R1-2
#13	ONE WAY ←	R2-2(L)
#15	NO ENTRY	R2-4
#16	ONLY ↖	R2-14(L)



PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY

WARNING
BEWARE OF ALL SERVICES/ASSETS
THE LOCATIONS OF ALL SERVICES/ASSETS ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE
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2-4 THE ESPLANADE
INVERLOCH
BASS COAST SHIRE
SIGNAGE AND LINEMARKING PLAN

SCALE 1:500 (A3) 0 2.5 5 7.5 10
SHEET No.
DWG No. G28679-01-01

30 September 2021

Kerrie-Anne Tatchell
Senior Statutory Planner
Bass Coast Shire Council
PO Box 118
WONTHAGGI VIC 3995

Via email: kerrie-anne.tatchell@basscoast.vic.gov.au

Dear Kerrie-Anne,

Re: Planning Permit No. 210247
Address: The Esplanade, Inverloch

Glossop Town Planning continues to act on behalf of Forte Group Pty Ltd, the permit applicant in relation to this matter.

Reference is made to Council's letter dated 2 September 2021 requesting further information under Section 54 of the Planning and Environment Act 1987 ('the Act') and providing preliminary comments.

We note that the request was made outside of the prescribed 28 day period and that no lapse date is applicable. If you disagree with this, please advise in writing and consider this a request to extend the lapse date. If we do not hear from you, we will assume that the Council agrees with our assessment in relation to the absence of a lapse date.

In response to Council's RFI letter, please find enclosed the following:

1. Updated town planning drawings prepared by Cornetta Partners Architects dated 28 September 2021, Revision A;

2. Detailed Site Investigation Report prepared by Alpha Environmental prepared by EP Risk, dated 10 September 2021;

3. Line marking and signage plan and letter from Traffix Group dated September 2021; and

4. CHMP 1779 Proposed Mixed Use Development, the Esplanade Inverloch (Plan PC3643100, prepared by Grace McKenzie-McHarg, Nathalia Guimaraes and Tess Devlin.

In addition, a response to Council's further information request is provided below:

Further information

Stormwater management: The application plans have been amended to show raised floor levels. The at-grade car park is shown as sloping upwards to RL 7.060 and the lounge / entry foyer is shown as RL 6.710.

We have not prepared a stormwater management plan as we have instead adopted the raised floor level (i.e. +300mm higher than the top of the kerb) recommended by your drainage engineer. If a stormwater management plan is required, that can be a condition of the permit.

We have not raised the footpath. Now that the building itself has been raised, there is no prospect of stormwater from the kerb entering the building. If Council still wants the footpath raised, that can be achieved via a condition of the planning permit.

In terms of ramp gradients, these are shown at the entrance to the car park as commening at 1:10 and then transitioning to either 1:19.86 or 1:29. These arrangements are supported by Traffix Group.

Traffic: Traffix has reviewed this matter and has prepared a written response to this issue (see attached letter and signage and line marking plan).

Overshadowing: Hansen Partnership has reviewed the overshadowing impacts and notes as follows:

> *The extent of overshadowing slightly above the DDO10 controls in our view is considered appropriate given that there are variations in the shadow (i.e. more or less) which creates shadows that move quickly across the park area. In addition, the shadow diagrams as demonstrated in the architectural drawings shows that the extent of shadowing to the south is a lesser than the DDO 10 requirements, as shown below. We consider this to be an appropriate response to the site with its particular site conditions*.

Potentially contaminated land: A Detailed Site Inspection report has been prepared by Alpha Environmental ('Alpha'). Relevantly, Alpha was asked to respond to Council's RFI of 22 December 2020 and considered the current application plans (see Appendix C of their report).

Alpha concludes that:

> *Based on the completed investigation onsite, its Alpha opinion that the site is not a source of unacceptable contamination on- or offsite*.
>
> *The site is considered suitable for the intended redevelopment works, with an Environmental Audit not recommended* (page 52).

On this basis, there is no evidence that would lead the Council to impose such a condition should permit issue.

Cultural heritage sensitivity: A copy of the approved CHMP is attached.

Waste management: Bin wash down areas are marked on the ground floor plan (one in each waste storage area).

Preliminary Issues

Built Form

The application materials provide a detailed and well-thought through justification for the height of the proposal. This is, in reality, a properly designed 3-storey form with a pop-up roof that will be well hidden by the lower levels from most viewing points.

DDO10 provides for a 9.5 metre height limit from 'natural ground level to roof line'. The Council has now required that the floor levels be raised by at least 300mm which is in no way contemplated by the height control. It follows that the height should now be considered as 9.5 metres above the ground level finished floor levels.

Given that the Council prefers to have commercial uses at ground floor level, it is necessary for this level to be high enough to cater for that purpose. Accordingly, ground floor level has a floor to ceiling height of 3.6 metres. Slab thickness has been kept to a minimum (200mm) and each residential floor has a floor to ceiling height of 3 metres (or 3.2 metres per level). For three levels, this equates to a height of 10.855 metres to the top of the second level verandah (a difference of only 1.355 metres above the height limit). In fact, it is this part of the building that will be most noticeable from the public realm (and not the parapet). Furthermore, if we deduct the flood level height requirement, the extent of variation to the top of the verandah is approximately 1 metre. That difference is visually imperceptible. Lastly, we have established that the height control in the Design and Development Overlay is not mandatory. That means that Council has the discretion to vary the height limit. It should do so given the quality of this architectural design.

In relation to your comments about the overall height, Hansen Partnership concludes that:

> *The proposed development has been designed to specifically address the design objectives under DDO10 (Inverloch Marine Site, Inverloch). The proposal has been carefully designed through its orientation, outlook, articulation and permeability to reinforce integration with the adjoining public open space (The Glade and Wyeth-McNamara Park). The quality of the design proposition, including highly contemporary shaping of the proposal and the use of quality and durable materials will ensure that the building 'speaks' to the coastal and open space qualities of the foreshore and its established urban condition.*
>
> *It should also be noted that the design objectives in our view are not necessarily influenced by the height of the building, rather it's site arrangement, architectural/materiality and landscape qualities that engages with these important coastal, open space and urban conditions.*
>
> *Specifically, the uppermost level (rooftop bar) is substantially rebated, setback a minimum of 13.2 m from the levels below from all boundaries. We consider that its position well setback from the levels below is relatively confined when viewed from public vantage points, as demonstrated in the photomontages of the Urban Context Report. The design treatments and appearance of the uppermost level has been presented with a largely glazed treatment and metal cladding (dark) contrasts with the more robust (face brick) and articulated levels below. While the proposed development exceeds the height parameters identified in DDO10, we are satisfied that the grounded building base establishes an appropriate design response, with*

the uppermost level successfully rebated and framed as a lightweight element which continues to meet the design objectives of DDO10.

In relation to the proposition that the lower storeys be 'recessed to remove the vertical impact and respond to the DDO', Hansen Partnership notes:

> *The proposal maintains an appropriate scale which will suitably frame the wide open profile of The Esplanade and the adjoining parklands. The increased width of the street and park allows for greater heights without appearing disproportionate.*

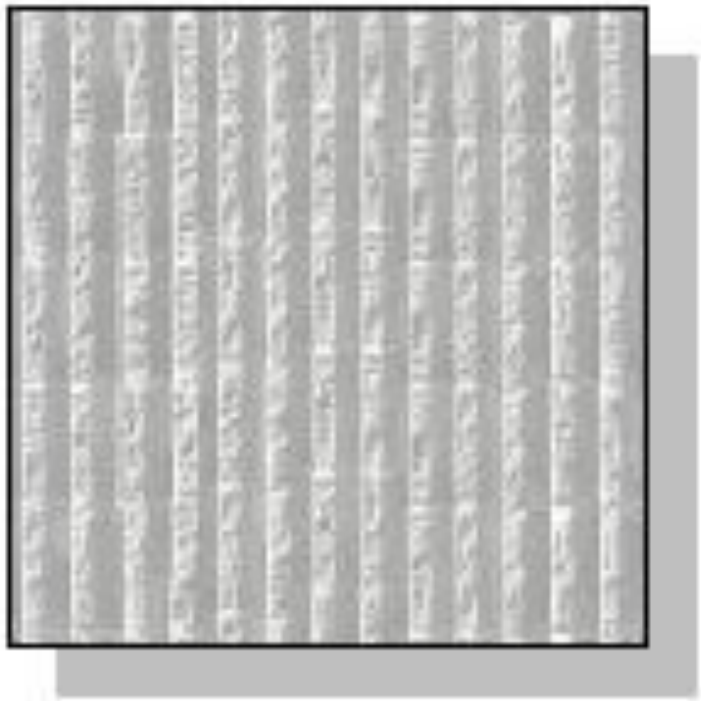
In relation to the building's interface with the Bunarong Centre site, Hansen Partnership comments that:

> *The sheer wall has been built to boundary to allow for the development opportunities on the neighbouring sites to the west. This provides for an optimal solution for the adjoining site which will be concealed by a development in the future. The proposal provides a patterned (textured) wall treatment to the exposed walls to mitigate the short-term effect of development*.

The following image is taken from the application plans showing the interface with the Bunarong Centre.



The boundary wall is shown as being M2 Concrete Panel.



M2

CONCRETE PANEL

TYPE: DECORATIVE STAMPED
COLOUR: OFF-WHITE

This is a textured material with vertical grooves, which is an attractive and high quality finish.

We have not deleted the roof top bar level as it is visually recessive and will not be able to be seen from any position close to the site. The Council can impose a condition deleting that level if it chooses to, but we do not think that such a condition is warranted.

Equitable development

Council wrote that:

> *It is appreciated that this is identified in your submission. Consideration should be given to improving this for adjacent Council land*.

Hansen Partnership comments that:

> *The layout of the proposed development has been sensibly arranged with respect to the equitable development opportunities on the adjacent Council land. The proposed development has been built to the boundary to allow for a reciprocal boundary development with appropriate building depths (12-13m) to optimise natural ventilation and lighting on the adjoining site, as illustrated below. While it is difficult to determine the future use of the council owned land within the Public Use Zone, this allows for a variety of uses that can be accommodated on the site*.

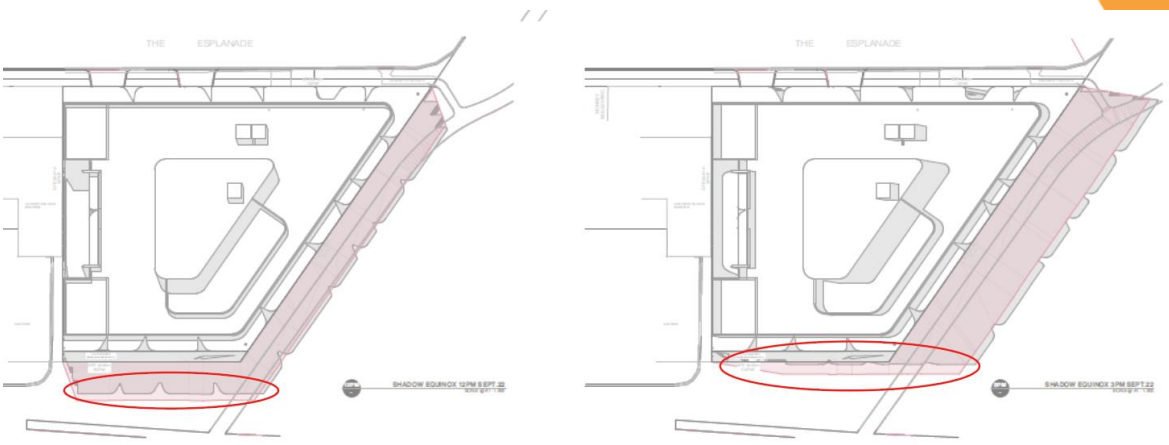


Overshadowing and visual impact

We do not agree that the proposal will unreasonably overshadow the public realm or that it is visually bulky.

Hansen Partnership comments as follows:

> *The extent of overshadowing slightly above the DDO10 controls in our view is considered appropriate given that there are variations in the shadow (i.e. more or less) which creates shadows that move quickly across the park area. In addition, the shadow diagrams as demonstrated in the architectural drawings shows that the extent of shadowing to the south is lesser than the DDO10 requirements, as shown below. We consider this to be an appropriate response to the site with its particular site conditions.*



Conclusion

We trust that this response satisfies Council's request for further information and that this application can now proceed to public notification.

If you have any queries, please do not hesitate to contact our office on 9329 2288.

John Glossop
Director
Glossop Town Planning
Cc. Permit Applicant, Cornetta Partners Architects
Encl. as stated

15. Summary

Based on the completed investigation onsite, its Alpha opinion that the site is not a source of unacceptable contamination on- or offsite.

The site is considered suitable for the intended redevelopment works, with an Environmental Audit not recommended.

16. Recommendations

Alpha recommends the following prior to site redevelopment:

- As part of site demolitions works it is recommended to remove, disposal and validation of remaining USTs and any associated infrastructure from the site;
- Decommission existing monitoring wells as per *Minimum Construction Requirements for Water Bores in Australia*, 4th Ed., National Uniform Drillers Licensing Committee, 2020;
- Groundwater is not suitable for abstraction onsite;
- In accordance with the Victorian Occupational Health and Safety Regulations 2017, a Division 6 Hazardous Materials Audit is required to be completed prior to demolition of the existing residence onsite;
- In the event that the Division 6 Hazardous Materials Audit identifies the presence of asbestos or other hazardous material within fixed structures onsite, they be removed in accordance with the Victorian Occupational Health and Safety Regulations, and EPA Victoria Industrial Waste Resource Guidelines;
- The disposal of any soils generated during the development works onsite is to be undertaken in accordance with current EPA Industrial Waste Resource Guidelines.

Traffix Group

Waste Management Plan

Proposed Mixed Use Development

2-4 The Esplanade, Inverloch

Prepared for
Forte Group

June, 2021

G28679R-04B (WMP)

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Document Control

Our Reference: G28679R-04B (WMP)

Issue No.	Type	Date	Prepared By	Approved By
A	Draft	15/06/2021	M. Huynh	M. O'Shea
B	Final	28/06/2021	M. Huynh	M. O'Shea

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Table of Contents

1. Introduction 5

2. Proposal 5

3. Waste Management Plan 6

3.1. Waste Generation 6

3.2. Waste Equipment 8
3.2.1. Interim Conditions 9
3.2.2. Bin Colour and Dimensions 9

3.3. Waste Systems 10
3.3.1. Waste Streams 10
3.3.2. Bin Storage Areas and Access 11

3.4. Signage 13

3.5. Waste Collection Arrangements and Vehicle Access 14
3.5.1. Alternative Arrangement 14

4. Amenity Impacts 15

5. Ongoing Maintenance and Suitable Initiatives 16

5.1. Maintenance Management 16

5.2. Waste Reduction Strategies 16

5.3. Waste Management Rules 17

5.4. Monitoring and Review 17

6. Contact Information 17

List of Figures

Figure 1: Proposed Ground Floor Bin Store 12
Figure 2: Waste Signage Examples – Rubbish 13
Figure 3: Waste Signage Examples – Recycling 13
Figure 4: Waste Signage Examples – Organic/Compost 14
Figure 5: Sustainability Victoria's Waste Management Hierarchy 16

List of Tables

Table 1: Development summary 5
Table 2: Waste Generation Rates 6
Table 3: Expected Waste Generation for the proposed use 6
Table 4: Waste Bins and Collection Frequencies 8
Table 5: Bin details and colours 9
Table 6: Waste Streams 10
Table 7: Bin Store Area Requirements 12
Table 8: Supplier Contact Information 17

List of Appendices

Appendix A Development Plans

1. Introduction

Traffix Group has been engaged by Forte Group to undertake a Waste Management Plan for the proposed mixed use developmentProposed Mixed Use Development at 2-4 The Esplanade, Inverloch.

It is noted that the Waste Management Plan is intended to act as a guideline for the proposed development and may be subject to the ongoing updates, post-development.

2. Proposal

The proposal is for a four-storey mixed use development on the site. The table below summarises the development.

Table 1: Development summary

Use	Size/No.
Residential	
One-bedroom Serviced Apartment	28
Two-bedroom Serviced Apartment	14
Total	42 apartments
Commercial	
Tenancy 1	166.06m^2
Tenancy 2	188.42m^2
Bar	250.01m^2

Vehicle access is taken via two two-way double width crossovers to The Esplanade's service road with one located mid-length along the site's frontage and the other towards the western property boundary.

Separate bin storage areas are provided for the residential and commercial components of the development.

The bin storage areas are located centrally within the site on the ground level, immediately adjacent to Commercial Tenancy 2.

A copy of the development plans prepared by Hachem Architects is attached at Appendix A to this report.

3. Waste Management Plan

3.1. Waste Generation

The following table sets out the expected waste generation for the proposed mixed use development.

Table 2: Waste Generation Rates

Waste Source	Garbage [1]	Recycling [1]
Residential		
Serviced Apartment	35L/room per week	35L/room per week
Commercial		
Café	300L/100m² floor area/day	200L/100m² floor area/day
Retail (non-food)	50L/100m² floor area/day	50L/100m² floor area/day
Bar[2]	80L/100m^2 floor area/day	35L/100m^2 floor area/day

Notes:

1. The waste generation rates are based on *Best Practice Guide for Waste Management and Recycling in Multi-unit Developments* by Sustainable Victoria.
2. The waste generation rate for the 'bar' use is adopted from the average survey rates listed on NSW EPA's *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities* and *Commercial Waste Generation Survey NSW EPA September 2012*.

The proposed land uses have been assessed against the waste generation rates within the *Best Practice Guide for Waste Management and Recycling in Multi-unit Developments*.

An estimate of the total waste generated by the proposed development is detailed in Table 3.

Table 3: Expected Waste Generation for the proposed use

Waste Source	Size/No.	Garbage	Recycling
Residential			
Serviced Apartments	42	1,470L per week	1,470L per week

Waste Source	Size/No.	Garbage	Recycling
Commercial			
Tenancy 1 (Café)	166.06m^2	3,487L per week	2,325L per week
Tenancy 2 (Retail)	188.42m^2	659L per week	659L per week
Bar	250.01m^2	1,400L per week	613L per week
Commercial sub-total		*5,546L per week*	*3,597L per week*
TOTAL WASTE GENERATED		**7,016L per week**	**5,067L per week**
Notes: 1. All commercial tenancies are expected to operate 7 days per week.			

Residential

Organic waste has been included within the 'garbage' waste. Based on the *Victorian Statewide Garbage Bin Audit – Food Waste 2016*, approximately 35% of garbage waste from residential uses are organics.

In accordance with the Victorian Government's *Circular Economy Policy*, glass has been considered separately from other recyclable waste. Approximately 35% of recycling waste associated with residential uses is considered as glass.

Based on the above, the residential component of the development will produce:

- 956L of garbage waste per week,
- 515L of organic waste per week,
- 956L of commingled recycling waste per week, and
- 515L of glass waste per week.

Commercial

For a 'café' use, it is expected that a large portion of the generated waste would consist of organic material or food scraps. Approximately 30% of the garbage waste from the café tenancy (Tenancy 1).

In accordance with the Council requirements, cardboard waste has been considered separately from other recyclable waste. It is expected that approximately 30% of the recyclable waste generated by the commercial tenancies consists of cardboard.

Based on the above, the commercial component of the development will produce:

- 4,501L of garbage waste per week,
- 1,046L of organic waste per week,
- 2,518L of commingled recycling waste per week,
- 1,079L of paper & cardboard waste per week.

In accordance with the Victorian Government's *Circular Economy Policy*, glass should be disposed of separately from other recyclable waste. This is applicable for the 'bar' use and as such, 1 x 240L bin has been provided to accommodate any glass waste associated with the relevant use.

E-waste has also been accommodating as the proposed development provides an additional 1 x 240L bin.

3.2. Waste Equipment

Based on those rates previously specified, Table 4 provides a summary of the waste storage requirements and the frequency of collection.

Table 4: Waste Bins and Collection Frequencies

Waste Source	Waste Stream	Waste Volume (L/week)(1)	Bin Capacity	No. of Bins Required	Collection Frequency (per week)
Residential Component	Garbage	956L	1,100L	1	1
	FOGO	515L	240L	2	1
	Commingled. Recycling	956L	1,100L	1	1
	Glass	515L	660L	2	1
Commercial Component	Garbage	4,501L	1,100L	2	2
	Compost	1,046L	240L	5	1
	Commingled Recycling	2,518L	660L	2	1
			1,100L	1	
	Cardboard	1,079L	1,100L	1	1
	Glass	-	240L	1	1
	E-Waste(1)	-	240L	1	On Demand

The proposed mixed use development requires a total:

- **Residential** - 6 x 240L bins and 6 x 660L bins.
- **Commercial** - 7 x 240L bins, 2 x 660L bins and 4 x 1,100L bins.

