

DUNE

beer co.

To Whom It May Concern:

Dune beer co. would like the opportunity to provide Albany with a premium venue along with high quality, local beer & produce

Our main objective is to provide the Great Southern with a family friendly venue, which provides the community with quality beer & food.

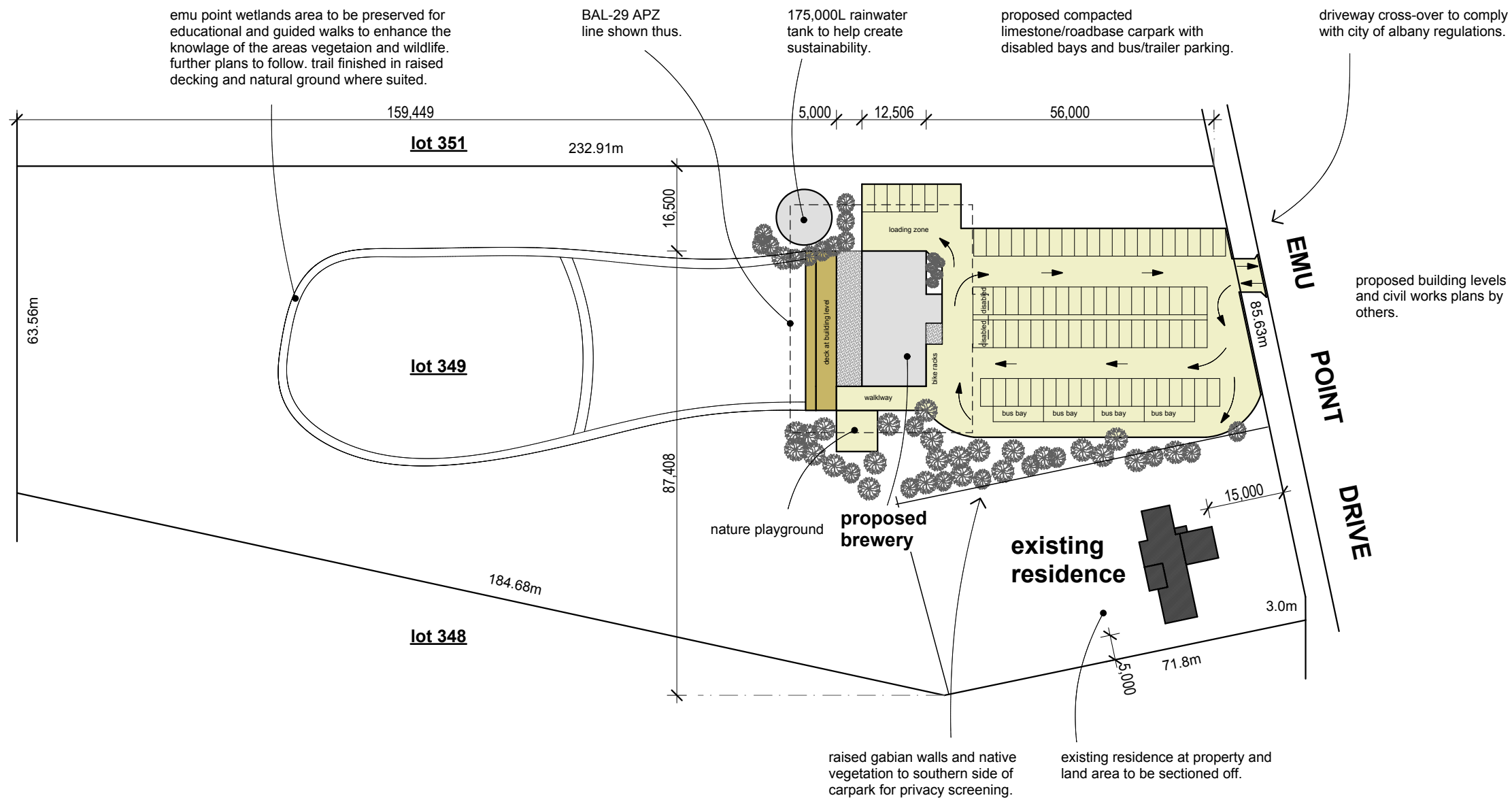
We are committed to respecting the Menang culture and land. We have committed to collaborating with the Noongar community to create a culturally aware space that respects the land and its traditional custodians.

Dune Beer Co. is owned by a local family entity and our venue will reflect our family, environmental and cultural morals and values.

Onsite we propose a microbrewery and restaurant in the main building with a large veranda and decking stepping down to the wetlands. We would like to build an interactive boardwalk showcasing the native flora and fauna towards the North West end of the property.

We are planning to include a nature playscape for the young and old to enjoy.

Our venue throughout the design and operational procedures will focus on sustainable practices and principles. We are inspired to use native plants and grasses in the landscaping of the grounds and development of the menu. We will do our best to operate with impact reduction, and minimal waste practices in mind.



site plan
1:1000



Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co		
Date:	23/02/2021	location plan
Job No:	124	Rev No: WD4
		A-02

S/01
A-06

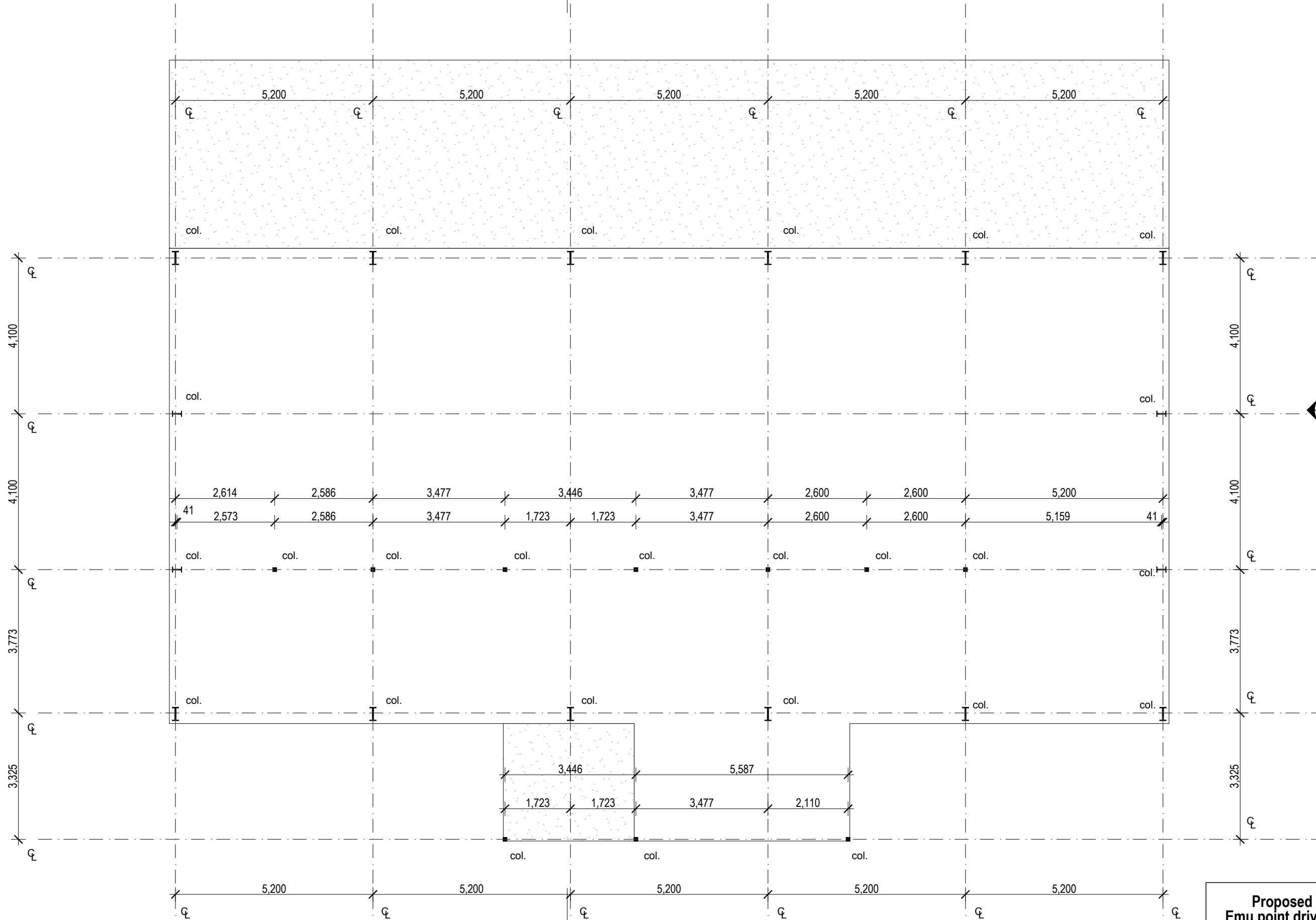
E/03
A-06

E/02
A-05

E/04
A-06

S/01
A-06

E/01
A-05



set-out plan
1:100

col = structural steel column to
engineers structural details.
finish to owners details.

footings and concrete slabs to
engineers structural drawings.

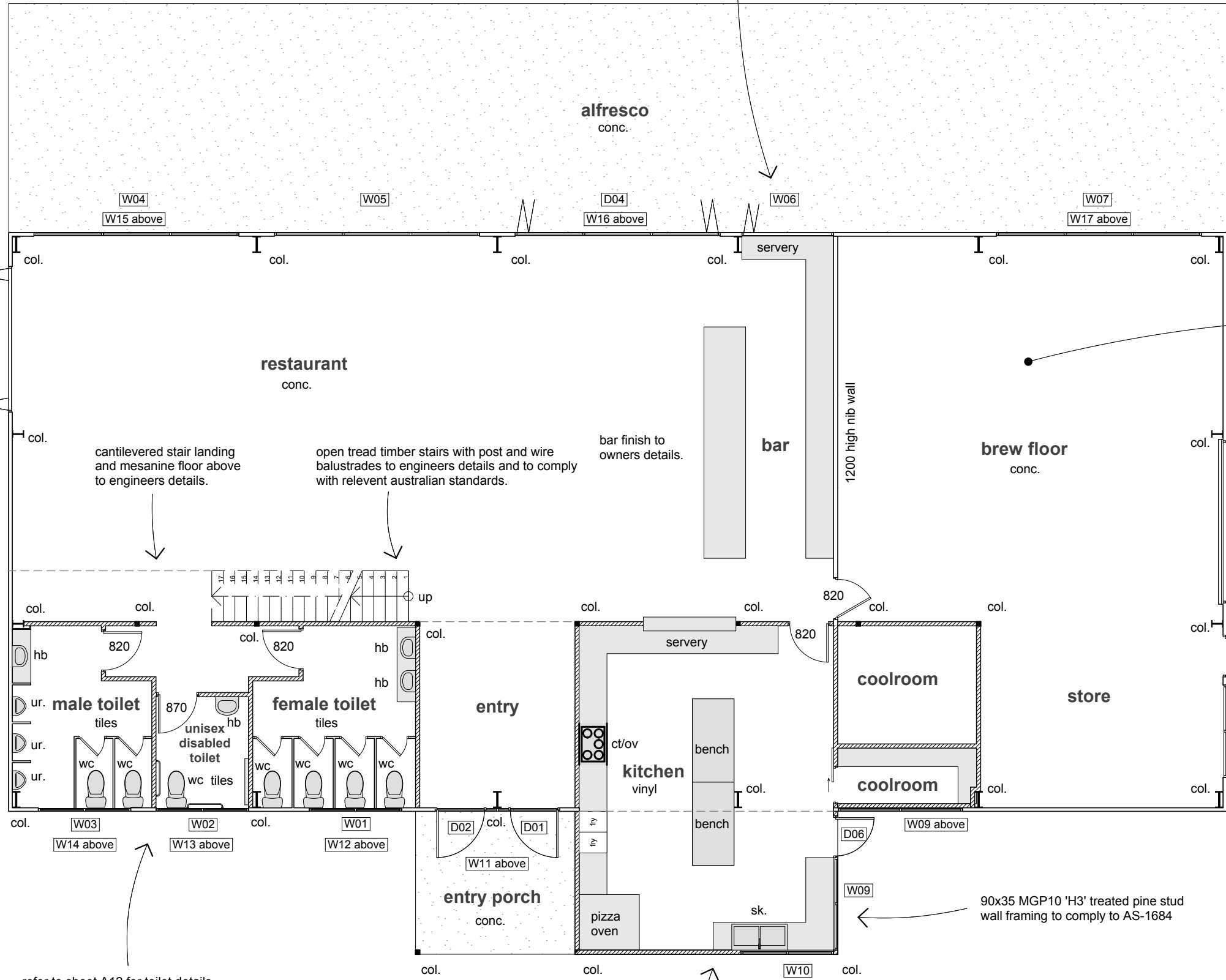
all concrete work to be in
accordance with AS 3600

Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co		
Date:	23/02/2021	set-out plan
Job No:	124	Drwg No: A-03 Rev No: WD4

S/01
A-06

E/03
A-06

coffee servery window with bench top to owners details.



footings and concrete slabs to engineers structural drawings.

all concrete work to be in accordance with AS 3600

brew floor to include full length countersunk drain with floor levels to allow wastewater run off from brew floor. brew floor layout by others.

selected 4.2m high roller door finished to match colorbond sheeting.

col = structural steel column to engineers structural details. finish to owners details.

areas:	m2
main shed	323.3
kitchen extension	17.9
alfresco	130.4
entry porch	10.6
mesanine floor	84.2
total	566.4

E/02
A-05

90x35 MGP10 'H3' treated pine stud wall framing to comply to AS-1684

vertical custom orb profile colorbond steel sheeting installed in accordance with manufacturers written specification to steel wall purlins.

refer to sheet A12 for toilet details.

90x35 MGP10 'H3' treated pine stud wall framing to comply to AS-1684

selected fibre board sheeting to kitchen extension installed in accordance with manufacturers written specification to wall purlins.

kitchen layout diagramatic, plans and details by others.

floor plan
1:100

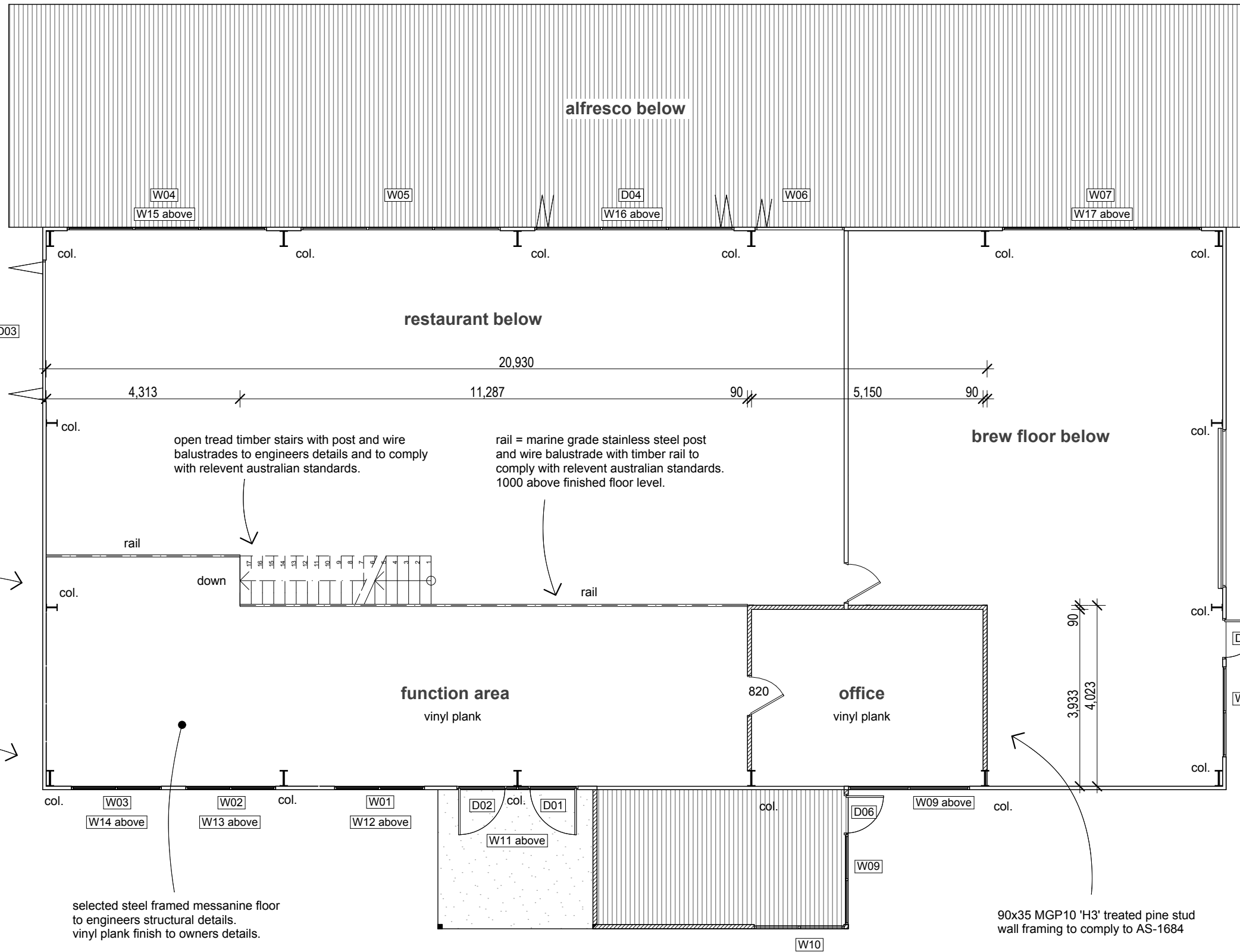
S/01
A-06

E/01
A-05



Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co

Date: 23/02/2021	floor plan	
Job No: 124	Drwg No: A-04	Rev No: WD4



cantilevered stair landing and mesanine floor above to engineers details.

vertical custom orb profile colorbond steel sheeting installed in accordance with manufacturers written specification to steel wall purlins.

selected steel framed messanine floor to engineers structural details. vinyl plank finish to owners details.

col = structural steel column to engineers structural details. finish to owners details.

