DAVID PENSINI
Building Certification and
Environmental Services

BUSHFIRE HAZARD ASSESSMENT

PROPOSED RESIDENTIAL FLAT BUILDING INCORPORATING STRATA TITLE SUBDIVISION

LOT 1 DP 538077, LOT 2 DP 538077, LOT A DP 441800 & LOT 101 DP 1244390, 10 - 13 PACIFIC DRIVE PORT MACQUARIE

CLIENT:
LAURUS PROJECTS PTY LTD

JANUARY 2021

51 Owen Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
ABN 55 183 050 741

This report has been prepared by David Pensini - Building Certification and Environmental Services with all reasonable skill, care and diligence for Laurus Projects Pty Ltd.

The information contained in this report has been gathered from discussions with representatives of Laurus Projects Pty Ltd, a review of the plans provided by Laurus Projects Pty Ltd
.

No inspection or assessment has been undertaken on other aspects of the proposed development outside the scope of this report.

This report does not imply, nor should it be implied, that the proposed building design will comply fully with relevant legislation.

The report shall not be construed as relieving any other party of their responsibilities or obligations.

David Pensini - Building Certification and Environmental Services disclaims any responsibility to Laurus Projects Pty Ltd and others in respect of any matters outside the scope of this report.

The report is confidential, and the writer accepts no responsibility of whatsoever nature, to third parties who use this report, or part thereof is made known. Any such party relies on this report at their own risk.

For and on behalf of David Pensini - Building Certification and Environmental Services.

Prepared by: *David Pensini*

Signed:

Dated: *12th January 2021*

Version	**Date**	**Information relating to report**			
1.0	4th January 2021		Draft		
2.0	12th January 2021		Issued to Client		
			Prepared by	**Verified by**	**Approved by**
		Name	David Pensini		David Pensini
		Signature			

Table of Contents

1.0 INTRODUCTION

The four (4) lots which comprise the subject site are currently known as Lot 1 DP 538077, Lot 2 DP 538077, Lot A DP 441800 and Lot 101 DP 1244390, 10 – 13 Pacific Drive, Port Macquarie.

It is proposed to construct a six (6) storey residential flat building development on the subject site which contains approximately seventy (70) residential units together with basement level carparking. It is also proposed to subdivide the proposed development so as to create separate Strata Title lots which will enable the separate ownership and occupation of each of the proposed residential units.

The report is based on a detailed site assessment carried out on 5th January 2021.

This report is to demonstrate that the bushfire risk is manageable for the proposed residential flat building development and associated Strata Title subdivision and to determine the bushfire protection management measures which would be applicable to the subject site and proposed residential flat building development.

The development is an integrated development, by way of the proposed subdivision, and has a requirement for a Bush Fire Safety Authority under Section 100B of the *Rural Fires Act 1997*.

NOTE

The report has been prepared with all reasonable skill, care and diligence.

The information contained in this report has been gathered from field survey, experience and has been completed in consideration of the following legislation.

- Rural Fires Act 1997.
- Environmental Planning and Assessment Act 1979.
- National Construction Code.
- Council Local Environment Plans and Development Control Plans where applicable.
- NSW Rural Fire Services, Planning for Bushfire Protection, 2019.
- AS 3959 - 2018 Construction of Buildings in Bushfire Prone Areas

The report recognizes the fact that no property and lives can be guaranteed to survive a bushfire attack. The report examines ways the risk of bushfire attack can be reduced where the site falls within the scope of the legislation.

The report is confidential, and the writer accepts no responsibility of whatsoever nature, to third parties who use this report or part thereof is made known. Any such party relies on this report at their own risk.

This report has been based upon the vegetation characteristics observed at the time of site inspection. No responsibility is taken where the vegetation characteristics of the subject site or surrounding areas is changed or modified beyond that which is presented within this report.

1.1 Objectives

The objectives of this report are to:

- Ensure that the proposed residential flat development of the subject site has measures sufficient to minimize the impact of bushfires; and

- Reduce the risk to property and the community from bushfire.

1.2 Legislative Framework

On 1st August 2002 the Environmental Planning and Assessment Act, 1979, and the Rural Fires Act, 1997, were both amended to enhance bush fire protection in NSW through the development assessment process.
In broad terms, the planning considerations provide two main steps. These involve:

(i) Strategic Planning through;

- the mapping of bush fire prone;
- determining suitable bush fire requirements during the preparation of a Local Environmental Plan/Development Control Plan; and
- the identification of the extent to which land is bushfire prone.

(ii) Development assessment through;

- obtaining a bush fire safety authority for residential or rural-residential subdivision and special fire protection purpose developments in bushfire prone areas from the Rural Fire Service (RFS); and

- seeking advice from the RFS in relation to infill and other developments in bushfire prone areas that cannot comply with the requirements of NSW Rural Fire Service**,** ***Planning for Bushfire Protection***, 2019; and

- the application of additional requirements of the National Construction Code (NCC) in relation to construction standards for Class 1, 2, 3, 4 and some Class 9 buildings in bushfire prone areas.

It is noted that this report focuses upon the development assessment processes associated with the proposed residential flat building development on the subject site which includes the Strata Title subdivision of each of the proposed residential apartments. In this regard due to the proposed subdivision of the subject site, the proposed development is an integrated development and has a requirement for a Bush Fire Safety Authority under Section 100B of the *Rural Fires Act 1997*.

As per the NSW Rural Fire Service's Fast Fact of 01/10 all development on bushfire prone land in NSW should comply with the requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019.

This report therefore examines the relevant provisions of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019 to determine the bushfire protection measures required to be implemented in conjunction with the residential flat building development on the subject site.

1.2.1 Provisions Applying to Residential Flat Buildings

It is noted that Chapter 8 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019 provides that;

Buildings exceeding three storeys in height are considered to be multi-storey buildings. The rise in storeys shall be calculated as per the definition in Volume 1 of the NCC 2019. A residential flat building under the meaning within the Standard Instrument LEP is a multi-storey building in the context of PBP.

Multi-storey buildings are required to comply with the performance criteria within Chapter 5, including the requirement for an APZ which meets a threshold of 29kW/m². There are additional considerations associated with multi-storey residential buildings and the key issues are as follows:

- *Population - higher resident densities can pose issues for emergency management;*
- *Location – bush fire impacts can be increased where high rise buildings are located in higher elevations or on ridge tops;*

- *Egress - is more challenging and places an increased demand on road infrastructure during evacuation;*
- *Construction - there is a higher external façade surface area that may be exposed to bush fire attack and: car and storage facilities on the ground level can provide an additional fuel loading; balconies and external features can easily trap embers which can ignite combustible materials.*
- *Height -the height can result in increased exposure to convective heat.*

As the proposed building which is the subject of this report has a National Construction Code rise in storey of six (6) the performance criteria of Chapter 5 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019 are relevant to the proposed development albeit that the scale of the proposed development would be at the lower end of 'multistorey' development.

In addition to the requirements in Chapter 5, the following table provides the considerations for multistorey buildings in bush fire prone areas to ensure that the design of a building adequately addresses bush fire risk.

Table 8.2.2

Issues and considerations specific to multi-storey residential development.

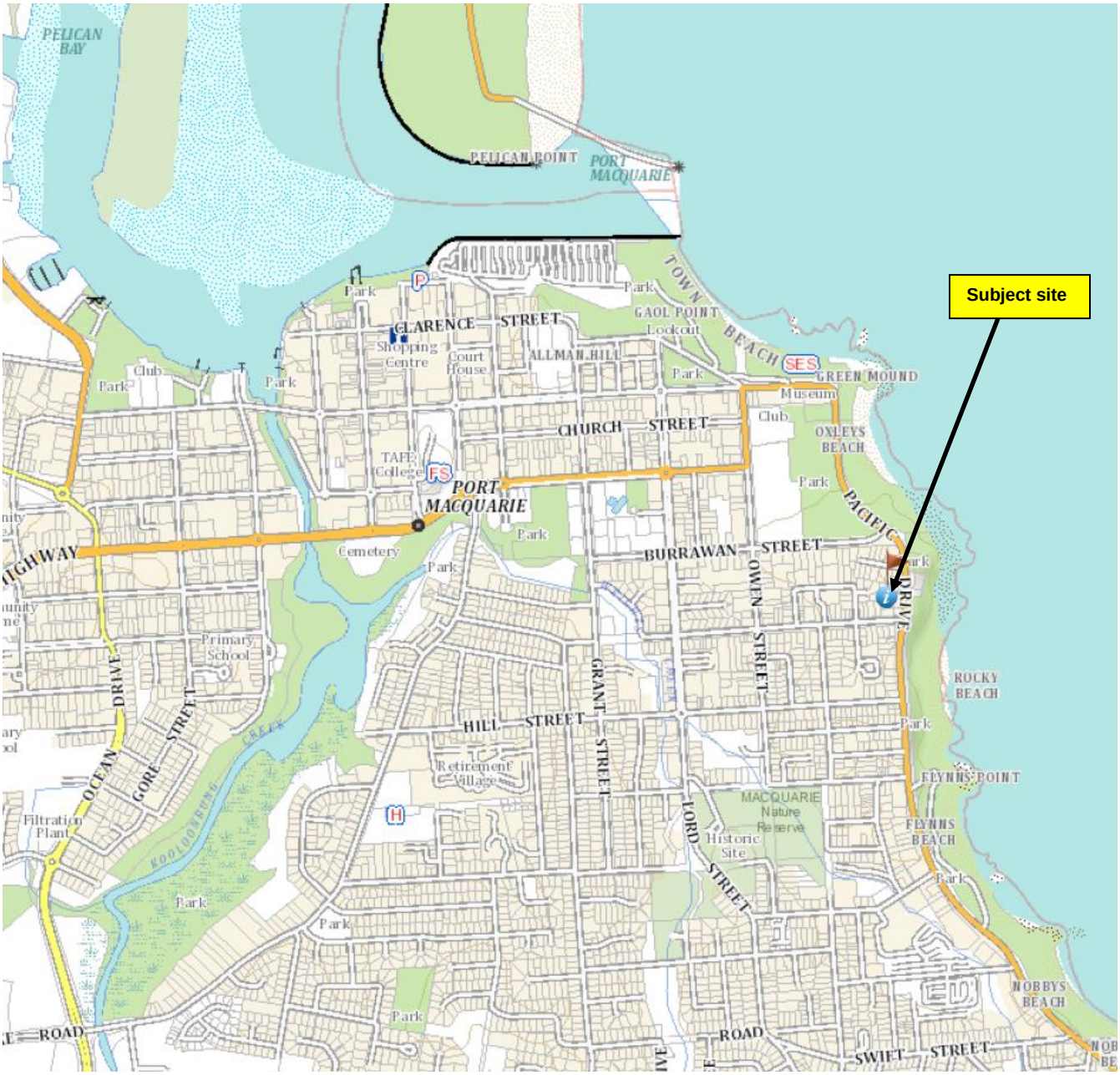
ISSUE	SPECIFIC CONCERN	TECHNICAL CONSIDERATIONS
Population	› Impact on existing community and infrastructure.	› What capacity does the existing infrastructure have to allow evacuation of existing and proposed residents in the event of a bush fire?
Location of Building	› Locating on ridge tops emphasises the risk of convective plume interaction and wind related impacts.	› Can the building be located away from ridge tops to areas that have a reduced bush fire exposure? › If unavoidable, what is the impact on the risk to the building? › Is this risk appropriate for the building and occupant numbers?
Design Fire	› Different elements of the flame could have different impacts on different levels of the building; and › The whole building could be impacted by ember attack and multiple floors could be alight simultaneously.	› What are the flame dimensions, including the flame angle? › Where is the hottest part of the flame located? How would this impact on the proposed building? › How would the warning and suppression systems in the building cope with this?
Egress	› Elevations exposed to bush fire risk.	› How does the emergency evacuation procedure take account of the location of bush fire prone vegetation?
Building construction	› Performance of the building façade in a bush fire scenario. › Balconies may contain external features which could ignite and contribute to building ignition and fuel loads.	› What wall and cladding materials are proposed and what is proposed for the openings/penetrations (i.e. windows and doors)? › How does the proposed building construction deal with fire spread from the vegetation to the inside of the building? › Is compliance with AS 3959 sufficient to ensure that the bush fire risk is mitigated? › Is this appropriate for the design fire scenario? › Are there balconies proposed? › What may be stored on the balconies? › Can there be restrictions on what is stored on the balconies due to fire risk?
Car Parking	› Lower storey car park could be subject to ember attack and high radiant heat loads.	› Is the warning and suppression system designed to take account of bush fire impact? › Where are exits located? Are they guiding occupants away from the car park?
Other Considerations	› Access for fire fighters may be restricted or challenging; and › Risk implications of floor to floor fire spread.	› What would this mean for fire suppression? › How would warning and suppression systems take account of this? › What would this mean for evacuation?