3.2.1. Interim Conditions

It is understood that the deliveries set out under the Victorian Government's *Circular Economy Policy* are proposed to be completed by 2030. Under the interim conditions, we understand that private contractors may not provide collection services for the specified waste streams. Accordingly, in the interim, glass waste will be required to be disposed into the commingled recycling. As a result, the commingled waste associated with the residential component (1,470L per week) will be accommodated via 1 x 1,100L and 1 x 660L bin which will be collected once per week.

3.2.2. Bin Colour and Dimensions

Further details regarding the waste equipment required for the proposed development are detailed in Table 5 below.

Table 5: Bin details and colours

Waste Stream	Bin Capacity	Dimensions (H x W x D) (Note 1)	Bin Lid Colour (Note 2)	Bin Body Colour (Note 2)
Garbage	1,100L	1,330 x 1,240 x1,070mm	Red	Dark Green
FOGO	240L	1,060 x 585 x 730mm	Light Green	Dark Green
Commingled Recycling	660L	1,200 x 1,260 x 780mm	Yellow	Dark Green
	1,100L	1,330 x 1,240 x1,070mm	Yellow	Dark Green
Glass	240L	1,060 x 585 x 730mm	Purple	Dark Green
Paper & Cardboard	1,100L	1,330 x 1,240 x1,070mm	Yellow	Blue
E-Waste	240L	1,060 x 585 x 730mm	Black	Dark Green

Notes:

1. Bin capacity and dimensions are provided as an indicative dimension, sourced from Bin Supplier, 'Sulo'.
2. Bin lid and body colours are based on the bin colour scheme set out within the *Better Practice Guide for Waste Management and Recycling in Multi-unit Developments* and Bass Coast Shire Council.
3. There are no specific colours required for E-waste. As such, for the purpose of simplicity, we have allocated a black lid and dark green body colour.

3.3. Waste Systems

The waste management systems of the proposed development comprise of the following components:

- Immediate smaller bins to temporarily store garbage and recyclable waste prior to transferring to the Mobile Garbage Bins (MGB) within the bin store,
- MGBs,
- Bin tug and trailer, and
- Bin store area.

3.3.1. Waste Streams

The waste generated by the proposed development will be separated and managed into the following waste streams, as detailed below.

Table 6: Waste Streams

Waste Type	Waste Management	
	Serviced Apartments	**Commercial**
Garbage	Each dwelling shall be provided with plastic bins for temporary storage of waste. Residents will place general landfill waste in tied plastic bags. Depending on the arrangement, either staff or residents will dispose of the bagged garbage directly into the bin store within the ground floor.	The shop shall be provided with plastic bins for temporary storage of waste. Staff will place general landfill waste in tied plastic bags and dispose of the bagged garbage directly to the bin store within the ground floor.
Commingled Recycling	Each dwelling shall have plastic caddy bins for temporary storage of recyclable items. Depending on the arrangement, either staff or residents will dispose of loose recyclable items directly to the bin store within the ground floor. Cardboard items shall be folded where appropriate.	The shop shall be provided with plastic bins for temporary storage of recyclable items. Staff will dispose of loose recyclable items directly to the specific bin within the bin store within the ground floor.
Organics	Each apartment shall have a small caddy bin for temporary storage of compost material (e.g. food scraps). Depending on the arrangement, either staff or residents will be able to empty the smaller bins into the larger shared compost bin within the bin store.	The café tenancy shall be provided with a small caddy bin for temporary storage of compost material. Staff of the tenancy will be able to empty the caddy bins directly into the larger bins within the bin store.

Waste Type	Waste Management	
	Serviced Apartments	Commercial
Green Waste	The property manager will be responsible for the collection and disposal of any garden organics via a landscape maintenance contractor.	
Glass	Residents will have a smaller bin for temporary storage of glass waste within each dwelling. Depending on the arrangement, either staff or residents will be required to transfer the waste directly into the glass bin in the bin room.	A shared glass bin has been provided for the commercial tenancies. Any glass waste will be directly transferred to the bin within the bin room by staff. It is expected that the 'bar' use has the highest glass waste generation
Paper & Cardboard	Any paper or cardboard waste generated by the dwellings can be disposed of within the commingled recycling bin.	Any cardboard and paper will be folded appropriately and transferred directly into the bin room.
E-Waste	Given the minimal demand for e-waste associated with residential uses, no bin has been provided.	E-waste can be directly disposed of into the shared bin within the bin room. The property manager will be responsible for the collection of e-waste.
Other	The property managers will be responsible for the collection and disposal of electric waste including batteries, phones, computers etc. at drop off centre at Inverloch Transfer Station (Old Ford Road, Inverloch). E-waste must not be disposed in landfill.	
Sanitary Waste	Waste generated by the washroom and toilet facilities will generally disposed of via landfall. Any sanitary items may be collected via a private contractor directly from the facility, where required.	

3.3.2. Bin Storage Areas and Access

The proposed development includes a residential bin room and a commercial bin room on the ground floor.

Hard waste area will be provided within the residential bin store area.

Pedestrian access to the waste bin store areas will be via the lift and corridor towards the services room.

The waste storage area is illustrated at Figure 1.

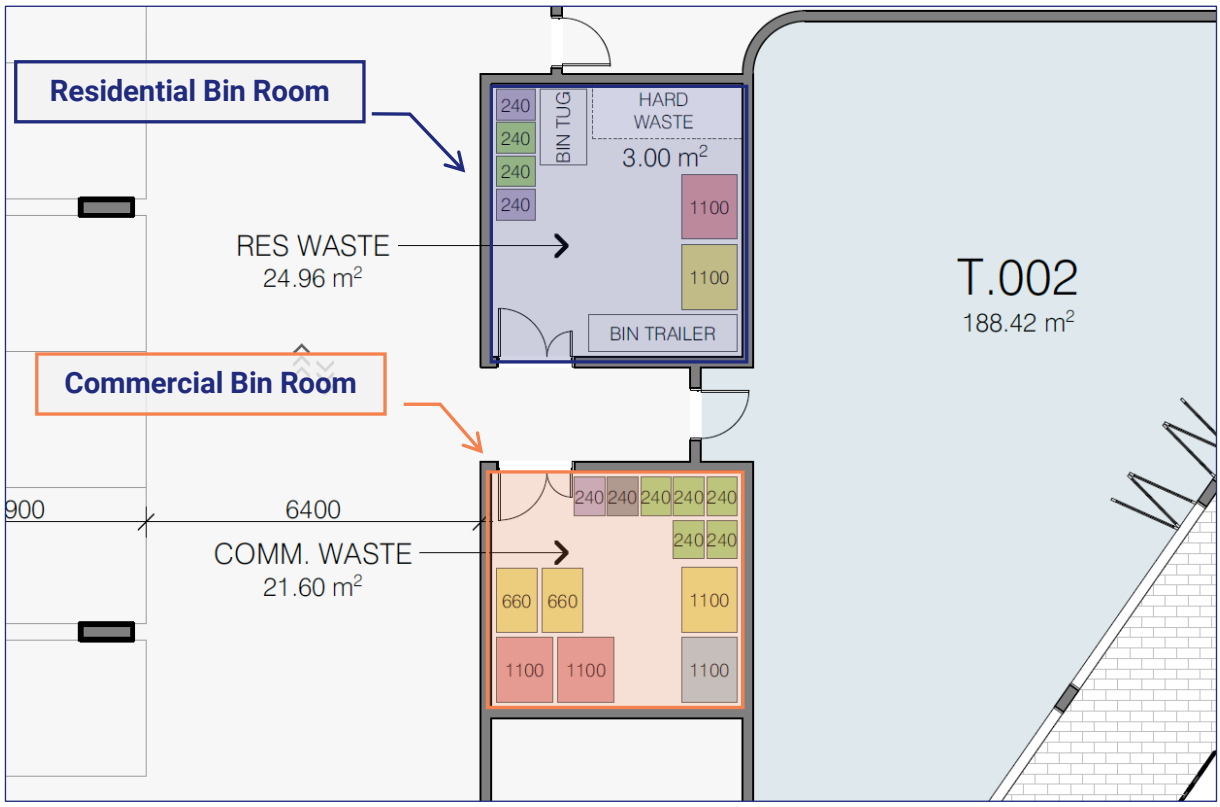

Figure 1: Proposed Ground Floor Bin Store

Table 7 details the storage area requirements based on the waste equipment proposed.

Table 7: Bin Store Area Requirements

Use	Waste Equipment	Net Area	Quantity	Net Waste Storage Area Required	Bin Store Area Provided
Residential Component	240L	0.43m²	4	5.72m²	24.96m²
	1,100L	0.99m²	2	1.98m²	
	Bin Tug	1.31m²	1	1.31m²	
	Bin Trailer	2.00m²	1	2.00m²	
	Hard Waste	3.00m²	1	3.00m²	
Commercial Component	240L	0.43m²	7	3.01m²	21.60m²
	660L	0.99m²	2	1.98m²	
	1,100L	1.33m²	4	5.32m²	

3.4. Signage

Appropriate signage in accordance with Sustainability Victoria and Bass Coast Shire Council will be displayed on the bins, within the bin storage area. Indicative signage is illustrated in Figure 2 to Figure 4.

The signage will assist in guiding and encouraging residents and staff of the proposed development to dispose of waste correctly into the appropriate waste streams.

It is noted that the indicative posters are available for download from the Sustainable Victoria website. Noting that any signage provided will initially be requested from Council.



Figure 2: Waste Signage Examples – Rubbish



Figure 3: Waste Signage Examples – Recycling



Figure 4: Waste Signage Examples – Organic/Compost

3.5. Waste Collection Arrangements and Vehicle Access

It is proposed that waste collection will occur kerbside on-street. A private contractor will be engaged to collect the waste via 8.8m long Rear Loader up to a 10.5m long Front-loader (with side attachment).

On the day before the collection, tenants or the property manager will be required to transfer the bins to the kerbside. The nominated manager or champion will transfer the bins with assistance of a bin tug and trailer.

The private contractor will travel along The Esplanade service road, where it will prop temporarily along the kerbside, whilst the bins are lifted and emptied. Waste collection will be undertaken once per week for each waste stream, and outside of commuter peak periods.

3.5.1. Alternative Arrangement

If a waste contractor which uses a 6.4m long Hino Mini rear-loader is sought for the collection of the waste, waste collection may be undertaken on-site within the undercover car parking area.

Under this arrangement, a bin tug and trailer is not required as the truck operator will prop within the accessway adjacent to the bin room whilst bins are emptied.

4. Amenity Impacts

It is the responsibility of the property manager to carry out the ongoing maintenance of all waste areas to minimise the following amenity impacts:

Ventilation/Odour Prevention

For developments using forced ventilation or air-conditioning system, adequate ventilation will be provided within the bin store area in accordance with AS1668.2 to ensure waste-related odours are minimised.

Noise Reduction

The waste facilities will comply with BCA and AS2107 acoustic requirements. Private waste collection will follow Council's and EPA guidelines to ensure acoustic impact is minimised.

Collection days and times will be determined following the confirmation of a specific private waste collection contractor by the roperty manager. Waste collection times should comply with the EPA Noise Control Guidelines (Publication 1254):

Domestic Waste Collection

- *Collections occurring once a week should be restricted to the hours 6am — 6pm Monday to Saturday,*
- *Collections occurring more than once a week should be restricted to the hours 7 am —6 pm Monday to Saturday*

Industrial Waste Collection

- *Collections occurring once a week should be restricted to the hours 6:30am — 8pm Monday to Saturday, 9am – 8pm Sunday and public holidays*
- *Collections occurring more than once a week should be restricted to the hours 7 am —8pm Monday to Saturday, 9am – 8pm Sunday and public holidays*

Vermin Prevention & Washing Facilities

All access doors and bin lids will be kept closed at all times to prevent vermin access to the bin storage area.

Appropriate washing facilities including water supply and hose will be provided for the regular washing of the bins and bin store area by the property manager.

Litter Management and Stormwater Pollution

The waste areas will be secured to prevent any unauthorised use of waste areas. Waste areas will be monitored by the property manager to ensure that bins are not overfilled and any spillage resulting from waste collection is appropriately addressed.

5. Ongoing Maintenance and Suitable Initiatives

5.1. Maintenance Management

Further to the occupation of the proposed development, it is the responsibility of the property manager for the ongoing operation and maintenance of the Waste Management Plan.

The property manager will ensure that maintenance work and upgrades are carried out on the waste areas and components of the waste system. When required, the property manager will engage an appropriate contractor to conduct maintenance services, replacements or upgrades.

All ongoing costs are to be fully met by the property manager.

5.2. Waste Reduction Strategies

The property manager will be responsible to encourage the residents and staff of the proposed development to reduce waste disposal and recycle materials based on the waste management hierarchy set out by Sustainability Victoria.

The hierarchy is detailed at Figure 5 below.

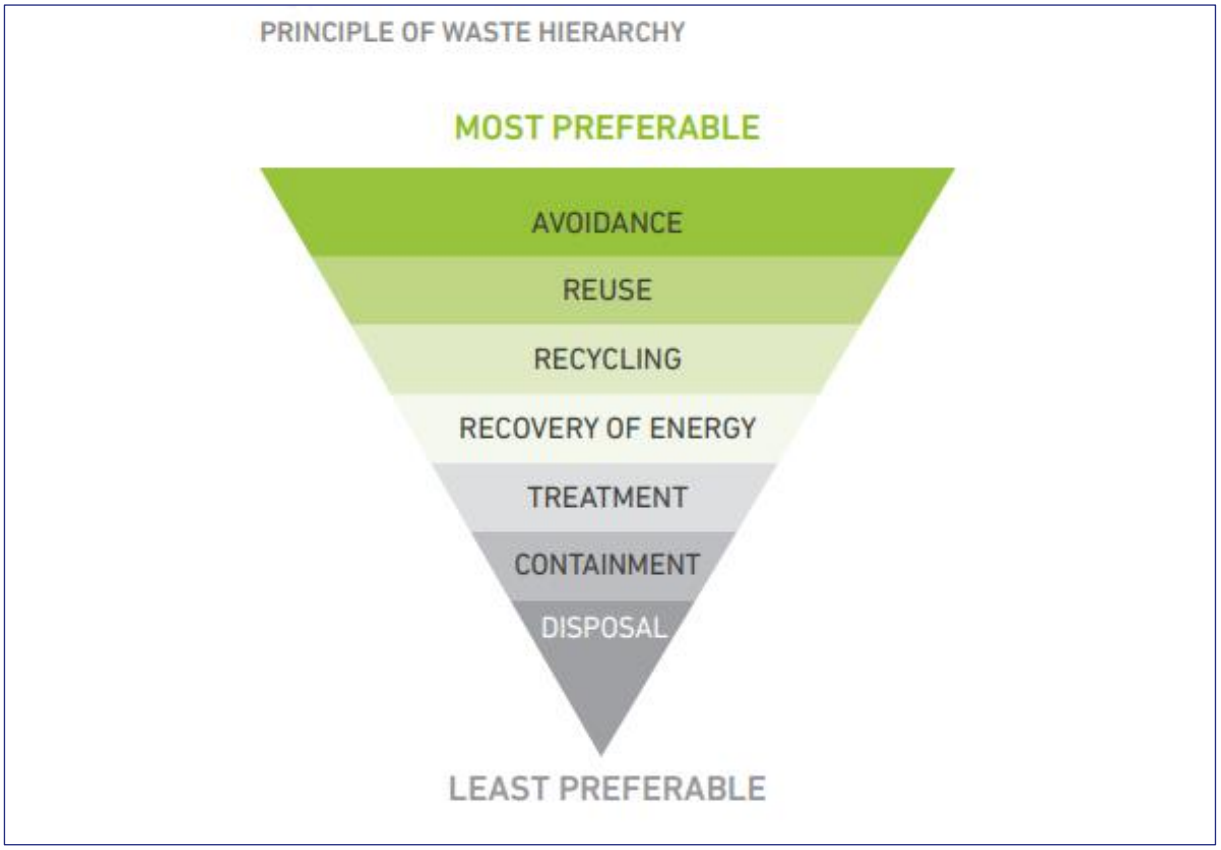

Figure 5: Sustainability Victoria's Waste Management Hierarchy

Additionally, the property manager can set targets and measures to reduce garbage going to landfill and increase recycling and choose to participate in Council's waste programs to promote sustainability initiatives.

5.3. Waste Management Rules

It will be the responsibility of the property manager to ensure all residents and staff are provided with the relevant information and materials regarding the waste management system and sustainability strategies of the proposed development.

Relevant information will be provided at the waste areas to ensure that all users will operate and maintain safe practice when utilising the waste facilities.

5.4. Monitoring and Review

This Waste Management Plan should be monitored and reviewed on a regular basis to ensure that it meets the regulatory requirements and the expected waste generation rates outlined in Section 3.1. The property manager will be responsible for monitoring the Waste Management Plan. Where required, the property manager should undertake a waste audit to identify any modifications and/or improvements to the waste management system.

6. Contact Information

Below is a list of common waste collection service contractors and waste equipment suppliers. The property manager is not obligated to procure goods/services from the following suppliers and reserves the right to choose their own preferred suppliers. Traffix Group does not make representations for the goods/services provided by the suppliers listed below.

Table 8: Supplier Contact Information

Service Type	Business Name	Phone	Website
Private Waste Collectors	Citywide Waste	03 9261 5000	www.citywide.com.au
	SUEZ	13 13 35	www.suez.com.au
	Cleanaway	13 13 39	www.cleanaway.com.au
	Veolia	13 29 55	www.veolia.com/anz
	JJ Richards	03 9794 5722	www.jjrichards.com.au
	Waste Wise Environmental	1300 550 408	www.wastewise.com.au
	Kartaway	1300 362 362	www.kartaway.com.au
	iDump	1300 443 867	www.idump.com.au

Service Type	Business Name	Phone	Website
E-Waste Collection	TechCollect	1300 229 837	www.techcollect.com.au
	ToxFree	1300 869 373	www.toxfree.com.au
Equipment Supplier	Sulo Australian (bin supplier)	03 9357 7320	www.sulo.com.au
	Mr Wheelie Bin (bin supplier)	03 9912 2850	www.mrwheeliebin.com.au
	Electrodrive (tug supplier)	1300 934 471	www.electrodrive.com.au
	Warequip (tug supplier)	1800 337 711	www.warequip.com.au
	Wastech Engineering (compactors & chutes)	1800 465 465	www.wastech.com.au
	Elephants Foot (compactors & chutes)	1300 435 374	www.elephantsfoot.com.au
	ASI JD MacDonald (chutes)	1800 023 441	www.jdmacdonald.com.au
	Eco-safe Technologies (odour control system)	1300 135 039	www.eco-safe.com.au
Bin Washing Services	The Bin Butlers	1300 788 123	www.thebinbutlers.com.au
	WBCM Environmental Australia	1300 800 621	www.wbcm-aust.com.au
	Kerbside Clean-A-Bin	03 9588 1944	www.kerbsidecleanabin.com.au

Appendix A

Development Plans



LG
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GROUND FLOOR PLAN
SCALE @ A1 - 1:200

DEVELOPMENT SUMMARY

SITE AREA		2536.10 m²
SITE COVERAGE	96.24%	2440.97 m²
PERMEABILITY	4.49%	113.91 m²

No. OF RETAIL PROPOSED	2
No. OF CAR SPACES PROPOSED	48
No. OF STUDIO APARTMENTS	2
No. OF 1 BEDROOM APARTMENTS	26
No. OF 2 BEDROOM APARTMENTS	14
TOTAL APARTMENTS	42

FLOOR AREA ANALYSIS

GROUND	2189.73 m²
LEVEL 1	1891.98 m²
LEVEL 2	1891.98 m²
LEVEL 3	332.94 m²

NOTE: EXCLUDES BALCONY & TERRACE AREAS

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES UNDERGROUND RAINWATER TANK - ROUND - REFER TO DRAWINGS FOR FURTHER DETAILS

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

1100 660 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- PROPOSED LANDSCAPING IS INDICATIVE ONLY. REFER TO LANDSCAPE PLAN FOR PROPOSED PLANTING AND DETAILS.
- SITE SERVICES LOCATIONS ARE INDICATIVE ONLY.

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Revision
A: 28.06.2021
TOWN PLANNING SUBMISSION

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
GROUND FLOOR PLAN
TOWN PLANNING APPLICATION

Scale
1:200 @ A1

Drawn
E.P.