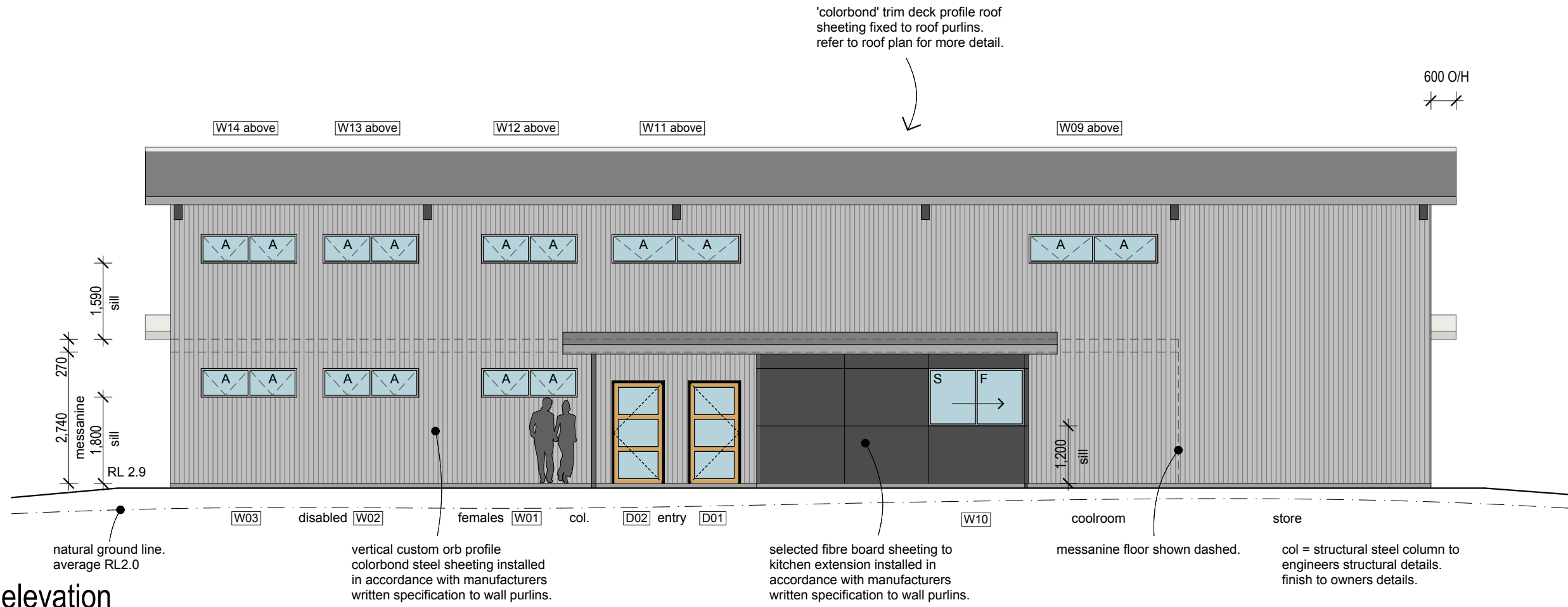
areas:	m2
main shed	323.3
kitchen extension	17.9
alfresco	130.4
entry porch	10.6
mesanine floor	84.2
total	566.4

messanine floor
1:100

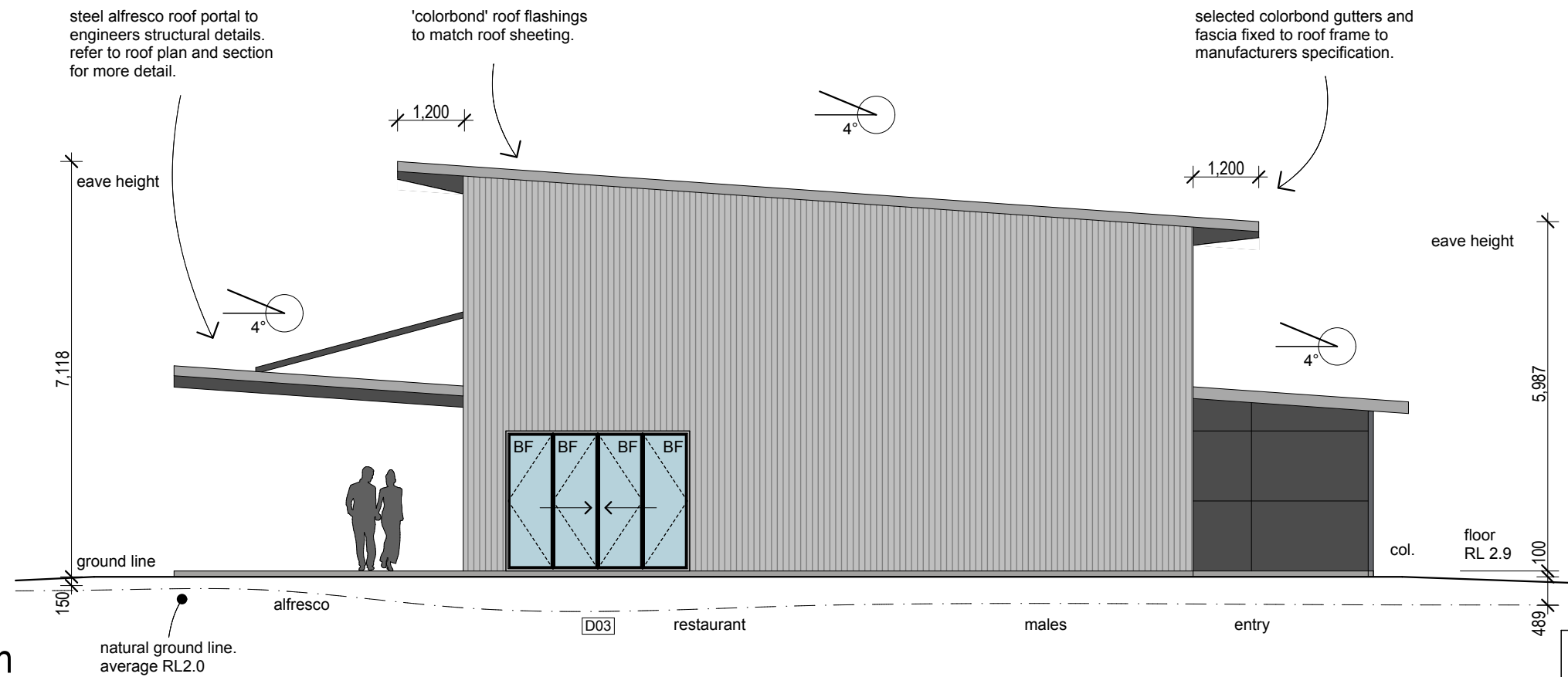


Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co

Date: 23/02/2021	messanine floor	
Job No: 124	Drwg No: A-05	Rev No: WD4



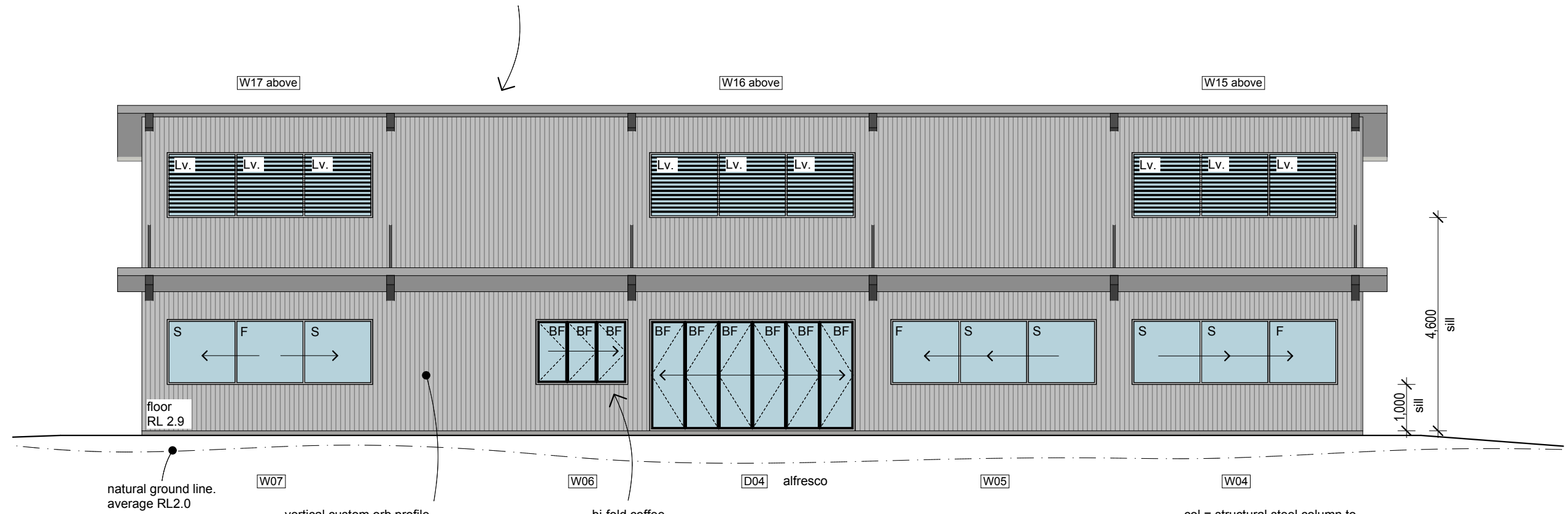
E/01 east elevation
1:100



E/02 south elevation
1:100

Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co		
Date:	23/02/2021	elevation 1 + 2
Job No:	124	Rev No: WD4
		A-06

'colorbond' trim deck profile roof sheeting fixed to roof purlins. refer to roof plan for more detail.



E/03 west elevation
1:100

vertical custom orb profile colorbond steel sheeting installed in accordance with manufacturers written specification to wall purlins.

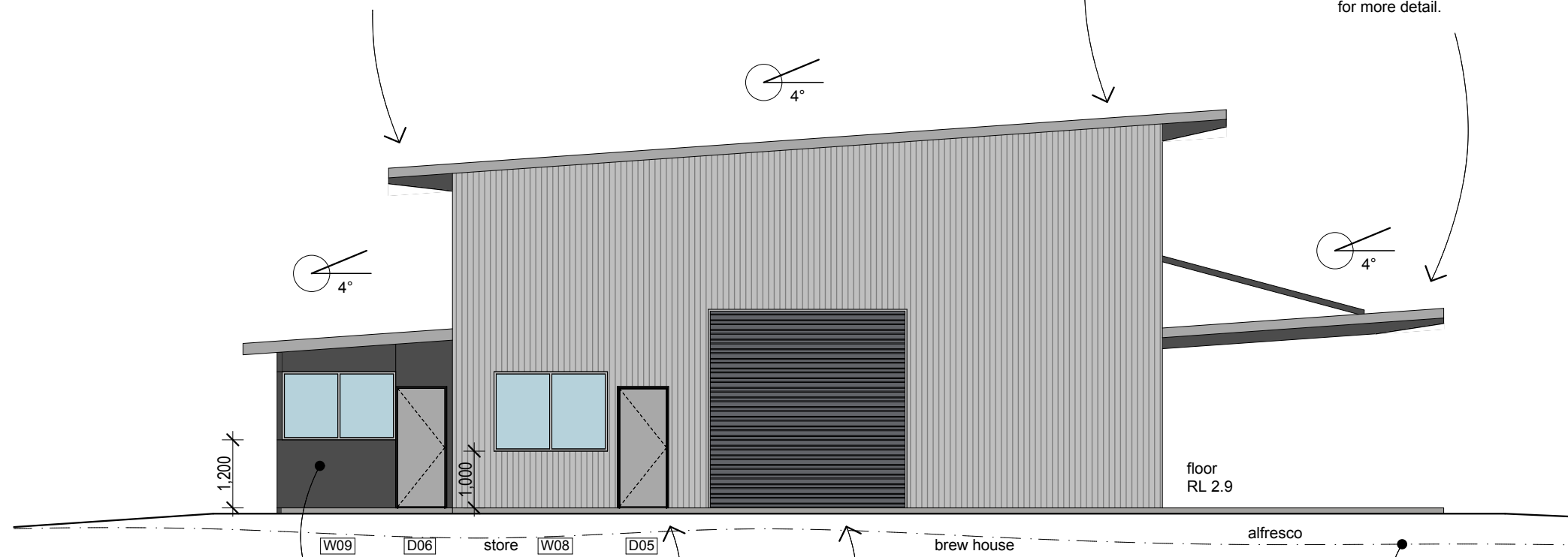
bi-fold coffee servery window.

col = structural steel column to engineers structural details. finish to owners details.

selected colorbond gutters and fascia fixed to roof frame to manufacturers specification.

'colorbond' roof flashings to match roof sheeting.

steel alfresco roof portal to engineers structural details. refer to roof plan and section for more detail.



E/04 south elevation
1:100

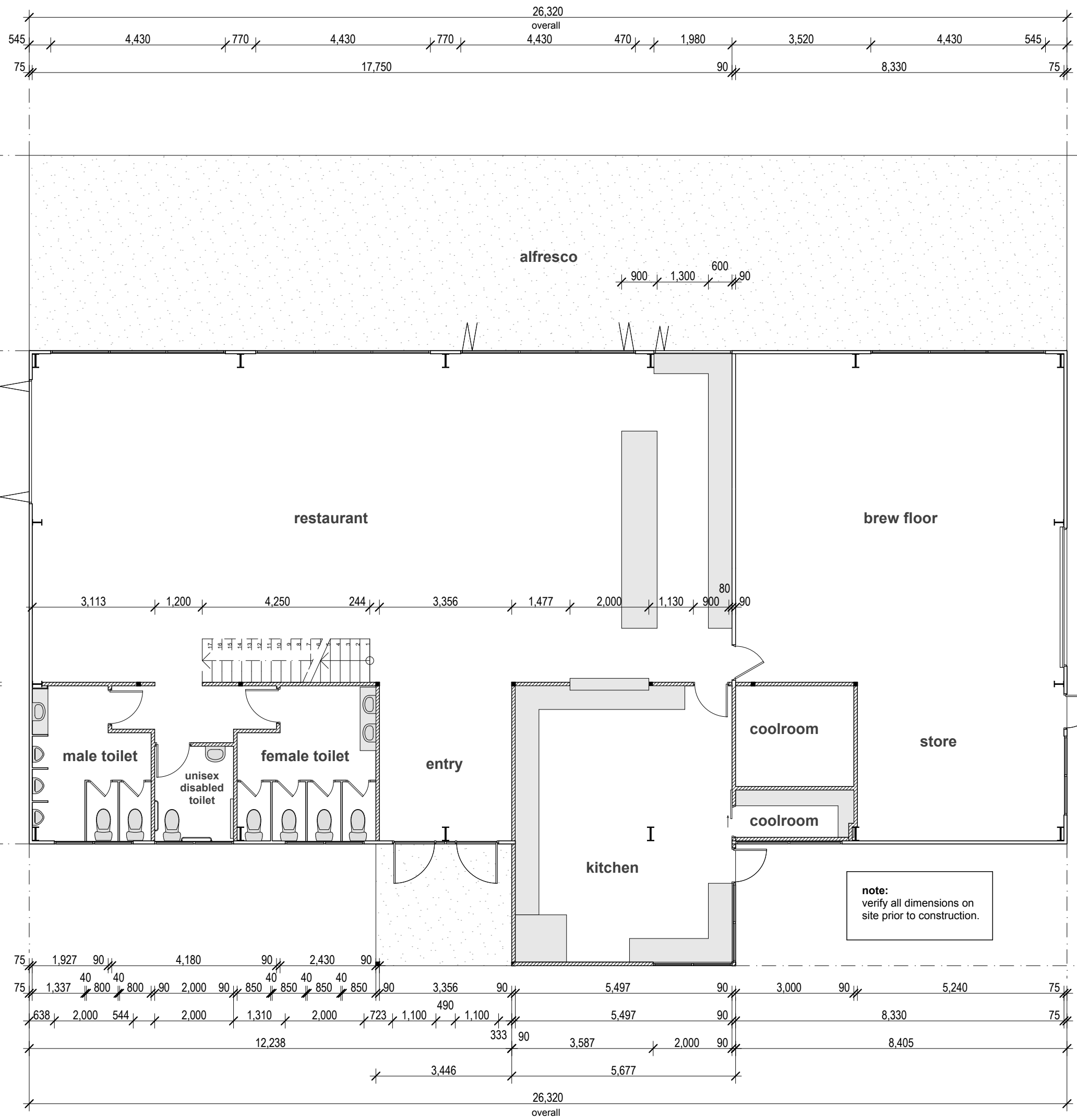
selected fibre board sheeting to kitchen extension installed in accordance with manufacturers written specification to wall purlins.

standard 820 external PA door for deliveries and emergency exit point.

selected 4.2m high roller door finished to match colorbond sheeting.

natural ground line. average RL2.0

Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co		
Date: 23/02/2021	elevation 3 + 4	
Job No: 124	Drwg No: A-07	Rev No: WD4



dimension plan
1:100

Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co		
Date:	23/02/2021	dimension plan
Job No:	124	Drwg No: A-09 Rev No: WD4

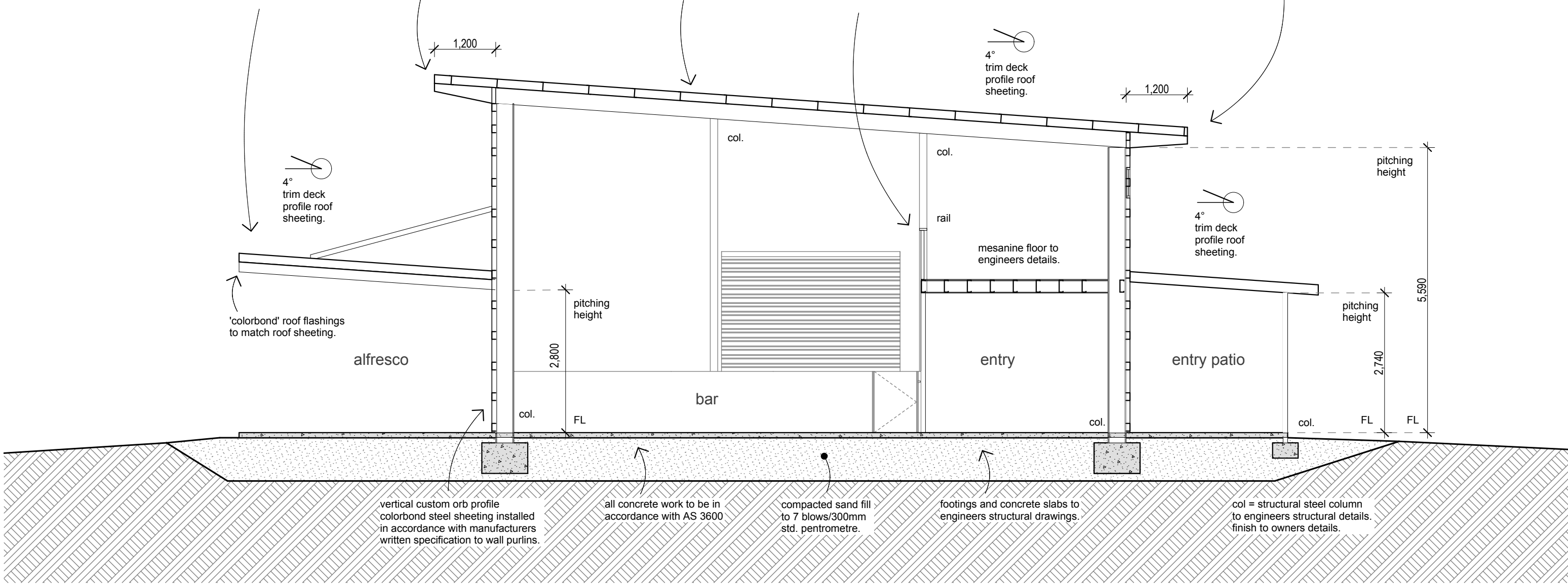
steel alfresco roof portal to engineers structural details. refer to roof plan and section for more detail.

chamfered ends to steel rafter ends to engineers details.

'colorbond' trim deck profile roof sheeting fixed to roof purlins. refer to roof plan for more detail.

rail = marine grade stainless steel post and wire balustrade with timber rail to comply with relevant Australian standards. 1000 above finished floor level.

selected colorbond gutters and fascia fixed to roof frame to manufacturers specification.



4° trim deck profile roof sheeting.

'colorbond' roof flashings to match roof sheeting.

alfresco

pitching height

2.800

bar

col.

col.

col.

mesanine floor to engineers details.

col.

entry

entry patio

pitching height

2.740

pitching height

5.590

vertical custom orb profile colorbond steel sheeting installed in accordance with manufacturers written specification to wall purlins.

all concrete work to be in accordance with AS 3600

compacted sand fill to 7 blows/300mm std. pentometre.

footings and concrete slabs to engineers structural drawings.

col = structural steel column to engineers structural details. finish to owners details.

1 section
1:75

Proposed brewery at 245 Emu point drive Albany WA 6330 Dune Beer Co		
Date:	23/02/2021	section-1
Job No:	124	Drwg No: A-08 Rev No: WD4

DUNE

beer co.

Business Plan

Kate Marwick
Founder
Dune Beer Co.
245 Emu Point Drive
www.dunebeerco.com.au
0428447134
ABN: 58 942 450 762

Prepared: July 2020

Updated: April 2021

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Owner profile	4
Licences, registrations, permits and insurance	4
Business support team	4
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Summary

Dune Brewery is a unique microbrewery situated in the dune system of Emu Point Beach. This family friendly venue and brewhouse is a community meeting place and cultural hub where the coastal lifestyle meets modern functionality and progressive ideas and practices.

In this business plan we outline how Dune Beer Co. will operate and deliver on our targets and goals. We plan to work with integrity, focus and empathy to build a solid business which is sustainable and has room for growth into the future.