1.3 Location and Site Description

The subject site is known as Lot 1 DP 538077, Lot 2 DP 538077, Lot A DP 441800 and Lot 101 DP 1244390, 10 – 13 Pacific Drive, Port Macquarie and is situated within the Port Macquarie-Hastings local government area.

The subject site is located approximately 1.2km to the southeast of Port Macquarie Central Business District (CBD) within the Rocky Beach residential area which has a coastal context and setting. The general location of the area that is the subject of this report can be seen in **Figure 1** below.

Figure 1 - Site Location



Being located within a historic residential area of Port Macquarie land within this locality has and will continue to reflect a mix of residential and tourist accommodation land uses with developed land extending to the north, south and west of the subject site with the vegetated escarpment and foreshore reserve associated with the Rocky Beach coastal zone present beyond the Pacific Drive road reserve to the east.

The closest Rural Fire Service, (Port Macquarie Fire Service), is located approximately 3.4km to the southwest of the subject site and the closest fire control centre is located at Wauchope.

1.4 Site History

The subject site is irregular in shape and currently comprises a four (4) separate Torrens Title lots with a site area of approximately 4,637.3m^2, refer to **Figure 2**.

Figure 2 – Subject Site

The subject site currently contains a two (2) storey motel building which is located in the northern portion of the subject site with the remaining areas of the subject site being generally vacant of improvements apart from boundary fencing and some historical retaining walls; refer to **Appendix 1**.

Existing motel building in the northern portion of the subject site

Existing boundary fencing and retaining walls on the subject site

The subject site is located on the southern side-slopes of a small hill the crest of which is located to the north of the subject site. The hill feature separates the Town Beach residential area from the Rocky Beach area. It is also noted that the foreshore escapement of Rocky Beach which is present to the east of the subject site also influences the topography of the area with undulating slope conditions along the crest of the escarpment transitioning to steep easterly downslope conditions towards the beach and ocean whilst westerly downslopes extend to the west of the Pacific Drive road reserve. The various topographical features of the area provide for undulating landform in the locality.

The southerly side slopes of the small hill to the north of the subject site are the dominant topographical feature of the subject site and surrounding land with gentle north to south down slopes ranging from 4˚ up to 8˚. It is noted that the topography of the subject site has been altered with historical 'benching' of the subject site facilitating the construction of the existing motel and associated infrastructure whilst the presence of retaining walls reflects further landform alteration in the vacant areas of the subject site. A gentle east to west cross fall is also present over the subject site and adjoining and adjacent land. Generally, slope conditions to the west of the subject site are gentler with slope conditions becoming flatter with distance to the east whilst steeper slopes are present to the east of the subject site.

The northern, southern and western boundaries of the subject property adjoin developed residential allotments and associated public infrastructure whilst to the east of the subject site is the Pacific Drive road reserve with a transition to the vegetated foreshore reserve associated with the Rocky Beach coastal zone.

Access to the subject site is provided by way of frontage to Pacific Drive which adjoins the subject site immediately to the east.

Vegetation on the subject site consists of a mixture of managed vegetation consisting of lawns and landscaping and grasses with managed vegetation located on the developed residential lots to the north, south and west of the subject site. Areas of Rainforest and Coastal Heath vegetation are present within the Rocky Beach foreshore reserve and coastal escarpment which extends to the east of the Pacific Drive road reserve.
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The area of land within the subject site has a current Medium Density Residential (R3) land use zoning with similarly zoned land to the northeast, south and immediately adjacent to the east, (Pacific Drive road reserve). Residentially zoned land (R1) extents to the northwest and west whilst beyond the Pacific Drive road reserve to the east, the land use zoning transitions to

a combination of Public Recreation (RE1) and Environmental Management (E2), refer to **Figure 4** below.

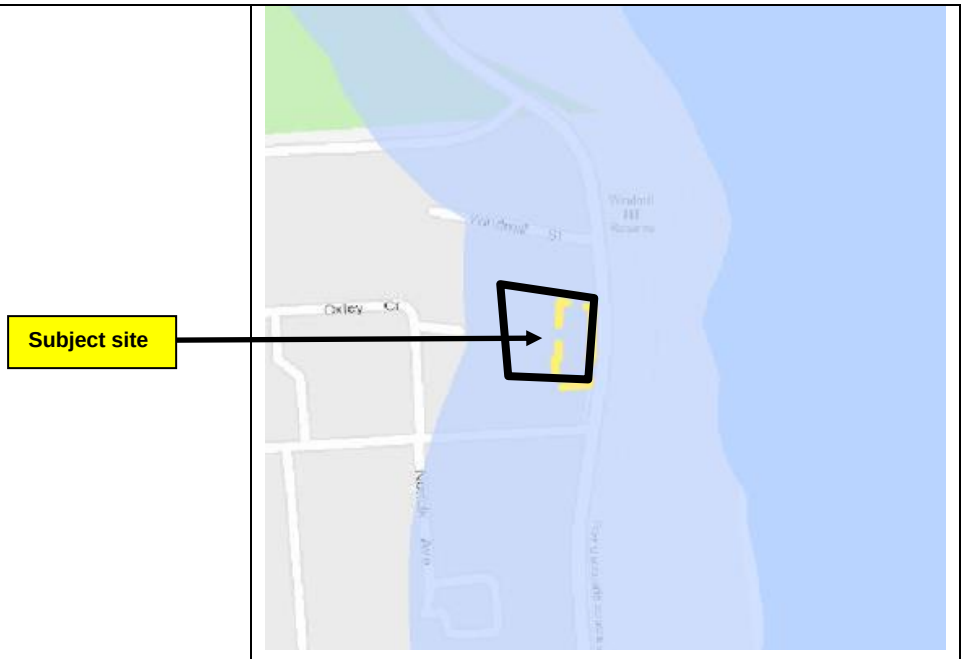
Figure 4 – Land Use Zoning

Fire has not recently occurred on the subject site or on adjoining and adjacent land.

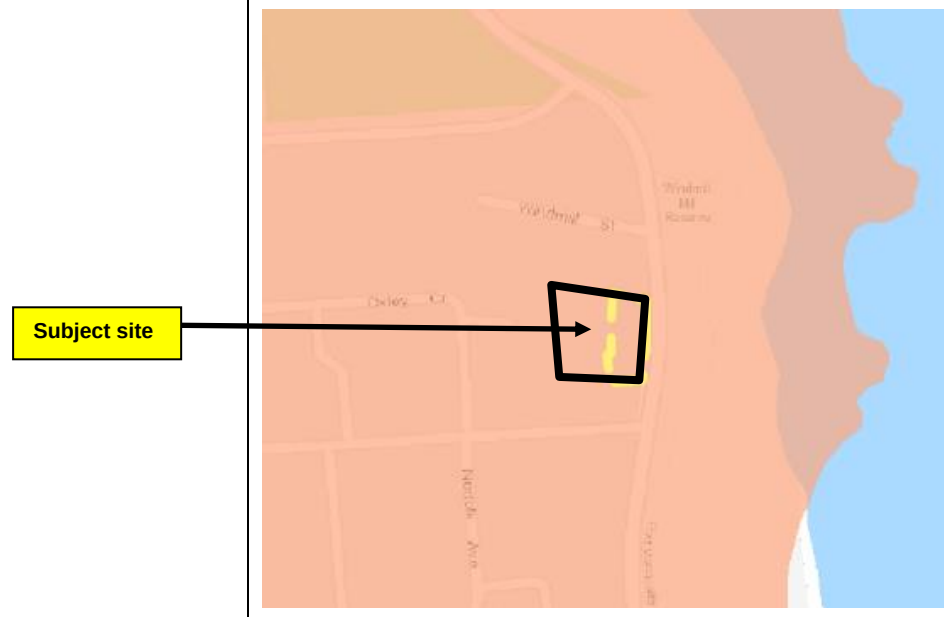
The environmental and heritage features of the area of the subject site which forms the basis of this report are summarized as follows;

Table 1 – Environmental and Heritage Features

ENVIRONMENTAL/HERITAGE FEATURE	COMMENT
Riparian Corridors	The subject site does not contain any identified riparian corridors although a very narrow riparian corridor is present to the west.
SEPP (Coastal Management), 2018	The subject site is subject to the provisions of the SEPP. In this regard the subject site is within the buffer zone to Littoral Rainforest and is within the Coastal Use and Coastal Environment Areas of the SEPP



Coastal Environment Area Mapping



Coastal Use Area Mapping

	 ***Littoral Rainforest Area and associated buffer zone***
SEPP - Koala Habitat Protection	For the purposes of this report, it has been assumed that the provisions of the SEPP's are not applicable in relation to the proposed development given the highly disturbed and modified floristic characteristics which are present.
Areas of geological interest	The subject site is not identified as potentially containing Acid Sulphate Soils in accordance with Port Macquarie - Hastings Local Environmental Plan, 2011. Based upon previous land use it is expected that no land contamination issues will be relevant to the ongoing industrial use of the subject site.
Environmental Protection Zones	The subject site is currently zoned Medium Density Residential (R3), refer to **Figure 3** above.
Land slip	Given the topography of the subject site and surrounding areas land slip is not considered to be an issue for the subject site.
Flood prone land	The subject site is not identified as being flood prone land and as such the land is not affected by the probable maximum flood level. As such the flood planning provisions of Port Macquarie-Hastings Councils LEP, 2011 are not applicable to the subject site and proposed development.
National Park Estate or other Reserves	The subject land does not form part of the National Park Estate or other Reserves.
Threatened species, populations, endangered ecological communities and critical habitat	Given the level of historic disturbance of the subject site no threatened flora or fauna species are expected to be present on the subject site.
Ecologically Endangered Communities (EEC's)	The presence of EEC's on the subject site requires specific assessment. Given the level of historic disturbance of the subject site no EEC's are expected to be present on the subject site.

OEH Key Habitats and Corridors	The presence of OEH key habitats and corridors on the subject site requires specific assessment. Given the level of historic disturbance of the subject site key habitats and corridors are not expected to be present on the subject site.
Aboriginal Heritage	Items of aboriginal heritage are unlikely to be present given the active vegetation modification and management which has occurred on the subject site and the level of site disturbance which is likely to have occurred over the years.

1.5 Development Proposal

It is proposed to construct a six (6) storey residential flat building development on the subject site which will contain approximately seventy (70) residential units with dedicated car parking by way of designated basement car parking levels within the proposed development, refer to **Appendix 2**. .

It is also proposed to subdivide the proposed development so as to create separate Strata Title lots which will enable the separate ownership and occupation of each of the proposed residential units.

Having a rise in storey of six (6) in accordance with the NCC provides that the construction of the subject building will incorporate materials which are generally noncombustible with specific Fire Resistance Levels (FRL's) applicable to the major construction elements of the building so as to provide for a recognized resistance to the spread of fire to, from and within the proposed building.

Pedestrian and vehicle access to the proposed development will be gained off Pacific Drive which adjoins the subject site along the eastern boundary of the subject site. Onsite car parking and manoeuvring will be accessed by an internal driveway which will connect directly with Pacific Drive.