Job No.
21-09

Date
28.06.2021

Drawing No.
TPA03

Revision
A

N

PROPOSED MIXED-USE DEVELOPMENT

2-4 The Esplanade, Inverloch

SUSTAINABLE MANAGEMENT PLAN &

WATER SENSITIVE URBAN DESIGN RESPONSE

FOR

FORTE GROUP PTY LTD

29 June 2021

File 1531A

DRAFT

CONTENTS

1. INTRODUCTION 4

2. SITE DESCRIPTION 5

3. SUMMARY OF KEY ESD INITIATIVES 6

4. JV3 SIMULATION RESULTS 6

5. SUSTAINABLE DESIGN INITIATIVES AND SYSTEMS 7

6. IMPLEMENTATION STRATEGY 12

7. CONCLUSION 13

APPENDICES

APPENDIX A. JV3 MODELLING AND ASSUMPTIONS 14

APPENDIX B. STORM REPORT 26

APPENDIX C. RAINWATER HARVESTING 28

APPENDIX D. WSUD MAINTENANCE MANUAL 30

APPENDIX E. SOLAR PHOTOVOLTAIC SYSTEM 32

APPENDIX F. SITE MANAGEMENT PLAN 33

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Issue	Date	Prepared	Approved	Status
A	6 November 2020	HM / LD / DC	JT	Draft
B	19 November 2020	HM / LD / DC	JT	Final
C	28 June 2021	HM / LD / DC	JT	Draft

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1. Introduction

Ark Resources has been engaged by Forte Group Pty Ltd to provide advice in relation to environmentally sustainable development outcomes from the proposed development at 2-4 The Esplanade, Inverloch.

This Sustainable Management Plan has been prepared to meet the Application Requirements of Clauses 19.03-3S and 15.02-1S (Energy and Resource Efficiency), 22.01 and 53.18 (Stormwater Management Policies) of the Bass Coast Planning Scheme.

This report contains a summary of:

- Environmental objectives adopted for the development
- Sustainable design initiatives integrated into the design of the project.

Performance outcomes in this report are based on:

- Discussions and correspondence with:
    - Mr Emil Peric, Cornetta Partners Architects
- Architectural drawings prepared by Cornetta Partners Architects set out below.

Description	Drawing No.	Revision	Date
Neighbourhood Site & Description Plan	TPA01	A	25/06/2021
Design Response Plan	TPA02	A	25/06/2021
Ground	TPA03	A	25/06/2021
Level 1	TPA04	A	25/06/2021
Level 2	TPA05	A	25/06/2021
Level 3	TPA06	A	25/06/2021
Roof	TPA07	A	25/06/2021
Serviced Apartment Types	TPA08	A	25/06/2021
Elevations - North & South	TPA09	A	25/06/2021
Elevations - East & West	TPA10	A	25/06/2021
Shadow Diagrams	TPA11	A	25/06/2021

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2. Site Description

The proposed development comprises commercial tenancies as well as 46 serviced apartments and a rooftop bar.

The building comprises the following uses:

Level	Use
Ground Floor	• 2 tenancies, entry foyer and reception, BOH facilities, carparking, bike parking, rainwater tanks, waste rooms
First Floor	• 23 serviced apartments
Second Floor	• 23 serviced apartments
Roof	• Rooftop bar and terrace, solar PV system

The development is located within the Bass Coast Shire Council. The total site area is approximately 2,536 m^2. The surrounding buildings are predominantly of residential use.

An image of the site and the surrounding locale is provided below.



Image accessed June 2020 ©Google Maps

3. Summary of Key ESD Initiatives

A detailed analysis has been undertaken in order to nominate the ESD initiatives required and confirm the performance outcomes achieved. The results of this analysis are set out in the remainder of this report.

The following key sustainable design initiatives have been incorporated into this project:

- 15 kW rooftop solar photovoltaic system;
- Rainwater harvesting system for toilet flushing and irrigation;
- High-performance glazing and energy efficient building services, appliances and fixtures; and
- Environmentally preferable internal finishes.

An assessment of sustainable design outcomes of the proposed development has been undertaken with STORM and NCC benchmarking tools. The information presented in this report demonstrates that:

- The proposed building will exceed the standard of building envelope energy efficiency, required by the Building Code of Australia.
- The rainwater harvesting system is predicted to result in an annual mains water saving of 364kL;
- The development meets the Best Practice standard for stormwater quality.

The results of the performance assessment are summarised below.

4. JV3 Simulation Results

Preliminary energy modelling has been undertaken to demonstrate compliance of the proposed development with Section J0 (Energy Efficiency) and Section J1 (Building Fabric) of the NCC 2019 (Volume One).

The JV3 modelling confirms that the annual Greenhouse Gas Emissions of the proposed building is more than 10% less than the reference building respectively, when the proposed building is modelled with the proposed fabric and services compliant with the Deemed to Satisfy conditions of the National Construction Code 2019 Section J (Energy Efficiency).

The modelling results and software input assumptions are provided in Appendix A.

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5. Sustainable Design Initiatives and Systems

Issue	Performance Commitments / Description	Comments
Building Management		
Metering	The following meters will be installed to provide information to building owners in relation to centralised building systems: • Harvested rainwater supply line • Gas meter for hot water plant • Photovoltaic system generation meter	The information collected from these meters will be used by the building manager to assess the function and efficacy of central systems during commissioning and ongoing operation.
Water		
Water Efficiency	The following water efficient fittings and appliances will be specified to all dwellings: • WELS 3 star showers (>6 but <=7.5 litres/minute) • WELS 4 star toilets (4.5/3 litre flush) • WELS 5 star kitchen taps • WELS 5 star basin taps (5 litres/minute) • WELS 3 star dishwashers (or higher)	Water using fixtures and appliances will be specified during design development in accordance with this water efficiency performance standard.
Rainwater Harvesting	A rainwater harvesting system will be installed comprising: • Rainwater harvesting from all roof areas (catchment area of approx. 2,106m^2); • A total storage volume of 50,000 litres; • Re-use of water for toilet flushing in all toilets; and • Re-use of water for landscape irrigation	Rainwater modelling indicates that this system will provide an estimated annual mains water saving of 364 kL and a supply reliability of 100% from toilet flushing and irrigation. Please refer to Appendix A for STORM results, Appendix C for details of predicted harvested rainwater volumes and Appendix D for an indicative maintenance program.

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Issue	Performance Commitments / Description	Comments
Water Efficient Landscaping	Where appropriate, water sensitive landscape design will be incorporated into the development by specifying a combination of the following: • Drought tolerant and/or indigenous plant species that are best suited to local climate; • Automated drip irrigation system; and • Re-use of harvested rainwater for irrigation	These initiatives will ensure efficient use of water and also reduce the total potable water used for landscape works.
Energy		
Renewable Energy System	A solar photovoltaic system will be installed to offset greenhouse emissions arising from common area energy usage and will provide a total peak generation capacity of 15 kW. The solar panels will be distributed on the roof so that all residents benefit equally from the energy savings and greenhouse gas emissions reductions.	Note that the system is predicted to result in equivalent avoided greenhouse emissions of approximately 23 tonnes CO2-e each year. Refer to Appendix E for details of proposed system capacity and panel numbers.
Energy Efficiency	The building envelope will achieve a minimum 10% improvement on NCC Section J thermal performance using the specifications provided in this report.	The development energy efficiency achieved exceeds the NCC 2019 requirements for Class 3 buildings. Refer to Appendix A for details of building fabric assumptions.
Heating & Cooling	Space heating and cooling will be provided by VRF HVAC system with a minimum EER of 2.9 for cooling.	Efficient HVAC systems in conjunction with a thermally efficient building envelope are considered to be an environmentally acceptable method of space conditioning.
Domestic Hot Water	Domestic hot water will be provided by an efficient central gas instantaneous hot water system with a minimum appliance efficiency of 86% and a highly insulated circulating loop to reduce parasitic heat losses.	

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Issue	Performance Commitments / Description	Comments
Lighting	Energy efficient lighting systems will be installed throughout the development including: • LED lighting generally designed to achieve a maximum lighting power density of at least 10% lower than required by Table J6.2a of the NCC; • LED lights controlled with occupancy sensors and daylight sensors (as appropriate) to corridors and public areas; and • LED external lighting.	Note that external lighting for the development will be designed with the objective of preventing light spill to the night sky.
Stormwater Management		
Stormwater Quality	The development achieves a STORM score of 102% because of the rainwater harvesting system described under the 'Water' category in this report.	The STORM score attained demonstrates that the development attains the Best Practice Standard for Urban Stormwater and meets the requirements of Clause. 53.18 (Stormwater Management in Urban Development) of the Bass Coast Planning Scheme Refer to Appendix A for the STORM report.
Construction Stormwater Pollution Reduction Plan	A construction phase stormwater pollution reduction plan will be prepared and implemented during construction to ensure that litter, sediments and other pollution are prevented from entering the stormwater system.	Please refer to Appendix F for the preliminary Site Management Plan.
Indoor Environment Quality		
Natural Ventilation & Daylight	The building has been designed to ensure that all habitable rooms have access to natural ventilation and daylight via operable windows along the façade.	These features will improve comfort and amenity for occupants and reduce peak energy demand and greenhouse emissions arising from mechanical cooling.
Volatile Organic Compounds	All interior paints will be Low VOC type to improve indoor environmental quality for occupants.	Low VOC paints will be specified to meet the requirements of Credit 13.1 of the Green Star Design & As Built Tool Version 1.3.
Sustainable Transport		

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Issue	Performance Commitments / Description	Comments
Bicycle Facilities	Readily accessible bicycle storage facilities have been provided to encourage bicycle use by including: • 8 racks for staff in the carpark	Note that the bicycle facilities provided exceed the ratio set out in Clause 52.34 of the Bass Coast Planning Scheme.
Walkability & Public Transport Access	The site attains a Walk Score® of 54 out of 100 which is defined as 'Somewhat Walkable'. The site has numerous amenities along Abeckett Street within a walking distance (<400m) such as grocery stores, cafés and shops. Located along the Esplanade, there are numerous recreational areas at its doorstop including the foreshore, Inverloch Coastal Reserve and Townsend Creek. The site is also within close proximity (<300m) of convenient bus services including: Wonthaggi-Leongatha, Cowes-Inverloch, Traralgon-Wonthaggi.	The location of the development will facilitate walking for many daily errands in lieu of private vehicle use.
Building Materials		
Environmentally Preferable Materials	The following environmentally preferable materials will be specified with the objective of reducing off-site environmental impacts and improving indoor environmental quality for residents: • All feature timber will be recycled or from accredited sustainably harvested plantation sources (FSC or AFS); and • All interior paints will be low VOC type	Timber products will be specified in accordance with the requirements of Credit 20.2 of the Green Star Design & As Built Tool Version 1.3.
Waste Management		

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Issue	Performance Commitments / Description	Comments
Construction Waste Minimisation	A target recycling rate of 80% of construction and demolition waste has been adopted for the construction phase of the development to minimise the volume of waste to landfill. This will be achieved by the development of a comprehensive waste minimisation strategy including: • Separation of all commercially viable recyclable waste streams; • Training in waste minimisation for all site staff and contractors to form part of site induction training; • Record keeping of landfill waste and recyclable stream volumes to track performance against the 80% recyclable target; and • Quarterly reporting of volumes and percentages for each waste stream.	A dedicated recycling contractor will be engaged to facilitate separation of commercially viable recyclable waste streams in accordance with the target adopted.

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6. Implementation Strategy

The ESD initiatives set out in this report will be coordinated by the Project Manager in conjunction with the following project design team members:

- Architect
- Thermal Performance Assessor
- Building Services Consultant
- Waste Management Consultant

An implementation schedule is set out in the following table.

ESD Initiative Implementation Schedule				
#	**Initiative**	**Requirement**	**Responsibility**	**Stage**
	Coordination of Initiatives	Full implementation	Project Manager	All
1	Metering	Specify meters in accordance with nominated schedule	Building Services Engineer	Design Development
2	Water Efficiency	Specify fixtures in accordance with nominated WELS star ratings	Architect	Design Development
3	Rainwater Harvesting	Design and specify rainwater harvesting system including toilet flushing & automated irrigation system	Building Services Engineer	Design Development
4	Landscaping	Specify water efficient landscaping and irrigation	Landscape architect	Design Development
5	Energy Efficiency	Prepare Section J verification for NCC certification	Thermal Performance Assessor	Design Development
6	Heating & Cooling	Specify units in accordance with nominated MEPS star ratings	Building Services Engineer	Design Development
7	Hot Water	Specify nominated hot water system	Building Services Engineer	Design Development
8	Lighting	Specify nominated energy efficient lighting types and automated controls	Building Services Engineer	Design Development
9	Environmentally Preferable Materials	Specify materials in accordance with nominated schedule.	Architect	Design Development
10	Bicycle Facilities	Specify bike racks & hoops	Architect	Design Development
11	Construction Waste Minimisation	Prepare construction waste minimisation plan	ESD consultant	Design Development

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7. Conclusion

This report sets out a range of sustainable design features, which are integrated into the design and specification of the proposed development, to improve environmental outcomes during occupation.

In terms of performance outcomes, the analysis presented in this report demonstrates that the proposed development:

- Attains an overall energy performance of the building 10% better than the minimum permitted by NCC 2019
- Attains the *Best Practice* standard for urban stormwater quality

Accordingly, the sustainable design outcomes from the proposed development are adequate for a mixed-use development of this scale and are consistent with the objectives set out in Clauses 15.02-1S, 19.03-3S, 22.01 and 53.18 of the Bass Coast Planning Scheme.



Jan Talacko
Director

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Appendix A. JV3 Modelling and Assumptions

Preliminary energy modelling has been undertaken to demonstrate compliance of the proposed development with Section J0 (Energy Efficiency) and Section J1 (Building Fabric) of the NCC 2019 (Volume One).

The verification method requires a reference case building, based on NCC 2019 Section J Deemed-to-satisfy (DTS) provisions, to be compared against the proposed building to determine the comparative difference between the energy consumption of the two models.

The building has been modelled using IES Virtual Environment software.

The following building classifications apply to the development for the purposes of this JV3 modelling analysis:

Class 3 – Serviced Apartments

Class 6 – Café/Restaurant/Bar

A.1 Simulation Software

The building has been modelled using IES Virtual Environment software.

IES Virtual Environment complies with the ABCB 'Protocol for Building Energy Analysis Software for Class 3, 5, 6, 7, 8 and 9 Buildings' (Version 2019.3.2.0). Indeed, IES Virtual Environment:

- Is commercially available;
- Is based on a simulation program with hourly climate data file;
- Is capable of computing the annual energy consumption of a building in accordance with the verification methods of the NCC;
- Is capable of geometrically describing the building in three dimensions including taking into account the surface azimuth, tilt angle and adjacent structures and features; and
- Provides the results comparable to other similar software in accordance with ASHRAE Standard 140-2001.

IES Virtual Environment is an analysis software tested in accordance with ASHRAE Standard 140-2001 using the International Energy Agency BESTEST. IES Virtual Environment meets the following standards and can undertake the following methodologies:

- Standards: ASHRAE 140: 2001, 2004, 2007 / BEST TEST / CIBSE TM33 / European Union EN13791: July 2000 / EPACT Qualified;
- Methodologies: UK National Calculation methodology (NCM) / ASHRAE 55 calculation procedure / ASHRAE 90.1 Appendix G PRM calculation procedure / ASHRAE 62.1 calculation procedure / ISO 7730 calculation procedure.

For more information about IES Virtual Environment ANSI/ASHRAE Standard 140-2001 accreditation, please refer to the following webpage: http://www.iesve.com/news/ies---ansiashrae-standard-140-2001-accreditation_1330_/corporate.

A.2 Simulation Details and Assumptions

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Details about building fabric, equipment and services used, including assumptions made, are provided in Table 1 below.

Item	NCC Reference Case Building	Proposed Building with DTS Services
Climate Data	Wonthaggi Reference Year (EPW)	Wonthaggi Test Reference Year (EPW)
Operating Conditions	(A)18°CDB to 25°CDB for *conditioned spaces* with transitory occupancy; and (B) 21°CDB to 24°CDB in all other *conditioned spaces*	As per reference case.
Plant Operating Profile	Operation schedule as of NCC 2019 specification JVc Modelling Profiles.	As per reference case.
Internal Gains People and hot meals	No of people calculated in accordance with D1.13 of NCC 2019. 1) Hotel bedrooms 15m²/person 2) Hotel Lounge/Breakout/Multi-Purpose 1m²/person 3) Entry Lobby/Reception – 15m²/person 4) Café/Restaurant/Bar 1m²/person 5) Staff Room – 10m²/person 6) Kitchen – 10m²/person 7) Carpark - 30m²/ person Internal heat gain values as per NCC specification JVc Table 2n <u>Restaurants/Cafes:</u> • Sensible heat gain: 80 W/person • Latent heat gain: 80 W/person <u>Other Applications:</u> • Sensible heat gain: 75 W/person • Latent heat gain: 55 W/person Operation schedule as per NCC 2019 specification JVc.	As per reference case.

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Item	NCC Reference Case Building	Proposed Building with DTS Services
Lighting	Maximum illumination power density for lighting as per Table J6.2a NCC 2019 • 5 W/m^2 for Hotel Bedroom • 9 W/m^2 for Entry Lobby/Reception • 4.5 W/m^2 for Hotel Lounge/ Breakout/Multi-Purpose • 4.5 W/m^2 for Staff Room • 14 W/m^2 for Restaurant/Café/Bar • 3 W/m^2 for toilets/ensuites • 2 W/m^2 for stairs • 2 W/m^2 for carpark • 1.5 W/m^2 for storage • 5.0 W/m^2 for corridors Operation schedule as per NCC 2019 specification JVc.	As per reference case.
Internal Heat Gains for Appliances and Equipment	Internal Heat Gains for Appliances and Equipment as per NCC specification JVc Table 2L • Class 3 Sole-Occupancy Unit: 5 W/m^2 • Class 6 café/ restaurant: 5 W/m^2 • Other Applications (Lobby and common areas): No load	As per reference case.
HVAC system	Air cooled Variable Refrigerant Systems must comply with MEPS and for capacity greater than or equal to 65kW have minimum energy efficiency ratio EER of 2.9 for cooling	As per reference case.
Infiltration values	a) 0.7 air changes an hour throughout all zones when there is no mechanically ventilated supplied outdoor air and; b) 0.35 air changes an hour all other times	10m^3/h/m^2@50Pa in accordance with AS/NZS ISO 9972 Method 1 (NCC 2019 Vol. 1 JV4 Building Sealing Envelope). Equivalent to 3.0 ach at 50Pa Annual average of 0.15 ach
External shading	Shading from other buildings, overhang structures and external shading devices have been incorporated into the analysis.	As per reference case.
Insulation [1]	As per deemed-to Satisfy requirements. See below:	See detailed information below.
Roof	As per deemed-to Satisfy requirements. NCC 2019 Section J (a) (ii) Total system R Value R3.2 External surface absorptance <0.45	<u>Flat Roof</u> • 70mm Kingspan Kooltherm K10 G2 soffit board to underside of concrete roof • Total system R value: R3.8 • External surface absorptance <0.45

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Item	NCC Reference Case Building	Proposed Building with DTS Services
Internal walls	As per deemed-to Satisfy requirements. Insulated internal walls with total system R value of R1.0 Non insulated internal walls with total system R value of R0.5	• Non insulated internal walls as per reference case. • Insulated internal walls to unconditioned zones: Total system R value: R1.4 (refer to Appendix A.8 for internal wall insulation mark-up)
External walls	As per deemed-to Satisfy requirements. Total system U value of wall-glazing construction must not be greater than U1.1 as per Section J1.5 (a) (ii) for a Class 3 building Total R Value of Wall components must achieve a minimum Total R value of: a) R1.0 when window to wall ratio is greater than 20% b) R2.8 when window to wall ratio is 20% or less Solar absorptance of external walls< 0.6 Refer to Wall-Glazing calculator details for Reference Building on Appendix A.6	Concrete Panel Wall (M2) • 150mm precast concrete panel (assumed) • Air cavity • Timber stud framing system • 90mm glass wool insulation • Total system R value: R1.60 (includes thermal bridging calculated according to NZS4214) Brick Wall (M1) • 110mm brick veneer (assumed) • Air cavity • Timber stud framing system • 90mm glass wool insulation • Total system R value: R1.60 (includes thermal bridging calculated according to NZS4214) Solar absorptance of external walls < 0.6 (average) All external wall constructions were added outdoor and indoor air film resistance as per specification J1.2 Table 2b of the NCC 2019
Floor	As per deemed-to Satisfy requirements. A floor must achieve a total R-value as per NCC 2019 Section J table J1.6 • Total system R-Value R2.0 (For the purpose of calculating the *Total R-Value* of a floor, the sub-floor and soil *R-Value* must be calculated in accordance with Specification J1.6) • Specification J1.6 Table 2b: R-Value of soil in contact with floor = R2.7. Ratio of floor area to floor perimeter (m) = 10.6 and wall thickness of 200mm. • Total floor system R value with 125mm slab on ground – R2.9	No additional insulation required. • Slab on Ground As per reference case. • Suspended Concrete floor separating conditioned spaces from non-conditioned: 45mm Kingspan Kooltherm K10 G2 soffit board Total System R Value: R2.3 (refer to Appendix A.7 for soffit insulation mark-up)

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Item	NCC Reference Case Building	Proposed Building with DTS Services
External Glazing	Glazing / polycarbonate areas as per elevations As per DTS J1.5 Compliance. Glazing properties according to the wall-glazing calculator spreadsheet shown in Appendix A.6. **Hotel** U 1.18 SHGC 0.25 **Food & Drink Premises** U 3.64 SHGC 0.243	Whole of Window Properties All window frames non-thermally broken **Fixed Windows:** • U 2.91 SHGC 0.58 • Double glazed • 6mm Energy Advantage/ 12mm Air Gap/ 6mm Clear (or equivalent) • Capral Flushline 419 Series (or equivalent) **Hinged Doors:** • U 3.76 SHGC 0.44 • Double glazed • 6mm Energy Advantage/ 12mm Air Gap/ 6mm Clear (or equivalent) • Capral 200 Series Hinged Door (or equivalent) **Sliding Doors**: • U 3.37 SHGC 0.48 • Double glazed • 6mm Energy Advantage/ 12mm Air Gap/ 6mm Clear (or equivalent) • Capral 900 Series Sliding Door (or equivalent) **Bifold Doors:** • U 3.5 SHGC 0.45 • Double glazed • 6mm Energy Advantage/ 10mm Air Gap/ 6mm Clear (or equivalent) • Non-Thermally Broken Capral Artisan Folding Door (or equivalent) Note that any glazing product may be used provided the whole of window U-value of the nominated product is less than the value above and the SHGC is within +/-5% of the nominated value.