Kate and Jon Marwick after over 20 years of hospitality experience and 12 years as successful business owners look forward to bringing a new venue to Albany and it's community.

Business profile

Business details

Description of business: Microbrewery + Restaurant

Business name: Dune Beer Company

Trading name(s): As above

Type of industry: Beer Production + Hospitality

Business structure: Marwick Family Trust

ABN: 58 942 450 762

ACN:

GST: Y/10%

Business commencement date: October 2020 - Venue opening date TBC

Proposed Business Hours: 5-7 days a week

Usual Business hours - 11am-9pm

Occasional cultural events - 11am- 12pm

Business location: 245 Emu Point Drive

Buy/lease: Purchased and live in whilst building business

Owner profile

Business owners: Kate Marwick + Jonathan Marwick

Experience: 12+ years experience operating Emu Point Café. Founders of Three Anchors Restaurant, Middleton Beach.

Licences, registrations, permits and insurance

- Planning and Building Approval from COA
- Health and Environment Approval
- Producers Liquor Licence
- Building and Business Insurance

Business support team

- Dean Thornton and Co - Smith and Thornton Accountants
- Luke Cameron - Albany District Insurance Brokers
- Dwyer and Durack Legal [Liquor Licensing]
- William Marwick & Phoebe Brown - Marketing & Communications Team
- Rachael Wilsher-Saa - Community Advisor

SWOT analysis

Strengths	Weaknesses
<p>Excellent location between beaches and popular tourist parks at Emu Point and Middleton Beach.</p> <p>Accommodation close by including 2 caravan parks, accessible via Bike path, no evening venues open at Emu Point. Close to developments of Middleton Beach and proposed Artificial Reef.</p> <p>Few similar venues in Albany.</p> <p>Reputation and Current customer base from Emu Point Café.</p> <p>Sister Business to support start up stages.</p> <p>Experience with venue development.</p> <p>Operator owned land with large available space for development.</p> <p>All amenities within reach. Power, water, gas.</p> <p>Excellent access via Emu Point Drive</p>	<p>Management inexperienced in Brewing.</p> <p>Need to raise capital to complete development works.</p> <p>Land development costs, Flood prone area + bushfire area.</p> <p>Existing local competition.</p> <p>Ability to obtain liquor license.</p> <p>Saturated craft beer market in WA.</p>
Opportunities	Threats
<p>Wholesale sales + events.</p> <p>Partnering with other tourist ventures.</p> <p>Opportunity to provide facilities for an art gallery, Noongar interpretation centre, gift shop or other retail.</p> <p>Possibility to let buildings or space to retailers.</p> <p>Provision of facilities such as an adventure playground, surf history interpretation centre.</p>	<p>New regulations. Restrictions on patron numbers due to social distancing requirements.</p> <p>Locals not in support of liquor license</p> <p>Competition opening up close by.</p> <p>Product quality not meeting market standards.</p> <p>Economic downturn. Slow economic recovery from the 2020 Covid 19 pandemic.</p>

Risk assessment

Risk description	Likelihood	Impact	Risk Mitigation Action
Continuing economic downturn due to COVID 19	Likely	Medium	Maintain strict hygiene policies. Work with local & state councils to promote national tourism. Include allowance in budget and financial planning
Liquor licence barriers	Likely	High	Adhere to all policies and laws associated with obtaining liquor licensing. Work with neighbours and community to answer any concerns. Work with consultants.
Unable to obtain planning approval for the venue	Possible	High	Engage in communication with the local council throughout the duration of project planning, implementation & future. Use Consultant to advise on building regulations and litigations.
Slow demand for products and services	Unlikely	High	Have a comprehensive marketing plan in place, to communicate effectively with target audiences. For example, innovative promotional techniques.
High site costs due to low lying nature of the land	Possible	Medium	Ensure landscaping and infrastructure comply with environmental factors, to reduce future issues. Included in the financial plan.
Unable to recruit suitable staff	Unlikely	Medium	We have extensive connections in the local hospitality industry for recruiting.
Unable to source all the required supplies	Unlikely	Medium	Revise relevance of needed supplies, if vital investigate other supply channels that resonate with our ethos.

Suppliers inconsistent supply or quality	Unlikely	Medium	Maintain effective stakeholder communication. Be sure to uphold positive relationships.
Traffic management problems.	Unlikely	Low	Have well designed and signed drive areas. Stakeholder education regarding Dune policies. Work with local traffic management.

Vision, mission and goals

Vision statement

Dune Brewery is a unique microbrewery situated in the dune system of Emu Point Beach. This family friendly venue and brewhouse is a community meeting place where the coastal lifestyle meets modern functionality and progressive ideas and practises.

Dune Beer Co. produces a refined, high quality range of craft beers utilising as many locally sourced ingredients as possible. Our kitchen offers patrons an array of fine yet accessible culinary options which take inspiration from our location and make the most of our remarkable local produce.

We are committed to collaborating with the Noongar community to ensure we respect our land's traditional owners. We hope our venue and grounds can provide a platform for education and awareness of local indigenous culture. Our hope is that our interpretive panels and nature walk along with landscaping inspired by indigenous flora will allow visitors and locals to discover a portion of the rich history of Menang culture.

Dune Beer Co. is a vibrant venue & local hub for culture and arts. We support and encourage local musicians and artists through our live music events and exhibitions. We expose the arts sector to a wider audience of visitors and locals, encouraging further cultural and economic interactions.

As proud members of the broader Great Southern community, Dune Beer Co., It's operators and employees are committed to keeping as much of its development and operations local. Through our development and construction we employ 28 FTE employees and 6.9 casual employees. Our sustained operations and production along with our future potential for growth mean we offer and create sustainable, locally based jobs. A selection of the employment opportunities we create encourage upskilling and further education for employees to grow within their roles adding a further boost to future of our staff and the local economy.

In our operations and production we utilise locally available produce and services. Our products are made using as much locally sourced produce as possible and we aim to invest in practices which encourage further integration of local suppliers and

resources. Our locally sourced, locally produced ethos encourages local economic stimulation in both the short and long term.

Dune Beer Co. is built on a platform of environmental focus and care. As well as reducing emissions by sourcing sustainable products locally we engage in waste minimisation and impact reduction practices. Our brewing process uses the most efficient methods available to us to reduce our energy consumption and waste outputs. We recycle byproducts from the brewing process and harness renewable energy sources to increase our energy efficiency and decrease our environmental footprint. Our focus on sustainability and the environment are key to the way we operate and produce our products.

Mission statement

Dune Beer Co.

We want to bring people together with good food and great beer in an embracing venue which merges elements of our coastal lifestyle with modern functionality and progressive ideas. We believe Albany deserves a venue that reflects its beauty, warmth and welcoming community spirit.

Goals

Dune Beer Co. overall goal is to provide Albany with a premium venue that combines amazing local produce, great beer and a respectful connection to the land. Our short term goals, as reflected in the GANTT chart, include:

1. Gain planning approval from the City Of Albany, final plans have been submitted.
2. Once COA plans are approved, submit application for Liquor License
3. Begin civil works, in preparation for building requirements.
4. Construction & building to commence, brewery fit-out to commence upon completion.
5. Brewery testing and product quality control
6. Team Recruitment & finalisation of operational policies and procedures.
7. Dune Beer Co. to officially open to the public.

Market research

Industry analysis

Hospitality and tourism has been a booming industry in Western Australia, the rise in major resource and energy projects injected significant revenue into the Western Australian economy, and the hospitality market benefited substantially. According to the City Of Albany website the total tourism and hospitality sales in the City of Albany (2018/19) was

\$223.5m, the total value added was \$125.0 million. Our industry is a major contributor to Australia's economy, which is clearly reflected in all economical statistics. However hospitality is not without its challenges, due to heavy industry regulations & restrictions, seasonal factors and a saturated competitive market it can be difficult to run a profitable and successful business.

In recent times the Hospitality industry has been hit hard by the Covid-19 crisis, recognising the impact of Covid-19 on all sectors of the Australian economy is vital to our proposed business plan. In times of crisis we must reevaluate and readjust our business model to accommodate any future issues that may come our way.

A significant challenge for us is legalities and restrictions regarding the Western Australian liquor licensing Act and Albany City Council planning commission, however we are confident that we are well educated, informed and prepared to meet all requirements needed to create Dune Beer Co.

Hospitality is an extremely adaptable industry, driven by social and technological advancements and changes. To be successful it is vital that your business reflects the needs of the community and is accommodating to all target markets.

While it is difficult to predict the future of the hospitality industry, it is known that its success relies heavily on the advancement and profitability of the majority of Australia's other industries. However, the government regulation of finance and support in hospitality and tourism can assure that this important sector to the Australian economy does not diminish.

Kate and Jon Marwick have vast experience and insight into the hospitality industry in Albany, Western Australia. We have operated a successful business that has grown, developed and adapted to be profitable in Albany for the past 10 years. Dune Beer Co. will offer a similar reflection of our family, environmental & cultural values in a premium venue, which is guided by our land and surroundings.

Operating strategy

Location and premises

Description of premises	Description of location: 245 Emu Point Drive
	Zoning: General Agricultural Zone.
	Pedestrian traffic: Nearby to frequently used pedestrian pathways
	Parking: Car Park to be developed on site
	Future developments: Building of brewery and venue. Establishing nature walk through wetlands. Revegetation of wetlands with native flora.

[Note: Location maps and plans attached.]

Environmental strategy

Actions	Target
Revegetate grounds with native flora species.	encourage restoration of the natural wetland ecosystem.
Recycle beer & food production byproducts.	Reduce waste output.
Recycle water waste & capture of rainwater	Reduction of water waste by 40%
Use energy efficient brew house equipment.	Reduction of energy use and emissions.
Install solar power system & use renewable power sources where possible	Ideally reach net zero carbon emissions

Reduce use of single use items where possible.	Reduce waste output.
--	----------------------

Human resources

Key staff

Name	Job title	Skills/qualifications/strengths
Kate Marwick	Founder, Director, Operations Manager	12+ years as Owner/Operator of venue, Project Management.
Jonathan Marwick	Director	12+ years as Owner/Director of Emu Point Cafe.
Phoebe Brown	Marketing Manager	Ba of Marketing/PR/Comms. Marketing experience, Hospitality experience.
William Marwick	Product Manager and Communications	Media, hospitality/craft beer and marketing industry experience.

Benefits to customer:

Our brewery and venue will provide a high standard of experience and product to our customers. Our local patrons will have access to an experience they would otherwise have to travel out of our region for and visitors to the region will benefit from experiencing the best the region has to offer all in one place. Our venue will feature educational and immersive elements which will also enlighten and inform patrons.

Marketing plan

Our main objective is to provide the Great Southern with a premium family friendly venue, that provides the community with quality beer & food.

Dune Beer Co. is owned by a local family and our venue will reflect our family, environmental and cultural morals and values.

Our venue throughout the design and operational procedures will focus on sustainable practices and principles. We are inspired by native plants and grasses in the landscaping of the grounds and development of the menu. We will do our best to operate with impact reduction, and minimal waste practices in mind.

Overview of target markets

In relation to Dune Beer Co. we have segmented the audience into a primary audience, which encapsulates the young adults & family community of the Great Southern. The secondary target audience is segmented into a group we considered to be influential to the success of our business, this group encapsulates baby boomers & tourists. The secondary target market is key to the success of Dune Beer co. because ultimately this key group has a disposable income to spend at an inviting & exciting new venue.

TECHNICAL NOTE



Project Code: W210740 **Project Name:** 245 Emu Point Drive

Dept: Transport Engineering, WA

Date: 4 May 2021 **Version No.** Final

Author: Rodney Ding

Reviewer: Tim Judd

SUBJECT: Assessment of Access Requirements

Page 1 of 6 (plus 1 Attachment)

A boutique brewery development is proposed to be developed on 245 Emu Point Drive in Albany and part of the approval process for this development requires the assessment of the required access requirements for the new driveway and crossover connection to Emu Point Drive.

GTA, now Stantec, were engaged to prepare a short Transport Impact Statement for the proposed development.

Proposed Development

The proposed boutique brewery will consist of the following features which may lead to traffic generation for the overall site:

- Car park with allocated parking for 81 cars
- Bus parking for 4 buses
- Approximately 175sqm of restaurant/alfresco dining
- Approximately 50sqm function room

Access is proposed to be via a single access point on Emu Point Drive, towards the eastern end of the road frontage of the development site. Refer to Attachment A for an overall plan of the development.

Expected Traffic Generation/Distribution

Based on the above floor areas and based on traffic generation rates obtained from ITE's Trip Generation for a Quality Restaurant (which is approximately 7.5 trips per 100sqm with 67% entering and 33% exiting), it has been assessed that the development is expected to generate approximately 27 vehicle trips in the busiest peak hour, consisting of 18 entering and 9 exiting. In terms of the direction these vehicles would approach and leave the proposed development, it has been assumed that 90% (approximately 24 in/out per hour) would be to/from the south/west and 10% (approximately 3 in/out per hour) from the direction of Emu Point.

Emu Point Drive

This road provides the only connection from homes and holiday rental located on the southern shore of Oyster Harbour, east of Albany.

Traffic flows on this road are affected by seasonal variances but based on traffic flows counted outside peak periods in 2010, it is estimated that there is approximately 3,800vpd on Emu Point Drive in the vicinity of the proposed development. Directional splits of this traffic flows are estimated to be evenly split in each direction (east/north and west/south).

There has been a district traffic model developed for the City of Albany, and this includes Emu Point Drive in it. From this model the calibrated traffic flows for 2021 and in 10-years' time of 2031 have been estimated to be:

- 2010 3800vpd
- 2021 4600vpd
- 2031 5200vpd

It has been estimated that there would be approximately 10% of these traffic flows occurring in peak periods.

In the vicinity of this proposed development, Emu Point Road has a speed limit of 70km/h and thus it has been assumed a design speed of 80km/h is appropriate.

Near the location of the proposed crossover the Emu Point Drive cross section in each direction is:

- 3.1 wide traffic lane
- 1.5m wide seal shoulder
- 1.5m wide unsealed gravel shoulder

Crash Assessment

Examining the current crash history for the section of Emu Point Drive from Troode Street west of the proposed development site to Swarbrick Street east of the proposed development site (a distance of approximately 1.6km), has revealed that there have been no recorded crashes in the 5-year period to the end of 2020.

The above length of road was then further expected to include Golf Link Drive (the continuation of Emu Point Drive) and this revealed a single crash in 2020, and this involved an unsecured load falling from a truck and striking a car. This appears not to be related to the road.

This suggests that Emu Point Drive is a relatively safe road to travel along.

Proposed Access Location

From the proposed exit point of the proposed driveway/crossover, it is estimated that there is approximately 135m sight distance available for the western approach to the crossover and in excess of 500m for the eastern approach. This is measured 3m back from the edge line of Emu Point Drive as a vehicle would be exiting a development and would be stopping closer to the edge of the road as compared to a normal intersection.

Australian Standard AS/NZS 2890.1:2004 is a reference for the type of driveway/crossover arrangement which should be provided for developments.

Based on the type of development, the type of use of the development car park, and how this dictates the car park design, in this case the car park and access should be provided for User Class 3, which is short term and high turnover parking.

Further to this, with Emu Point Drive effectively being an arterial road and based on the amount of parking provided, the Category of crossover and driveway to be provided should be a Category 3, refer to Figure 1 below.

TABLE 3.1
SELECTION OF ACCESS FACILITY CATEGORY

Class of parking facility (see Table 1.1)	Frontage road type	Access facility category				
		Number of parking spaces (Note 1)				
		<25	25 to 100	101 to 300	301 to 600	>600
1,1A	Arterial	1	2	3	4	5
	Local	1	1	2	3	4
2	Arterial	2	2	3	4	5
	Local	1	2	3	4	4
3,3A	Arterial	2	3	4	4	5
	Local	1	2	3	4	4

NOTES:

- 1 When a car park has multiple access points, each access should be designed for the number of parking spaces effectively served by that access.
- 2 This Table does not imply that certain types of development are necessarily suitable for location on any particular frontage road type. In particular, access to arterial roads should be limited as far as practicable, and in some circumstances it may be preferable to allow left-turn-only movements into and out of the access driveway.

TABLE 3.2
ACCESS DRIVEWAY WIDTHS

metres			
Category	Entry width	Exit width	Separation of driveways
1	3.0 to 5.5	(Combined) (see Note)	N/A
2	6.0 to 9.0	(Combined) (see Note)	N/A
3	6.0	4.0 to 6.0	1 to 3
4	6.0 to 8.0	6.0 to 8.0	1 to 3
5	To be provided as an intersection, not an access driveway, see Clause 3.1.1.		

NOTE: Driveways are normally combined, but if separate, both entry and exit widths should be 3.0 m min.

Based on this the entry driveway should be 6m wide with a 4-6m exit width and separated by a 1-3 wide traffic island.

Based on this there is no need to provide a driveway access like an intersection. This is only required for Category 5 access facilities.

Based on this requirement and the assessed 80km/h design speed a minimum Stopping Sight Distance of 105m is required and a desirable Entering Sight Distance of 111m is required, as per Figure 3.2 from AS/NZS 2890.1:2004.

In this instance 135m is available, and thus the sight distance for the proposed driveway/crossover is considered appropriate.

Required Channelisation

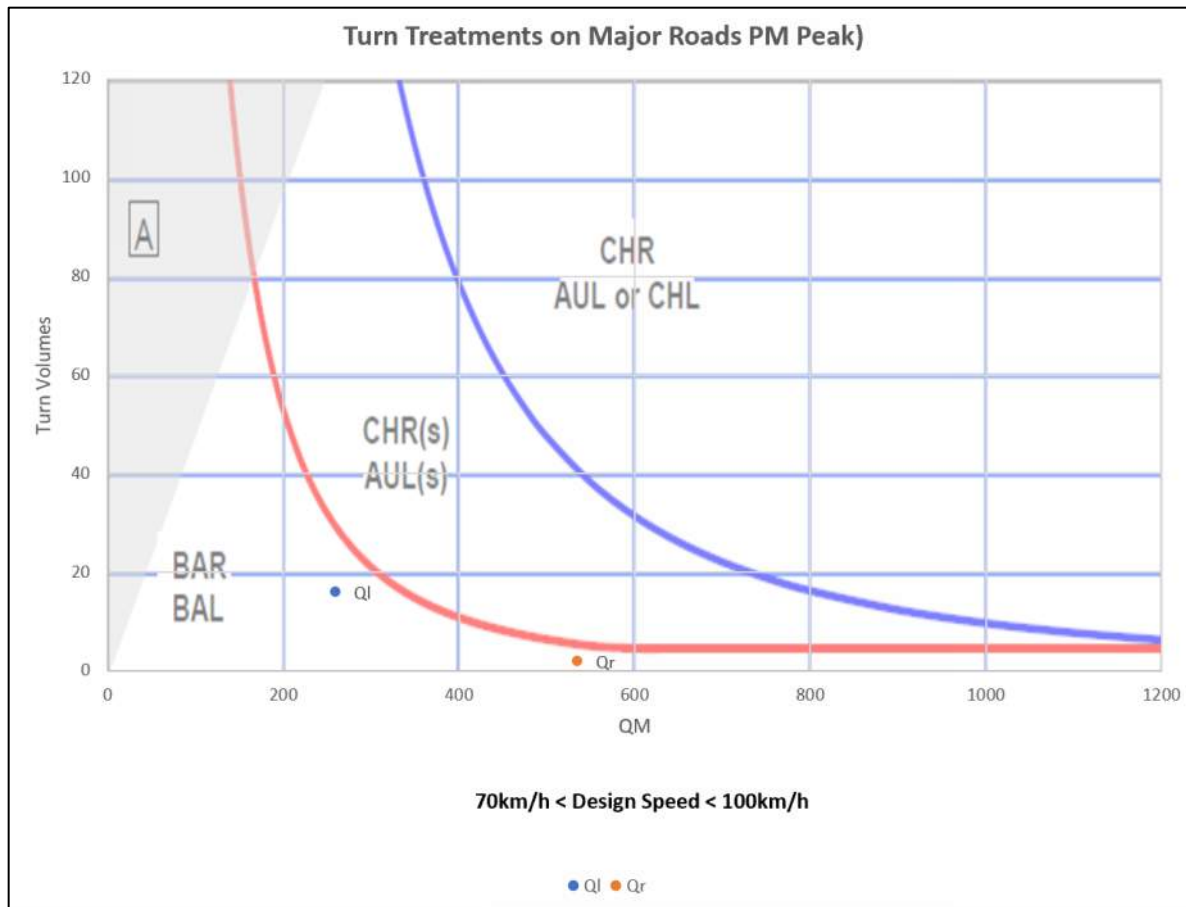
As discussed previously, the current cross section of Emu Point Drive in combination with the above assessed access driveway width, suggests the layout of the access driveway connection to Emu Point Drive to be similar to a BAR/BAL (short for Basic Right turn and Basic Left turn) type intersection.