1.6 Fauna and Flora Issues

A fauna and flora evaluation has not been undertaken in conjunction with this bushfire hazard assessment and as such issues pertaining to fauna and flora are outside the scope of this report.

2.0 BUSHFIRE HAZARD ASSESSMENT

2.1 Assessment Methodology

Several factors need to be considered in determining the bushfire hazard for the subject site. These factors are slope, vegetation type, and distance from hazard, access/egress and fire weather. Each of these factors has been reviewed in determining the bushfire protection measures which are applicable to the subject site and proposed development.

An assessment of the slopes and vegetation structures on and surrounding the subject site was carried out by David Pensini - Building Certification and Environmental Services on 5th January 2021.

The assessment of slope and vegetation being carried out in accordance with Appendix 1 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019.

2.2 Hazard Vegetation

Bushfire Prone Land Risk Mapping of the area provides that the subject site is located within the 100m buffer zone to Category 1 vegetation which is located to the east of the subject site; refer to **Figure 4**.

Figure 4 - Bushfire Prone Land Mapping

The inspection of the subject site confirmed the presence of the vegetation to the east however the categorization of the vegetation in the eastern aspect as being Category 1 was considered to be highly conservative with fragmented and disturbed areas of managed grassland, Coastal Heath and Rainforest dominating the vegetation characteristics in this aspect. The presence of a number of rocky outcrops along the coastal escarpment significantly reduces the fuel loads with the areas of vegetation which is directly exposed to coastal wind and salt spray with vegetative foliage cover, continuity and density reduced.

2.3 Slope Assessment

Slope is a major factor to consider when assessing the bushfire hazard of the proposed subdivision. Therefore, the slope of the subject site and surrounding area, (to a distance of 100m), was measured using a Suunto PM-5/360 PC Clinometer.

The hazard vegetation on the subject site and adjacent and adjoining land was identified and the slopes within the vegetation measured.

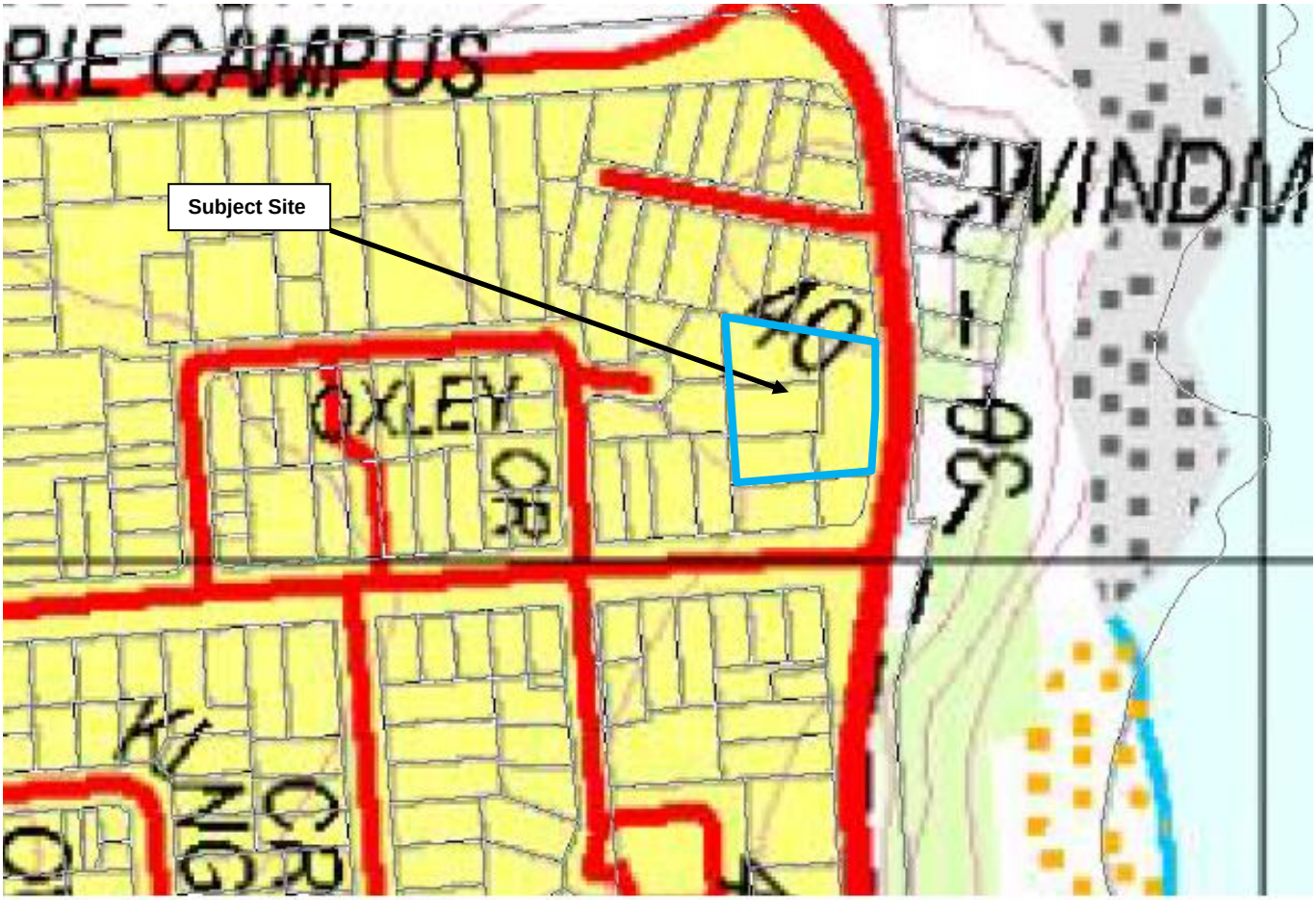
The subject site is located on the southern side-slopes of a small hill the crest of which is located to the north of the subject site. The hill feature separates the Town Beach residential area from the Rocky Beach area. It is also noted that the foreshore escapement of Rocky Beach which is present to the east of the subject site also influences the topography of the area with undulating slope conditions along the crest of the escarpment transitioning to steep easterly downslope conditions towards the beach and ocean whilst westerly downslopes

extend to the west of the Pacific Drive road reserve. The various topographical features of the area provide for undulating landform in the locality.

The southerly side slopes of the small hill to the north of the subject site are the dominant topographical feature of the subject site and surrounding land with gentle north to south down slopes ranging from 4˚ up to 8˚. It is noted that the topography of the subject site has been altered with historical 'benching' of the subject site facilitating the construction of the existing motel and associated infrastructure whilst the presence of retaining walls reflects further landform alteration in the vacant areas of the subject site. A gentle east to west cross fall is also present over the subject site and adjoining and adjacent land. Generally, slope conditions to the west of the subject site are gentler with slope conditions becoming flatter with distance to the east whilst steeper slopes are present to the east of the subject site.

The topographic features of the subject site and adjoining land are shown in **Figure 5** below;

Figure 5 – Topographic Features



Given the nature of the proposed development, the determination of slope conditions was focussed upon identifying the worst-case slope conditions which would be relevant to bushfire attack for the proposed development.

The following table indicates the worst-case slopes which have been adopted for the purposes of this bushfire hazard assessment.

Table 2 – Hazard Vegetation Slopes

HAZARD	SLOPE RANGE	UPSLOPE/DOWN SLOPE
East	>20˚	Down slope

The slopes identified in **Table 2** above were considered when assessing the required Asset Protection Zones and Bushfire Attack Levels for the proposed residential flat building development.

2.4 Vegetation Assessment

The vegetation on and surrounding the subject site was assessed over a distance of 140m from the proposed development.

The vegetation formations were classified using the system adopted as per Keith (2004) and in accordance with Appendix 1 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019.

2.4.1 Vegetation within Subject Site

Vegetation on the subject site consists of a mixture of highly managed vegetation consisting of lawns and landscaping and grasses.

Managed vegetation in area of existing motel development on the subject site

Grasslands over the central and southern portions of the subject site

Given the nature of the proposed development no areas of hazard vegetation will be present on the subject site.

2.4.2 Vegetation on Adjoining and Adjacent Land to Subject Site

Managed vegetation including scattered and clusters of trees and landscaping associated with developed residential developments to the north, south and west of the subject site. Accordingly, no areas of bushfire hazard vegetation were identified within 140m to the north, south or west of the subject site.

Existing residential development to the north of the subject site

Existing residential development to the south of the subject site

Historic residential development extending to the west of the subject site

The Pacific Drive road reserve is present immediately to the east of the subject site before a transition to areas of managed Grassland, Rainforest and Tall Coastal Heath vegetation which are present within the Rocky Beach foreshore reserve which extends to the east of Pacific Drive. In adopting a conservative approach to bushfire hazard assessment, a Tall Coastal Heath specification has been adopted for this area of vegetation albeit that a Rainforest specification could be justified on the basis that;

- Significant areas of Rainforest vegetation are present to the northeast and southeast; and
- The presence of a number of rocky outcrops along the eastern side of the coastal escarpment which significantly reduces the continuity and density of vegetation in this

area with fuel loads significantly reduced from that which would be expected for more intact Tall Coastal Heath vegetation communities; and

- The areas of which are present along the coastal escarpment which are directly exposed to coastal wind and salt spray is significantly impacted upon in terms of foliage cover and density; and
- The fragmented and disconnected nature of vegetation which is present along the escarpment.

Rocky coastal escarpment with disturbed and fragmented areas of coastal heath vegetation

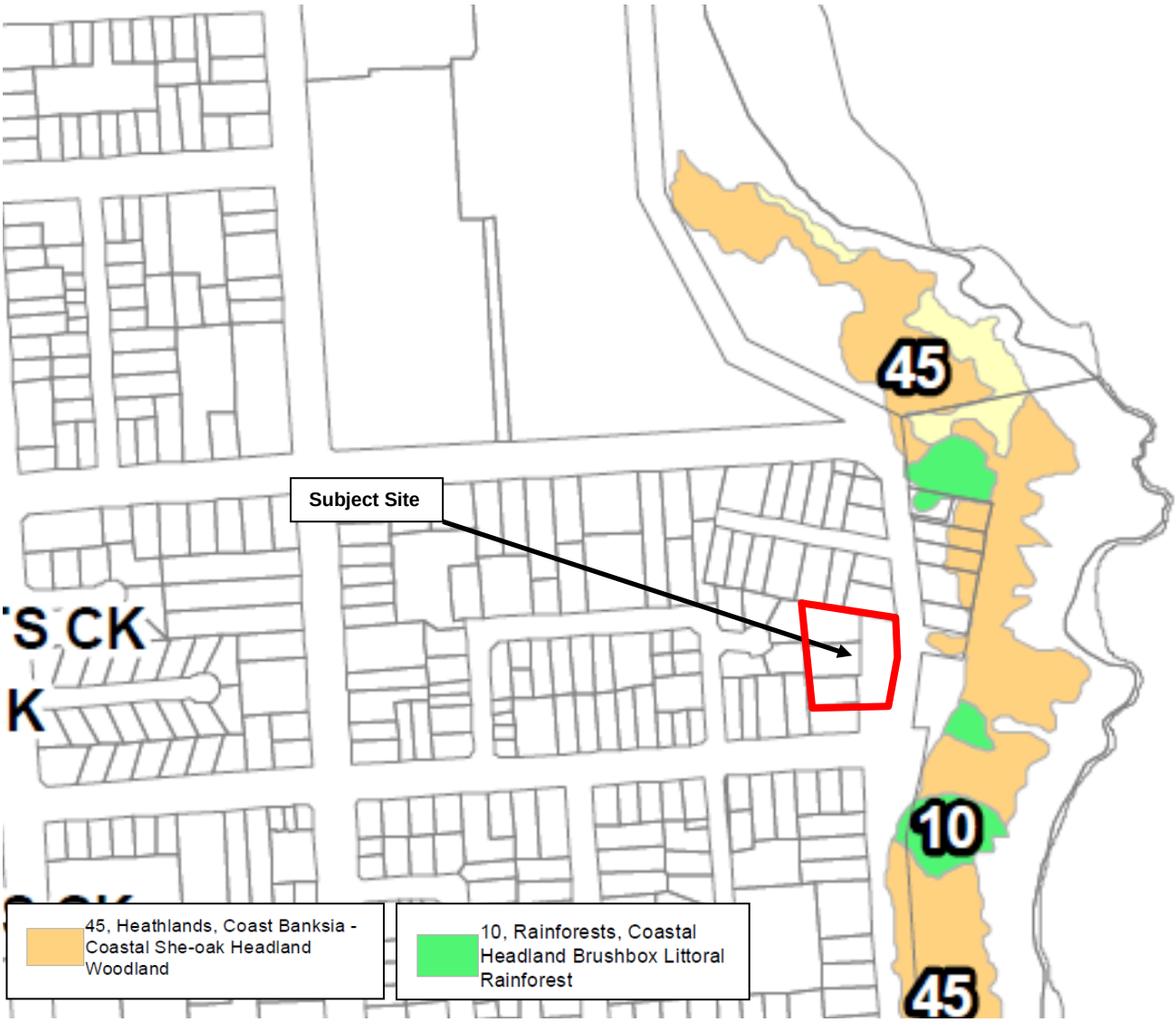
Tall Coastal Heath vegetation along the top of the coastal escarpment