Table 1. Simulation Details and Assumptions

Please refer to Appendix A.6 for the relevant NCC J1.5 Deemed to Satisfy (DTS) Wall-Glazing Calculators.

Note 1

All insulation products referenced in this report are nominal only and do not imply fitness for purpose beyond NCC Section J (Energy Efficiency) considerations. All insulation materials used in a Class 2 to 9 building must also comply with the relevant non-combustibility requirements and fire hazard properties of the National Construction Code (NCC) and associated standards and regulations. The fire hazard properties of all materials should be confirmed independently with an appropriately qualified fire engineering professional prior to specification.

A.3 Infiltration air permeability

The building envelope shall achieve a maximum air permeability criterion of **10m^3/h/m^2** of building envelope area at 50Pa test pressure.

Modelled average air infiltration in use is 5% of test pressure leakage, in accordance with CIBSE Guide A. This is calculated to be equivalent to **0.15 ach** (air changes per hour).

Testing standards

Air pressure testing (blower door testing) shall be carried out by a member of the Air Tightness Testing and Measurement Association (ATTMA) or a testing member of the Air Infiltration and Ventilation Association of Australia (AIVAA).

Testing shall be carried out in accordance with AS/NZS ISO 9972:2015 *'Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method'.*

Testing area requirements

The air permeability test may be carried out across a sample area, if not the whole building. For sample area testing, the test shall be carried out on either 5,000m² or 20% of the building's total envelope area, whichever is greater.

The sample areas tested must include the upper most occupied floor of the building, and be representative of the external envelope construction, including different façade types and building geometries, for the building as a whole.

Levels can be tested separately as compartments. For commercial buildings, compartment testing is acceptable where the individual compartments are greater than 1,000m².

A.4 Building Model

Images of the proposed and reference models are shown below, with relevant surrounding structures, including equitable development envelopes as standard per standard planning stage consideration.

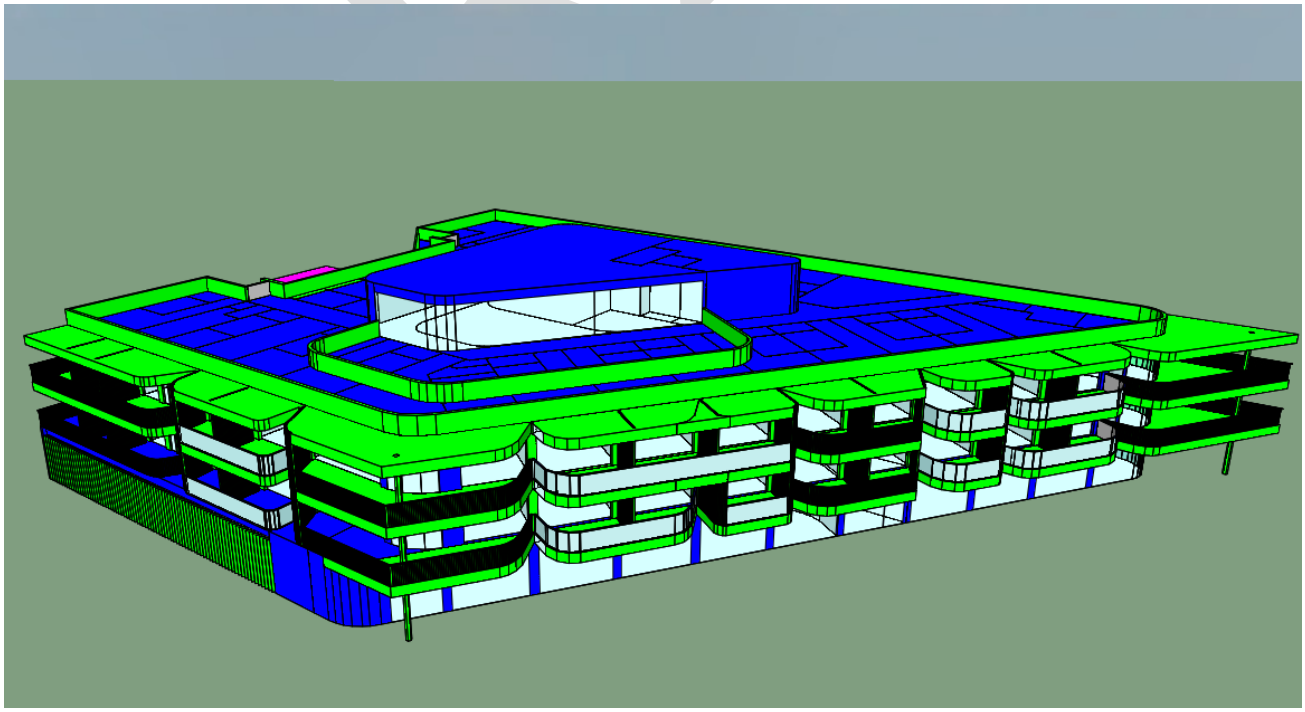

Figure 1. View from South of the IES VE model

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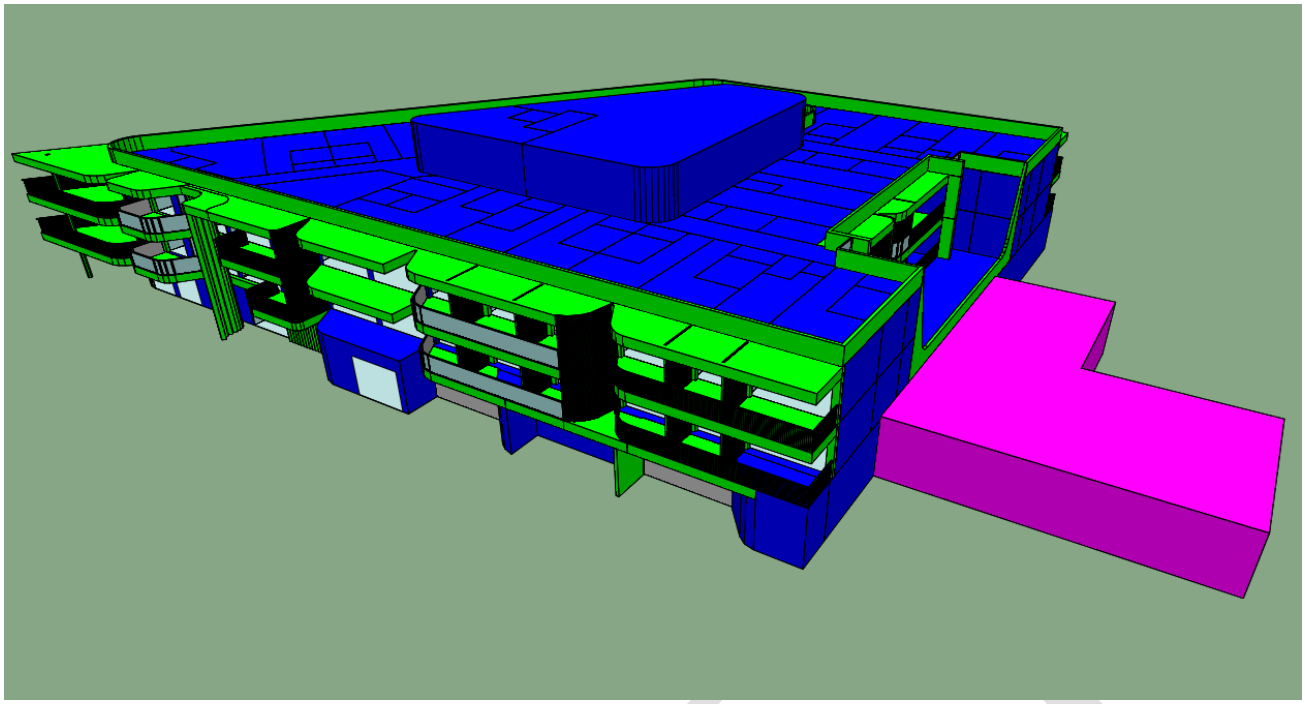


Figure 2. View from North of the IES VE model

A.5 Results & Conclusion

BUILDING FABRIC ONLY (COOLING AND HEATING LOADS)

The comparative heating and cooling loads of the reference and proposed buildings is summarised in Table 2 below:

Building	**Heating Plant** (MWh/yr) *Sensible Load*	**Cooling Plant** (MWh/yr) *Sensible + Latent Loads*	**Total** (MWh/yr)
Reference	315.59	41.81	357.40
Proposed	228.02	57.29	285.31

Table 2. Space Conditioning Loads: Proposed & Reference Buildings

The comparative Greenhouse Gas emissions of the reference and proposed buildings is summarised in Table 3 below. The calculation of the greenhouse gas emissions is based on the air conditioning efficiency (EER=2.9) and Greenhouse Gas Emissions factor of 323 KgCO2-e/GJ according to NCC 2019 Specification JVb Specification table 3a.

Reference Building Total (KgCO2-e/year)	Proposed Building Total (KgCO2-e/year)	GHG Emissions % Reduction
143,306	114,399	20.2%

Table 3. Greenhouse Gas Emissions Reference and Proposed Model

As shown in table 3 above, the annual Greenhouse Gas Emissions of the proposed building is 20.2% less than the reference building respectively, when the proposed building is modelled with the proposed fabric and services compliant with the Deemed to Satisfy conditions of the National Construction Code 2019 Section J (Energy Efficiency).

As a result, the JV3 analysis demonstrates that the proposed design achieves compliance with Part J1 Building Fabric of NCC 2019, based on the design and modelling assumptions set out in this report.

A.6 J1.5 Wall-Glazing Calculators

NCC 2019 Wall-Glazing Calculator v3.0

Wall and glazing energy efficiency in Class 2-9 buildings - Method 2 of Specification J1.5a, NCC 2019

Building name and description	Classification	Climate Zone
2-4 The Esplanade Inverloch	Other	6

Calculated Area-Weighted U-Value	2.00	Calculated Representative Air-Conditioning Energy Value	43.1
Allowable Area-Weighted U-Value	2.00	Allowable Representative Air-Conditioning Energy Value	43.3
Building total U-Value allowance met	**100%**	**Building total SHGC allowance met**	**100%**
Check Values (Visible)	**Wall Element Requirements: Met**	**Display Glazing Element Requirements**	-

Use of this calculator does not guarantee compliance with the NCC. The disclaimer and a version update check are available at the bottom of the page.

Element Description					U-Value		SHGC and Shading				
ID	Description (optional)	Element Type	Facing Sector	Area (m²)	U-Value	U-Value Element share of allowance used	SHGC	Glazing Height (m)	Shading Height (m)	Shading Projection (m)	SHGC Element share of allowance used
1		Wall	North	109.71	1.00	8% of building total					Not counted
2		Wall	East	0.89	1.00	0% of building total					Not counted
3		Wall	South	95.64	1.00	7% of building total					Not counted
4		Wall	West	76.18	1.00	6% of building total					Not counted
5		Wall	Internal	137.37	1.00	10% of building total					Not counted
6	GROUND LEVEL GLAZING	Glazing	North	8.86	3.64	2% of building total	0.243	3.2	3.2	2.81	0% of building total
7		Glazing	North	12.25	3.64	3% of building total	0.243	3.2	3.2	2.81	0% of building total
8		Glazing	East	4.74	3.64	1% of building total	0.243	3.2	3.2	3.6	2% of building total
9		Glazing	South	4.03	3.64	1% of building total	0.243	3.2	3.2	3.6	1% of building total
10		Glazing	South	11.23	3.64	3% of building total	0.243	3.2	3.2	2.81	4% of building total
11		Glazing	South	13.66	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
12		Glazing	South	13.70	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
13		Glazing	South	13.66	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
14		Glazing	South	13.70	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
15		Glazing	South	13.66	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
16		Glazing	South	13.66	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
17		Glazing	South	13.70	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
18		Glazing	South	13.70	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
19		Glazing	South	13.66	3.64	4% of building total	0.243	3.2	3.2	2.81	5% of building total
20		Glazing	South	8.58	3.64	2% of building total	0.243	3.2	3.2	2.81	3% of building total
24	LEVEL 3 GLAZING	Glazing	South	26.95	3.66	7% of building total	0.25	3.5			16% of building total
25		Glazing	South	31.78	3.66	9% of building total	0.25	3.5			18% of building total
26		Glazing	South	3.36	3.66	1% of building total	0.25	3.5			2% of building total
27		Glazing	South	3.36	3.66	1% of building total	0.25	3.5			2% of building total
28		Glazing	South	16.10	3.66	4% of building total	0.25	3.5			9% of building total

Food & Drinks Premises Wall-Glazing Calculator – Reference Building

NCC 2019 Wall-Glazing Calculator v3.0

Wall and glazing energy efficiency in Class 2-9 buildings - Method 2 of Specification J1.5a, NCC 2019

Building name and description	Classification	Climate Zone
2-4 The Esplanade Inverloch	3, 9c or 9a ward	6

Calculated Area-Weighted U-Value	1.10	Calculated Representative Air-Conditioning Energy Value	120.3
Allowable Area-Weighted U-Value	1.10	Allowable Representative Air-Conditioning Energy Value	120.4
Building total U-Value allowance met	100%	**Building total SHGC allowance met**	100%
Check Values (Visible)	**Wall Element Requirements** Met	**Display Glazing Element Requirements** -	

Use of this calculator does not guarantee compliance with the NCC. The disclaimer and a version update check are available at the bottom of the page.

Element Description					U-Value		SHGC and Shading				
ID	Description (optional)	Element Type	Facing Sector	Area (m²)	U-Value	U-Value Element share of allowance used	SHGC	Glazing Height (m)	Shading Height (m)	Shading Projection (m)	SHGC Element share of allowance used
1		Wall	North	189.39	1.00	12% of building total					Not counted
2		Wall	East	1.76	1.00	0% of building total					Not counted
3		Wall	South	212.02	1.00	13% of building total					Not counted
4		Wall	West	163.92	1.00	10% of building total					Not counted
5		Wall	Internal	92.15	1.00	6% of building total					Not counted
6	**GROUND LEVEL GLAZING**	Glazing	North	12.64	1.18	1% of building total	0.25	2.9			4% of building total
7		Glazing	North	12.96	1.18	1% of building total	0.25	3.2	3.2	2.81	2% of building total
8		Glazing	North	13.70	1.18	1% of building total	0.25	3.2	3.2	2.81	2% of building total
24		Glazing	North	11.70	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
25		Glazing	North	7.80	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
26		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
27		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
28		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
29		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
30		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
31		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
32		Glazing	North	10.53	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
33		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
34		Glazing	North	6.84	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
35		Glazing	North	2.21	1.18	0% of building total	0.25	2.6	2.6	2.81	0% of building total
36		Glazing	North	7.20	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
37		Glazing	North	7.20	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
38		Glazing	North	4.68	1.18	0% of building total	0.25	2.6	2.6	3.6	1% of building total
39		Glazing	South	6.55	1.18	0% of building total	0.25	2.6	2.6	3.6	1% of building total
40		Glazing	South	5.10	1.18	0% of building total	0.25	2.6	2.6	2.81	1% of building total
41		Glazing	South	3.82	1.18	0% of building total	0.25	2.6	2.6	2.81	0% of building total
42		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
43		Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
44		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
44		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
45	**LEVEL 1 GLAZING**	Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
46		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
47		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
48		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
49		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
50		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
51		Glazing	South	3.20	1.18	0% of building total	0.25	2.6	2.6	3.3	0% of building total
52		Glazing	South	4.26	1.18	0% of building total	0.25	2.6	2.6	3.3	1% of building total
53		Glazing	South	14.46	1.18	1% of building total	0.25	2.6	2.6	2.82	2% of building total
54		Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
55		Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
56		Glazing	South	9.36	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
57		Glazing	South	1.72	1.18	0% of building total	0.25	2.6	2.6	2.82	0% of building total
58		Glazing	South	4.78	1.18	0% of building total	0.25	2.6	2.6	2.82	1% of building total
59		Glazing	South	7.80	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
60		Glazing	South	11.70	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
61		Glazing	West	4.94	1.18	0% of building total	0.25	2.6			1% of building total
62		Glazing	West	7.80	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
63		Glazing	West	9.36	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
64		Glazing	West	7.80	1.18	1% of building total	0.25	2.6	2.6	1.6	1% of building total
65		Glazing	West	9.36	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
66		Glazing	West	7.80	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
67		Glazing	West	4.94	1.18	0% of building total	0.25	2.6			1% of building total

68		Glazing	North	11.70	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
69		Glazing	North	7.80	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
70		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
71		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
72		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
73		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
74		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
75		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
76		Glazing	North	10.53	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
77		Glazing	North	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
78		Glazing	North	6.84	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
79		Glazing	North	2.21	1.18	0% of building total	0.25	2.6	2.6	2.81	0% of building total
80		Glazing	North	7.20	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
81		Glazing	North	7.20	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
82		Glazing	North	4.68	1.18	0% of building total	0.25	2.6	2.6	3.6	1% of building total
83		Glazing	South	6.55	1.18	0% of building total	0.25	2.6	2.6	3.6	1% of building total
84		Glazing	South	5.10	1.18	0% of building total	0.25	2.6	2.6	2.81	1% of building total
85		Glazing	South	3.82	1.18	0% of building total	0.25	2.6	2.6	2.81	0% of building total
86		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
87		Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
88		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
89	**LEVEL 2**	Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
90	**GLAZING**	Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
91		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
92		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
93		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
94		Glazing	South	11.10	1.18	1% of building total	0.25	2.6	2.6	2.81	1% of building total
95		Glazing	South	3.20	1.18	0% of building total	0.25	2.6	2.6	3.3	0% of building total
96		Glazing	South	4.26	1.18	0% of building total	0.25	2.6	2.6	3.3	1% of building total
97		Glazing	South	14.46	1.18	1% of building total	0.25	2.6	2.6	2.82	2% of building total
98		Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
99		Glazing	South	11.13	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
100		Glazing	South	9.36	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
101		Glazing	South	1.72	1.18	0% of building total	0.25	2.6	2.6	2.82	0% of building total
102		Glazing	South	4.78	1.18	0% of building total	0.25	2.6	2.6	2.82	1% of building total
103		Glazing	South	7.80	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
104		Glazing	South	11.70	1.18	1% of building total	0.25	2.6	2.6	2.82	1% of building total
105		Glazing	West	4.94	1.18	0% of building total	0.25	2.6			1% of building total
106		Glazing	West	7.80	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
107		Glazing	West	9.36	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
108		Glazing	West	7.80	1.18	1% of building total	0.25	2.6	2.6	1.6	1% of building total
109		Glazing	West	9.36	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
110		Glazing	West	7.80	1.18	1% of building total	0.25	2.6	2.6	2.22	1% of building total
111		Glazing	West	4.94	1.18	0% of building total	0.25	2.6			1% of building total

Disclaimer:

This calculator has been developed to assist in developing a better understanding of the glazing energy efficiency parameters of NCC 2019. While the author believes that the calculator, if used correctly, is likely to produce accurate results, it is provided "as is" and without any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all. Your use of this calculator is entirely at your own risk and the author accepts no liability of any kind.