This type of intersection has very minor local widening to allow through traffic on the main road to slow down and if required, pass vehicles slowing or stopped to turn left or right from the through road.

Austrroads publication *Guide to Traffic Management Part 6 Intersections, Interchanges and Crossings Management* provides guidance as to the type of channelisation required for **intersections** in **greenfield** locations based on safety considerations due to the expected movements. However, remember what we are looking at here is not a formal intersection and is not in a greenfield situation, so the approach is not strictly applicable, but can be used to provide **guidance**.

Based on the assessed traffic generation and distribution of the proposed development and the expected traffic flows in 2031 on Emu Point Drive, the resultant flows have been plotted against graphs from Section 3.3.6 of the above Austrroads guide, the result for the traffic flows is shown below in Figure 2.

Figure 2 Intersection Treatment Required



As can be seen, with the applied directional traffic flows, the type of channelisation required if this was an intersection in a greenfield situation, would be a BAR/BAL. That is what the channelization will be when the access driveway is connected to Emu Point Drive.

Thus, there is no need to modify Emu Point Drive to provide any left or right turn deceleration lanes (turning pockets).

Access Driveway Performance

The above section examined the layout of the access driveway with Emu Point Drive based on the safety performance under the expected traffic flows. What also needs to be assessed is the actual traffic performance of this arrangement to examine overall delays and levels of service.

This assessment has been undertaken utilising Sidra Intersection 8, with the results summarised below in Table 1.

From this it can be seen that there is expected to be minimal queuing and delays with good Levels of Service (LOS A) for all movements and very low Degrees of Saturation.

On this basis, the access driveway as proposed by the developer, is expected to operate efficiently in 2031.

Table 1 Access Driveway Performance

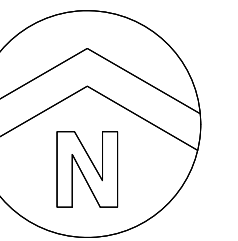
Year	Turning Movements				
	Approach	DOS	LOS	Average Delay (sec)	95th Percentile Queue (m/veh)
2031	Emu Point Dr (E) – T	0.15	A	0s	0.1/0
	Emu Point Dr (E) – R	0.15	A	7s	0.1/0
	Site (N) – L	0.01	A	6s	0.3/0
	Site (N) – R	0.01	A	8s	0.3/0
	Emu Point Dr (W) – L	0.16	A	6s	0
	Emu Point Dr (W) – R	0.16	A	0s	0
	Intersection	0.16	A	0.3	-

Summary

Based on the above assessment it is concluded that:

- There is an appropriate amount of sight distance (135m compared to an absolute minimum of 105m) for the proposed access driveway connection at Emu Point Drive.
- The access driveway should have a 6m wide entry and a 4-6m wide exit separated by a minimum 1m wide traffic island.
- There is no requirement to install left or right turn pockets on either approach to the access driveway.

Attachment 1 Proposed Development Plans

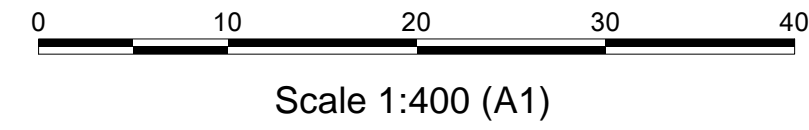


NOTE:
This is a site survey only. The boundaries shown should be used as a reference only as they have NOT been re-established as part of this survey.

Areas & dimensions are subject to final survey.
Station heights are AHD
Sewer information is as supplied by the Water Corporation of W.A. and has not been confirmed on site.
KERB - none
SEWER - no
WATER - yes
POWER - yes
TELSTRA - yes
GAS - No

LEGEND

- Fence
- Top of bank
- Bottom of bank
- Overhead powerline
- Road centreline
- Water meter/connection
- Power dome
- Sewer connection
- Survey control



CLIENT: MCB CONSTRUCTION		LOT: 51 EMU POINT DRIVE, COLLINGWOOD PARK	
PLAN: DP415832	C/T Vol/Fol:	AUTHORITY: CITY OF ALBANY	SHEET 1 OF 1
SCALE: 1:400 (A1)	MAP REF: SEE SMARTPLAN	JOB NUMBER: G703	SHEET SIZE A1
		SURVEY DATE: 24/03/2021	

JOHN KINNEAR & ASSOCIATES
Consulting Surveyors
45 COLLIE STREET
PO BOX 293
ALBANY WA 6331
PHONE (08) 9842 1353 FAX (08) 9842 1570
JKA REF G703 - Sitey A1

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes No

Date of site visit (if applicable): Day Month Year

Report author or reviewer:

WA BPAD accreditation level (please circle):

Not accredited Level 1 BAL assessor Level 2 practitioner Level 3 practitioner

If accredited please provide the following.

BPAD accreditation number: Accreditation expiry: Month Year

Bushfire management plan version number:

Bushfire management plan date: Day Month Year

Client/business name:

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Is the proposal any of the following (see [SPP 3.7 for definitions](#))?

	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input checked="" type="checkbox"/>	<input type="checkbox"/>

None of the above

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer



Date

Bushfire Management Plan

Dune Beer Microbrewery and Restaurant

245 Emu Point Drive Collingwood Park

Client – Dune Beer Co

March 2021



LIMITATIONS STATEMENT

This Bushfire Management Plan ('BMP') has been for a microbrewery/restaurant at Lot 51 (No. 245) Emu Point Drive Collingwood Park (the site).

Envision Bushfire Protection

ABN: 90958370365

124 Derby Road SHENTON PARK WA 6008

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Email: admin@envisionbp.com.au

Version Control

Lot 51 (No. 245) Emu Point Drive Collingwood Park			
Version	Date	Author	
V1	18 March 2021	Anthony Rowe	Draft
V2	25 March 2021	Anthony Rowe	Submission

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Disclaimer

In undertaking this work, the authors have made every effort to accurately apply the available information **at the time of writing** following the instructions of the regulatory authorities and applying best practice as described by the Fire Protection Association Australia. Any conclusions drawn or recommendations made in the report are made in good faith, and the consultants take no responsibility for how this information and the report are subsequently used.

Envision Bushfire Protection accepts no liability for a third party's use of, or reliance upon, this specific report.

Importantly the measures contained in this report cannot guarantee human safety or an absence of harm or that the building will not be damaged or would survive a bushfire event on every occasion. This is due to the unpredictable nature of fire behaviour (knowledge in this field continues to develop) and the unpredictable nature of extreme weather conditions.

This report has been prepared, in part utilising the WALGA Environmental Planning Tool ('EPT'). The author agrees that at all times, copyright in the material on the EPT website remains with WALGA and the Contributors as the case may be and has cited the EPT as being the source of information and acknowledges the contributor's copyright in the Information.

Scope of this report

Envision Bushfire Protection has been engaged to provide expert bushfire safety and planning advice.

The scope of the advice has been to assess the proposal for compliance with the policy measures described in State Planning Policy 3.7 and identify appropriate mitigation measures to be considered by the determining authority. This is described in a Bushfire Management Plan and prepared with regard to the Department of Planning Lands and Heritage templates.

The investigations and mitigation measures identified in the BMP, has, in turn, formed the basis for the preparation of a Bushfire Emergency Evacuation Plan.

Client relationship

I was engaged to provide expert bushfire safety and planning advice. My relationship with the client is a standard commercial contract, and no private, personal, or other matter has influenced the content of the BMP or my findings.

STATEMENT OF CONFORMITY – PLANNING AND DEVELOPMENT ACT 2005



Anthony Rowe Level 3 - BPAD36690

Principal



The signatory declares that this Bushfire Management Plan meets the requirements of State Planning Policy 3.7 and the Guidelines for Planning in Bushfire Prone Areas V1.3.

SUMMARY

Preface

The applicant proposes to construct a new building microbrewery/restaurant at Lot 51 (No. 245) Emu Point Drive Collingwood Park (the site).

The site is within a declared bushfire prone area. Accordingly, the proposal is development that is required to be assessed for its compliance with State Planning Policy 3.7 *Planning in Bushfire Prone Areas* ('SPP 3.7') and the bushfire protection criteria described in the Guidelines V1.3.

The intent of the policy is: ***“to preserve life and reduce the impact of bushfire on property and infrastructure”***. The proposed land-use because it will invite visitation by people unfamiliar with the locality is classified as a 'Vulnerable' development. In addition to addressing the bushfire protection criteria through a Bushfire Management Plan (BMP), the application is to be accompanied by a bushfire emergency evacuation plan (BEEP). Together they address the preservation of life (BEEP) and impact of bushfire on property (BMP).

This BMP has been prepared in accordance with SPP 3.7 and Appendix Five in the Guidelines V1.3 and the Department of Planning Lands and Heritage (DPLH) *BMP Template for a complex development application*.

The following describes the outcome of the investigations, following the arrangement described by the DPLH template.

1. Proposal details (addressed in Section 1)

The proposal is to construct a microbrewery/restaurant at the site. The site is a large residential lot, 2 ha with a single dwelling located at the southern extent (Emu Point Drive) within a 0.5 ha, cleared area. The site is low, lying close to the water table, and flat. The site is predominantly low threat from Emu Point Drive (south boundary) transitioning through shrubland to forest at the northern boundary.

The proposed microbrewery restaurant building is to be located within an area 53 m from Emu Point Drive, and on the east side of the site within an area classed as shrubland (shrubs < 2m).

2. Environmental considerations (addressed in Section 2)

The brewery building Asset Protection Zone, and carpark will displace shrubland that is located on the site. The site is within an area identified as containing a potential roosting area for the Carnaby Black Cockatoo and remnant vegetation corridors at the forest area that will not be affected by the placement of the development.

3. Bushfire assessment results (addressed in Section 3)

A Bushfire Attack Level assessment following Method 1 AS 3959:2018, and the DPLH *Visual guide for bushfire risk assessment in Western Australia*, and using an FFDI of 80, has been undertaken by Biodiverse Solutions 21 January 2021. The site is classed as BAL 29, to present vegetation, but potentially BAL FZ if the adjoining land is planted to forest. It is recommended the building be set back from the east boundary at 21 m to maintain BAL 29, if forest were to regenerate at the west boundary.

4. Identification of bushfire hazard issues (addressed in Section 4)

The longest fire runs to the site are from the west and the east, and there is a lack of fuel continuity from the north or south; the site is therefore most likely to be affected by a narrow firefront.

The possible threat scenarios are:

- A fire arriving under westerly winds towards the site forcing evacuation to Emu Point.
- A fire arriving from the east towards the site forcing evacuation to the Albany Town centre by Troode Street or Golf Course Links Road
- Dispersed ember attack from extreme fire behaviour in the National Park, forest, across the water channel, and east of the site.

5. Assessment against the bushfire protection criteria (addressed in Section 5)

The proposal was compared with the four Bushfire Protection Criteria Elements: Location, Siting and Design, Access, and Water.

Acceptable Solution

Element 1 - Location

The Acceptable Solution for Element 1 requires that areas of 'extreme' bushfire hazard level are to be avoided. This element applies primarily to strategic considerations and can be extended to consider a broader context of safe access. The proposal is located within an area classed as having a 'moderate' bushfire level hazard (Appendix 2 the Guidelines). The proposal is compliant with Element 1.

Element 2 --Siting and Design

The Acceptable Solution for Element 2 requires that the development site should on completion have a BAL level not exceeding BAL 29.

The proposal is determined to be within the range of BAL-29 based upon present vegetation. The potential however exists for regeneration of forest at the east boundary. It is recommended the building be sited 21 m from the east boundary to be assured of maintaining BAL 29, regardless of the potential regeneration of forest east of the lot boundary.

Element 3 - Vehicle Access

The Acceptable Solution requires access to a through road that provides alternative destinations for evacuation, and from which assistance from emergency services can be received.

The proposal is unable to satisfy the Acceptable Solution and is therefore required to satisfy the intent of Element 3 *To ensure that the vehicular access serving a development is available and safe during a bushfire event*

The site is serviced by a single access from Emu Point Drive. The site connects to Albany Town Centre from Emu Point Drive via Troode Street and either Collingwood Road or Ulster Road, or via Golf Links Road and Middleton Road. Emu Point Drive extends north east of the site to the Emu Point residential area (BAL Low area).

Both the Albany Town Centre and Emu Point are BAL Low destinations (< BAL 2) that provide the opportunity for safety in a bushfire event. Both areas have amenities to support shelter, but Emu Point does not have a nominated evacuation centre. The ABCB standard for community evacuation centres is a building sited within BAL 10 (10 Kw m²) or an open space less than BAL 2 (BAL Low).

The State Emergency Management Committee *Western Australia Community Evacuation in Emergencies Guideline (Appendix B page 11)* identifies that a coastal location is suitable as a safer place.

In addition the City of Albany is in the process of identifying safer places for various emergency events.

Element 4 - Water

The site has access to reticulated water supply. A fire hydrant is located on Emu Point Drive 132 m from the entrance.

The proposal is to be provided with a 175,000 L rainwater tank

The proposal is compliant with Element 4.

Additional Bushfire Management Strategies (addressed in section 5.2)

Additional management strategies, further to the Bushfire Protection Criteria, includes the measures to minimise exposure of visitors to bushfire impacts. This is addressed in the Bushfire Emergency Evacuation Plan (Appendix 2).

Spatial representation of the bushfire management strategies (Figure EX 1)

The key features demonstrating compliance with the bushfire protection measures are identified on the *Spatial representation of the bushfire management strategies*.

These actions are reflected in the following *Responsibilities for implementation and management of the bushfire measures*.

6. Responsibilities for implementation and management of the bushfire measures

The Owner responsibilities (Guidelines 4.6.3) identify the bushfire management measures necessary to achieve compliance with the bushfire protection criteria.

Owner

- | | | |
|----|---|--------------------------------|
| 1. | The adoption of the Bushfire Emergency Evacuation Plan (Appendix 2). | Prior to operation and ongoing |
| 2. | The microbrewery restaurant is to be located no closer than 21 m to the east boundary. | Prior to operation and ongoing |
| 3. | The establishment of an Asset Protection Zone (APZ), 21 m from the outer wall of the building, as illustrated on the Spatial Representation of Bushfire Management Strategies, in accordance with the Standards for Asset Protection Zones (Schedule 1 Guidelines for Planning in Bushfire Prone Areas V1.3) or s. 2.2.3.2(f) AS3959:2018 (Appendix 3). | Prior to operation and ongoing |
| 4. | The microbrewery restaurant building is to be constructed to the equivalent of BAL 29 as described in AS3959:2018 section 3 and 7 (pursuant to R.48(E)(1), Schedule 2, LPS Regulation 2015). | Prior to operation and ongoing |
| 5. | The private driveway and carpark shall be provided and maintain a vehicle accessway to the Technical requirements provided in the Guidelines at Element 3 Table 6 column 3 (Appendix 4) | Prior to operation and ongoing |
| 6. | The provision of externally located fire hoses capable of applying water onto all parts of the building and on all areas extending up to 10 m from the building. The fire hoses should comply with AS 1221: 1997 | Prior to operation and ongoing |

Advisory notes

1. The landowner acknowledges their duty of care to protect any visitors to the site from harm from a bushfire affecting the property.
2. The landowner is responsible for availing themselves of any promotions and information to assist owners in preparing for and responding to a bushfire event as may be made by the City or the Department Fire and Emergency Services
3. Where there is conflict between this Bushfire Management Plan and the City of Albany Fire Management Notice the higher level of bushfire protection will prevail

The City of Albany

- | | |
|--|---------|
| 1. Developing and maintaining district bushfire fighting services and facilities. | Ongoing |
| 2. Identifying and promoting 'safer places' for evacuation in a bushfire event. | Ongoing |
| 3. Administer the <i>Bushfire Act 1954</i> and monitor landowner compliance to maintain land in a state not conducive to the ignition or spread of bushfire. | Ongoing |
| 4. Promoting education and awareness of bushfire prevention and preparation measures through the community. | Ongoing |
| 5. Administering the requirements of the <i>Planning and Development Act 2005</i> by ensuring the facility closure in accordance with the terms of the Development approval. | Ongoing |
| 6. Administering the requirements of the <i>Planning and Development Act 2005</i> and the <i>Building Act 2011</i> . | Ongoing |

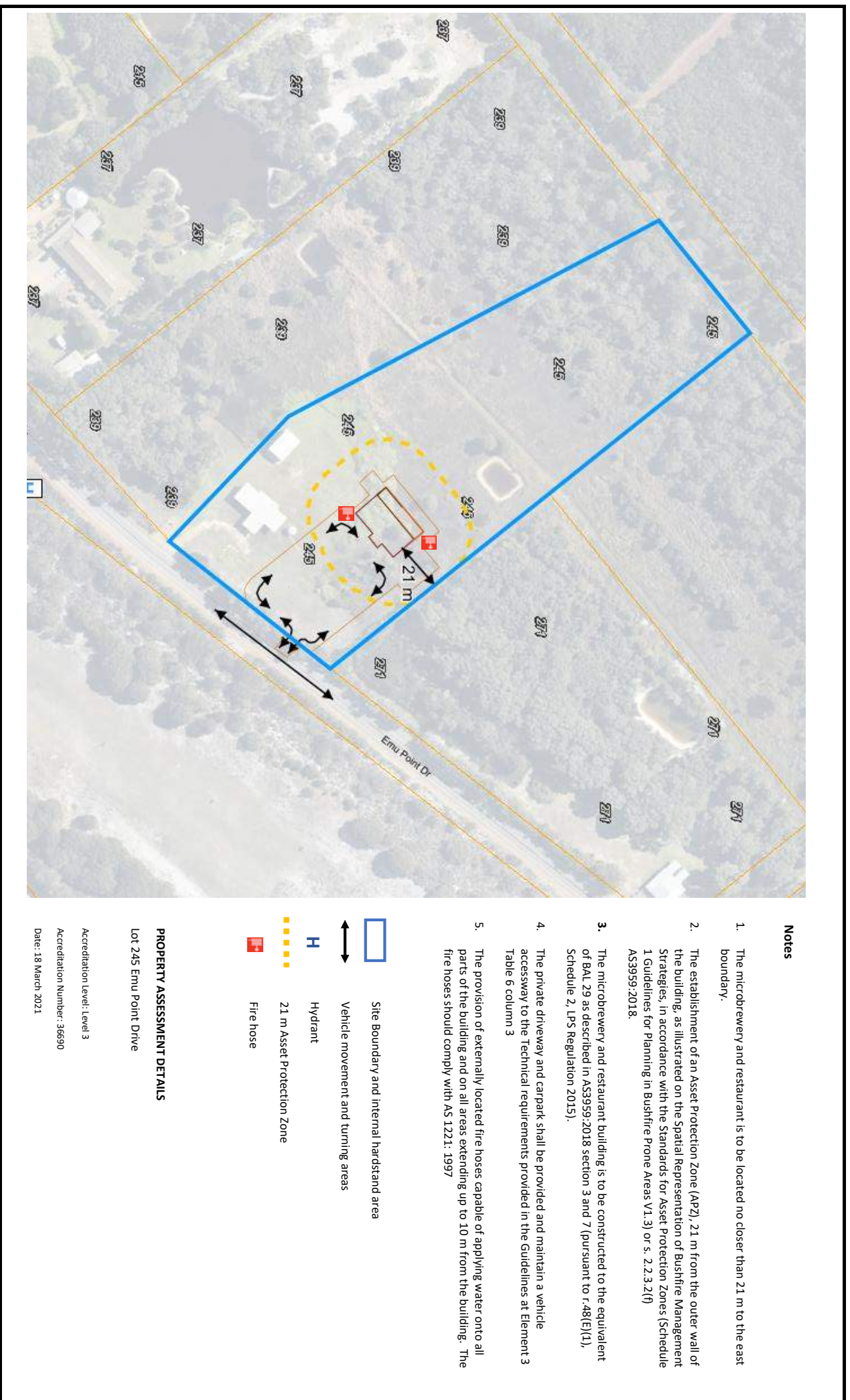
State Government

- | | |
|--|---------|
| • Notification of Emergency Alerts - Website and Telecommunication Media | Ongoing |
| • Policing operations to minimise the deliberate ignition of bushfires. | Ongoing |
| • Maintain fuel reduction on public lands | Ongoing |

Acknowledgment - Proponent






The proponent acknowledges the responsibilities as listed above and the requirement to ensure that should the land transfer to a new owner, that the new owner is aware of the BMP and their ongoing responsibility.