Rainforest vegetation to the south east of the subject site

Managed grasslands and landscaping within active use public reserve –to the north east of the subject site

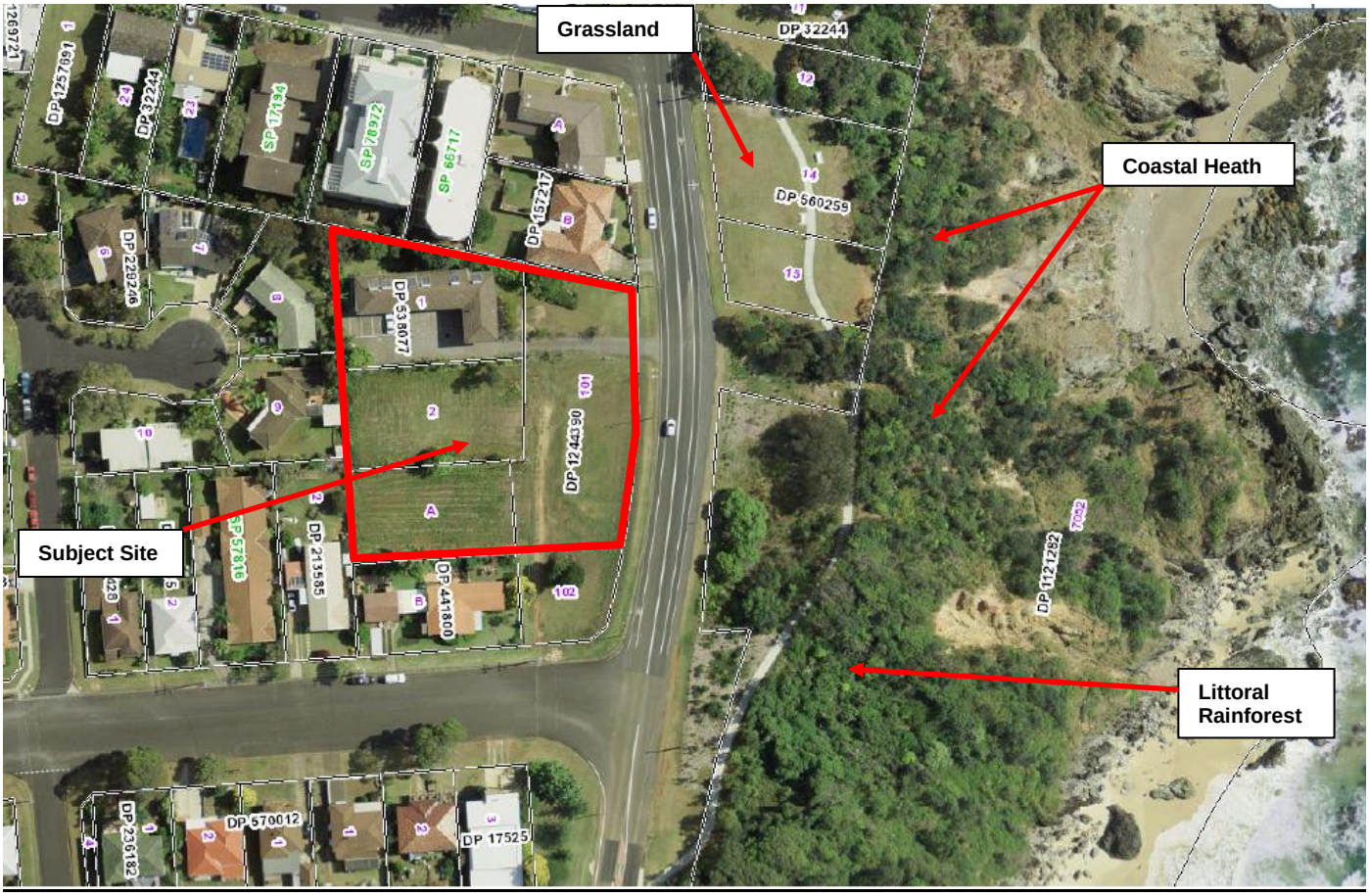
The classification of vegetation in the eastern aspect is consistent with vegetation mapping for the area which is shown in **Figure 6** below;

Figure 6 – Extract from PMHC Vegetation Mapping (2013)



An indication, by way of aerial photo, of the relationship of the vegetation of bushfire significance to the proposed residential flat building development, is also provided as follows;

Figure 8 – Aerial Photo of Subject Site



The following table summarizes the worst-case vegetation structures which are of bushfire significance and have been adopted for the purposes of this report.

Table 3 – Summary of Vegetation Characteristics

ASPECT	VEGETATION DESCRIPTION	VEGETATION CLASSIFICATION – (Keith, 2004)
East	Tall Coastal Heath and Rainforest vegetation to the east of the Pacific Drive road reserve	Similar in specification to Tall Coastal Heath

2.5 Fire Danger Index

The fire weather for the subject site is assumed on the worst-case scenario.

In accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019, NSW Rural Fire Service, ***NSW Local Government Areas FDI*****,** May 2017 and Table 2.1 of AS 3959 - 2018, the fire weather for the site is based upon the 1:50 year fire weather scenario and has a Fire Danger Index (FDI) of 80.

3.0 BUSHFIRE THREAT REDUCTION MEASURES

The following bushfire issues and constraints have been identified through considering the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 in relation to the proposed development.

In order to reduce the bushfire threat, it is suggested the following measures be included in any strategy developed for the proposed residential flat building development.

In this regard Section 8 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 provides that multi-storey buildings are required to comply with the performance criteria within Chapter 5, including the requirement for an APZ which meets a threshold of 29kW/m².

An assessment of the proposed developments compliance with the performance requirements of Chapter 5 is provided as follows.

3.1 Asset Protection Zones

To ensure that the aims and objectives of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 are achieved for the proposed residential flat development, an Asset Protection Zone (APZ) between the asset and the hazard should be provided.

The APZ provides for; minimal separation for safe firefighting, reduced radiant heat, reduced influence of convection driven winds, reduced ember viability and dispersal of smoke. The APZ consists of an Inner Protection Area (IPA) and Outer Protection Area (OPA). The IPA is an area closest to the buildings that incorporates defendable space and is used for managing heat intensities at the building surface. The OPA is positioned adjacent to the hazard and the purpose of the OPA is to reduce the potential length of flame by slowing the rate of spread, filtering embers and suppressing the crown fire.

Chapter 5 of NSW Rural Fire Service**,** ***Planning for Bushfire Protection*****,** 2019 provides the performance requirements and acceptable solutions that must be complied with in relation to the provision of APZ's for the proposed residential flat building development. The following table indicates the minimum 'Deemed to Satisfy' Asset Protection Zones required from the identified areas of bushfire hazard vegetation to the proposed development and order to comply with the relevant performance requirements for the provision of APZ's.

Table 4 - Asset Protection Zone Requirements (PfBP 2006)

Direction of Hazard	Vegetation Type	Slope	IPA	OPA	Total APZ Required	Minimum APZ Achievable to Development	Compliance with Minimum APZ Requirements
East	Tall Coastal Heath	>20˚ Down slope	25m	-	25m	Approximately 36m – 41m	✔

It is considered that the minimum Asset Protection Zones for the proposed development **can** be provided in compliance with the acceptable solutions contained in Section 5.1.3 of NSW Rural Fire Service**,** ***Planning for Bushfire Protection*****,** 2019 and summarized as follows**;**

Table 5 - APZ Requirements (PfBP 2019)

Intent of measures: to provide sufficient space and maintain reduced fuel loads to ensure radiant heat levels at the buildings does not exceed 29kW/m².		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
• potential building footprints will not be exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot	•APZs are provided in accordance with Tables A1.12.2 and A1.12.4 based on the FDI	✔ Complies.
• APZs are managed and maintained to prevent the spread of a fire towards the building.	•APZs are managed in accordance with the requirements of 'Appendix 4	✔ To be complied with in relation to the ongoing occupation of the proposed residential flat building
• the APZ is provided in perpetuity	•the APZ is wholly within the boundaries of the development site.	✔ All APZ's can be provided in accordance with PfBP Guideline requirements including public assets such as roads.
• APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	• APZ's is located on lands with a slope less than 18 degrees.	✔ All APZ's can be provided on lands with a slope less than 18 degrees.

3.2 Defendable Space/Asset Protection Zone Management

All areas within the subject site must be managed at all times so as to comply with the standards which are applicable to Asset Protection Zones as follows;

Inner Protection Area (IPA)

An IPA should provide a tree canopy cover of less than 15% and should be located greater than 2 metres from any part of the roofline of a dwelling.

Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10m from an exposed window or door.

Trees should have lower limbs removed up to a height of 2 metres above the ground.

3.3 Operational Access and Egress

Access to the proposed residential flat building development will generally remain consistent with the existing arrangements in that access to the proposed residential flat building development will be via Pacific Drive which adjoins the subject site to the east. Pacific Drive is a major connecting road in the locality.

Onsite car parking and manoeuvring associated with the proposed residential flat building development will be accessed by an internal driveway which will connect directly with Pacific Drive.

Pacific Drive is a two-wheel drive, all weather two-way bitumen sealed public road which is located to the east of the subject site and performs a perimeter road function to hazard vegetation in this aspect. Movement to and from the subject site and proposed development is

to and from areas to the north, south and west which would be protected from the effects of bushfire.

Pacific Drive extending to the north of the subject site

Pacific Drive extending to the south of the subject site

The existing public road infrastructure in the immediate area therefore provides for several access and egress options to and from areas that would be protected from any bushfire threat. Having regard to the relatively short travel distances involved to areas that would be protected from the effects of fire and the variety in access and egress options to and from the subject site and proposed development, it is considered that adequate access and egress is available.

Table 5.3b of NSW Rural Fire Service, ***Planning for Bushfire Protection*****,** 2019 provides that;

There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling

and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.

In this regard the speed limit along Pacific Drive in this location is a maximum of 50kph and the maximum unobstructed path between available hydrants in Pacific Drive and the proposed residential apartments is less than 70m. Accordingly there are no specific internal access road requirements applicable to the proposed development.

Given the existing nature of the public road infrastructure and the nature of the proposed development it is considered that access and egress arrangements for the future residential development of the subject site will be consistent with the relevant performance requirements of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2019.

3.4 Services - Water, Gas and Electricity

As set out in Chapter 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2019, developments in bushfire prone areas must maintain a water supply reserve dedicated to firefighting purposes.