Made by Alex Zeller

Email alex.wallglazingcalculator@gmail.com with any suggestions for improvement

Check for version update

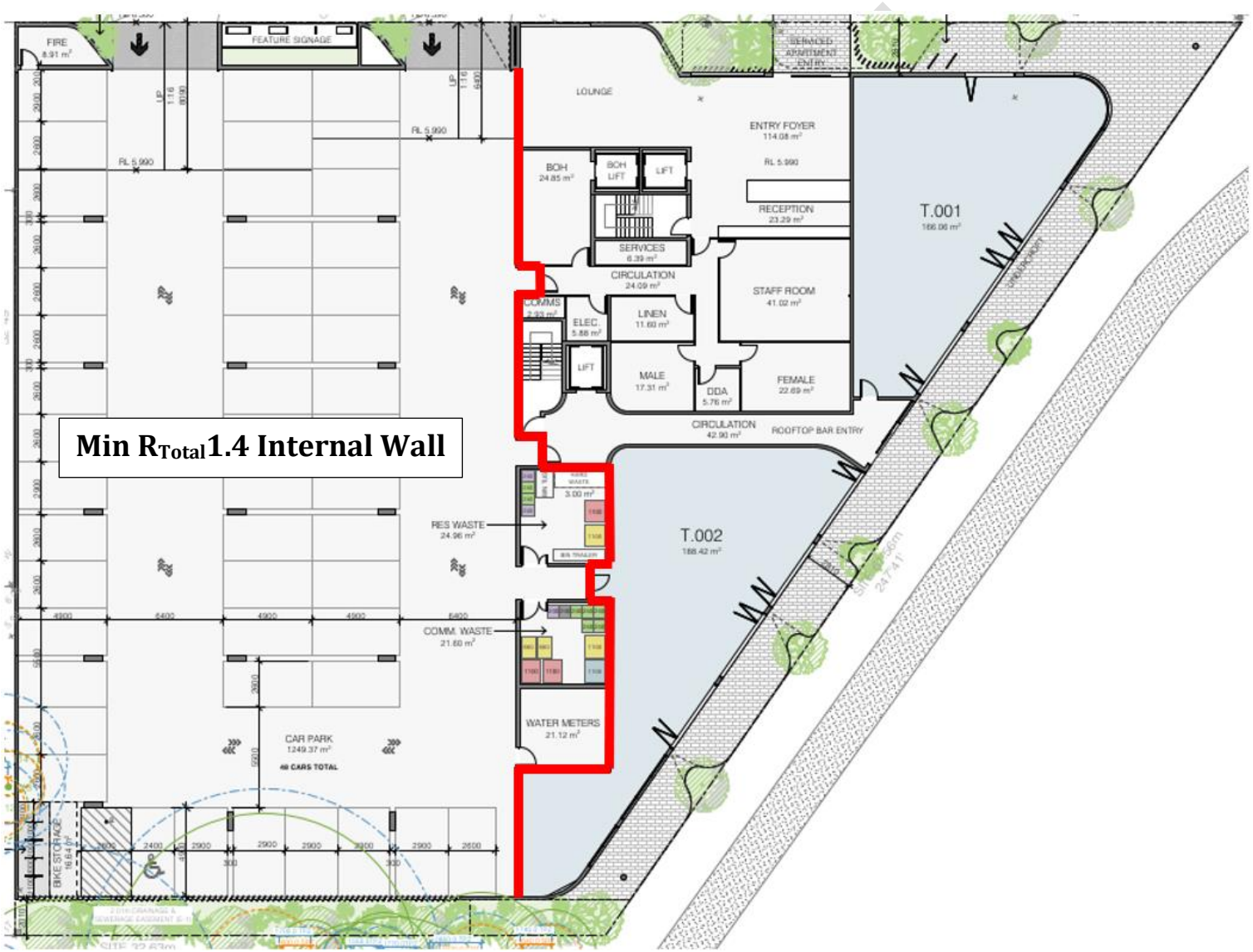
Hotel Wall-Glazing Calculator – Reference Building

A.7 Soffit Insulation Mark-up



Ground Floor Soffit Insulation Mark-up to Slab Below (Highlighted in Blue)

A.8 Internal Wall Insulation Mark-up



Ground Floor Internal Wall Insulation Mark-up (Highlighted in Red)

Appendix B. STORM Report

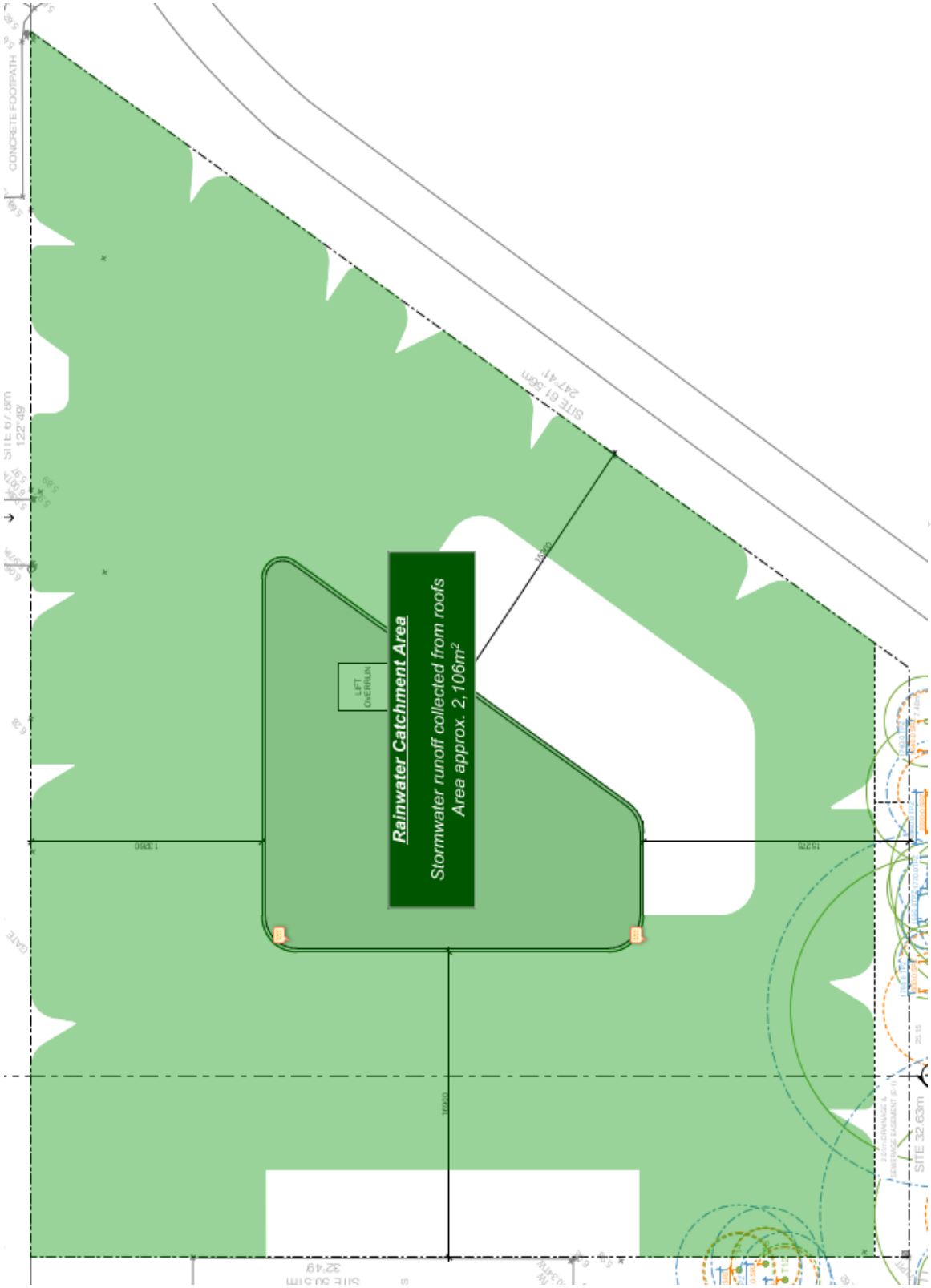
Melbourne Water STORM Rating Report

TransactionID:	1179055
Municipality:	BASS COAST
Rainfall Station:	BASS COAST
Address:	2-4 The Esplanade
	Inverloch
	VIC
Assessor:	ld
Development Type:	Other
Allotment Site (m2):	2,536.00
STORM Rating %:	102

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roofs	2,106.00	Rainwater Tank	50,000.00	60	122.30	89.50
Remaining impervious areas	430.00	None	0.00	0	0.00	0.00

Date Generated: 25-Jun-2021 Program Version: 1.0.0

RAINWATER CATCHMENT AREA



Appendix C. Rainwater Harvesting

Property 2-4 The Esplanade, Inverloch
Version

box 1

Inputs

PPL	60
Flush/Person/Day	5
Litres/Flush	3.3
Total Daily usage (litres)	990
Roof area (m2)	2,106
Collection Evaporation	5%
Tank Capacity (litres)	50,000
Irrigation Area (m2)	0
T'off if Total Rain (mm)	10
in the last	5 days

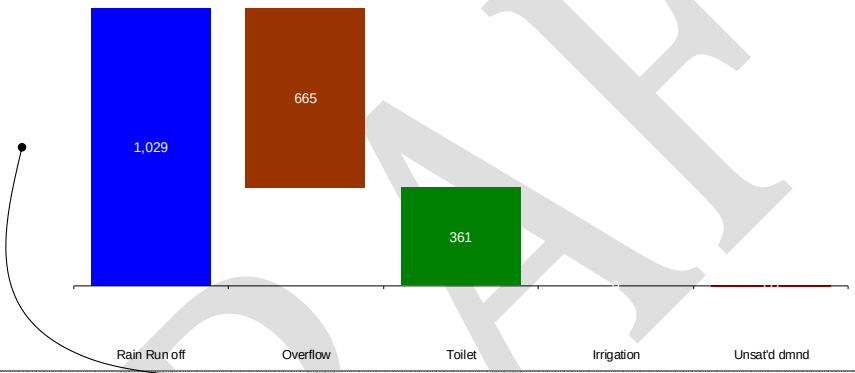
Recalc, update pivots, table and graphs

Irrigation Schedule

	l /m2	S	M	T	W	Th	Fr	S
Jan	10		y			y		
Feb	10		y			y		
Mar	10		y			y		
Apr	5		y					
May	5			y				
Jun	5			y				
Jul	5				y			
Aug	5				y			
Sep	5					y		
Oct	5					y		
Nov	10						y	
Dec	10		y				y	

box 2

System components (kls per year)



box 3

System components (kls per year) based on 12 years of actual historical daily rainfall

12 years of Averages
(k l)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rain Run off	**67**	**92**	**59**	**94**	**87**	**75**	**70**	**92**	**79**	**103**	**105**	**106**	**1,029**
Overflow	(32)	(66)	(31)	(58)	(58)	(44)	(39)	(64)	(49)	(72)	(75)	(79)	(665)
Rain Water saved	**35**	**26**	**29**	**36**	**29**	**31**	**32**	**29**	**30**	**31**	**30**	**27**	**364**
Toilet	(31)	(28)	(31)	(30)	(31)	(30)	(31)	(31)	(30)	(31)	(30)	(31)	(361)
(Shortfall)/Surplus before Irrigation	**4**	**(2)**	**(2)**	**6**	**(1)**	**1**	**1**	**(2)**	**1**	**0**	**0**	**(3)**	**2**
Irrigation	-	-	-	-	-	-	-	-	-	-	-	-	-
Unsatisfied Demand	**4**	**(2)**	**(2)**	**6**	**(1)**	**1**	**1**	**(2)**	**1**	**0**	**0**	**(3)**	**2**

Actual Years
(k l)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Rain Run off	**720**	**1,170**	**1,221**	**1,259**	**1,211**	**793**	**986**	**1,245**	**1,180**	**877**	**846**	**838**	**12,348**
Overflow	(342)	(794)	(856)	(903)	(848)	(449)	(614)	(878)	(827)	(512)	(487)	(478)	(7,985)
Rain Water saved	**378**	**377**	**365**	**357**	**363**	**345**	**373**	**367**	**354**	**365**	**360**	**360**	**4,363**
Toilet	(361)	(361)	(361)	(361)	(361)	(361)	(361)	(361)	(361)	(361)	(361)	(362)	(4,337)
(Shortfall)/Surplus before Irrigation	**16**	**15**	**4**	**(5)**	**2**	**(16)**	**11**	**6**	**(8)**	**4**	**(2)**	**(2)**	**26**
Irrigation	-	-	-	-	-	-	-	-	-	-	-	-	-
Unsatisfied Demand	**16**	**15**	**4**	**(5)**	**2**	**(16)**	**11**	**6**	**(8)**	**4**	**(2)**	**(2)**	**26**

box 4

Reliability of supply (daily demand met)- Tank size what ifs

Tank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall
1k	32%	32%	28%	39%	45%	44%	51%	50%	50%	53%	42%	37%	42%
2k	40%	42%	36%	50%	54%	56%	63%	61%	62%	65%	52%	47%	52%
5k	56%	67%	53%	72%	72%	79%	85%	81%	81%	83%	73%	68%	73%
10k	74%	87%	72%	88%	89%	94%	98%	96%	93%	95%	92%	85%	88%
20k	87%	97%	89%	96%	98%	99%	100%	100%	100%	98%	100%	97%	97%
50k	**96%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
100k	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
200k	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

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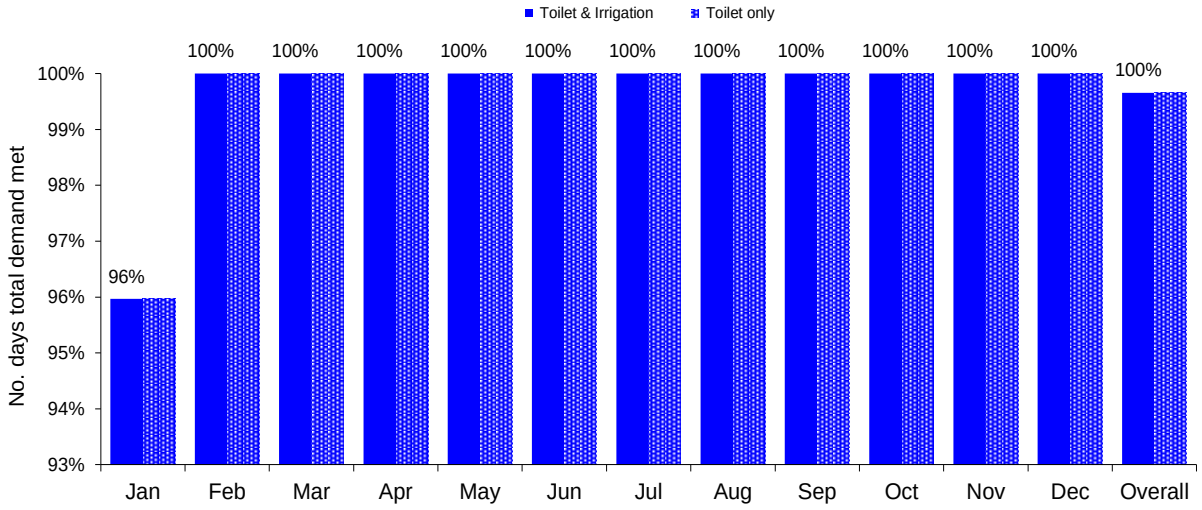
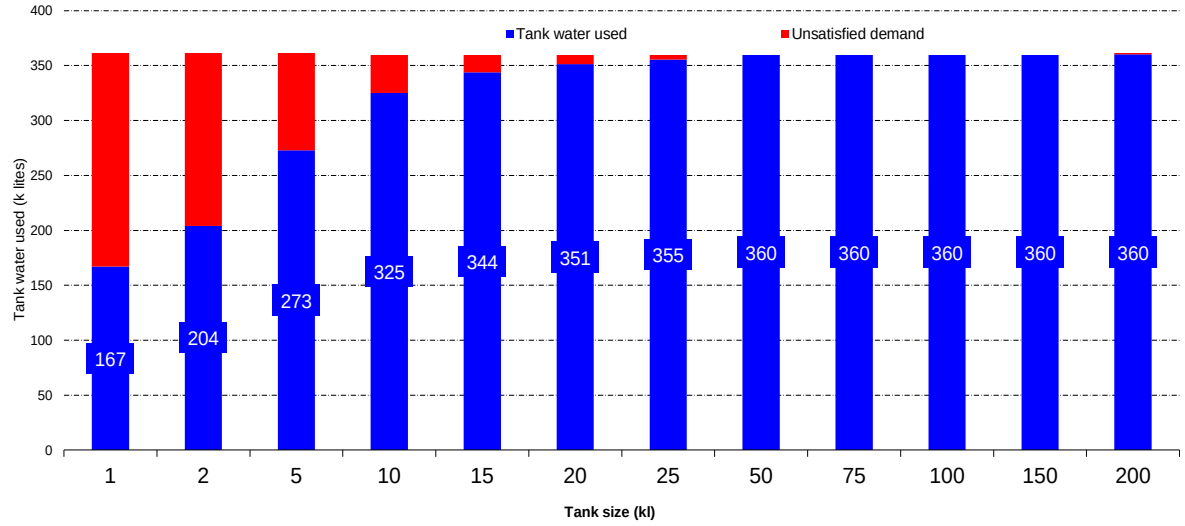
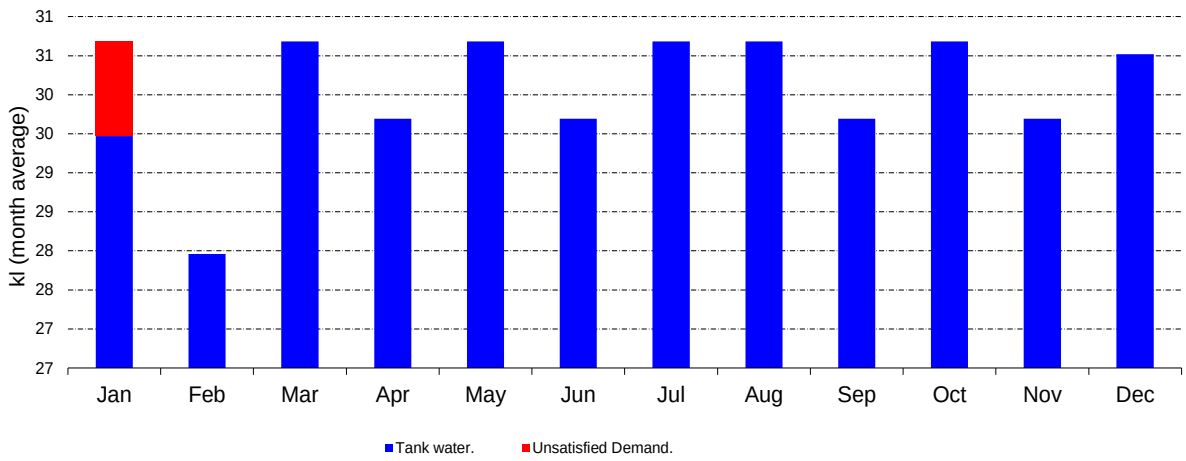
Graph 2 - Reliability of supply from tank (average across 12 years)



Graph 3 -Tank water used (per year) V Tank size
Kls per year



Graph 4 - Tank water used v unsatisfied demand
by month (kls per month)



Appendix D. WSUD Maintenance Manual

Rainwater Harvesting System Maintenance Program

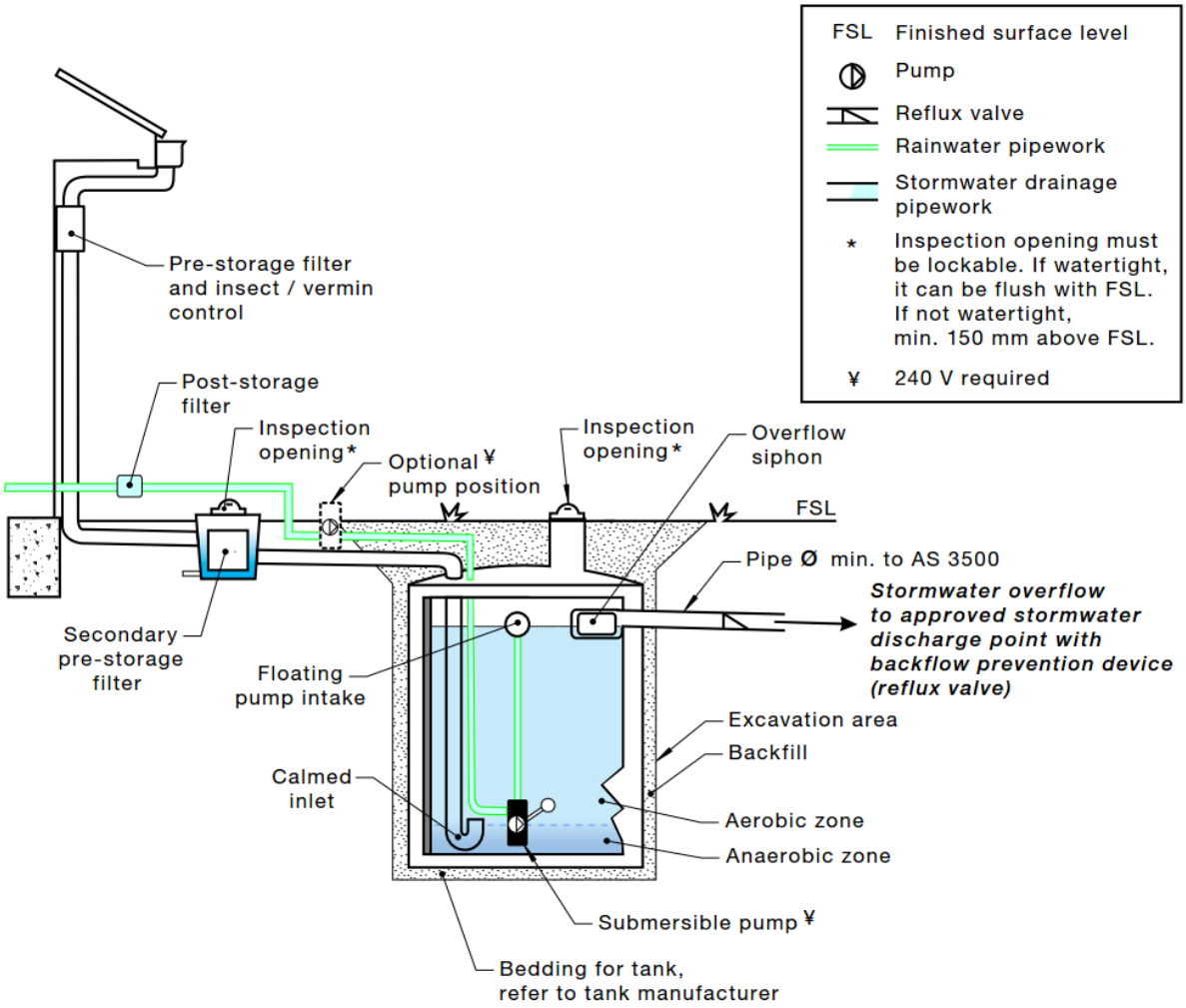
Once installed, a systematic maintenance program will be implemented by the owner's corporation maintenance contractor to ensure the rainwater harvesting system operates as designed and water quality is maintained.