Figure EX 1 - Spatial representation of the proposed risk management strategies



Notes

1. The microbrewery and restaurant is to be located no closer than 21 m to the east boundary.
2. The establishment of an Asset Protection Zone (APZ), 21 m from the outer wall of the building, as illustrated on the Spatial Representation of Bushfire Management Strategies, in accordance with the Standards for Asset Protection Zones (Schedule 1 Guidelines for Planning in Bushfire Prone Areas V1.3) or s. 2.2.3.2(f) AS3959:2018.
3. The microbrewery and restaurant building is to be constructed to the equivalent of BAL 29 as described in AS3959:2018 section 3 and 7 (pursuant to r.48(E)(1), Schedule 2, LPS Regulation 2015).
4. The private driveway and carpark shall be provided and maintain a vehicle accessway to the Technical requirements provided in the Guidelines at Element 3 Table 6 column 3
5. The provision of externally located fire hoses capable of applying water onto all parts of the building and on all areas extending up to 10 m from the building. The fire hoses should comply with AS 1221: 1997

-  Site Boundary and internal hardstand area
-  Vehicle movement and turning areas
-  Hydrant
-  21 m Asset Protection Zone
-  Fire hose

PROPERTY ASSESSMENT DETAILS

Lot 245 Emu Point Drive
Accreditation Level: Level 3
Accreditation Number: 36690
Date: 18 March 2021

EMERGENCY EVACUATION DIAGRAM

ALARM

1. IF YOU SEE SMOKE
2. IF YOU SEE FIRE

PHONE 000 or 112 (mobile)

Describe your location and where the smoke or fire is

3. IF YOU ARE TOLD TO LEAVE

EVACUATE BY VEHICLE TO

ALBANY LEISURE AND AQUATIC CENTRE

52-70 BARKER ROAD, CENTENNIAL PARK
or a centre otherwise advised by DFES (directly or via publicly broadcast information and warnings)

1. Close all windows and doors (staff)
2. Evacuate to **ALBANY LEISURE AND AQUATIC CENTRE** by vehicle from Emu Point Drive - Troode Street – Collingwood Road – Angove Road – Campbell Road – North Road – Sanford Road
DO NOT TRAVEL THROUGH FIRE.

If advised it is not safe to travel towards the Albany Town Centre and the Albany Leisure and Aquatic Centre, then:

1. Evacuate to the Emu Point Foreshore reserve via Emu Point Road - Mermaid Avenue – Hunter Street - Roe Parade.
2. Keep guests together
3. Monitor emergency information
 - a. ABC Local radio 630 am
 - b. DFES on 13 33 37
 - c. Emergency WA - www.emergency.wa.gov.au
4. Oversee return of guests to the restaurant (if safe) or to their homes when Emu Point Drive is declared safe.

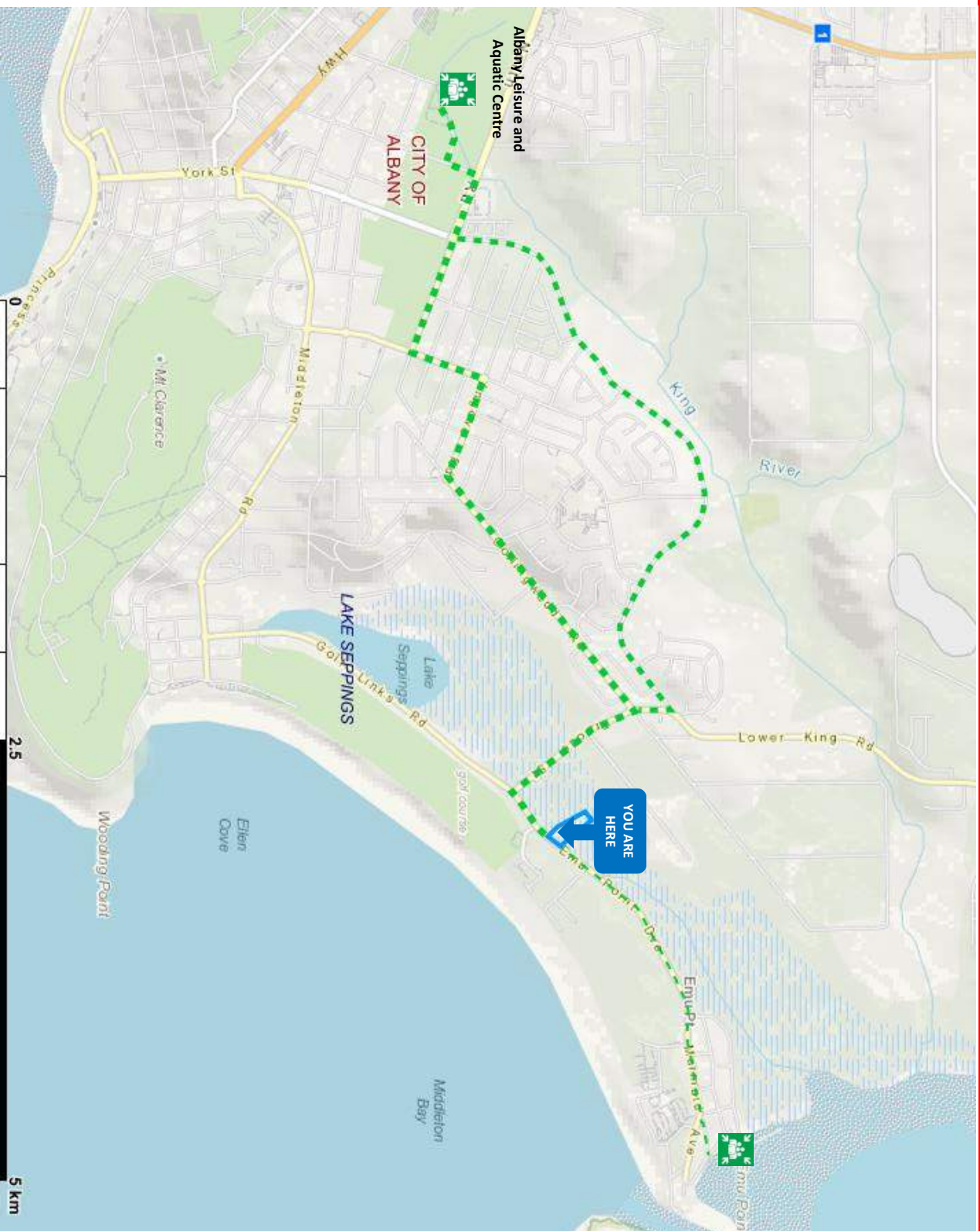


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1. PROPOSAL DETAILS

1.1 Introduction

The purpose of this BMP is to assess the suitability of a microbrewery/restaurant at Lot 51 (No. 245) Emu Point Drive Collingwood Park (**'the site'**).

The site is in the City of Albany (location **Plate 1**) and is located within a bushfire prone area (OBRM 2019) **Plate 2**.

Development, buildings, and land uses, located within a bushfire prone area, are required to demonstrate compliance with the requirements of State Planning Policy 3.7.

The policy intent is **to preserve life and reduce the impact of bushfire on property and infrastructure**, and compliance is achieved where a proposal incorporates the Acceptable Solutions as described under each Element in the Bushfire Protection Criteria or can satisfy the intent of each Element by performance principle and the Precautionary Principle.

This document presents an assessment of a proposed vulnerable class of development "visitation uses that may involve people who are unaware of their surroundings" with the requirements State Planning Policy 3.7 and *Guidelines for Planning in Bushfire Prone Areas* (WAPC, V1.3 December 2017) including assessment against each of the Bushfire Protection Criteria and the requirement for an Emergency Evacuation Plan.

Purpose of this Plan

The purpose of this BMP is to assess the suitability of the proposal and its location for the intended use and identify the measures to avoid an increase in the threat of bushfire and reduce the vulnerability of people and property (to the degree necessary) from potentially significant adverse bushfire impacts.

Site and Proposal Description

Landowner				
Address	Lot 51 (No. 245) Emu Point Drive Collingwood Park			
Local Government Area	City of Albany			
Local Planning Scheme Zone	General Agriculture			
Bushfire Season	1 December – 12 May (precise dates may vary annually)			
Development proposal	Microbrewery Restaurant			
Building class	5			
Land description site	<p>Large residential lot 2 ha, with a house located at the southern extent (Emu Point Drive) within a 0.5 ha, cleared area.</p> <p>The proposed brewery/restaurant is to be located within an area on the site that is classed as shrubland (shrubs < 2m), adjoining scrub (trees < 6 m) and forest (trees > 6 m)</p>			
Adjoining Land uses (within 150 m)	North	East	South	West
	Shrubland followed by forest	Forest vegetation within rural residential, disturbed continuity	Forest vegetation within rural residential, disturbed continuity	Forest vegetation within rural residential, disturbed continuity

Road Access	The site is located 5 km east of the Albany Town Centre, and serviced by a single road (Emu Point Drive).
Nearest town centre	City of Albany 5.3 km and 6.7 km by road to the town centre.
Water supply	The site has access to the Albany Township reticulated water supply, and a hydrant is located on Emu Point Drive 55 m west from the Site.
Tele communications	The site is within the Telstra 4G network
Emergency services	The nearest rural fire brigade is located in the Albany township (6.7 km).
Minor Development	N/A
Unavoidable development	N/A
Vulnerable Development	Yes
High risk land use	N/A



Plate 1: Site in Locality.

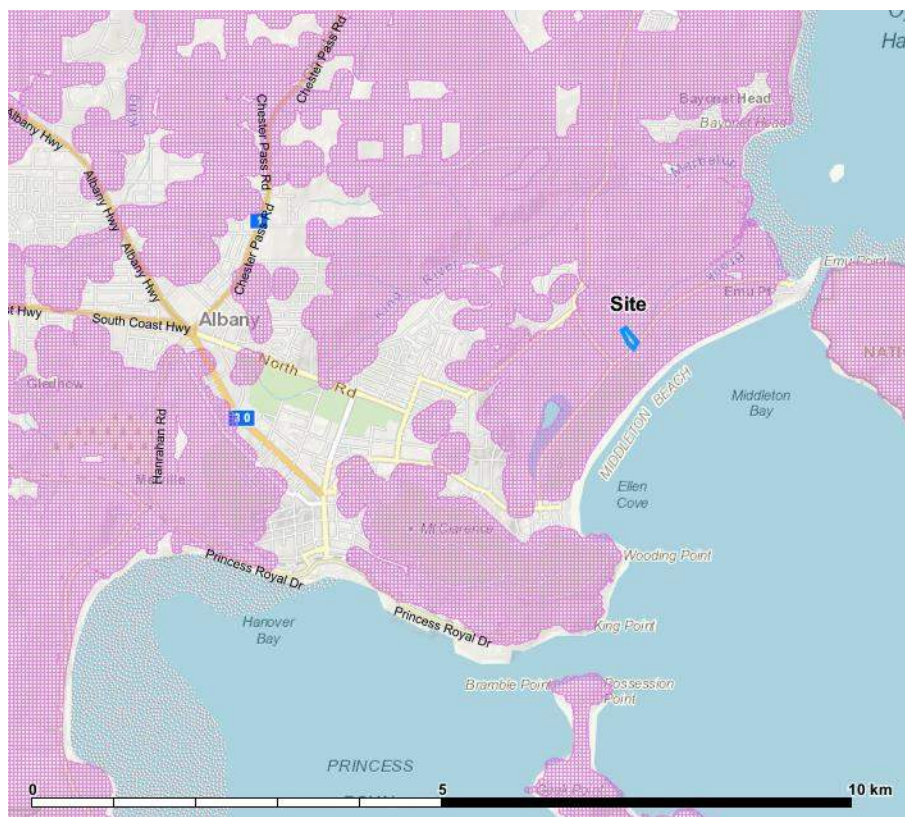


Plate 2: OBRM Bushfire Prone Area (Pink area)

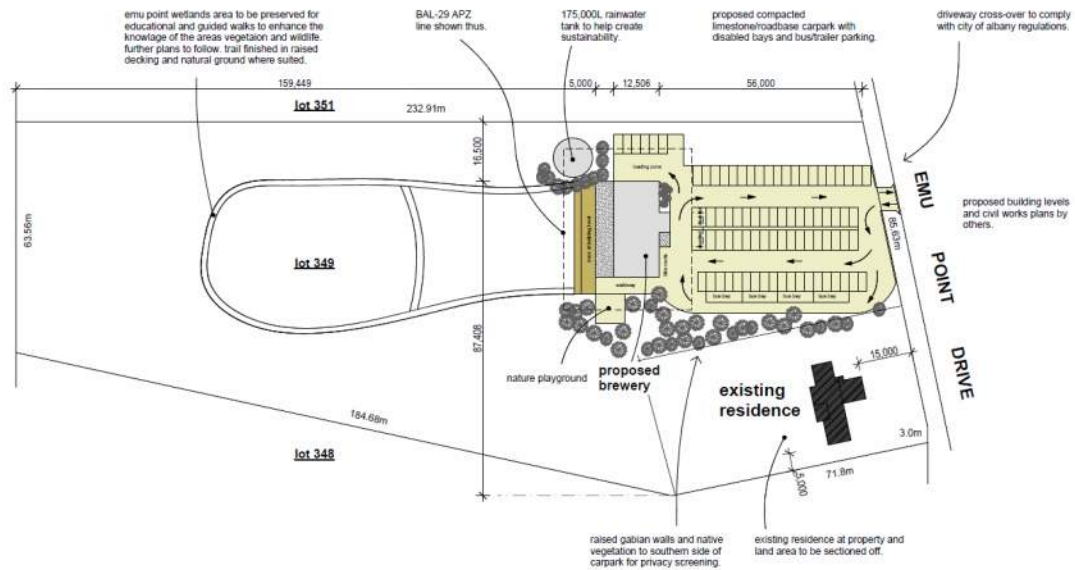


Plate 3: Site Plan

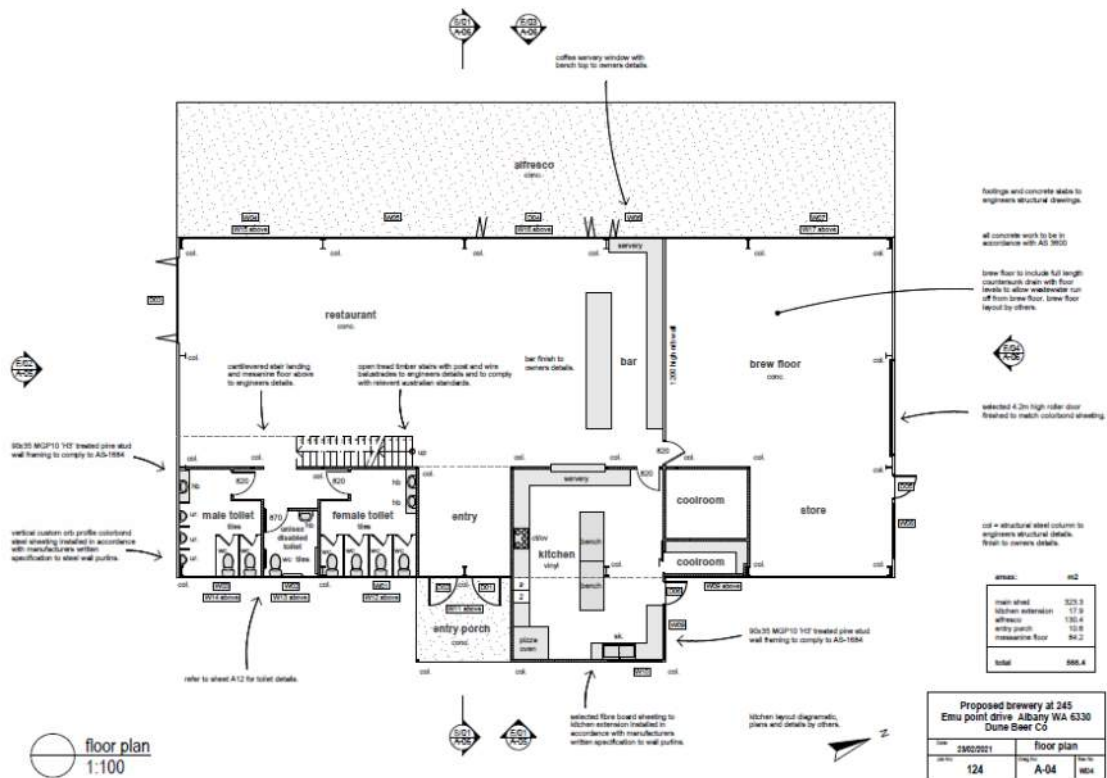


Plate 4: floor plan

1.2 Regulatory Compliance Requirements

Planning and Development Act 2005 - SPP 3.7

On 7 December 2015, the State Government introduced a State map of Bushfire Prone Areas by order under the *Fire and Emergency Services Act 1998* and introduced development controls in Bushfire Prone Areas through the *Planning and Development Act 2005*. These controls were authorised by State Planning Policy 3.7 (Planning in Bushfire Prone Areas) regulations introduced under Part 10A Schedule 2 of the *Planning and Development (Local Planning Scheme) Regulations 2015* and guided by the *Guidelines for Planning in Bushfire Prone Areas*.

The State Planning Policy, Regulations, and Guidelines now form the foundation for fire risk management planning in WA at a community and land development level. The Policy Intent of SPP 3.7 is **to preserve life and reduce the impact of bushfire on property and infrastructure**.

Vulnerable Land Uses (Guidelines for Planning in Bushfire Prone Areas cl.5.5.1)

The proposal is for Microbrewery and Restaurant which is likely to attract visitation by persons not familiar with the location; it is, therefore, a 'vulnerable' development and pursuant to cl. 6.2 (SPP 3.7).

Typically, *Vulnerable* land uses are those where persons may be less able to respond in a bushfire emergency.

This includes:

- *“short stay accommodation or visitation uses that involve people who are unaware of their surroundings and who may require assistance or direction in the event of a bushfire, such as bed and breakfast, caravan park and camping ground, holiday house, holiday accommodation, home business, serviced (short stay) apartment, tourist development and workers’ accommodation.”*

In recent court determinations, it has been acknowledged that whilst people may choose to live in a dangerous location, that is different to inviting people who may or may not be aware of the danger of a bushfire. (JURAN and CITY OF ARMADALE [2018] WASAT 49 (21 June 2018). Consequently, the requirement for the precautionary principle to be applied by cl.6.11 in SPP 3.7, necessitates a higher consideration of safety, than may normally be expected of an owner, where it involves a 'vulnerable' development.