Given that the proposed development will have access to the reticulated water supply which currently services the area, the extension of which will be required by Port Macquarie-Hastings Council to service the proposed development, a water supply suitable for firefighting purposes will be available. It is however noted that in accordance with NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2019 the determination of a guaranteed water supply is to be made by the water supply authority where mains water supply is available.

It is noted that the subject site and proposed development will have the benefit of the existing street hydrant system located within the Pacific Drive road reserve.

Electricity supply is available and will be accessible to the residential development of the land. Reticulated gas services are not available to the site; however, any reticulated or bottled gas supply is to be installed and maintained in accordance with AS 1596 and the requirements of the relevant authorities. Metal piping is to be used. All fixed gas cylinders are to be kept clear of all flammable materials to a distance of 10m and shielded on the hazard side of the installation.

If gas cylinders need to be kept close to a building, the release valves are to be directed away from the building and at least 2m away from any combustible material, so that they do not act as a catalyst to combustion. Connects to and from gas cylinders need to be metal. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used

The incorporation into the proposed development of the relevant provisions of the following Acceptable solutions as provided for by Section 5.3 of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2019 will ensure compliance with the intent for the provision of services to the proposed residential flat building development.

Table 6 – Service Provision Requirements (PfBP 2019)

***Intent of measures:* to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.**		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
Water Supply • a water supply is provided for firefighting purposes	• reticulated water is to be provided to the development, where available; • a static water supply is provided where no reticulated water is available .	✔ To comply

• water supplies are located at regular intervals • the water supply is accessible and reliable for firefighting operations	• fire hydrant spacing, design and sizing comply with the Australian Standard AS 2419.1:2005; • hydrants are not located within any road carriageway; reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	✔ To comply
• flows and pressure are appropriate	• fire hydrant flows and pressures comply with AS 2419.1:2005.	✔ To comply
• the integrity of the water supply is maintained	• all above-ground water service pipes are metal, including and up to any taps.	✔ To comply

Electricity Services
 	
• location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings
	• where practicable, electrical transmission lines are underground;
	• where overhead, electrical transmission lines are proposed as follows:
	  • lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas;
	  • no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.
		✔ To comply

Gas services • location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	• reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used; • all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; • connections to and from gas cylinders are metal; polymer-sheathed flexible gas supply lines are not used; • above-ground gas service pipes are metal, including and up to any outlets	✔ To comply (where applicable)

It is considered that the relevant acceptable solutions as provided for by Section 5.3 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019 are capable of being complied with in relation to the proposed residential flat building development.

As such the intent for the provision of services to the proposed development can be achieved.

3.5 Landscaping

Landscaping is a major cause of fire spread to dwellings and therefore any future landscaping on the proposed development will need careful planning to produce gardens that do not contribute to the spread of a bushfire.

Appendix 4 of NSW Rural Fire Services, ***Planning for Bushfire Protection*****,** 2019**,** contains standards that are applicable to the provision and maintenance of landscaping. Any landscaping proposed to be undertaken in conjunction with the proposed development is to comply with the principles contained in Appendix 4 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019**.**

Compliance with Appendix 4 of NSW Rural Fire Services, ***Planning for Bushfire Protection,*** 2019**,** will satisfy the intent of the bush fire protection measures that are applicable to the provision of landscaping.

3.6 High Rise Development

Consideration has also been given to the matters raised within Table 8.2 of NSW Rural Fire Services**,** ***Planning for Bushfire Protection,*** 2019 as these matters specifically apply to high-rise development within bushfire prone land. In this regard the proposed development meets the criteria as a 'high rise' building.

The following table lists the additional consideration points and our comment of the proposals ability to address them.

Table 7– High Rise Development in Bushfire Prone Land

ISSUE	SPECIFIC CONCERN	TECHNICAL CONSIDERATION	COMPLIANCE COMMENT
Population	Impact on existing community and infrastructure.	What capacity does the existing infrastructure have to allow evacuation of existing and proposed residents in the event of a bush fire?	The proposed development is located immediately adjacent to Pacific Drive which is a major connecting road within the area and would provide for significant opportunities to support the evacuation of existing and future residents particularly in the context of the scale of existing and proposed development. Pacific Drive acts as a perimeter road to the areas of hazard vegetation in the eastern aspect and with a road reserve width >20m provides for significant opportunity for emergency services and asset protection activities without conflict between vehicles and/or personnel. . The presence of significant open space areas in close proximity to the subject site, (e.g. Oxley Oval, Town Beach), provides for a number of informal evacuation opportunities within close proximity to the subject site.
Location of Building	Locating on ridge tops emphasizes the risk of convective plume interaction and wind related impacts.	• Can the building be located away from ridge tops to areas that have a reduced bush fire exposure? • If unavoidable, what is the impact on the risk to the building? • Is this risk appropriate for the building and occupant numbers?	The proposed residential flat building is not located on a ridgetop with the location and topography of the subject site and spatial relation of the proposed development to areas of hazard vegetation providing for a reduced exposure from bushfire activity to the east of the Pacific Drive road reserve. Given the size of the proposed development it is considered that the location of the proposed development is appropriate and

			consistent with the scale of development envisaged by Chapter 5 of NSW Rural Fire Services**,** ***Planning for Bushfire Protection***, 2019 and the planning controls which are relevant to the subject site. It is also noted that the worst case topographical and vegetation conditions for the eastern aspect have been utilized for the purposes of this report and accordingly a level of redundancy is considered to be available to the proposed development, (and its occupants), in terms of a bushfire.
Design Fire	• Different elements of the flame could have different impacts on different levels of the building; and • The whole building could be impacted by ember attack and multiple floors could be alight simultaneously.	• What are the flame dimensions, including the flame angle? • Where is the hottest part of the flame located? How would this impact on the proposed building? • How would the warning and suppression systems in the building cope with this?	Based upon topographical conditions, the presence of road infrastructure and the significant modification of areas of hazard vegetation, the most likely fire scenario in the eastern aspect would be a fire moving from the east towards the west up the coastal escarpment with this scenario reflecting predominant wind conditions and the longest fire run conditions in this aspect. It is however noted that the topographic conditions to the east of the subject site provide that the subject site and proposed development would benefit from shielding from a fire moving up the coastal escarpment with upslope conditions present on the western aspect of the escarpment (immediately to the east of the subject site). It is also noted that for the purposes of determining the level of bushfire threat worst case vegetation characteristics have also been adopted for the eastern aspect and as discussed in Section 2.4.2 of this report there is a level of conservatism in the vegetation classification which has been adopted for the eastern aspect. Accordingly, in conjunction with the significant APZ which is available in the eastern aspect significant redundancy is considered to be available to the proposed development in terms of a bushfire. Based upon this and the likely reduced residence time of a bushfire in the eastern aspect the design fire for the subject site and proposed development would not envisage

			flame contact with any building elements, with radiant heat levels being generally <19kW/m^2, refer to **Table 9** of this report.
Egress	Elevations exposed to bush fire risk.	How does the emergency evacuation procedure take account of the location of bush fire prone vegetation?	Having regard to the level of bushfire threat posed to the subject development and the site-specific circumstances egress arrangements for the proposed development are considered acceptable. The significant separation provided between the proposed development and areas of hazard vegetation are such that occupants and emergency workers will not be exposed to high levels of radiant heat with the width of the Pacific Drive road reserve providing ample opportunity to stage firefighting and evacuation activities without conflict. The design of the proposed building provides that the main pedestrian entrance to each of the apartments are located centrally within the development with significant spatial separation and shielding available between buildings entrances and the hazard vegetation in the eastern aspect. Similarly the emergency exits for the building are located centrally to the buildings proposed footprint with their location providing for significant (>55m) spatial separation between the building's egress systems and the hazard vegetation located in the eastern aspect. The owner/occupier nature of the proposed development also provides for improvements in emergency management outcomes for the subject site as the current building use provides for tourist accommodation whereby building occupants maybe uncertain of emergency evacuation requirements and infrastructure. These current uncertainties will be addressed through the owner/occupier nature of the proposed development. Whilst the proposed building is identified as a high-rise building for the purposes of Chapter 8 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019, its scale is at the lower end of that envisaged by the notion of 'high rise' or multistorey. In this regard occupant

			numbers and characteristics will be entirely consistent with other forms of medium density development and accordingly no specific egress issues are considered to be relevant to the proposed development beyond that envisaged by Chapter 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019 for other forms of residential development.
Building Construction	• Performance of the building façade in a bush fire scenario. • Balconies may contain external features which could ignite and contribute to building ignition and fuel loads.	• What wall and cladding materials are proposed and what is proposed for the openings/penetrations (i.e. windows and doors)? • How does the proposed building construction deal with fire spread from the vegetation to the inside of the building? • Is compliance with AS 3959 sufficient to ensure that the bush fire risk is mitigated? Is this appropriate for the design fire scenario? • Are there balconies proposed? • What may be stored on the balconies? • Can there be restrictions on what is stored on the balconies due to fire risk?	Having a rise in storey of 6 in accordance with the NCC provides that the construction of the subject building will incorporate materials which are generally noncombustible with specific Fire Resistance Levels (FRL's) applicable to the major construction elements of the building so as to provide for a recognized resistance to the spread of fire to, from and within the proposed building. The design and construction of the proposed building will be subject to the highest levels of fire resisting construction envisaged by the NCC being the Type A construction requirements of Part C1 of the NCC, refer to **Appendix 3.** In order to achieve compliance with the Type A construction requirements of the NCC the design and construction of the building will be focussed upon non-combustible construction materials such as concrete and masonry. Accordingly the design and construction of the proposed building will provide for a level of resistance to the spread of bushfire fire which is far in excess of that which would be expected for other forms of residential development encompassed by Chapter 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019 which in combination with the significant spatial separation available between the proposed building and areas of hazard vegetation provide for a response to the 5 modes of bushfire attack which is entirely consistent with, if not exceeding, the outcomes envisaged by the performance requirements of Chapter 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019 and the relevant construction requirements of

			AS 3959 - 2018.
Carparking	Lower storey car park could be subject to ember attack and high radiant heat loads.	• Is the warning and suppression system designed to take account of bush fire impact? • Where are exits located? Are they guiding occupants away from the car park?	Carparking arrangements in relation to the proposed development involve a basement level parking area the design of which provides for a fully enclosed area with access to parking via a single driveway which is likely to incorporate a security door. This form of construction will provide for a response to the 5 modes of bushfire attack which is entirely consistent with, if not exceeding, the outcomes envisaged by the performance requirements of Chapter 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019 and the relevant construction requirements of AS 3959 - 2018. Given the nature and scale of the proposed development it is not envisaged that the warning and suppression systems will be designed to take specific account of bushfire as compliance with the relevant requirements of Chapter 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019 is considered to be appropriate and sufficient in the circumstances. The design of the carparking area provides for multiple pedestrian access and egress options which encourages and supports high levels of access to and egress from the carparking area both within and external to the proposed building.
Other considerations	• Access for fire fighters may be restricted or challenging; and • Risk implications of floor to floor fire spread.	• What would this mean for fire suppression? • How would warning and suppression systems take account of this? • What would this mean for evacuation?	There are no other considerations relevant to the proposed development as the nature and scale of the proposed development is considered to be consistent with the nature and scale of development contemplated by the performance objectives of Chapter 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection,*** 2019. There are no restrictions or challenges for fire fighters in relation to access and egress to and from the proposed development and the risk of fire spread within the building is minimized due to the required construction of the building to meet the relevant NCC requirements.

3.2 Construction of Buildings in Bushfire Prone Areas

3.2.1 General

In NSW, the bushfire protection provisions of the National Construction Code, (NCC), are applied to Class 1, 2, 3, Class 4 parts of buildings, some Class 10 buildings and Class 9 buildings that are Special Fire Protection Purposes (SFPP's).

The NCC references AS3959 – 2018 as the Deemed-to-Satisfy (DTS) solution for construction requirements in bushfire prone areas for NSW.