The scope of the maintenance program will include inspection and rectification of issues associated with:

- Roof gutters and downpipes
- First flush screens and filtration devices
- Pumps
- Distribution pipework and reticulation systems
- Overflow systems

Inspections of the system and any maintenance works required will be undertaken on a quarterly basis or as per manufacturers guidelines.

The rainwater harvesting system will be installed in accordance with the guidelines set out in the Rainwater Design & Installation Handbook published by the National Water Commission[1]. A schematic diagram of the rainwater tank installation is provided below.



[1] Rainwater Design & Installation Handbook, National Water Commission, 2008

Maintenance Checklist

Rainwater Tank Element	Inspection Item	Y/N	Likely Maintenance Task
Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly
First flush diverter	Is there anything blocking the first flush diverter (Leaves etc.)?		Remove by hand and dispose responsibly
Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace devise. Consider a manual switching device.
Mesh cover	Has the mesh cover deteriorated or have any holes in is?		Replace mesh cover.
Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
Pump	Is the pump working effectively? Have you heard it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
Pipes and taps	Are pipes and taps leaking?		Repair as needed.
Overflow	Is the overflow clear and connected to the storm water network?		Remove blockages and/or restore connections to stormwater network.

Maintenance Frequency												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All tasks	**x**			**x**			**x**			**x**		

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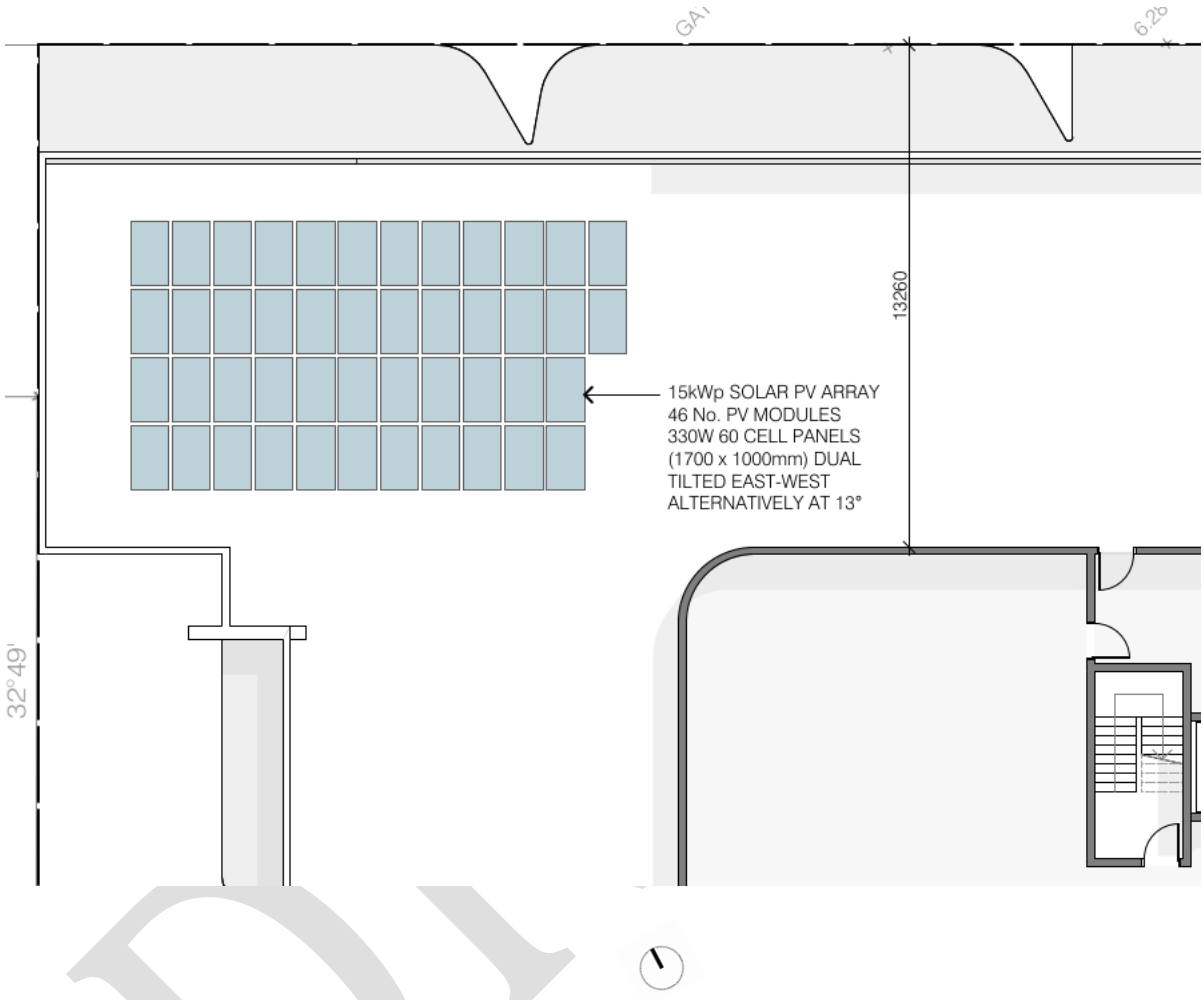
Appendix E. Solar Photovoltaic System

High-efficiency solar PV modules with a total capacity of 15 kWp will be installed at roof level as per the preliminary layout indicated below.

PV modules will be oriented in pairs to the east and west at 10-15° tilt and have at least 330Wp capacity (i.e. over 20% more efficient than traditional 250Wp 60-cell modules). High-efficiency modules deliver more compact arrays with inherently lower embodied ecological impact per unit of generation than standard efficiency modules.



Indicative Solar Photovoltaic array layout

The undulating east-west configuration prevents self-shadowing of the array, and provides a low-profile installation with maximised packing factor. It also helps maximise self-consumption due to its flatter and broader power output yield profile.



Total yield of this array will be approximately 21 MWh per annum equating to an estimated annual carbon emissions offset of 23 tonnes $CO_{2\text{-}e}$ per annum.

Appendix F. Site Management Plan

During the construction phase, the key pollutants at risk of entering the stormwater system include:

- Sediments (soil, sand, gravel and concrete washings); and
- Litter, debris etc.

These pollutants arise from factors such as dirt from construction vehicles, stockpiles located close to surface runoff flow paths, and surface runoff from disturbed areas during earthmoving and construction works. It is therefore important to have measures that either prevent or minimise the pollutant loads entering stormwater system during construction.

In order to mitigate the impacts of the above pollutants on the stormwater system, the following stormwater management strategies will be implemented during the construction phase as appropriate:

- Installation of onsite erosion and sediment control measures. All installed control measures shall be regularly inspected & maintained to ensure their effectiveness. Such measures may include (but not limited to):
    - Silt fences
    - sediment traps
    - hay bales
    - geotextile fabrics
- Where possible, litter bins with a lid will be used to prevent litter from getting blown away and potentially entering stormwater drains.

Additionally, the following work practices shall be adopted to reduce stormwater pollution:

- Site induction by the head contractor/ builder to make personnel aware of stormwater management measures in place
- Employ suitable measures to reduce mud being carried off-site into the roadways such as installing a rumble grid/ gravel/ crushed-rock driveway (or equivalent measure) to provide clean access for delivery vehicles, removing mud from vehicle tyres with a shovel etc.
- Safe handling and storage of chemicals, paints, oils and other elements that could wash off site to prevent them from entering stormwater drains.
- Where practicable, stockpiles will be covered, located within the site's fence and away from the lowest point of the site where surface runoff will drain to. This initiative will minimise erosion.

Accordingly, the measures presented above are considered appropriate for the proposed development at this stage of the project. The measures will reduce the pollutants entering stormwater system from the site during construction works thereby protecting waterways.

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TREEMAP
ARBORICULTURE

Arboricultural Assessment & Report
2-4 The Esplanade, Inverloch

Treemap Arboriculture
PO Box 465, Heidelberg VIC 3084
ABN 20 325 463 261
www.treemap.com.au

June 2021

Prepared for:
Forte Group Pty Ltd

TREEMAP
ARBORICULTURE

1 Name and address of consultant

Dean Simonsen
Treemap Arboriculture
PO Box 465, Heidelberg, Victoria 3084

2 Instructions

2.1 The instructions provided to Treemap Arboriculture on 28/06/21 by Forte Group Pty Ltd were to provide a revised Arboricultural assessment and report for trees located on or adjacent to the subject site, the subject site being 2-4 The Esplanade, Inverloch.

3 Introduction

3.1 The owners of the subject site are undertaking investigations to develop the property. As part of the design and application process, the owners are undertaking a review of the vegetation located on or near the site. This report examines the arboricultural matters associated with this vegetation.

3.2 Under the guidelines of AS4970-2009 (Australian Standard – Protection of trees on development sites), the following report would be defined as an 'Arboricultural impact assessment'. The standard indicates that "*The report will identify possible impacts on trees to be retained. The report will explain design and construction methods proposed to minimize impacts on retained trees where there is encroachment into the calculated TPZ*."

4 Key Objectives

4.1 To undertake a general assessment of trees located on or near the subject site.

4.2 To provide an assessment of the subject trees with respect to their overall condition, structure, safety and suitability for protection.

4.3 To provide recommendations on the suitability of the trees for protection, and provide general methods of tree protection.

5 Method

5.1 A site and tree inspection were conducted on Wednesday 8th July, 2020.

5.2 The tree assessment consisted of a visual inspection, which was undertaken with regard to modern arboricultural principles and practices. The assessment did not involve a detailed examination of below ground or internal tree parts. The assessment was undertaken from the ground of the subject site to determine tree condition and species type. Measurements were taken to establish trunk and crown dimensions. No tree samples or site soil samples were taken unless specified. Trunk diameters for trees on adjoining properties may be estimated due to site access restrictions.

5.3 The trees have been allocated a retention value rating which combines tree condition factors with functional and aesthetic characteristics in the context of an urban landscape. The

retention or preservation of trees may not depend solely on arboricultural considerations; therefore, the ratings may act as a guide to assist in decisions relating to tree management and retention.

5.4 A survey plan was provided by the client (Neighbourhood, site & Description Plan prepared by Cornetta Partners Architects, Ref. 21-09 and dated 10/06/21). The assessed trees have been numbered on this plan (Appendix 3).

5.5 A proposed plan was provided by the client for analysis (Ground Floor Plan, prepared by Cornetta Partners Architects, Ref. 21-09 and dated 10/06/21). The assessed trees have been numbered on this plan (Appendix 3a) and Tree Protection Zones are provided.

6 Observations

6.1 The site under review presented as an irregularly shaped multi-use allotment located near the foreshore of Inverloch Beach. The site adjoins a public use zone to the south west and north west. A reserve is located to the south east and The Esplanade frontage is located to the north east. The site contained no trees.



6.2 Fourteen (14) trees were assessed in detail as part of the site review. This included 14 trees located on public land. The detail of each individual tree assessment is provided in table format at Appendix 1. Tree numbers within the assessment table correspond to those provided on the site feature plan (Appendix 3).

6.3 The property is not influenced by any specific local vegetation controls under the Bass Coast Shire Council Planning Scheme. This is based on a planning property report for the site being obtained from www.planning.vic.gov.au/ on 28/06/21.

6.4 The proposed design indicates a serviced apartment development.

7 Discussion

The Australian Standard (AS4970-2009) – 'Protection of trees on development sites' puts forward a process for undertaking tree inspections and reports on property where development is being considered. It recommends a preliminary assessment be undertaken to help guide planners and property owners with regard to the preservation of existing trees; that is trees that might contribute to the completed proposal. The standard points out that the preliminary report 'information is to be used by planners, architects and designers, in conjunction with any planning controls and other legislation, to develop the design layout in such a way that trees selected for retention are provided with enough space'.

These assessments typically reveal a range of trees with varying attributes for health, structure and overall value. Some trees may be considered insignificant for their size, age, species type or condition, but they might still be considered for retention because they are situated conveniently on the site. Conversely, some trees may be exceptional for various reasons but there may be no scope for their retention because of their location or other site constraints. An objective of the tree assessment is to determine the trees that may be preferable, in terms of preservation, and to identify poor or insignificant trees that might be easily replaced or replaced with better species.

The arborist must also exercise judgement and expertise with respect to the types of trees that are deemed suitable for retention, and they should also consider what stage the tree is at in its overall lifecycle.

The subject site contained no vegetation.

A factor that may influence development on the subject site will be the proposed design in the vicinity of the neighbouring trees. The Tree Protection Zone for the neighbouring trees are illustrated on the plan at Appendix 3a.

There are 3 trees (Tree 2, 8 & 9) that have Tree Protection Zones that extend into the site beyond the south west easement. A further 3 trees have Tree Protection Zones that extend into the site along the north east boundary (Tree 12, 13 & 14).

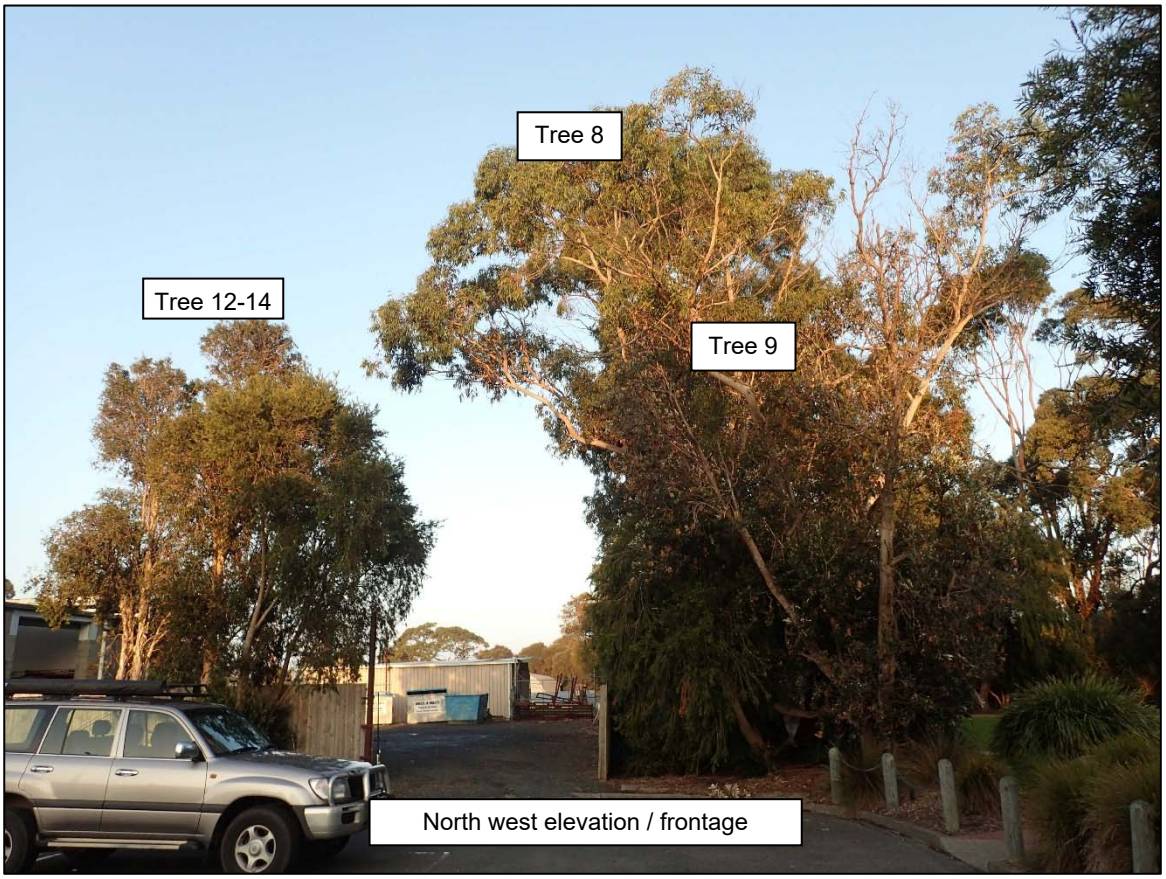
The remaining trees are sufficiently distant from the site that no harm is predicted to them, subject to basic tree protection measures being implemented.

Tree 2 - *Eucalyptus consideniana* (Yertchuck) is set back sufficiently from the site that less than 10% of the Tree Protection Zone extends into the developable area of the site. No harm is predicted to this tree from the ground floor component of the proposal, subject to tree protection measures being implemented.

Tree 8 - *Eucalyptus saligna* (Sydney Blue Gum) is a large tree. The proposed design appears to result in Tree Protection Zone encroachment of 29.6%. The Structural Root Zone is avoided. The proposed design would ordinarily be considered harmful to the ongoing health and viability of the tree. However, a tree root investigation and report were undertaken by Arborzone Professional Tree Services, prepared by Peter Bateman and dated October 2020. The results of that root investigation indicated no roots were encountered at the easement alignment. In the absence of roots, determined by root investigation, no harm is predicted to Tree 8 from the proposed design.

Tree 9 - *Eucalyptus viminalis* (Manna Gum) is also a reasonably large tree, but it was in decline. The proposed design results in Tree Protection Zone encroachment of 8.2%. The Structural Root Zone is avoided. The proposed design is not likely to be harmful to the health and viability of this tree because the level of encroachment is considered minor under AS4970. Furthermore, the results of the root investigation indicated no roots were encountered at the easement alignment.

The above ground components of the development are unlikely to interfere with Tree 8 & 9 significantly. Tree 8 has been heavily pruned to the boundary, but a few upper canopy branches may require reduction pruning. Tree 9 may require the pruning of 1 branch.



Tree 12, 13 & 14 are exposed to Tree Protection Zone encroachment of 20-30% from the proposed design and the Structural Root Zone of each tree is also encroached. The proposed design would be detrimental to the survival of these trees.

The trees exposed to major encroachment under the guidelines of AS4970 would need to be addressed by either;

- root investigations to validate the presence or absence of roots along the boundary, but it is highly probable that roots would be encountered.
- negotiated tree removal and replacement as part of a comprehensive landscape design that interfaces with public spaces (Tree 12-14 are low value plants with poor structure).

There are no other tree protection matters associated with trees or shrubs on adjoining land.