An additional requirement provided by SPP 3.7 and its Guidelines, is that a proposal that is classified as a vulnerable development is to be accompanied by a BEEP, comprising the details described at cl.5.5.2 of the Guidelines.

Building Act 2011

The Microbrewery Restaurant is a class 5 building under the *Building Act 2011*. It is required to comply with the Fire requirements of the National Construction Code NCC 2018 Vol 1 but not routinely the bushfire requirements described in AS3959:2018, unless specified through the Development Approval (as authorised by the Planning and Development Local Planning Schemes Regulations 2015 (LPS 2015), Schedule 2, regulation 78(E)(1)). *This regulation allows the application of the AS 3959:2018 construction standard to be applied provided they are not in conflict with a requirement of the Building Act 2011 (including the Building Regulations 2012 and the NCC).*

Bushfires Act 1954

Section 33 of the *Bushfires Act 1954* recognises the responsibility of all landowners to prevent the spread of bushfire. It establishes a mutual obligation between landowners to reduce the risk of bushfire affecting their neighbours. Local government, at any time, may give notice in writing to an owner or occupier of land within the district of the local government. The Notice may specify works to be undertaken, including the management of grasses on the property usually to be maintained at less than 10 cm during the fire season. It also provides that the identified works can be undertaken as a separate operation or in coordination with the neighbouring land.

Environment Protection Act 1986 and Environmental Protection (clearing native vegetation) Regulation 2004

It is an offense to clear native vegetation without the authority of a permit or an exemption. The act of clearing native vegetation, requires a permit from either the Department of Water and Environmental Regulation (DWER) or the Department of Mines, Industry Regulation and Safety (DMIRS), unless an exemption applies.

Exemptions include:

Environment Protection Act 1986

- Clearing required by local Government Section 33 *Bushfire Act 1954*.
- Clearing of vegetation up to 20 m around a house (unrestricted - no conditions apply)
- Clearing in accordance with the terms of a subdivision approval.
- Clearing in accordance with a permit under the *Bushfires Act 1954* (prescribed burning) and clearing by a bushfire control officer.

Environmental Protection (clearing native vegetation) Regulation 2004 (exemptions do not apply in Environmentally Sensitive Areas, and clearing > than 5ha)

<https://www.der.wa.gov.au/your-environment/environmentally-sensitive-areas>

- Clearing to the extent necessary to construct an approved building (restrictions apply).
- Clearing that is for fire hazard reduction burning.
- Clearing to maintain an area cleared in the last 10 years.

2. ENVIRONMENTAL CONSIDERATIONS

2.1 Native Vegetation – Modification and Clearing

A fundamental consideration in the assessment of development under SPP 3.7 is to avoid instances where bushfire risk management measures would conflict with or be limited by other biodiversity management measures.

In accordance with the Department of Planning Lands and Heritage template (BMP template to support a BAL Contour Assessment) a review of the listed databases has been undertaken as part of this assessment to identify whether restrictions or other specific considerations may apply that would affect the implementation of any bushfire protection initiatives that may otherwise be identified.

Table 1: Ecological database assessment.

Table 2: Ecology datasets

Is the land affected by:	Affected by the proposal	If yes - describe
Conservation Wetland or buffer (DBCA-019 DBCA-017)	Nearby	A conservation category wetland is located at the northern portion of the site.
RAMSAR Wetland (DBCA-010)	No	
Threatened and Priority Flora (DBCA-036)	Nearby	
Threatened and Priority Fauna (DBCA-037)	Nearby	A potential roosting area for the Carnaby Black Cockatoo is located north of the site

Threatened Ecological Communities (DBCA-038)	No	
Bush Forever (COP-071)	No	
Environmentally Sensitive Area (DWER-046)	No	
Regionally Significant Natural Areas (DWER-070)	Nearby	Remnant vegetation corridors are identified outside of the site.
Conservation Covenant (DPIRD-023)	No	
South West Ecological Linkages	No	
Does the proposal require the removal of restricted vegetation?		No

The placement of the buildings and carpark will displace shrubland; the provision of an Asset Protection Zone to BAL-29 will require modification of that shrubland.

The proposed development is inset from the east boundary a sufficient distance to achieve BAL-29, without requiring modification (fuel reduction) beyond the east boundary.

2.2 Re-vegetation/Landscape Plans

Re-vegetation/landscape plans are not included, but cultivated gardens are proposed around the building and to provide screening to the existing dwelling, east of the brewery.

A walking trail, to the wetland north of the site, is proposed.

3. BUSHFIRE ASSESSMENT

3.1 Bushfire Attack Level Assessment (Inputs)

The following assessment has been undertaken in accordance with the methodologies described in AS3959:2018 and in accordance with the Guidelines and the Fire Protection Association accredited practitioner methodology. Attached at Appendix 1 of this report.

All vegetation within 150 m (**context**) of the subject building has been classified (AS 3959:2018 Clause 2.2.3) to determine the Bushfire Hazard Level at the site;

The BAL rating has been determined through site inspection and assessment of the following parameters:

- Fire Danger Index (FDI) rating; assumed to be FDI - 80 for Western Australia;
- Slope of the land under the classified vegetation;
- Mapping the development location with the location of bushfire classified vegetation;
- Mapping (spatially) the Bushfire Attack Level Contour affecting the development site, portion of the lot where the building is to be placed.

In assessing vegetation classes for forests, woodlands and rainforests, the classified vegetation will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk of any trees.

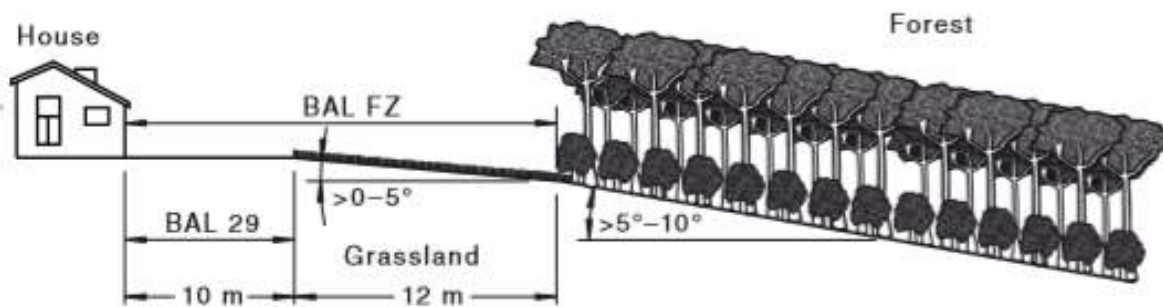


FIGURE 2.2 EXAMPLE OF VARYING SLOPE RANGES FOR ASSESSMENT

Plate 5: Arrangement of inputs for the determination of a BAL.

The Bushfire Attack Level across the Site has been determined by Bio Diverse Solutions (Jason Benson BPAD 37893). The BAL report 15/03/2021 is attached at Appendix 1.

The Assessment was undertaken on 21 January 2021 in accordance with the methodologies described in AS3959:2018 and in accordance with the Guidelines and the Fire Protection Association accredited practitioner methodology.

The site inspection was undertaken on, in accordance with the FPAA Guidelines.

3.2 Indicative Bushfire Attack Level (Outputs) Method 1

The Determined Bushfire Attack Level (highest BAL) for the site / proposed development is based upon the conditions and classified vegetation expected upon completion, this includes an Asset Protection Zone of 21m contained within the site boundary.

The classified vegetation, expected upon completion, assumes the regeneration of vegetation up to the east boundary. This is illustrated in **Figure 1**.

The positioning of the building, 21 m from the east boundary, and the indicative BAL at the building are shown on shown on **Figure 2**.

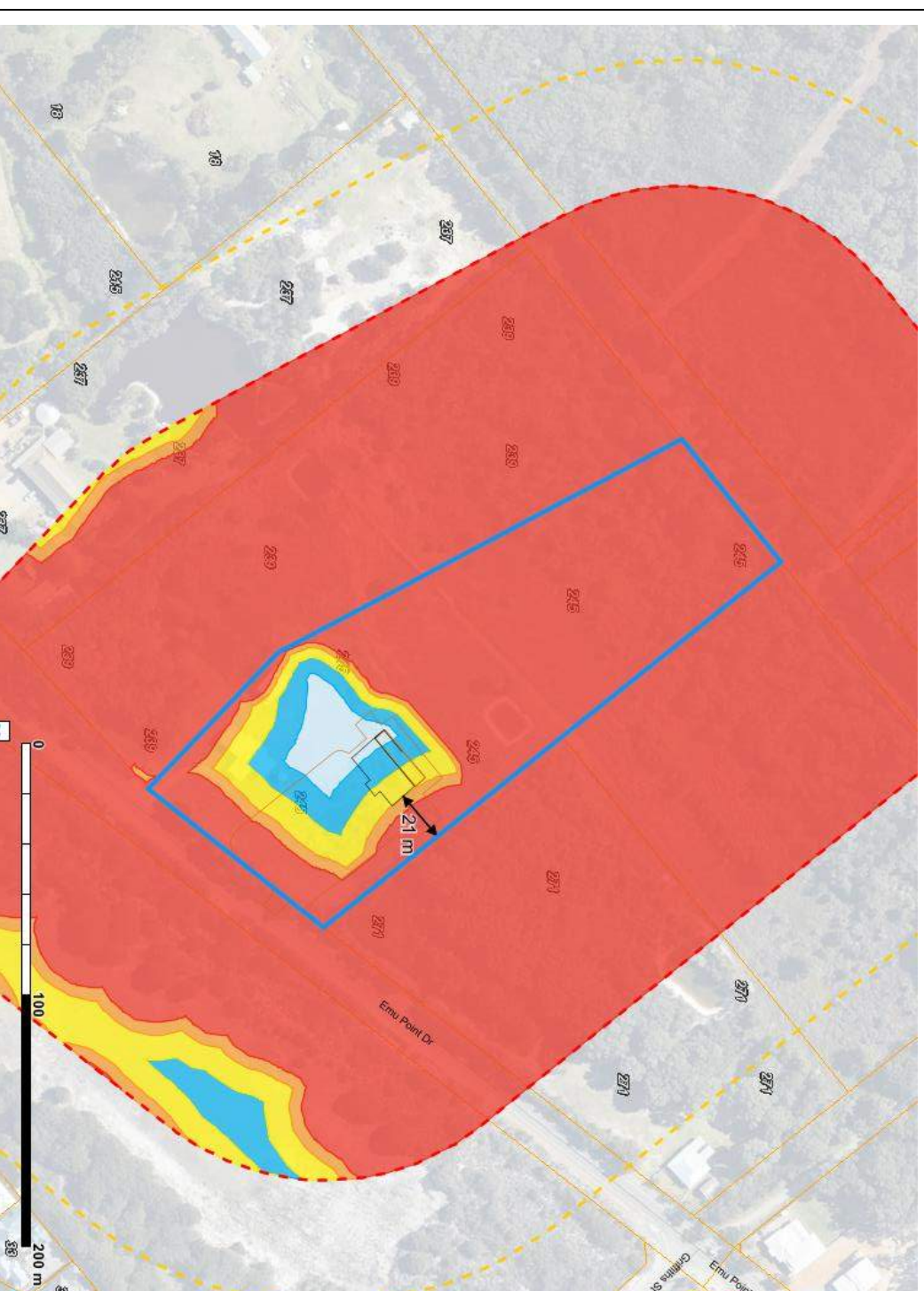
Indicative Bushfire Attack Level (21 m setback)

BAL - 29

Figure 1: Vegetation Classification – 245 Emu Point Drive Collingwood Park



Figure 2: BAL Contour --- 245 Emu Point Drive Collingwood Park – 21 m east setback



- Building Envelope
- Site boundary
- 150 m assessment area
- 100 m assessment area
- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-Low

Prepared: Anthony Rowe
 Accreditation Level: BPAD L3
 Accreditation Number: 36690
 Accreditation Expiry: Dec 2021
 FPAA FIRE MAP 2020
 GADDA 1994 MGA Zone 50

© 2021 Any conclusions drawn, or recommendations made in this report are made in good faith. No responsibility is taken for how this information and the report are used subsequently by others.

4. IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

4.1 Bushfire Behaviour

Bushfire behaviour is the primary determinant of the bushfire risk and the design fire as a basis for identifying appropriate treatments. Bushfire behaviour is affected by three factors;

- Climate (drought and season) & weather (temperature, humidity, wind, atmospheric instability) – determines the intensity of a fire, the speed and direction, and potential for advanced spotting. Measured as an FDI in AS 3959.
- Topography (slope of the ground, aspect, and wind influences) – fire travels faster uphill, the flame length is increased uphill, landforms can channel and increase local windspeed and create turbulence. Measured as 0.0^0 or a degree downslope in AS 3959 (Method 1).
- Vegetation (horizontal and vertical structure, flammability, mass, and availability). Measured as a vegetation classification, or an exclusion, in AS 3959 (Method 1).

It is assumed that a bushfire will achieve a steady-state and be fully developed to maximum intensity over a 100 m (minimum fire run). Grass fires travel faster (GFDI) than a forest canopy fire, but a forest canopy fire can eject a higher level of embers and also eject them over a greater distance. Crown fires occur when the ground fire is intense, and conversely, when ground fuels are managed, the resultant fire intensity may not be sufficient to involve the crown, and a crown fire cannot be sustained. Separating the vertical structure, so there is no direct connection between the ground and the crown, reduces the likelihood of a crown fire.

The arrangement of fuel has a greater effect upon the intensity of the fire than just its mass; its exposure to oxygen is referred to as its availability in a bushfire.

Climate

The climate in Albany (from the Bureau of Meteorology Albany Weather Station) can be described as Mediterranean with wet winters and warm summers from December through to March. Summers are typically very warm with a mean daily temperature max 22.9 degrees, min 15.6 degrees in February although the Southern Ocean provides a cooling effect on temperature in the coastal areas of the City, providing for a milder climate than inland areas. The average number of rain days per year for Albany is 103 days, but summers are dry with a monthly average of less than 24 mm of rain.

Bushfires generally travel in the direction of the prevailing wind. Prevailing wind conditions are most likely to be extreme in the afternoon in February, and there is little variation in the wind roses from December to March). The direction of the prevailing wind conditions can affect the options for evacuation and anticipated fire intensity depending upon the slope and fuel.

The wind roses below for February (averaged) recorded at 9 am, and 3 pm illustrate the winds are strongest and most frequent from the south-east and east in the afternoon.

The hot, dry summers and strong seasonal winds create an environment where there is a significant risk of bushfire.

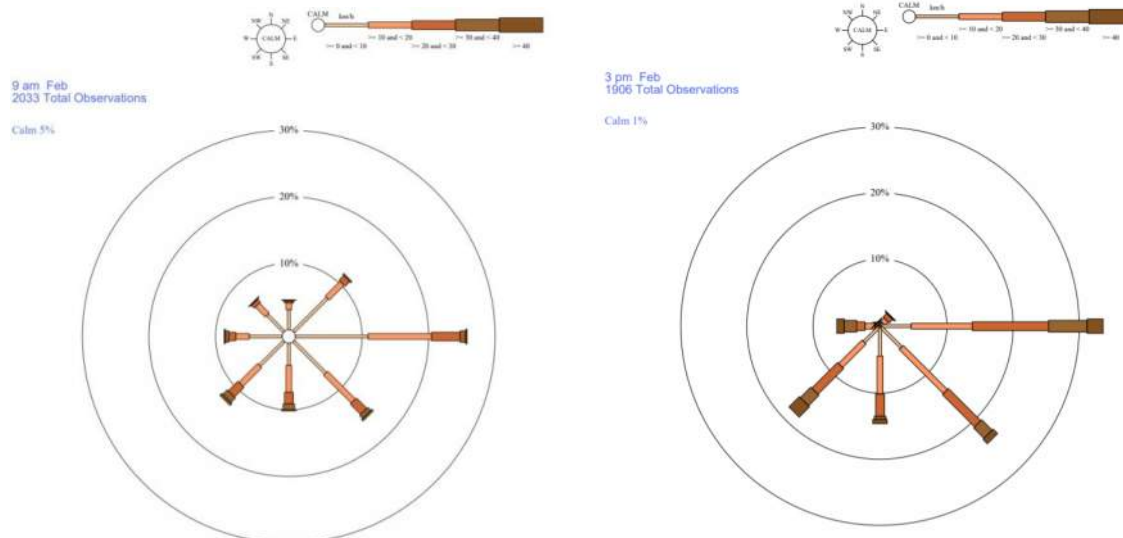


Plate 6: Wind roses (Feb 9 am and 3 pm), Bureau of Meteorology, Albany.

Fire Danger Weather

The above FFDI data is provided from the Bureau of Meteorology Albany Weather Station, which is the nearest recording location to the Site.

The FFDI is calculated from temperature, wind speed, relative humidity, drought factor (time since last rain) and Keetch-Byram Drought Index (soil moisture) index which is a measure of soil moisture

The last twenty years are mapped as that incorporates the trends of climate change.

An assessment of the FFDI suggests a high individual variability in FFDI 50+ in the second half of December and the second half of March.

Severe conditions (FFDI 50-74) are generally between mid-December to mid-March, although FFDI 60+ is generally restricted to mid-January through February and typically the period when Extreme days may occur. The site's location adjacent to the coast may moderate the FFDI, due to a reduced temperature and higher humidity although wind strength may be greater nearer the coast.

Since 1972 Bureau of Meteorology data for Albany has identified only one day has been classed as Extreme Fire Danger Rating and twelve days have been classed as Severe. No days have been classed as Catastrophic. The projected FFDI, accounting for climate change, remains within an FFDI 80; which is the present nominal level that is used in AS 3959:2018 method 1 BAL determinations in WA.

In the past five years the average number of Total Fire Ban days declared per fire season in Albany is three days, although eight days were declared in 2014/15.

Landscape context

The landscape context risk: the potential fire runs (up to 2 km), prevailing wind directions and predominant vegetation classes are shown on Plate 7.

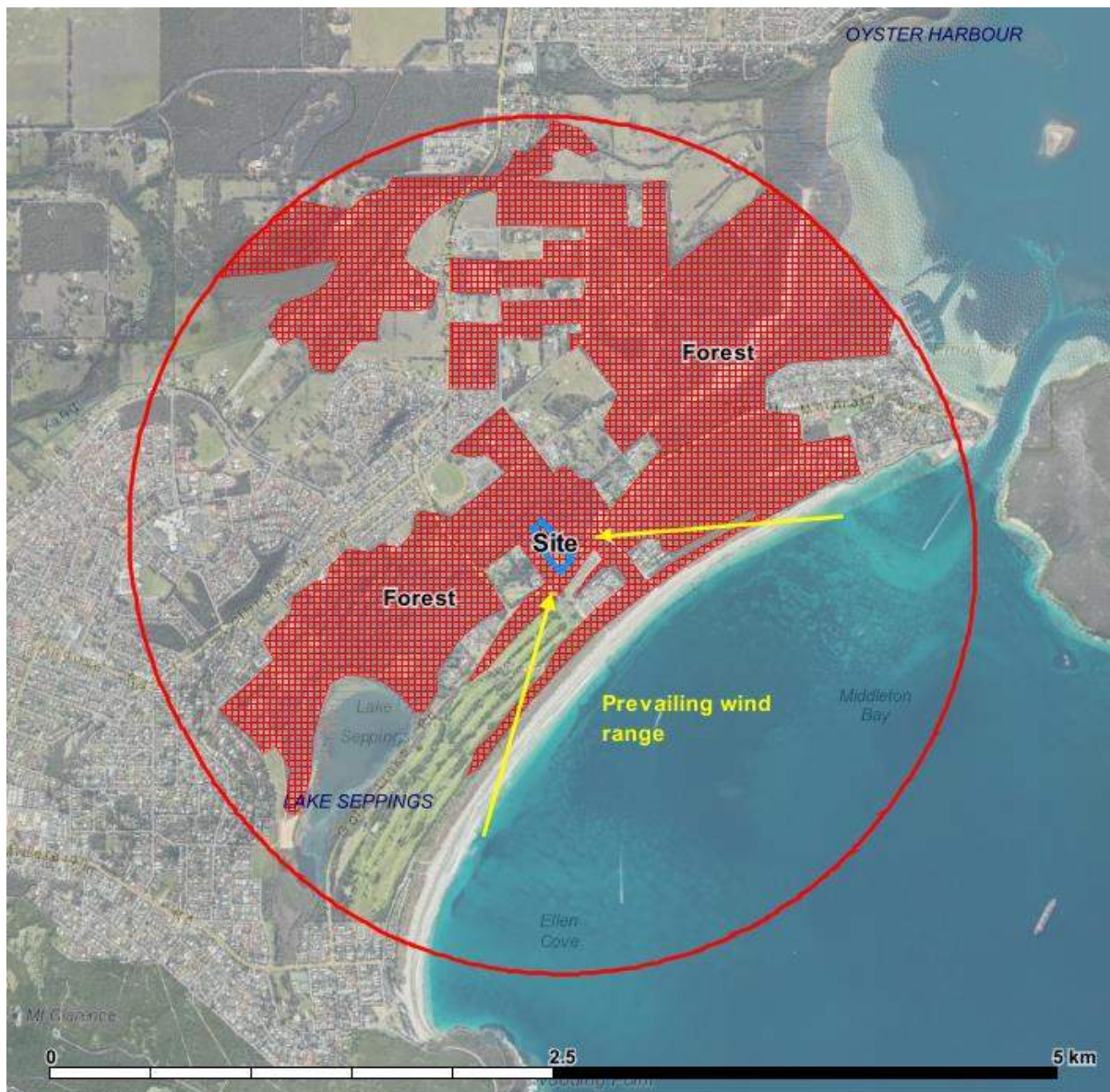


Plate 7 : Bushfire context

The prevailing wind conditions are from the southern hemisphere. Winds from the north are rare during the bushfire season.