It is however noted that in accordance with Clause 7.5.2 there are a number of NSW variations to the application of AS3959 – 2018 including a restriction on the utilization of the Bushfire Attack Level – Flame Zone requirements of the Australian Standard as a 'deemed to satisfy solution' for these situations. Consequently, in NSW all situations which are determined as being subject to the Bushfire Attack Level – Flame Zone requirements of AS3959 – 2018 must be treated on merit with construction requirements being determined on a specific site assessment basis.

As the development concept involves the construction of residential dwellings (NCC Class 2) the requirements of AS3959 – 2018, as amended by Clause 7.5.2 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 will be applicable to the proposed development.

The following construction requirements are required for the bushfire attack level categories.

Table 8 – Bushfire Attack Levels

BUSHFIRE ATTACK LEVEL (BAL)
No construction requirements
BAL - 12.5
BAL - 19
BAL - 40
BAL - FZ

The following assessment of Bushfire Attack Levels in accordance with Appendix 1 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 is provided as it applies to the future residential flat building development on the subject site. This assessment is based upon the provision of the minimum required APZ as provided for by **Table 5** of this report.

It is noted that the following BAL assessment has been based upon the provision of the worst case minimum required Asset Protection Zones to the proposed residential flat building development on the subject site.

Table 9 – Worst Case Bushfire Attack Levels for Nominated Vegetation Classifications and Slopes

ASPECT	VEGETATION CLLASSIFICATION	DISTANCE (between future building and hazard vegetation)	SLOPE	BUSHFIRE ATTACK LEVEL (BAL)
East	Tall Coastal Heath	>36m	>20˚ Down slope	BAL 19

The information presented in the above table indicates that under the worst-case spatial separation scenario between the proposed residential flat building development and areas of bushfire hazard vegetation, the proposed development would be subjected to a worst-case Bushfire Attack Level of BAL 19. The BAL 19 construction requirements of AS 3959 – 2018, as amended by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 (refer to **Appendix 4**), will be applicable to the proposed development.

It is however noted that the design of the proposed building provides for increasing spatial separation between the building and areas of hazard vegetation with proposed residential units along the western portion of the building located >55m from areas of hazard vegetation whereby the BAL12.5 construction requirements would be more applicable. It is further noted that the design of the proposed building does provide for shielding from the worst-case hazard vegetation and as such a lower level of construction can be applied to these elevations of the proposed building.

Accordingly, the following construction requirements of AS 3959 – 2018 (as amended by Clause 7.5.2 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019) are considered relevant to the proposed development;

Table 10 – Construction Requirements

BUILBING LEVEL	BAL 12.5	BAL 19
Basement 01	Unit 04	All other areas
Ground	Units 01 – 04 inclusive	All other areas
Level 01	Units 05 – 10 inclusive	Units 01 – 04 inclusive
Level 02	Units 07 – 13 inclusive	Units 01 – 06 inclusive
Level 03	Units 07 – 13 inclusive	Units 01 – 06 inclusive
Level 04	Units 06 – 12 inclusive	Units 01 – 05 inclusive
Level 05	Units 06 – 11 inclusive	Units 01 – 05 inclusive
Level 06	Units 03 – 05 inclusive	Units 01 – 02 inclusive

4.0 SUMMARY REQUIREMENTS

The following requirements are provided in response to the proposed residential flat building development to be constructed on land known as Lot 1 DP 538077, Lot 2 DP 538077, Lot A DP 441800 and Lot 101 DP 1244390, 10 – 13 Pacific Drive, Port Macquarie as provided in **Appendix 2**.

(i) Asset Protection Zones for existing and proposed development are to be provided to the proposed development in accordance with **Table 5** of this report.

(ii) Water and other services are to be provided to the proposed residential flat building development in accordance with the requirements detailed in Section 3.4 of this report.

(iii) The proposed residential flat building is to be constructed so as to comply with the relevant construction requirements of AS 3959 – 2018 as amended by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019, refer to **Appendix 4,** as provided for in **Table 10** of this report..

(iv) Adopt the landscaping principals in accordance with Section 3.5 of this report.

5.0 CONCLUSION

It is considered that the proposed residential flat building development on land known as Lot 1 DP 538077, Lot 2 DP 538077, Lot A DP 441800 and Lot 101 DP 1244390, 10 – 13 Pacific Drive, Port Macquarie is at risk of bushfire attack; however, it is in our opinion that with the implementation of the bushfire threat reduction measures and consideration of the recommendations in this report, the bushfire risk is manageable for the proposed development.

With the implementation of the recommendations it is considered that it will be possible for the proposed residential flat building development to meet the applicable acceptable solutions as provided for in NSW Rural Fire Service**,** ***Planning for Bushfire Protection*****,** 2019 having regard to the existing subdivision layout, the size of the subject site and the extent of development on adjoining and adjacent land.

This report is however contingent upon the following assumptions and limitations.

Assumptions

(i) For a satisfactory level of bushfire safety to be achieved regular inspection and testing of proposed measures, building elements and methods of construction, specifically nominated in this report, is essential and is assumed in the conclusion of this assessment.

(ii) There are no re-vegetation plans in respect to hazard vegetation and therefore the assumed fuel loading will not alter.

(iii) Any future residential developments are constructed and maintained in accordance with the risk reduction strategy in this report.

(iv) The vegetation characteristics of the subject site and surrounding land remains unchanged from that observed at the time of inspection.

(v) The information contained in this report is based upon the information provided for review, refer to **Appendix 2.**

No responsibility is accepted for the accuracy of the information contained within the above plans.

Limitations

(i) The data, methodologies, calculations and conclusions documented within this report specifically relate to the building and must not be used for any other purpose.

(ii) A reassessment will be required to verify consistency with this assessment if there is building alterations and/or additions, change in use, or changes to the risk reduction strategy contained in this report

.

6.0 REFERENCES

NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2001

NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006

NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019

AS 3959-2018, ***Construction of Buildings in Bushfire Prone Areas***

Keith David 2004, Ocean ***Shores to Desert Dunes, The Native Vegetation of New South Wales and the ACT***, Department of Environment and Conservation

NSW State Government***, Rural Fires Act***, 1997

Port Macquarie-Hastings Councils, ***Bushfire Prone Land Mapping***

NSW Rural Fire Service, ***Guideline for Bushfire Prone Land Mapping***, 2002

Australian Building Codes Board, ***National Construction Code***, 2019

NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2002*

NSW Rural Fire Service, ***NSW Local Government Areas FDI*****,** May 2017

Disclaimer

The findings referred to in this report are those which, in the opinion of the author, are required to meet the requirements of NSW Rural Fire Service***, Planning for Bushfire Protection,*** 2019. It should be noted that the Local Authority having jurisdiction for the area in which the property is located may,

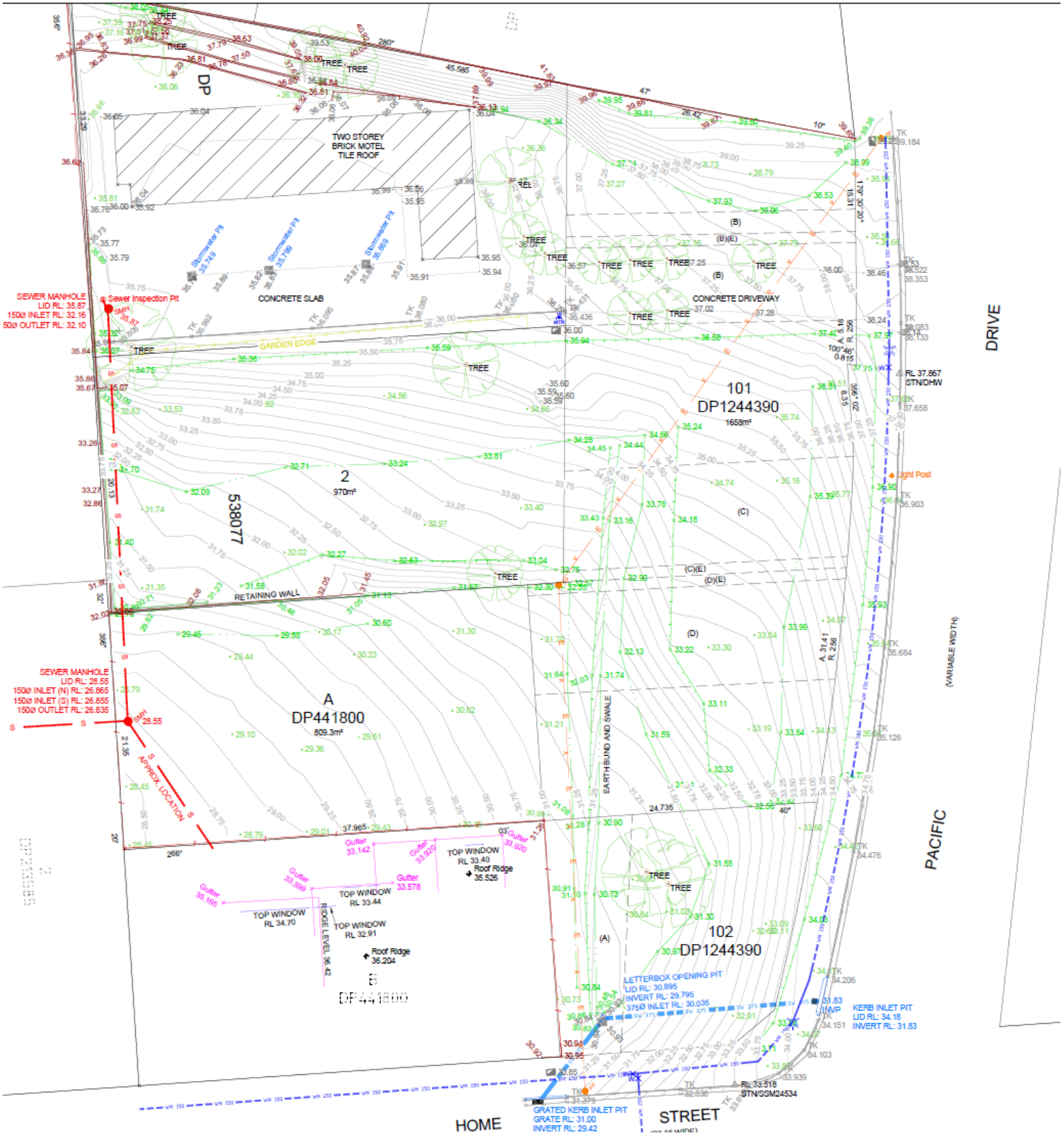
within their statutory powers, require different, additional or alternative works/requirements to be carried out other than those referred to in this report.

This report has been prepared partially on information provided by the client. Information provided by the client in respect of details of construction.

The author denies any legal liability for action taken as a consequence of the following:

- The Local Authority requiring alternative or additional requirements to those proposed or recommended in this report.
- Incorrect information, or misinformation, provided by the client with regard the proposed building which is in good faith included in the strategies proposed in this report and later found to be false.