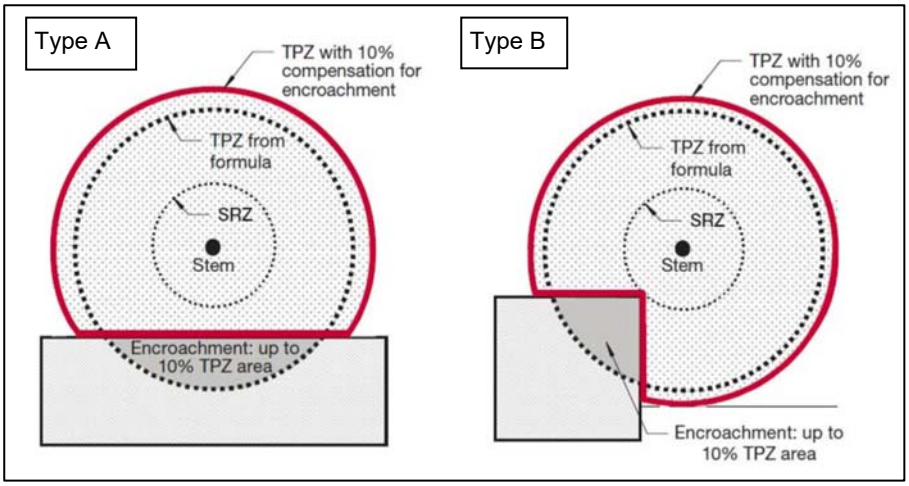
7.1 Tree protection zones on development sites

The level of encroachment and the impact to specific trees can be estimated by comparing standard or modified tree protection clearances with those clearances provided to trees in the development design. The overall impact towards a specific tree will be based on the severity of encroachment into the respective tree protection zones. The degree of root activity in the tree protection zone can vary significantly, which can result in more or less severe impacts to trees. The most accurate means of determining root activity in these zones is to undertake

subsurface root investigations. The alternative to undertaking root investigations is to assign appropriate tree protection zones.

This report adopts AS4970-2009, Australian Standard – Protection of trees on development sites as the preferred tree protection method. The method provides a tree protection zone and a tree protection fencing distance (radial measurement from trunk centre) by using the width of the trunk at 1.4m above ground multiplied by 12. The prescribed TPZ distances are provided for each tree in Appendix 1 and tree protection zones are indicated for trees at Appendix 3a.

There is scope to reduce the tree protection zone by an area of 10% without further investigations. The rationale for any reduced tree protection distance is detailed in AS4970-2009 (*Australian Standard – Protection of trees on development sites*). Under encroachment Type A, it is acceptable to reduce the Tree Protection Zone (TPZ) area by 10%. This translates to a reduction in radial clearance distance of approximately 33% on one side of the tree only. This can be applied if there is contiguous space around the tree for root development to occur. The following diagram, from AS4970-2009, is provided to illustrate the approach.



8 Recommendations

8.1 The subject site contained no vegetation.

8.2 Tree 1, 3, 4, 5, 6, 7, 10 & 11 are sufficiently distant from the site that no harm is predicted to them, subject to basic tree protection measures being implemented.

8.3 Tree 2 - *Eucalyptus consideniana* (Yertchuck) is set back sufficiently from the site that less than 10% of the Tree Protection Zone extends into the developable area of the site. No harm is predicted to this tree from the proposal, subject to tree protection measures being implemented.

8.4 Tree 8 - *Eucalyptus saligna* (Sydney Blue Gum) is a large tree. The proposed design results in Tree Protection Zone encroachment of 29.6%. The Structural Root Zone is avoided. The proposed design would ordinarily be considered harmful to the ongoing health and viability of the tree.

8.4.1 A tree root investigation and report were undertaken by Arborzone Professional Tree Services, prepared by Peter Bateman and dated October 2019. The results of that root investigation indicated no roots were encountered at the easement alignment. In the absence of any roots, no harm is predicted to Tree 8 from the proposed design.

8.5 Tree 9 - *Eucalyptus viminalis* (Manna Gum) is also a reasonably large tree, but it was in decline. The proposed design results in Tree Protection Zone encroachment of 8.2%. The

Structural Root Zone is avoided. The proposed design is not likely to be harmful to the health and viability of this tree because the level of encroachment is considered minor under AS4970. Furthermore, the results of the root investigation indicated no roots were encountered at the easement alignment.

8.6 The above ground components of the development are unlikely to interfere with Tree 8 & 9 significantly. Tree 8 has been heavily pruned to the boundary, but a few upper canopy branches may require reduction pruning. Tree 9 may require the pruning of 1 branch.

8.7 Tree 12, 13 & 14 are exposed to Tree Protection Zone encroachment of 20-30% from the proposed design and the Structural Root Zone of each tree is also encroached. The proposed design would be very detrimental to the survival of these trees.

8.7.1 The trees exposed to major encroachment under the guidelines of AS4970 would need to be addressed by either;

- root investigations to validate the presence or absence of roots along the boundary, but it is highly probable that roots would be encountered.
- negotiated tree removal and replacement as part of a comprehensive landscape design that interfaces with public spaces (Tree 12-14 are low value plants with poor structure).

8.8 Any vegetation in the study area that was not assessed as part of this report was considered insignificant, generally undesirable or sufficiently clear of any expected works.

8.9 Any proposed development on the site should make provision for landscaping and the planting of new trees.

Dean Simonsen (BAppSc *Melb*.)
Consultant Arborist

9 References

Australian Standard AS 4970, 2009. *Protection of trees on development sites*. Standards Australia

10 Definitions

The TPZ and SRZ are defined in AS4970-2009, Australian Standard – Protection of trees on development sites as:

Tree protection zone (TPZ)
A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

Structural root zone (SRZ)
The area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres. This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area.

11 Expertise of Arborist to prepare report

Qualifications and expertise of consultant

- Bachelor of Applied Science, Horticulture (Plant Production) – University of Melbourne, Burnley College.
- Diploma of Applied Science, Horticulture (Arboriculture) – University of Melbourne, Burnley College. Dux of Arboriculture.
- Twenty-eight years of experience in the arboriculture/horticulture industry (private and local government experience).
- Consultant Arborist and Director at Tree Logic Pty Ltd from June 1999 to September 2011.
- Manager of Arboriculture – Royal Botanic Gardens, Melbourne (27 Months 1997-1999).
- Secretary for the Victorian Tree Industry Organisation (VTIO) 2007-2012.
- Financial member of the International Society of Arboriculture (ISA).
- Trained and licensed to use Quantified Tree Risk Assessment method (Lic No. 809).
- Presented paper at the International Society of Arboriculture Conference, 2011 at Parramatta, NSW.

Expertise to prepare report

- My qualifications and experience have primarily involved the management of tree issues in the urban landscape. Specifically, this has involved hazard, general or detailed assessment of tree condition on private and public land with recommendations made on preservation strategies or remedial works.
- Tree assessments to establish tree health, tree structure and arboricultural values are core components of Treemap Arboriculture's business activities.
- Prepared in excess of 4000 development reports.
- I have experience at Victorian Civil Administrative Tribunal and the magistrate's court as an expert witness on arboricultural matters.
- I have inspected and assessed well over two hundred thousand trees and managed assessment programs for at least five times as many.

Appendix 1

Tree Assessment Table

No	Species	Common Name	DBH (cm)	TPZ AS4970 (m)	TPZr AS4970 (m)	SRZ AS4970 (m)	HxW (m)	Age	Health	Structure	Form	Comment	Tree Type	Retention value	Recommend
1	*Syzygium paniculatum*	Magenta Cherry	17	2.04	1.74	1.64	6x5	Semi-mature	Fair	Fair to Poor	Minor asymmetry		Australian native	Low	Park tree
2	*Eucalyptus consideniana*	Yertchuck	35	4.20	2.86	2.22	14x8	Semi-mature	Fair to Poor	Fair	Asymmetric		Victorian native	Moderate	Park tree
3	*Syzygium paniculatum*	Magenta Cherry	15,14 (20.5)	2.46	1.77	1.77	7x5	Semi-mature	Fair	Poor	Minor asymmetry	Bifurcated with included bark	Australian native	Low	Park tree
4	*Syzygium paniculatum*	Magenta Cherry	15	2.00	1.55	1.55	4x3	Semi-mature	Fair	Fair to Poor	Minor asymmetry		Australian native	Low	Park tree
5	*Corymbia maculata*	Spotted Gum	40	4.80	3.26	2.34	18x9	Semi-mature	Fair	Fair	Minor asymmetry		Victorian native	Moderate	Park tree
6	*Corymbia maculata*	Spotted Gum	48	5.76	3.92	2.53	19x12	Semi-mature	Fair	Fair	Minor asymmetry		Victorian native	Moderate	Park tree
7	*Syzygium paniculatum*	Magenta Cherry	16	2.00	1.70	1.60	6x4	Semi-mature	Fair	Fair to Poor	Minor asymmetry		Australian native	Low	Park tree
8	*Eucalyptus saligna*	Sydney Blue Gum	82	9.84	6.69	3.17	20x17	Maturing	Fair	Fair to Poor	Minor asymmetry	Limbfall evidence, pruned over site	Australian native	Low	Park tree
9	*Eucalyptus viminalis*	Manna Gum	60,47 (76.2)	9.14	6.22	3.07	13x12	Maturing	Fair to Poor	Fair	Asymmetric	Dieback, In decline	Victorian native	Low	Park tree
10	*Callistemon viminalis*	Weeping Bottlebrush	18,14 (22.8)	2.74	1.95	1.85	5x5	Maturing	Fair	Fair to Poor	Asymmetric		Australian native	Low	Park tree
11	*Banksia integrifolia*	Coast Banksia	26,24 (35.4)	4.25	2.89	2.23	12x7	Maturing	Poor	Poor	Asymmetric	In severe decline, Bifurcated with included bark	Victorian native	Low	Park tree
12	*Callistemon viminalis*	Weeping Bottlebrush	18,13,6 (22.2)	2.66	1.93	1.83	8x4	Maturing	Fair	Fair to Poor	Asymmetric		Australian native	Low	Neighbour's tree
13	*Callistemon salignus*	Willow Bottlebrush	26	3.12	2.12	1.96	9x4	Maturing	Fair	Poor	Minor asymmetry		Australian native	Low	Neighbour's tree
14	*Callistemon salignus*	Willow Bottlebrush	30	3.60	2.45	2.08	9x4	Maturing	Fair	Poor	Minor asymmetry		Australian native	Low	Neighbour's tree

*Descriptors in Appendix 2
DBH = Diameter at Breast Height in centimetres (bracketed dimension = modified diameter according to AS4970)
HxW= Height and Width of crown, in metres.
TPZ – optimum radial clearance distance as per AS4970.
TPZr – reduced radial clearance distance allowable on one side of tree as per AS4970,
SRZ – radial clearance distance to maintain tree stability, as per AS4970.

Appendix 2
Descriptors (Version C - 2013)

Field name	Description
No.	Tree identification number. Unique numbers are assigned to each assessed individual tree or tree group.
Species	Identifies the tree using the international taxonomic classification system of binomial (or trinomial) nomenclature (genus, species, variety and cultivar).
Common Name	Provides the common name as occurs in current Australian horticultural literature. More than one common name can exist for a single tree species, or several species can share the same common name.
DBH (Diameter at breast height)	Indicates the trunk diameter (expressed in centimetres) of an individual tree usually measured at 1.4m above the existing ground level. Multiple stemmed trees are calculated using a formula to combine the stems into a single stem for tree protection zone calculations.
TPZ (Tree protection zone)	Tree protection zone expressed as a radial distance in metres, measured from trunk centre. Based on AS 4970
TPZr (Tree protection zone reduced)	Reduced tree protection zone expressed as a radial distance in metres measured from trunk centre and justified according to a standard (Usually AS4970) or other method.
HxW (Height x Width)	Indicates height and width of single tree and measurement generally expressed in whole metres

Age	Description
Young	Sapling tree and/or recently planted
Semi-mature	Tree rapidly increasing in size and yet to achieve expected size in situation
Maturing	Specimen approaching expected size in situation, with reduced incremental growth
Over-mature	Tree is senescent and in decline

Health	Term assigned that provides a broad description of the health and vigour of the tree.					
Ratings	*Good*	*Fair*	*Fair to Poor*	*Poor*	*Very poor*	*Dead*

Structure	Term assigned that provides a broad description of the structure and stability of the tree.					
Ratings	*Good*	*Fair*	*Fair to Poor*	*Poor*	*Very poor*	*Failed*

Form	Description
Symmetric	Evenly balanced crown
Asymmetric	Crown biased in one direction; can be minor or major
Stump re-sprout	Adventitious shoots originating from stump or trunk
Manipulated	Hedge, pollard, topiary, windrow; managed for specific landscape use or aesthetic outcome

Comment	Additional comments that provide specific detail on the condition of the tree or management requirements

Tree type	Description
Indigenous	Occurs naturally in the area or region of the subject site
Victorian native	Occurs naturally within some part of Victoria (not exclusively) but is not indigenous
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Palm	Woody monocotyledon
Other	Other descriptions as indicated

Retention value	Qualitative rating provided on tree based on assessment factors. Provided as a guide for management decisions.			
Ratings	*High*	*Moderate*	*Low*	*None*

Recommend	Recommended action based on condition of the tree with reference to proposed site changes							
Responses	*Retain*	*Could be retained*	*Consider removal*	*Remove*	*Street tree*	*Neighbour's Tree*	*Already removed*	*Transplant*

Descriptors reviewed annually and subject to change

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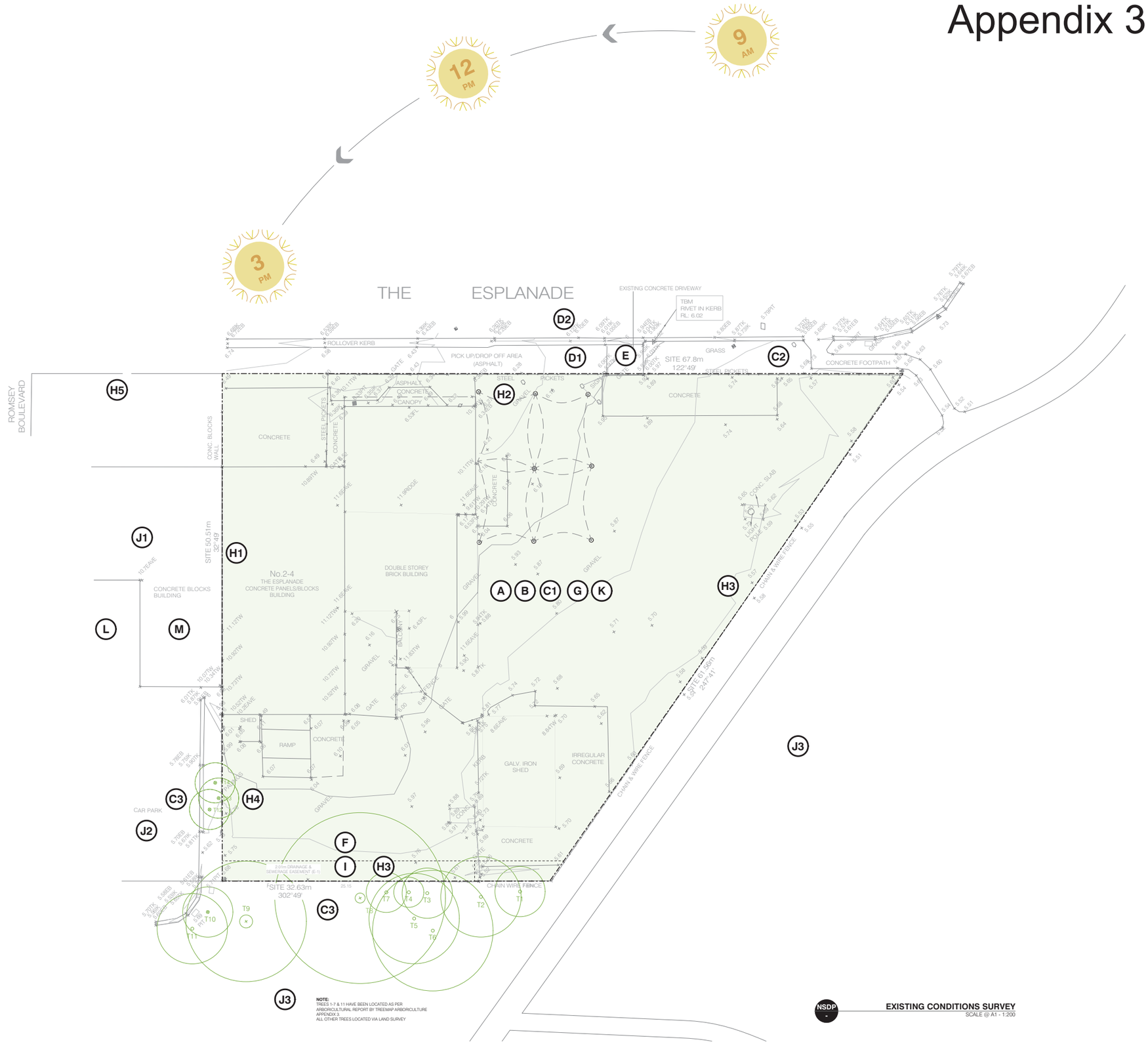
Appendix 3



NOTE:
TREES 1-7 & 11 HAVE BEEN LOCATED AS PER ARBORICULTURAL REPORT BY TREEMAP ARBORICULTURE APPENDIX 3.
ALL OTHER TREES LOCATED VIA LAND SURVEY

NSDP -

EXISTING CONDITIONS SURVEY
SCALE @ A1 - 1:200

ORIENTATION & SLOPE

- (A) SITE HAS NORTH TO SOUTH ORIENTATION WITH EXCELLENT ACCESS TO NORTH SUNLIGHT
- (B) THE SITE IS RELATIVELY FLAT. THE FALL IS APPROX. 1.0m FROM NORTH-WEST (HIGH POINT) TO SOUTH-EAST (LOW POINT)

VEGETATION & ACCESS

- (C1) THERE ARE NO EXISTING TREES ON THE SUBJECT SITE
- (C2) THERE ARE NO EXISTING STREET TREES
- (C3) THERE ARE EXISTING STREET TREES ON NEIGHBOURING LAND AT CLOSE PROXIMITY TO THE SUBJECT SITE.
- (D1) PEDESTRIAN ACCESS IS AVAILABLE FROM THE ESPLANADE
- (D2) VEHICULAR ACCESS IS AVAILABLE FROM THE ESPLANADE
- (E) EXISTING STREET CROSSOVER

DRAINAGE & SERVICES

- (F) DRAINAGE POINT TO BE CONFIRMED - MOST LIKELY AT REAR OF SITE
- (G) SITE HAS ACCESS TO INFRASTRUCTURE (SEWER, WATER SUPPLY, ELECTRICITY, GAS AND TELEPHONE)

FENCE, BOUNDARIES & EASEMENTS

- (H1) CONCRETE BLOCK WALL ON BOUNDARY
- (H2) STEEL PICKETS FENCE
- (H3) CHAIN & WIRE FENCE
- (H4) PALING FENCE
- (H5) NO FENCE
- (I) THE SITE IS AFFECTED BY A 2.01m WIDE DRAINAGE & SEWERAGE EASEMENT (ALONG THE SOUTHERN BOUNDARY)

LOCATION / USE OF SURROUNDING BUILDINGS

- (J1) SINGLE STOREY CONCRETE BLOCK BUILDING
- (J2) CAR PARK
- (J3) PARKLAND

TOPOGRAPHY

- (K) LEVELS AT SITE BOUNDARIES GENERALLY FOLLOW THE TOPOGRAPHY OF THE LAND

SPOS / HABITABLE ROOM WINDOWS

- (L) THERE IS NO SECLUDED OPEN SPACE ON ADJOINING OR NEARBY PROPERTIES
- (M) THERE ARE NO HABITABLE ROOM WINDOWS WITHIN 9.0m OF THE SITE

NEARBY PUBLIC OPEN SPACE

RAINBOW PARK
DISTANCE (APPROX.): 0.02 KM

WYETH-MCNAMARA PARK
DISTANCE (APPROX.): 0.03 KM

INVERLOCH OVAL
DISTANCE (APPROX.): 0.3 KM

PARK & RECREATION RESERVE BETWEEN ROYAL PDE & BASS HWY
DISTANCE (APPROX.): 7.19 KM

PUBLIC TRANSPORT

NA

LOCAL SCHOOLS - PRIMARY

INVERLOCH PRIMARY SCHOOL
BAYVIEW AVENUE, INVERLOCH, VIC 3996
DISTANCE (APPROX.): 0.43 KM

LOCAL SCHOOLS - SECONDARY

NA

LOCAL SCHOOLS - UNIVERSITIES

NA

LOCAL SHOPS

INVERLOCH COMMUNITY FARMERS MARKET
DISTANCE (APPROX.): 0.05 KM

STRIP SHOPPING ALONG RAMSEY BOULEVARD
DISTANCE (APPROX.): 0.06 KM

STRIP SHOPPING ALONG ABECKETT STREET
DISTANCE (APPROX.): 0.1 KM

STRIP SHOPPING ALONG WILLIAM STREET
DISTANCE (APPROX.): 0.12 KM

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Revision
P7: 10.06.2021
PRELIMINARY INTERNAL ISSUE

PRELIMINARY ONLY

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
NEIGHBOURHOOD SITE & DESCRIPTION PLANTOWN PLANNING APPLICATION

Scale	Drawn	Job No.
1:100, 1:200 @ A1	E.P.	21-09
Date	Drawing No.	Revision
10.06.2021	TPA01	P7

N

Appendix 3a



DEVELOPMENT SUMMARY

SITE AREA		2536.10 m²
SITE COVERAGE	96.24%	2440.97 m²
PERMEABILITY	4.49%	113.91 m²

No. OF RETAIL PROPOSED	2
No. OF CAR SPACES PROPOSED	48
No. OF STUDIO APARTMENTS	6
No. OF 1 BEDROOM APARTMENTS	30
No. OF 2 BEDROOM APARTMENTS	10
TOTAL APARTMENTS	46

FLOOR AREA ANALYSIS

GROUND	2189.73 m²
LEVEL 1	1891.98 m²
LEVEL 2	1891.98 m²
LEVEL 3	332.94 m²

NOTE: EXCLUDES BALCONY & TERRACE AREAS

LEGEND

EXTERNAL SURFACE FINISHES

- LAWN / GROUND COVER
- PEDESTRIAN PATH
- DRIVEWAY
- PAVING / TILES

WATER COLLECTION

- DENOTES 2000 LITRE RAINWATER TANK - SLIMLINE
- DENOTES 2000 LITRE RAINWATER TANK - ROUND
- 1.50 m² — ROOF CATCHMENT AREA TO RWT

VEHICULAR MOVEMENT

- PRIVATE 2-WAY DRIVEWAY
- VEHICLE ACCESS POINT
- PRIVATE 1-WAY DRIVEWAY

LANDSCAPING

- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES (INDICATIVE ONLY)
- PROPOSED CLIMBING PLANT (INDICATIVE ONLY)

WASTE

- 1100 / 660 / 240 — DENOTES 240 LITRE, 660 LITRE & 1100 LITRE BINS REFER WMP FOR FURTHER DETAILS

NOTES

- ALL FLOOR LEVELS NOMINATED ARE TO AHD (AUSTRALIAN HEIGHT DATUM)
- PROPOSED LANDSCAPING IS INDICATIVE ONLY. REFER TO LANDSCAPE PLAN FOR PROPOSED PLANTING AND DETAILS.
- SITE SERVICES LOCATIONS ARE INDICATIVE ONLY.