Albany is affected by its coastal location which reduces its FDI. The longest fire runs to the site are from the west and the east, and there is a lack of fuel continuity from the north or south; the site is therefore most likely to be affected by a narrow firefront. It is notable that the beach is a wide space (100 m of sand), and a narrow strip of coastal vegetation is separated by golf course fairways from forest north of Emu Point Drive.

A large area BAL - Low is located at Emu Point, east along Emu Point Drive.

The possible threat scenarios are:

- A fire arriving under westerly winds towards the site forcing evacuation to Emu Point.
- A fire arriving from the east towards the site forcing evacuation to the Albany Town centre by Troode Street or by Golf Course Links Road
- Dispersed ember attack from extreme fire behaviour in the National Park, forest, across the water channel, and east of the site.

5. BUSHFIRE PROTECTION MEASURES

5.1 Bushfire Protection Criteria (Appendix 4 of the Guidelines V1.4)

For each of the elements listed within Appendix 4 of the Guidelines for Planning in bushfire-prone areas, the 'intent' must be achieved either by the proposal meeting the acceptable solutions; or where these acceptable solutions cannot be fully met, then by a performance-based solution that can achieve the 'intent.'

Table 2: Bushfire Protection Criteria assessment.

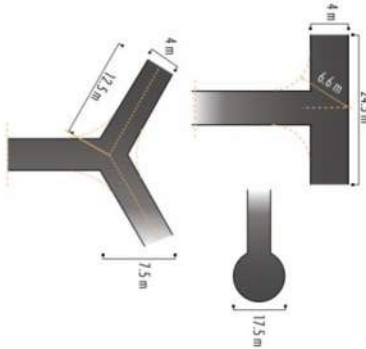
✓	Acceptable solution provided	C	An Acceptable Solution to be conditioned
N/A	Not Applicable	P	Performance Principle solution see 5.2

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
Element 1: location To ensure that strategic planning proposals, subdivision, and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property, and infrastructure	A1.1. Development location The strategic planning proposal, subdivision, and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.	✓		In accordance with the WAPC Position Statement: <i>Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design</i> , the consideration of the bushfire hazard level is not relevant to a development site and a development application. The proposal is a development application. The emphasis is therefore to ameliorate the bushfire impacts at the development site, rather than the general area.

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
<p>Element 2: Siting and Design</p> <p>To ensure that the siting and design of development minimises the level of bushfire impact</p>	<p>A2.1 Asset Protection Zone</p> <p>Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:</p> <ul style="list-style-type: none"> • Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m² (BAL-29) in all circumstances. • Location: the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes). • Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones.' (see Schedule 1). 	✓		<p>The proposed microbrewery and restaurant is located 21 m within the eastern site boundary and is in a locality described as flat; 21 m equates to BAL 29, from the highest vegetation classification of forest.</p> <p>A 21 m Asset Protection Zone can be achieved within the site.</p> <p>An Asset Protection Zone is not barren land but comprises an area in which the horizontal and vertical vegetation is arranged meeting the description of low threat in AS 3959:2018 cl.2.2.3.2(f) or the Asset Protection Zone standard in the Guidelines at Element 2.</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
<p>Element 3: Vehicular Access</p> <p>To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event</p>	<p>A3.1 Two access routes</p> <p>Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations, and are available to all residents/the public at all times and under all weather conditions.</p>		✓	<p>Performance Principle 4.5.2.2</p> <p>Emu Point road is a dead end road, east of the site.</p> <p>The site is serviced by a single access (Emu Point Drive) which extends (via from the Albany Town Centre by Troode Street and Collingwood Road or Golf Links Road and Middleton Road).</p> <p>Emu Point Drive follows on to the Emu Point residential area (BAL Low area) east of the site and whilst there is a residential road network at Emu Point, Emu Point Drive is terminated by the coast</p> <p>Both the Albany Town Centre and Emu Point are BAL Low destinations that provide the opportunity for safety in a bushfire event.</p> <p>The residential settlement at Emu Bay has amenities to support shelter from the bushfire.</p> <p>Emu point is therefore considered a safer place and an alternative destination option.</p> <p>A similar circumstance highlighted by the State Emergency Management Committee <i>Western Australia Community Evacuation in Emergencies Guideline (Appendix B page 11)</i> identifies that a coastal location within a settlement is suitable as a safer place (nominated as a refuge).</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies																																																
	<p>A3.2 Public road</p> <p>A public road is to meet the requirements in Table 6, Column 1.</p> <p>Table 6: Vehicular access technical requirements</p> <table border="1" data-bbox="922 454 1145 1041"> <thead> <tr> <th></th> <th>1 Public road</th> <th>2 Cul-de-sac</th> <th>3 Private driveway</th> <th>4 Emergency access way</th> <th>5 Fire service access routes</th> </tr> </thead> <tbody> <tr> <td>Minimum surfacable surface (m)</td> <td>0*</td> <td>0</td> <td>4</td> <td>0*</td> <td>0*</td> </tr> <tr> <td>Horizontal clearance (m)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Vertical clearance (m)</td> <td>4.5</td> <td>N/A</td> <td>4.5</td> <td>4.5</td> <td>4.5</td> </tr> <tr> <td>Maximum grade <30 metres</td> <td>1 in 10</td> <td>1 in 10</td> <td>1 in 10</td> <td>1 in 10</td> <td>1 in 10</td> </tr> <tr> <td>Maximum weight capacity (t)</td> <td>15</td> <td>15</td> <td>15</td> <td>15</td> <td>15</td> </tr> <tr> <td>Maximum crossfall</td> <td>1 in 33</td> <td>1 in 33</td> <td>1 in 33</td> <td>1 in 33</td> <td>1 in 33</td> </tr> <tr> <td>Curves minimum inner radius (m)</td> <td>8.5</td> <td>8.5</td> <td>8.5</td> <td>8.5</td> <td>8.5</td> </tr> </tbody> </table> <p>*Rule to E3.2 Public roads - surfacable surface</p>		1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes	Minimum surfacable surface (m)	0*	0	4	0*	0*	Horizontal clearance (m)	0	0	0	0	0	Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5	Maximum grade <30 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10	Maximum weight capacity (t)	15	15	15	15	15	Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33	Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5	✓		<p>Emu Point Drive is a sealed road that is compliant with table 6 column 1.</p> <p>Emu Point Drive runs through areas of forest. In a bushfire event the route in the opposite direction to an approaching fire should be taken.</p> <p>In addition to Emu Point Drive other safer places may include the golf course, opposite the site and the Emu Point foreshore reserve. These may provide last resort opportunities, rather than a first preference.</p>
	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes																																															
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	<p>A3.3 Cul-de-sac (including a dead-end road)</p> <p>Requirements in Table 6, Column 2:</p> <ul style="list-style-type: none"> Maximum length: 200 metres (if public emergency access is provided between cul-de-sac heads maximum length can be increased to 600 metres provided no more than eight lots are serviced and the emergency access way is no more than 600 metres); and Turn-around area requirements, including a minimum 17.5 metre diameter head. 	N/A		<p>Refer to A3.1</p>																																																
	<p>A3.4 Battle-axe</p> <p>Requirements in Table 6, Column 3:</p> <ul style="list-style-type: none"> Maximum length: 600 metres; and Minimum width: six metres. 	N/A																																																		

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	<p>A3.5 Private driveway longer than 50 m Requirements in Table 6, Column 3;</p> <ul style="list-style-type: none"> Required where a house site is more than 50 metres from a public road; Passing bays: every 200 metres with a minimum length of 20 metres and a minimum width of two metres (i.e. the combined width of the passing bay and constructed private driveway to be a minimum six metres); Turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house; and Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes. All-weather surface (i.e. compacted gravel, limestone or sealed)  <p>Figure 22: Design requirements for a private driveway longer than 50 metres Turning areas should allow type 3.4 fire appliances to turn safely.</p>	✓		<p>The private driveway servicing the microbrewery restaurant is longer than 50 m from Emu Point Drive.</p> <p>The proposed driveway is compliant with Table 6, Column 3. It provides the opportunity for emergency services to arrive and leave the site in a forward direction.</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	<p>A3.6. Emergency access way</p> <p>Requirements in Table 6, Column 4;</p> <ul style="list-style-type: none"> No further than 600 metres from a public road; Provided as right of way or public access easement in gross to ensure accessibility to the public and fire services during an emergency; and Must be signposted. 	N/A		
	<p>A3.7. Fire service access routes (perimeter roads)</p> <p>Requirements Table 6, Column 5;</p> <ul style="list-style-type: none"> Provided as right of ways or public access easements in gross to ensure accessibility to the public and fire services during an emergency; Surface: all-weather (i.e. compacted gravel, limestone or sealed) Dead end roads are not permitted; Turn-around areas designed to accommodate type 3.4 appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres); No further than 600 metres from a public road; Allow for two-way traffic; and Must be signposted. 	N/A		
	<p>A3.8. Firebreak width</p>	N/A		<p>Firebreaks are to be maintained in accordance with the City of Albany annual Fire Management Notice (<i>Bushfires Act 1954</i>).</p> <p>The site is below the minimum size applicable to the requirement for a firebreak. The site is however subject to the general application of section 33 (1) <i>Bush Fires Act 1954</i>, to maintain land in a condition that is not conducive to the ignition and spread of bushfire.</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
<p>Element 4: Water To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire</p>	<p>A4.1. Reticulated areas The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services. E4.1: The Water Corporation's 'No. 63 Water Reticulation Standard' is deemed to be the baseline criterion for developments and should be applied unless local water supply authorities' conditions apply.</p>	✓		<p>The site has access to a reticulated water supply. The site is located within 55 m of a hydrant located on Emu Point Drive.</p>
	<p>A4.2. Non-reticulated areas</p> <ul style="list-style-type: none"> • Volume: minimum 50,000 litres per tank; Ratio of tanks to lots: minimum one tank per 25 lots (or part thereof); • Tank location: no more than two kilometres to the furthestmost house site within the residential development to allow a 2.4 fire appliance to achieve a 20 minute turnaround time at legal road speeds; • Hardstand and turn-around areas suitable for a type 3.4 fire appliance (i.e. kerb to kerb 17.5 metres) are provided within three metres of each water tank; and • Water tanks and associated facilities are vested in the relevant local government 	N/A		
	<p>A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively) Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10,000 litres.</p>	N/A		

5.2 BUSHFIRE MANAGEMENT STRATEGIES

A microbrewery and restaurant is not a high-risk land use (likely to increase the risk of starting a bushfire), but it may attract people who are unfamiliar with bushfire.

The principles of Emergency Management (listed below) that may apply to the proposal can be divided across the BMP and BEEP working in unison – the BMP determines the suitability of the location and the BEEP describes the management actions. The two align with emergency management principles as follows:

- Prevention – avoidance and mitigation works undertaken in advance (planned Asset Protection Zone).
- Preparation – education, procedures, training i.e. maintenance of the APZ, regular review of (BEEP) requirements, contacts, responsibilities, and warning systems
- Response – actions taken in an event for saving lives (primary) - early evacuation if safe or shelter as a last resort with survival procedures described (BEEP).
- Recovery – return and restoration procedures described (BEEP).

5.2.1 Vulnerable Development Emergency Evacuation (Cl 6.6)

In regard to this proposal the additional bushfire management strategies to the Bushfire Protection Criteria, relate to the management of an event to preserve life.

The proposed BEEP is attached in Appendix 2 and follows the State Government’s *A Guide to developing a Bushfire Emergency Evacuation Plan* October 2019 and the *Emergency Evacuation Plan template* V1.1. The BEEP has been developed consistent with the Australian Standard AS 3745-2010, *Planning for Emergencies in facilities*. The BEEP should complement the development of any *Emergencies in facilities plan* that may be developed for the cafe door.

The attached BEEP incorporates the requirements listed under section 5.5.2 V1.3 Guidelines for Planning in Bushfire Prone areas and acknowledged in **Table 4**.

Table 4: Compliance with Cl. 5.5.2 *Guidelines for Planning in Bushfire Prone Areas*

The emergency evacuation plan should be concise and consider:	Addressed in Emergency Evacuation Plan
The number of guests at the facility	130 maximum
Whether the occupants are permanent or transient	Transient
Whether there is a caretaker on site	Hosted
Whether there are people with a disability, medically dependant, young children, or the elderly	Visitors are able-bodied or expected to be in the care of a patron.
Identification of a safe alternative location if there was a need for evacuation/relocation	Albany Leisure and Aquatic Centre
A proposed method of movement of occupants to a safe location(s)	Private vehicles
Details of suitable access/egress routes for the expected type/volume of traffic, including alternatives when suitable roads are inaccessible, insufficient or inappropriate	Emu Point Drive - Troode Street - Collingwood Road - Angove Road - Campbell Road - North Road - Sanford Road

Transport options for those without access to private vehicles	Guests are expected to arrive by private vehicle. Sufficient vehicle capacity is available for evacuation of guests and staff during the bushfire season.
Options to shelter in place as a last resort	Evacuation only as per DFES instruction
Roles and responsibilities of facility personnel and emergency services.	The Chief Warden and (nominated staff members) when the café is operating during the bushfire season. Emergency procedures and responsibilities shall be clearly displayed within the building.

The emergency evacuation plan should consider if actions will change based on a series of triggers, such as:	Addressed in Emergency Evacuation Plan
Effective warning methods appropriate for the occupants (including consideration of at-risk persons and the demographics of the occupants)	The Chief Warden will monitor the media for Fire Danger Rating information and be trained in the triggers and procedure for evacuation.
Closure of facility and early relocation of occupants appropriate to the fire danger rating (FDR) and bushfire warnings	
Any local government bushfire requirements (for example, harvest and vehicle movement bans)	N/A
A suitably qualified emergency management professional should prepare the emergency evacuation plan in collaboration with relevant stakeholders including the landowner/developer and the local government (refer to section 6.14 of the Guidelines)	Anthony Rowe Accreditation Level 3 Accreditation Number: 36690

5.3 Spatial representation of the bushfire management strategies

Further to the assessment against the bushfire protection criteria, the key features demonstrating compliance should be represented spatially in the *Spatial representation of the bushfire management strategies*. It represents the required bushfire risk management measures that must be implemented and maintained.

The *Spatial representation of the bushfire management strategies* is provided in Figure EX1.

6. RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES

The responsibilities for implementation and management of the bushfire measures, summarises the measures identified to achieve compliance with the bushfire protection measures following SPP 3.7. This has been provided in the Summary. The details contained within the planning application authorised by the responsible decision maker are enforceable under section 214 of the *Planning and Development Act 2005*. The items addressed in the table responsibilities for implementation and management of the bushfire measures form part of the planning authorisation and where there is conflict supersede the detail of the planning application.

The responsibilities assigned to the City of Albany reflect the current activities of the City and are not to be relied upon nor are they binding upon the City as a consequence of this Bushfire Management Plan.

Owner

1. The adoption of the Bushfire Emergency Evacuation Plan (Appendix 2).
2. The microbrewery/restaurant is to be located no closer than 21 m to the east boundary.
3. The establishment of an Asset Protection Zone (APZ), 21 m from the outer wall of the building, as illustrated on the Spatial Representation of Bushfire Management Strategies, in accordance with the Standards for Asset Protection Zones (Schedule 1 Guidelines for Planning in Bushfire Prone Areas V1.3) or s. 2.2.3.2(f) AS3959:2018 (Appendix 3).
4. The microbrewery restaurant building is to be constructed to the equivalent of BAL 29 as described in AS3959:2018 section 3 and 7 (pursuant to R.48(E)(1), Schedule 2, LPS Regulation 2015).
5. The private driveway and carpark shall be provided and maintain a vehicle accessway to the Technical requirements provided in the Guidelines at Element 3 Table 6 column 3 (Appendix 4).
6. The provision of externally located fire hoses capable of applying water onto all parts of the building and on all areas extending up to 10 m from the building. The fire hoses should comply with AS 1221: 1997

Advisory notes

1. The landowner acknowledges their duty of care to protect any visitors to the site from harm from a bushfire affecting the property.
2. The landowner is responsible for availing themselves of any promotions and information to assist owners in preparing for and responding to a bushfire event as may be made by the City or the Department Fire and Emergency Services
3. Where there is conflict between this Bushfire Management Plan and the City of Albany Fire Management Notice the higher level of bushfire protection will prevail

The City of Albany

- | | |
|--|---------|
| 1. Developing and maintaining district bushfire fighting services and facilities. | Ongoing |
| 2. Administer the <i>Bushfire Act 1954</i> and monitor landowner compliance to maintain land in a state not conducive to the ignition or spread of bushfire. | Ongoing |
| 3. Promoting education and awareness of bushfire prevention and preparation measures through the community. | Ongoing |

4. Administering the requirements of the *Planning and Development Act 2005* by ensuring the facility closure in accordance with the terms of the Development approval. Ongoing
5. Administering the requirements of the *Planning and Development Act 2005* and the *Building Act 2011*. Ongoing

State Government

- Notification of Emergency Alerts - Website and Telecommunication Media Ongoing
- Policing operations to minimise the deliberate ignition of bushfires. Ongoing
- Maintain fuel reduction on public lands Ongoing

Acknowledgment - Proponent

The proponent acknowledges the responsibilities as listed above and the requirement to ensure that should the land transfer to a new owner, that the new owner is aware of the BMP and their ongoing responsibility.