APPENDIX 1
Subject Site



APPENDIX 2
Proposed Development

DA Drawing Register

A-00 TITLE PAGE		
A-0000	TITLE PAGE	P1
A-10 SITE ANALYSIS		
A-1001	SITE ANALYSIS	P1
A-1050	STREETSCAPE ANALYSIS	P1
A-1060	UNIT SCHEDULE	P1
A-11 SURVEY PLAN		
A-1101	SURVEY PLAN	P1
A-12 FLOOR PLANS		
A-1202	BASEMENT 01	P1
A-1205	LEVEL 02	P1
A-13 ELEVATIONS		
A-1301	EAST ELEVATION	P1
A-1302	WEST ELEVATION	P1
A-1303	NORTH ELEVATION	P1
A-1304	SOUTH ELEVATION	P1
A-14 SECTIONS		
A-1401	SECTION AA	P1
A-1402	SECTION BB	P1
A-20 STATISTICS & DIAGRAMS		
A-2001	GFA CALCULATIONS	P1
A-2011	SOLAR ACCESS DIAGRAM 3D 1/2	P1
A-2012	SOLAR ACCESS DIAGRAM 3D 2/2	P1
A-2031	SHADOW DIAGRAM	P1
A-23 3D		
A-2301	3D	P1

3D EAST

GHAZI AL ALI
ARCHITECT

PROPOSED BOARDING HOUSE
PACIFIC DRIVE
10-16 Pacific Drive, Port Macquarie

PRELIM

SHAZI AL ALI
SITE ANALYSIS
P1

STREETSCAPE ANALYSIS A3 - 1:400

PRELIM

SHAZI AL ALI ARCHITECT

10-13 Pacific Drive, Port Macquarie

STREETSCAPE ANALYSIS

DA A-1000 P1

Home Story Name	ROOM TYPE	ROOM NO.	INTERNAL ARE
BASEMENT 01	04	3 BED	101.66
GROUND	01	1 BED	54.77
GROUND	02	2 BED	87.06
GROUND	03	2 BED	89.72
GROUND	05	2 BED	86.98
GROUND	04	3 BED	101.66
LEVEL 01	07	1 BED	54.77
LEVEL 01	08	2 BED	87.06
LEVEL 01	01	2 BED	86.98
LEVEL 01	05	2 BED	89.72
LEVEL 01	03	2 BED	86.98
LEVEL 01	02	2 BED	85.80
LEVEL 01	06	2 BED	90.24
LEVEL 01	04	2 BED	85.80
LEVEL 01	09	2 BED	89.72
LEVEL 01	10	3 BED	101.66
LEVEL 02	10	1 BED	54.77
LEVEL 02	11	2 BED	87.06
LEVEL 02	12	2 BED	89.72
LEVEL 02	06	2 BED	85.80
LEVEL 02	01	2 BED	86.98
LEVEL 02	09	2 BED	90.24
LEVEL 02	08	2 BED	89.72
LEVEL 02	07	2 BED	89.74
LEVEL 02	02	2 BED	85.80
LEVEL 02	04	2 BED	85.80
LEVEL 02	03	2 BED	86.98
LEVEL 02	05	2 BED	86.98
LEVEL 02	13	3 BED	101.66
LEVEL 03	10	1 BED	54.77
LEVEL 03	04	2 BED	85.80
LEVEL 03	05	2 BED	86.98
LEVEL 03	02	2 BED	85.80
LEVEL 03	08	2 BED	89.72
LEVEL 03	01	2 BED	86.98
LEVEL 03	11	2 BED	87.06
LEVEL 03	12	2 BED	89.72
LEVEL 03	07	2 BED	89.74
LEVEL 03	09	2 BED	90.24
LEVEL 03	06	2 BED	85.80
LEVEL 03	03	2 BED	86.98
LEVEL 03	13	3 BED	101.66
LEVEL 04	09	1 BED	54.77
LEVEL 04	06	2 BED	89.74
LEVEL 04	07	2 BED	89.72
LEVEL 04	03	2 BED	86.98
LEVEL 04	01	2 BED	86.98
LEVEL 04	11	2 BED	89.72
LEVEL 04	12	2 BED	84.45
LEVEL 04	04	2 BED	85.80
LEVEL 04	08	2 BED	90.24
LEVEL 04	10	2 BED	87.06
LEVEL 04	02	2 BED	85.80
LEVEL 04	05	3 BED	131.47
LEVEL 05	09	1 BED	54.77
LEVEL 05	01	2 BED	86.98
LEVEL 05	06	2 BED	89.74
LEVEL 05	07	2 BED	89.72
LEVEL 05	10	2 BED	87.06
LEVEL 05	03	2 BED	86.98
LEVEL 05	02	2 BED	85.80
LEVEL 05	08	2 BED	90.24
LEVEL 05	04	2 BED	85.80
LEVEL 05	11	2 BED	89.72
LEVEL 05	05	3 BED	131.47
LEVEL 06	02	2 BED	86.98
LEVEL 06	03	2 BED	85.40
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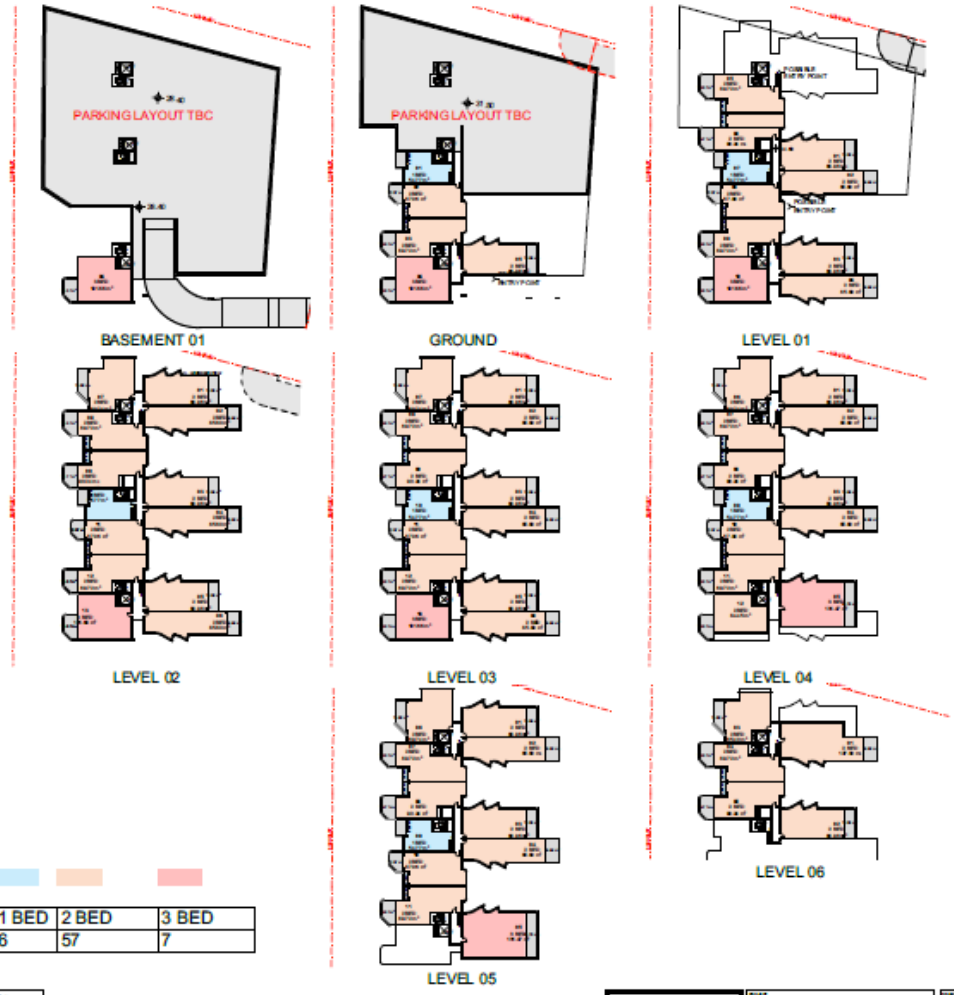
LEVEL 06	04	2 BED	89.72
LEVEL 06	05	2 BED	90.24
		70	