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Revision
P7: 10.06.2021
PRELIMINARY INTERNAL ISSUE

PRELIMINARY ONLY

Project
RETAIL & SERVICED APARTMENT BUILDING
2-4 THE ESPLANADE
INVERLOCH

Drawing Title
GROUND
TOWN PLANNING APPLICATION

Scale
1:200 @ A1

Drawn
E.P.

Job No.
21-09

Date
10.06.2021

Drawing No.
TPA03

Revision
P7

Assumptions and limiting conditions of arboricultural consultancy report

1. Any legal description provided to Treemap Arboriculture is assumed to be correct. Any titles and ownerships to any property are assumed to be correct. No responsibility is assumed for matters outside the consultant's control.

2. Treemap Arboriculture assumes that any property or project is not in violation of any applicable codes, ordinances, statutes or other local, state or federal government regulations.

3. Treemap Arboriculture has taken care to obtain all information from reliable sources. All data has been verified insofar as possible; however Treemap Arboriculture can neither guarantee nor be responsible for the accuracy of the information provided by others not directly under Treemap Arboriculture control.

4. No Treemap Arboriculture employee shall be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

5. Loss of this report or alteration of any part of this report not undertaken by Treemap Arboriculture invalidates the entire report.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the client or their directed representatives, without the prior consent of the Treemap Arboriculture.

7. This report and any values expressed herein represent the opinion of the Treemap Arboriculture consultant and the Treemap Arboriculture fee is in no way conditional upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

8. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural drawings, reports or surveys.

9. Unless expressed otherwise: 1) Information contained in this report covers only those items that were covered in the project brief or that were examined during the assessment and reflect the condition of those items at the time of inspection; and 2) The inspection is limited to visual examination of accessible components without dissection, excavation or probing unless otherwise stipulated.

10. There is no warranty or guarantee, expressed or implied by Treemap Arboriculture, that the problems or deficiencies of the plants or site in question may not arise in the future.

11. All instructions (verbal or written) that define the scope of the report have been included in the report and all documents and other materials that the Treemap Arboriculture consultant has been instructed to consider or to take into account in preparing this report have been included or listed within the report.

12. To the writer's knowledge all facts, matter and all assumptions upon which the report proceeds have been stated within the body of the report and all opinion contained within the report have been fully researched and referenced and any such opinion not duly researched is based upon the writers experience and observations.

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ARBORICULTURAL INSPECTION

AND

REPORT

2–4 The Esplanade, Inverloch

October 2020

Report and Assessment commissioned by:
Michelle McIntyre
Glossop Town Planning
Level 5/111 Cecil St
SOUTH MELBOURNE VIC 3205

Report and Assessment prepared by:

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Total Tree Care
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Table of Contents

Assignment 1

Report Author 1

Method 1

Site Map 2

Observations 3

Photo Guide 3

Summary 6

Appendix A: Arborzone Professional Tree Services
Assumptions and Limiting Conditions 7

Appendix B: Method Rationale 8

Appendix C: Developing a Risk Rating 10

Appendix D: Safe and Useful Life Expectancy (SULE) Ratings 11

Appendix E: General Guidelines for Successful Tree Preservation on Building Sites ... 12

Appendix F: References 14

ARBORZONE
Total Tree Care

Assignment

The aim of this report is to:

- conduct a tree root inspection at the subject site—2–4 The Esplanade, Inverloch
- collect relevant data on the tree roots encountered and assess the possible effects of excavation works related to future development of the site
- recommend remedial works and other management strategies to reduce the risk of damage to the affected trees at the site.

Report Author

This report was authored by Peter Bateman of Arborzone Total Tree Care. Peter has two years' tertiary experience (Ass Dip App Sci Hort, Burnley VCAH 1989–1990, majoring in Arboriculture). He has subsequently had 30 years' professional experience during which he has been working as a consulting and report writing Arborist for the past 20 years.

Peter has worked nationally and internationally and for the past 22 years has worked extensively in Gippsland through his business Arborzone Total Tree Care. Peter has held professional membership of the International Society of Arboriculture (ISA) since 1999, and gained his Tree Risk Assessment Qualifications (TRAQ) during Australia's first intake in 2013, renewing the qualification in 2018.

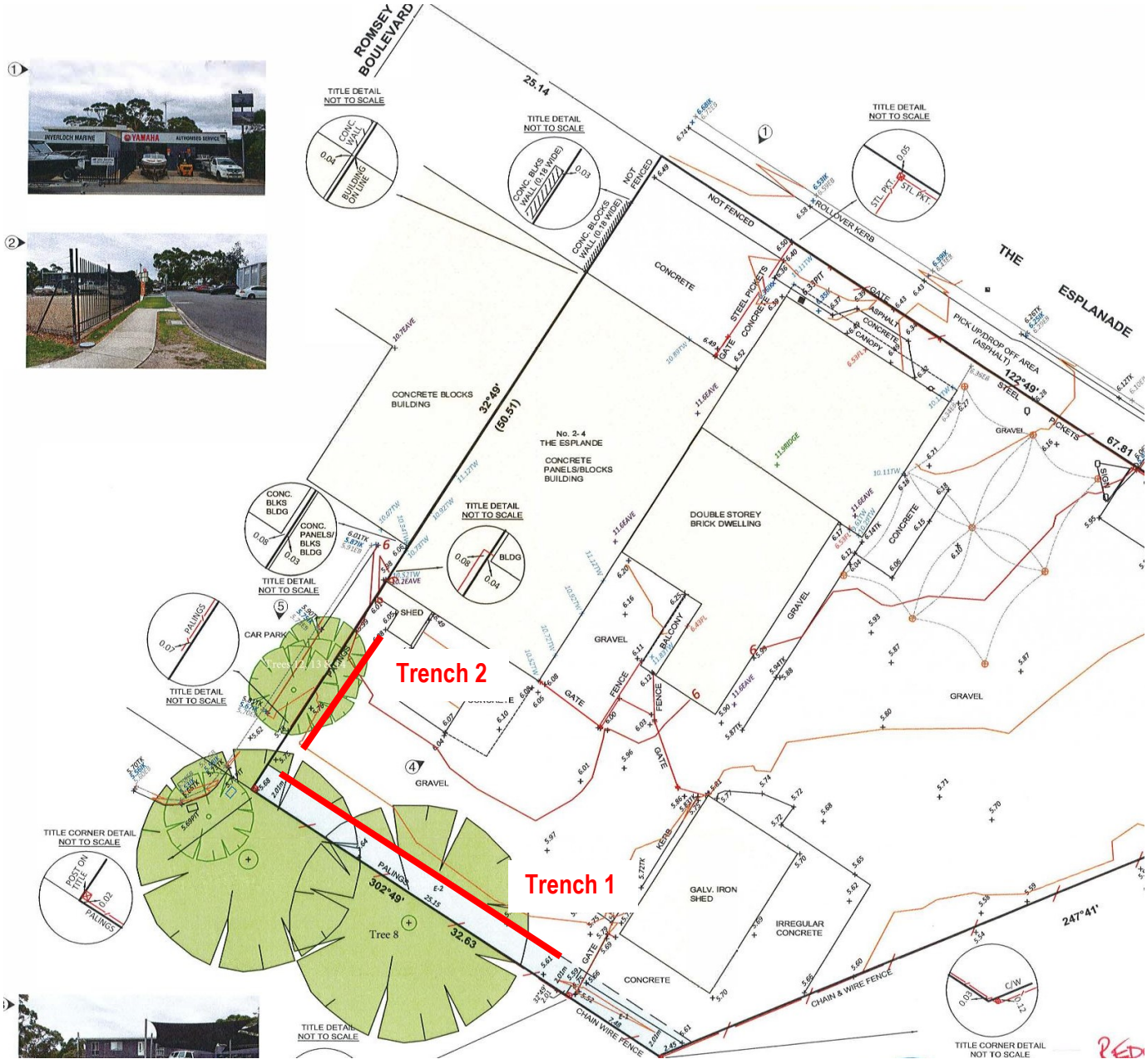
Method

In October 2020, Arborzone's Peter Bateman visited the subject site and carried out a tree root assessment both from ground level and through excavation. Trenches were dug with a small excavator to a depth of 700 mm. Any roots encountered were mapped and measured then left intact and undamaged.

Photos of the works and roots were obtained and located on a site map.

Site Map

2–4 The Esplanade, Inverloch



Observations

The area to be excavated was located in the car park area of an industrial site. The surface was predominantly what is known as 'blue metal' or 'crushed bluestone'.

The trenches were dug to the depth of 700 mm, where a layer of clay began. The typical cross-section of the trenches consisted of car park materials (bluestone/rock) to 300 mm before hitting clay at 400 mm.

Trench 1 ran along the south-west boundary and was 18 metres long. No roots whatsoever were encountered from the large trees in the adjoining council park.

Trench 2 was a similar depth to Trench 1 and approximately 5 m long. Three roots were encountered in this trench; all were approximately 7 mm in diameter.

Photo Guide



Photo 1 Trench 1



Photo 2 Trench 1



Photo 3 Trench 1 showing tree 8 in background

Photo 4- Work site viewed from Ramsay Blvd





Photo 5 Roots encountered in Trench 2



Photo 6 Root located in Trench 2



Photo 7 Roots located in trench 2



Photo 8 Trench 2 with shrubs in background

Summary

The root inspection trenches revealed virtually no roots present in the area examined, therefore excavation and building works can proceed without any further tree protection measures.

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ARBORZONE

Total Tree Care

Appendix A: Arborzone Professional Tree Services

Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good. No responsibility is assumed for matters legal in character.

2. It is assumed that any property/project is not inn violation applicable codes, ordinances, statutes or other government regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified in so far as possible: however, the consultant can neither guarantee nor be responsible for the accuracy of the information provided by others.

4. The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

5. Loss or alteration of any part of this report invalidates the entire report.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the person to whom it is addressed, without the prior written consent of the consultant.

7. Neither all nor any part of the contents of this report, nor any copy thereof, shall be used for any purpose but anyone but the person to whom it is addressed, without the written consent of the consultant; nor shall it be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the written consent of the consultant.

8. This report and any values expressed herein represent the opinion of the consultant, and the consultants' fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports.

10. Unless expressed otherwise:
    - Information contained in this report covers only those items that were examined and reflect the condition of those items at the time of inspection; and
    - Inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee expressed or implied that the problems or deficiencies of the plans or property in question may not arise in the future.

Appendix B: Method Rationale

Age

Young:	20% of life expectancy
Mature:	20-80% of life expectancy
Over mature:	over 80% of life expectancy

Health Status

Good:	Typical vigour and vitality for the species judged on shoot elongation, colour and density of foliage, incremental growth of wound-wood etc.
Fair:	Just below-average vigour and vitality
Poor:	Obvious signs of decline in tree health; well below-average vigour and vitality
Dead:	Tree shows no indication of life

Retention Value

Preservation is focussed on high quality trees with good tolerance for impact during construction. The goal of tree preservation is to have trees remain assets to the site for years to come. The following tree characteristics are sought after when evaluating a tree with a high retention value:

1. ***Tree Health**:* Trees displaying good health and high vigour are better able to withstand the impact and stresses associated with construction eg. root injury, pruning, changes to soil density and moisture levels.
2. ***Tree Structure**:* Trees with poor structure (co-dominant stems, poorly attached limbs, poor taper, decay/cavity, etc.) are inherently predisposed to failure. Only trees with good structure or redeemable structural defects should be considered for retention near high target areas such as dwellings.
3. ***Species**:* Species characteristics such as tolerance to disturbance, origin, rarity and propensity to become weeds are important components on any decision regarding retention.
4. ***Age/Potential Longevity**:* The goal of tree preservation is to have trees remain assets to the site for years to come. Short lived species, such as *Acacia sophorae*, or over-mature trees at the end of their mature life span, do not make good candidates for retention.
5. ***Landscape Impact**:* Is the tree a major asset and contributing to the aesthetic of the surrounding area?
6. ***Location Onsite***: A critical factor, especially on small residential developments.

Structural Condition

Good: No obvious defects which would indicate predictable failure points.

Fair: Moderate levels of defects in structure noted. These defects would be able to be managed through pruning, bracing etc.

Poor: Severe structural defects noted. Generally, trees rated as having poor structures have unmanageable defects and may need to be removed or have their target areas modified.

Appendix C: Developing a Risk Rating

Evaluation of risk was calculated using the 'Bartlett Method' (Smiley, E. T., Fraedrich, B. R., Hendrickson, N. (2002) Tree Risk Management, Charlotte NC, Bartlett Tree Research Laboratories)—a recognised published method. Each tree receives a score out of 15 as the result of multiple site and tree factors being assessed.

Risk Rating Method

The method is basic and capable of being used in large-scale tree data-capture situations. The arborist makes an estimate of tree failure potential and the consequences of failure, including the frequency of occupation of a site based on their experience. Limitations are that the method is not based on quantitative data and is very simple—as such, it should be used as a guide only.

Total Risk Score is derived by the addition of two criteria:

Failure Potential/Defect Severity (F)	**Score**
Critical Risk—Failure imminent	10
High Risk—Failure likely especially in storms	7
Moderate Risk—Failure possible especially in severe storms	4
Low Risk—Failure unlikely	1
Consequence of Failure (C) Considers potential for injury/loss should a failure occur based on such factors as size of defective part, target value and frequency of use	
Severe Consequence	5
Moderate Consequence	3
Low Consequence	1
Total Risk Rating (= F + C)	

13–15	Critical Risk: Failure imminent; Personal Injury and/or property damage inevitable (lower end of scale indicates lower potential for injury)
10–12	High Risk: Failure likely especially during storms; Personal injury and/or property damage likely (lower end of scale indicates lower potential for injury/property damage)
7–9	Moderate Risk: Failure unlikely, and/or high risk of failure but low risk of property damage/personal injury
<7	Low Risk: Failure unlikely and low risk of property damage

Appendix D: Safe and Useful Life Expectancy (SULE) Ratings

Rating	Sub-Rating	Description
1	**LONG SULE—Retainable for more than 40 years with an acceptable level of risk**	
	A	Structurally sound trees which are located in positions that can accommodate future growth
	B	Storm damaged or defective trees which could be made suitable for retention in the long term by remedial tree surgery
	C	Trees of special significance for historical, commemorative or rarity reasons which would warrant extraordinary efforts to secure long term retention
2	**MEDIUM SULE—Retainable for 15–40 more years with an acceptable level of risk**	
	A	Trees which may only live between 15–40 more years
	B	Trees which may live for more than 40 years but would be removed during the course of normal management for safety or nuisance reasons
	C	Trees which may live for more than 40 years but would be removed to allow the safe development of more suitable individuals
	D	Storm damaged or defective trees which can be made suitable for retention in the medium term by remedial work
3	**SHORT SULE—Trees that appeared to be retainable at the time of assessment for 5–15 years with an acceptable level of risk**	
	A	Trees which may only live between 5–15 years
	B	Trees which may only live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons
	C	Trees which may live for more than 15 years but would be removed to allow the safe development of more suitable individuals
	D	Storm damaged or defective trees which require substantial remedial work to make safe, and are only suitable for retention in the short term
4	**REMOVE—Trees that should be removed within the next five years**	
	A	Dead trees
	B	Dying or suppressed or declining trees through disease or inhospitable conditions
	C	Dangerous trees through instability or recent loss of adjacent trees
	D	Dangerous tree with defects including cavities, decay, included bark, wounds or poor form
	E	Damaged trees which are considered unsafe to retain
	F	Trees which will become dangerous after removal of other trees for the reasons in (A) to (E)
5	**Young or Small Trees**	
	A	Trees which are less than 5 metres in height
	B	Trees which are over 5 metres in height but less than 15 years old
	C	Trees which have been regularly pruned to artificially control growth
	D	Trees or Palms which can be transplanted easily

Appendix E: General Guidelines for Successful Tree Preservation on Building Sites

Minimising Impacts on Tree Health

Establish a Tree Protection Zone (TPZ):

- Erect a fence around the TPZ prior to construction.
- To help the tree absorb any negative impacts from the development it is recommend the area within the TPZ is mulched to a depth of 100 mm and irrigated during the drier months to compensate for construction related stress.
- If excavation occurs alongside the TPZ, care should be taken to dig carefully. Any roots encountered should be cut cleanly with a sharp handsaw, not ripped up with an excavator.
- If incursions within the TPZ have to occur, an arborist should be on-site to advise on root pruning, etc.
- If incursion into the TPZ is needed for design purposes, the designer should consult with an experienced arborist to ensure materials and building techniques are sympathetic to the tree's needs are used and implemented.
- Risk reduction: Building close to mature trees increases the tree's target ratings and increases their hazard rating (Matheny & Clark 1998). These risks can usually be managed and brought to an acceptable level of risk. All pruning works should be carried out by competent, experienced and qualified arborists.

Table 1: Calculating Optimal Tree Protection Zones

DBH (cm)	Distance from trunk per unit trunk diameter	Age	Species tolerance	Optimal Tree Protection Zone (metres)
61	.15	Mature	Poor	9.15
61	.12	Mature	Moderate	7.32
61	.09	Mature	Good	5.49

Table 1 demonstrates the Optimal Tree Protection Zone for tree with a 61 cm diameter. Good, Moderate and Poor tolerance values have been used to illustrate the different outcomes obtained, depending on the species' tolerance rating.

Establish a Critical Root Zone (CPZ):

Another useful guide for determining spatial requirements for trees is Mattheck's 'Formula to Determine Critical Root Zone (CRZ)' (Mattheck & Bethge 2000). The CRZ is the root area required by the tree to maintain its structural integrity. Again, using a tree with a 61 cm diameter as an example:

Mechanical Effective Root Plate = (radius @ base of tree) $^{0.42}$ x 64

Δ 36 $^{0.42}$ x 64 = 2.88 m (radius from trunk) C.R.Z

Appendix F: References

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Map supplied by client, October 2020