1 BED	2 BED	3 BED
6	57	7

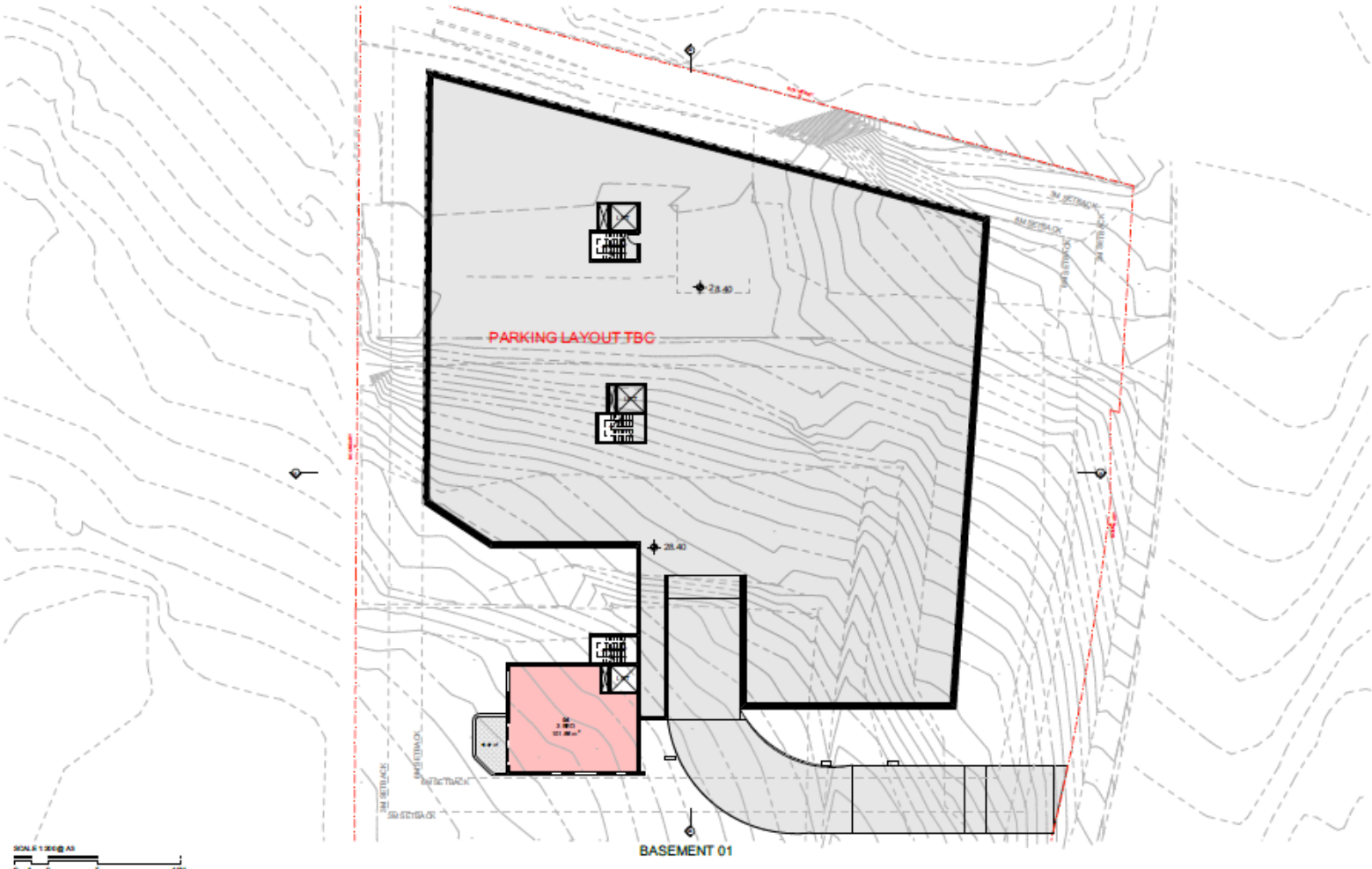
PRELIM

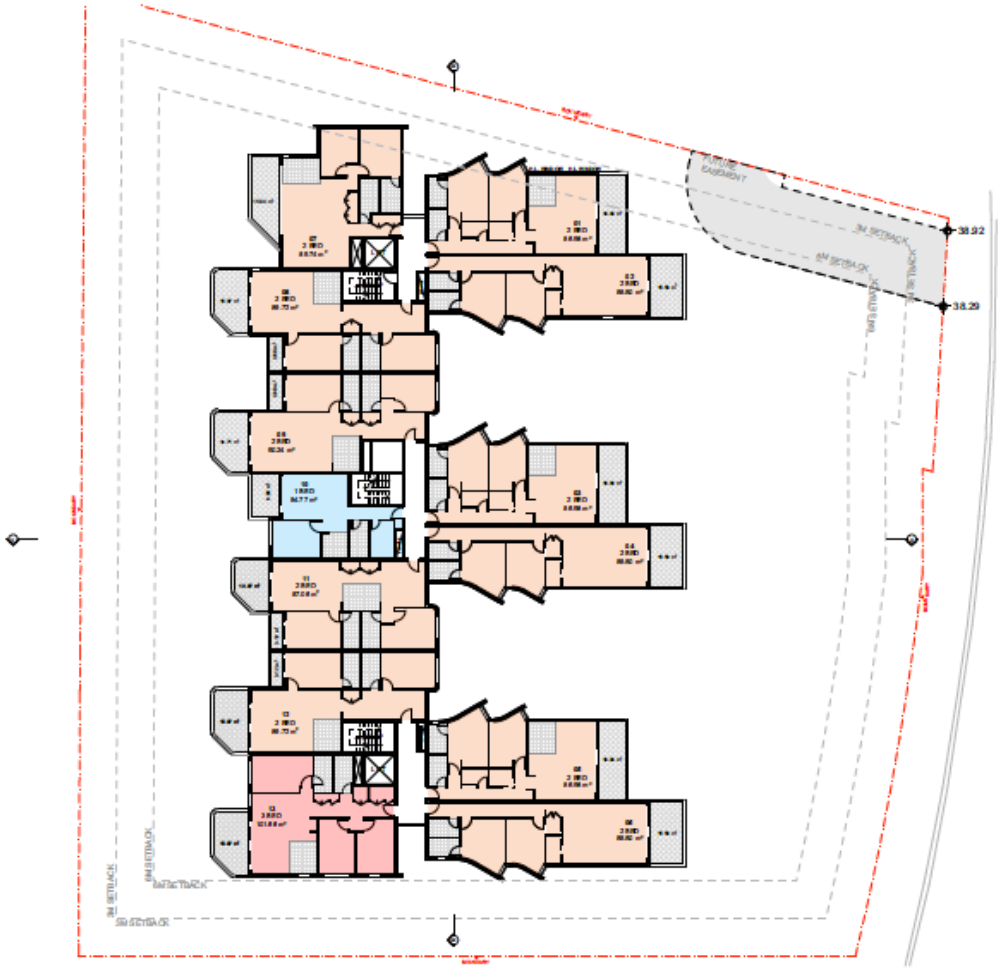
GHAZI AL ALI ARCHITECT

10-14 Pacific Drive, Port Macquarie

UNIT SCHEDULE

DA A-1000 P1


PARKING LAYOUT TBC
BASEMENT 01
PRELIM
GHAZI AL ALI



TYPICAL LAYOUT

PRELIM

EAST ELEVATION A3-1:200

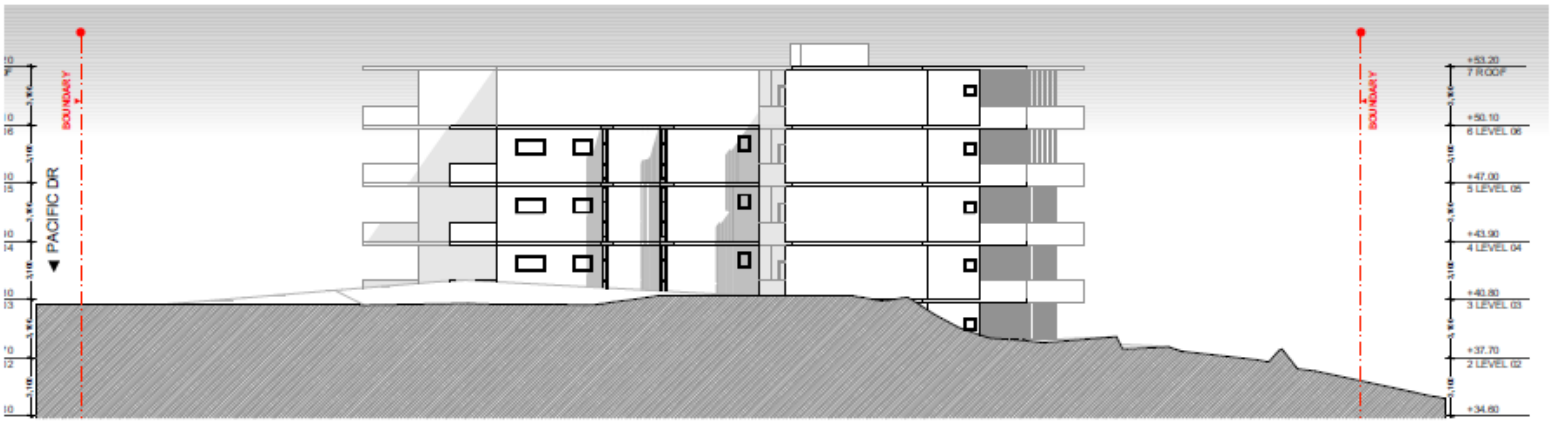
PRELIM

GHAZI AL ALI

EAST ELEVATION

WEST ELEVATION A3-1:200

PRELIM



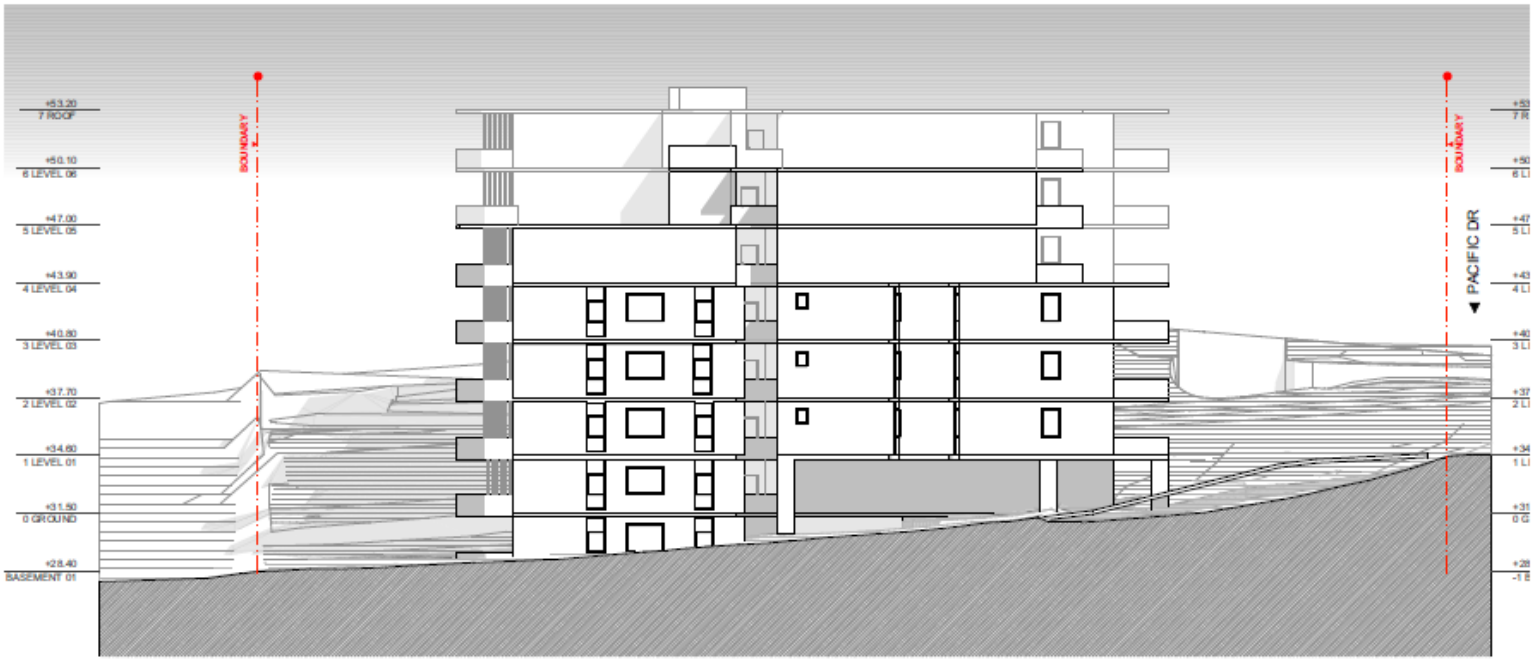
NORTH ELEVATION A3-1:200

PRELIM

GHAZI AL ALI
ARCHITECT

NORTH ELEVATION

P1



SOUTH ELEVATION A3-1:200

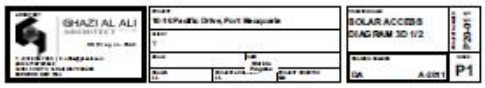
PRELIM

8AM

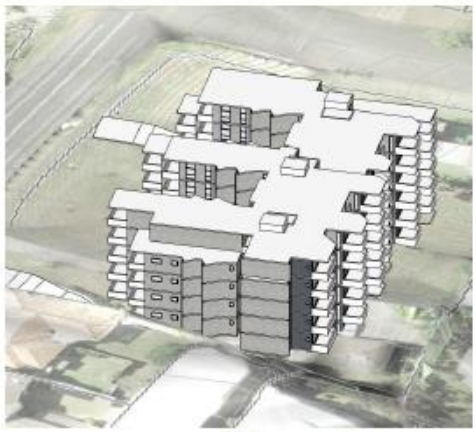
9AM

10AM

11AM



12PM

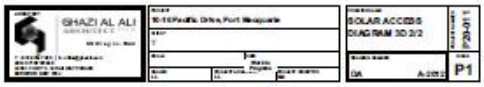


1PM

2PM

3PM

4pm



APPENDIX 3
NCC Type A Construction Requirements

Table 3 Type A construction: FRL of building elements

Building element	Class of building — FRL: (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*—				
For *loadbearing* columns—	90/–/–	120/–/–	180/–/–	240/–/–
For non-*loadbearing* columns—	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240

Building element	Class of building — FRL: (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

APPENDIX 4
PBP 2019 Amendments to AS 3959 - 2018

7.5.2 NSW State Variations under G5.2(a)(i) and 3.10.5.0(c)(i) of the NCC

Certain provisions of AS 3959 are varied in NSW based on the findings of the Victorian Bush Fires Royal Commission and bush fire industry research.

The following variations to AS 3959 apply in NSW for the purposes of NSW G5.2(a)(i) of Volume One and NSW 3.10.5.0(c)(i) of Volume Two of the NCC;

- clause 3.10 of AS 3959 is deleted and any sarking used for BAL-12.5, BAL-19, BAL-29 or BAL-40 shall:
  - be non-combustible; or
  - comply with AS/NZS 4200.1, be installed on the outside of the frame and have a flammability index of not more than 5 as determined by AS 1530.2; and
- clause 5.2 and 6.2 of AS 3959 is replaced by clause 7.2 of AS 3959, except that any wall enclosing the subfloor space need only comply with the wall requirements for the respective BAL; and
- clause 5.7 and 6.7 of AS 3959 is replaced by clause 7.7 of AS 3959, except that any wall enclosing the subfloor space need only comply with the wall requirements for the respective BAL; and
- fascias and bargeboards, in BAL-40, shall comply with:
  - clause 8.4.1(b) of AS 3959; or
  - clause 8.6.6 of AS 3959.

7.5.3 Construction in the flame zone

The flame zone is the area that has significant potential for sustained flame contact during a bush fire. The flame zone is determined by the calculated distance at which the radiant heat of the design fire exceeds 40kW/m^2.

The NCC references AS 3959 and the NASH Standard. The NSW variation to the NCC excludes both AS 3959 and the NASH Standard as a Deemed to Satisfy solution for buildings that are required to be constructed to BAL-FZ as defined in AS 3959.

Although Chapter 9 of AS 3959 and the NASH Standard has not been adopted, they should still be used as a basis for a performance based solution demonstrating compliance with the performance requirements of the NCC and PBP for construction in the flame zone.

All flame zone developments should be sited and designed to minimise the risk of bush fire attack. Buildings should be designed and sited in accordance with appropriate siting and design principles to ensure the safest protection from bush fire impacts.