APPENDIX 1 - BAL Assessment

Vegetation classification to AS3959-2018

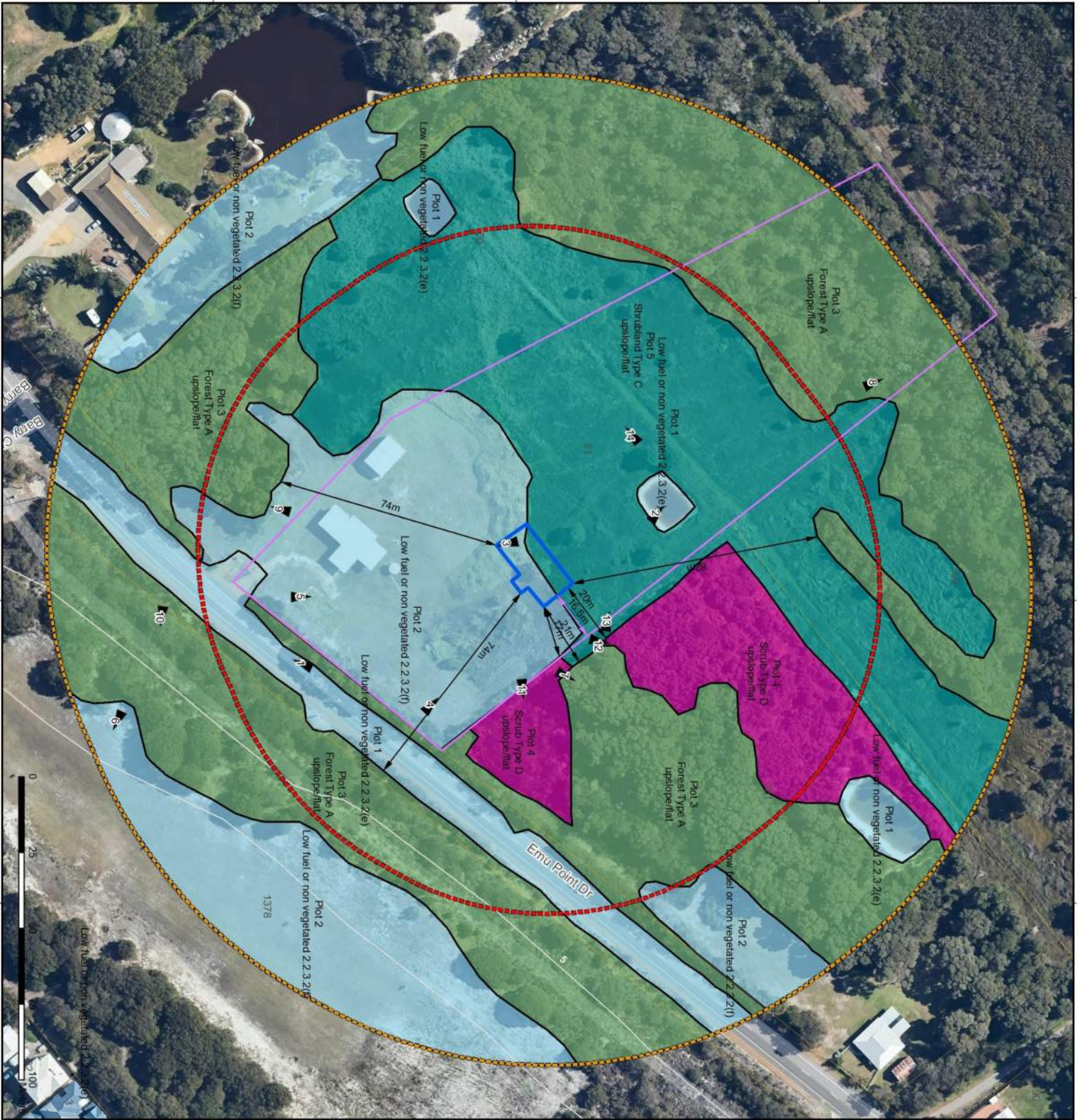
Site Details			
Address:	Lot 51 (No. 245) Emu Point Drive		
Suburb:	Collingwood Park	State:	W.A.
Local Government Area:	City of Albany		
Stage of WAPC Planning	Development Application		

BMP Plan Details			
Report / Job Number:	MSC0404	Report Version:	Final
Assessment Date:	21 January 2021	Report Date:	15 March 2021
BPAD Practitioner	Jason Benson	Accreditation No.	BPAD 37893

Vegetation Classification

Site assessment occurred on the 21st January 2021 by Jason Benson (BPAD 37893). All vegetation within 150m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2018. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified in the following pages and shown on the Vegetation Classes Map Page 3.

Plot number	Vegetation Type (Table 2.3)	Slope (Table 2.4.3)
1	Excluded 2.2.3.2 (e)	N/A
2	Excluded 2.2.3.2 (f)	N/A
3	Forest Type A	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Shrubland Type C	Upslope/flat



Albany Office: 28 Hercules Crescent Albany TAS (08) 9842 5758
 Denmark Office: 740 South Coast Highway Esperance WA (08) 9848 1399
 Esperance Office: Street 3 Denham WA (08) 9842 5758

BPAD
 Bushfire Planning & Design
 Accredited Practitioner Level 2

BIO DIVERSE SOLUTIONS

Overview Map Scale 1:100,000

Legend

- Subject Site
- Lot 51
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastral
- 5m Contours
- Separation Distance
- Slopes Degrees
- Photo Point
- Vegetation/Plot Boundary

Vegetation

- Forest Type A
- Shrubland Type C
- Scrub Type D
- Low fuel or non vegetated 2.2.3.2

Scale 1:1,250 @ A3
 GDA MGA 94 Zone 50

Data Sources:
 Aerial Imagery: UAV, Now, Landgate Subscription Imagery
 Cadastral: Relief Contours and Roads: Landgate 2017
 RIS Road Network: Mean Roads Western Australia 2017
 Overview Map: World Topographic map service: ESRI 2012

CLIENT:
 Jon and Katie Marwick
 Lot 51 (No. 245) Emu Point Drive
 Collingwood Park, WA 6330

Vegetation Classes

Ball Assessor	QA Check	Drawn by
JB	BT	GSK
STATUS	FILE	DATE
FINAL	MSC0404	15/03/2021


Plot	1	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (e)
			<p>Location: North, southeast and west of the subject site.</p> <p>Description: Hardstand areas, roads, driveways and dams. Excluded as per AS3959 exclusion clause 2.2.3.2 (e).</p>

Photo Id 1: View facing south-southwest along Emu Point Drive located to the south of the subject site.

Plot	1 cont.	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (e)
			<p>Additional Photo of Plot 1.</p>

Photo Id 2: View facing northwest towards dam located within the subject lot to the north of the subject site.


Plot	2	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (f)
			<p>Location: Onsite to the south of the subject site and offsite to the northeast, southeast and southwest.</p> <p>Description: Maintained gardens and lawns in APZ areas surrounding existing buildings, firebreaks and golf course. Excluded as per AS3959 exclusion clause 2.2.3.2 (f).</p> <p>Available fuel loading: <2 t/ha.</p>

Photo Id 3: View facing south towards APZ area within the subject lot located adjacent to the subject site.


Plot	2 cont.	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (f)
			<p>Additional Photo of Plot 2.</p>

Photo Id 4: View facing northwest towards slashed area located to the southeast of the subject site.

Plot	2 cont.	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (f)
------	---------	------------------------------------	---



Additional Photo of Plot 2.

Photo Id 5: View facing north towards APZ area within the subject lot located to the south of the subject site.

Plot	2 cont.	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (f)
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Additional Photo of Plot 2.

Photo Id 6: View facing east-southeast towards golf course located to the south of the subject site.


Plot	3	Classification or Exclusion Clause	Forest Type A
		<p>Location: North, east, southeast and southwest of the subject site.</p> <p>Separation Distance: 82m to the north, 21m to the east, 74m to the southeast and 74m to the southwest.</p> <p>Description: Forest vegetation consisting of mixed Warren River Cedar and Callistachys trees. Dense canopy cover with multilayered understorey of Acacia, Tea Tree, sedges and rushes.</p> <p>Average vegetation height: 6-10m.</p> <p>Vegetation Coverage: 30-70% foliage cover.</p> <p>Available fuel loading: 25-35t/ha.</p> <p>Effective slope: Upslope/flat.</p>	

Photo Id 7: View facing north-northeast towards forest vegetation located in adjacent lot to the east of the subject site.


Plot	3 cont.	Classification or Exclusion Clause	Forest Type A
		<p>Additional Photo of Plot 3.</p>	

Photo Id 8: View facing north-northwest towards forest vegetation located to the northwest of the subject site.


Plot	3 cont.	Classification or Exclusion Clause	Forest Type A
			<p>Additional Photo of Plot 3.</p>

Photo Id 9. View facing south-southwest towards forest vegetation located to the south of the subject site.


Plot	3 cont.	Classification or Exclusion Clause	Forest Type A
			<p>Additional Photo of Plot 3.</p>

Photo Id 10: View facing east towards forest vegetation located to the south of the subject site.


Plot	4	Classification or Exclusion Clause	Scrub Type D
			<p>Location: External to the subject lot to the northeast and east of the subject site.</p> <p>Separation Distance: 20m to the northeast and 17m to the east.</p> <p>Description: Closed scrub vegetation consisting of Tea Tree, Acacia, Lepidosperma, sedges and rushes.</p> <p>Average vegetation height: 2-4m.</p> <p>Vegetation Coverage: >30% foliage cover.</p> <p>Available fuel loading: 25t/ha.</p> <p>Effective slope: Upslope/flat.</p>

Photo Id 11: View to the east towards scrub vegetation located in adjacent lot to the east of the subject site.

Plot	4 cont.	Classification or Exclusion Clause	Scrub Type D
			<p>Additional Photo of Plot 5.</p>

Photo Id 12: View to the north towards scrub vegetation located in adjacent lot to the northeast of the subject site.


Plot	5	Classification or Exclusion Clause	Shrubland Type C
			<p>Location: Internal and external to the subject lot to the north and west of the subject site.</p> <p>Separation Distance: 0m.</p> <p>Description: Shrubland vegetation mainly consisting of mixed sedges and rushes and Typha with occasional Warren River Cedar.</p> <p>Average vegetation height: 1m.</p> <p>Vegetation Coverage: >30% foliage cover.</p> <p>Available fuel loading: 15t/ha.</p> <p>Effective slope: Upslope/flat.</p>

Photo Id 13: View to the west towards shrubland vegetation located adjacent to the subject site to the northeast.

Plot	5 cont.	Classification or Exclusion Clause	Shrubland Type C
			<p>Additional Photo of Plot 6.</p>

Photo Id 14: View to the southwest towards shrubland vegetation located adjacent to the subject site to the northwest.

COMMENTS ON VEGETATION CLASSIFICATIONS:

- Distances from vegetation were made based on surface fuels to edge of lot (subject site) boundary;
- Effective slopes were measured in the field using a Nikon Forestry Pro and represented on the respective plots;
- Method 1 (AS3959-2018) Simplified procedure was used for vegetation classification Assessment process;
- All vegetation was classified within the subject site and within 150m of the lot boundaries to AS3959 Table 2.3; and
- The perimeter of the vegetation was measured using field GPS and notations on field GIS maps.

Assessment Outputs

A detailed BAL Assessment has established that the proposed building is currently subject to a BAL rating of BAL-FZ due to onsite and offsite vegetation. With appropriate building location and onsite vegetation modification BAL-29 or lower is achievable within the lot see works program map over the page. The predominant bushfire risk associated with the site is the forest vegetation to the east, the scrub vegetation to the northeast and east and the shrubland vegetation to the north and west of the subject site.

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Excluded 2.2.3.2 (e)	N/A	-	BAL – LOW
2	Excluded 2.2.3.2 (f)	N/A	-	BAL – LOW
3	Forest Type A	Upslope/flat	21	BAL – 29
4	Scrub Type D	Upslope/flat	17	BAL – 29
5	Shrubland Type C	Upslope/flat	0	BAL – FZ
BAL Rating			BAL – FZ	



BPAD
Bushfire
Planning & Design
Accredited Practitioner
Level 2

BIO DIVERSE SOLUTIONS

Albury Office:
251 Princes Street
Albury, WA 6330
(08) 9842 1575

Darwin Office:
7760 South Coast Highway
Darwin, WA 6333
(08) 9848 1306

Esperance Office:
24/113 Dempster Street
Esperance, WA 6450

Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastral
- 5m Contours
- APZ to BAL-29
- APZ Separation Distance
- Slopes Degrees
- Vegetation/Plot Boundary

Vegetation

- Forest Type A
- Shrubland Type C
- Scrub Type D
- Low fuel or non vegetated 2.2.3.2

Data Sources:
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastral: Retail Contours and Roads, Landgate 2017
RIS Road Network, Main Roads, Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT
Jon and Kate Marwick
245 Emu Point Drive
Collingwood Park, WA 6330

Works Program Map

BAL Assessor	QA Check	Drawn by
JB	BT	GSK
STATUS	FILE	DATE
FINAL	MSC0404	09/02/2021

Scale
1:250
@ A3
GDA MGA 94 Zone 50

Separation Distances required to achieve BAL-29

Separation Distances Required to Achieve BAL – 29				
Plot Number	Vegetation Classification	Effective Slope Degrees	BAL Rating	Minimum Separation Distance Required (metres)
3	Forest Type A	Upslope/flat	BAL-29	21
4	Scrub Type D	Upslope/flat		13
5	Shrubland Type C	Upslope/flat		9

CERTIFICATION

I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2018 (Incorporating Amendment Nos 1, 2 and 3).



SIGNED, ASSESSOR: DATE: 24/02/2021

Jason Benson, Bio Diverse Solutions
Accredited Level 2 Bushfire Planning Practitioner (Accreditation No: BPAD37893)



REVISION RECORD

Revision	Prepared By	Summary	Reviewed By	Date
Draft Id 27/01/2021	Jason Benson	Internal Review	Bianca Theyer	27/01/2021
Final Id 24/02/2021	Jason Benson	Final Issued to Envision	Anthony Rowe	

APPENDIX 2 - Emergency Evacuation Plan

BUSHFIRE EMERGENCY EVACUATION DOCUMENTS

MICROBREWERY AND RESTAURANT

Lot 51 (No. 245) Emu Point Drive, Collingwood Park

March 2021

This document contains two parts:

1. The preparation compliance with the WAPC *A Guide to developing a BUSHFIRE EMERGENCY EVACUATION PLAN October 2019*: and
2. The Emergency Evacuation Plan contained in Appendix 1. The Emergency Evacuation Plan incorporates the requirement of AS3745-2010 where relevant in the WAPC Emergency Evacuation Plan Template.

1. ESTABLISHING THE EMERGENCY MANAGEMENT TEAM

In accordance with the Guidelines for preparing a bushfire emergency evacuation plan an accredited bushfire practitioner was engaged (Anthony Rowe BPAD L3 36690).

The bushfire planning practitioner has been responsible for assisting the emergency management team with

- The establishment and implementation of emergency plans and procedures
- Formulation of emergency procedures
- Reviewing the local emergency services

The Emergency Planning Committee with feedback from the Emergency Management Team should regularly review the emergency evacuation plan to ensure it remains practical and current.

Emergency Planning Committee

The Emergency Planning Committee is to comprise the owner, key personnel at the facility, and the appointed Chief Warden (Emergency Management Team)

The **Emergency Planning Committee** is responsible for overseeing the preparation of the site buildings and grounds for the approaching bushfire season, including attendance to any maintenance required to minimise the risk of damage from bushfire attack.

The Committee is responsible for reviewing the BEEP and overseeing the undertaking of education and training. It is to evaluate the outcomes of any drills and ensure appropriate resources are provided to prepare for the bushfire season.

The Committee will establish the Emergency Management Team and assign roles and responsibilities to staff.

Emergency Management Team

The Emergency Planning Committee is to establish an **Emergency Management Team**, who will designate site personnel to various responsibilities. These people will be trained to undertake specific tasks to support the evacuation of the facility and the survival of patrons in the event of an emergency. It will also include training on the effective operation of the firefighting equipment.

The site Emergency Response Team shall comprise of the following positions:

- Chief Warden.
- Deputy Chief Warden.
- Area Warden.

Assigned responsibilities include

- First Aid
- Traffic
- Communications

For the restaurant, the Emergency Management Team should comprise of the day manager of the facility and senior personnel. They will be responsible for responding to a bushfire event and ensuring the safety of patrons.

2. PREPARING THE EMERGENCY PLAN

The emergency plan applies to the restaurant at **Lot 51 (No. 245) Emu Point Drive, Collingwood Park.**

The Bushfire Management Plan dated **25 March 2021** articulates bushfire safety measures that include:

- The building construction standards and maintenance to increase resistance to ignition of buildings and flammable material on site to minimise visitor exposure to bushfire impact.
- The maintenance of an Asset Protection Zone (APZ), 21 m from the outer walls of the building, in accordance with the Standards for Asset Protection Zones (Schedule 1 Guidelines for Planning in Bushfire Prone Areas V1.3) or s. 2.2.3.2(f) AS3959:2018

This Emergency Plan has been prepared in response to bushfire threats identified in the BMP.

The site is on the coast at Emu Point, 6 km north-east of the Albany Town Centre. The site adjoins forest to its south, east and west, and shrubland/forest to the north. The site may be subject to ember attack from the forest.

In addition to evacuation by road from Emu Point Drive other safer places may include the Emu Point Foreshore reserve and the golf course (opposite the site). These may provide last resort opportunities, rather than a first preference.

3. DETERMINE EMERGENCY ACTION

The **primary action** in response to bushfire threat is early **evacuation**

- Evacuation to the Albany Leisure and Aquatic Centre, Barker Road, Centennial Park.
- Pre-emptive closure on days declared with a 'Catastrophic' Fire Danger Rating

In a bushfire event, announcements will be received via electronic media and online, regarding bushfire incidents and potential threats to the site.

- Monitor the DFES Alerts and Warnings web page <https://www.emergency.wa.gov.au>
The Chief Warden (HOST) is responsible for monitoring this site at regular intervals during the bushfire season

The Trigger to evacuate.

- If directly advised to leave by DFES or the Police, evacuate to the Albany Leisure and Aquatic Centre, Barker Road, Centennial Park.
- If fire and smoke is identified to the east of the site, across the channel, then evacuate to the Albany Leisure and Aquatic Centre, Barker Road, Centennial Park.
- If a fire and smoke is identified west of the site and travel north east on Emu Point Drive is confirmed to be safe, evacuate to Emu Point Foreshore reserve

Time Required to Evacuate – 30 minutes

Suitable Access Routes:

- Albany Leisure and Aquatic Centre, Barker Road, Centennial Park via Emu Point Drive – Troode Street - Collingwood Road - Angove Road - Campbell Road - North Road - Sanford Road.

Transportation Arrangements:

- Private Vehicle to the Albany Leisure and Aquatic Centre, Barker Road, Centennial Park.

- By private vehicle to Emu Point Foreshore reserve via Emu Point Road – Mermaid Avenue – Hunter Street – Roe Parade

4. EVACUATION / SHELTER REQUIREMENTS

Albany Leisure and Aquatic Centre, Barker Road, Centennial Park is a nominated City evacuation centre, however in a bushfire event announcements will be made via electronic media and online confirming the availability and location of safer places and evacuation centres.

Visitors to the microbrewery restaurant are expected to arrive by private vehicle. Sufficient vehicles must always remain on-site to facilitate evacuation.

Shelter on site is not recommended nor should it be required, as either vehicle access will be available to Albany Leisure and Aquatic Centre, or Emu Point Foreshore reserve via Swarbrick Street.

5. PRIMARY AND SECONDARY EMERGENCY PROCEDURES

The Emergency Evacuation Plan must be reviewed annually, ensuring all information, procedures, contact details and any attached publications (e.g. DFES) are current.

A current copy must be kept at the facility, and an A3 size copy of the evacuation diagram is to be displayed adjacent to the entry to the restaurant.

Preparation before each bushfire season should include:

- Fire extinguishers checked to ensure they are charged and in working order.
- Fire hoses should be checked to ensure all are in good condition and capable of reaching all surfaces of buildings.
- Roofs and gutters of buildings should be checked to ensure they are free of leaf litter and debris.
- Roof and walls should be checked for gaps exceeding 2 mm which can occur with the ageing of materials.

In addition to the seasonal assessment, on the mornings of predicted Severe, Extreme or Catastrophic Fire Danger Rating (FDR) days, the site grounds should be inspected, to ensure there are no flammable materials against or in proximity to the buildings and bins are closed. Access should be kept clear and be easily trafficable.

6. TRAINING REQUIREMENTS

The Emergency Planning Committee is responsible for:

- The written procedures applicable to the site.
- Individual roles and responsibilities.
- Identifying Response Actions
 - Access and egress routes and managing evacuation.
 - Assembly point location and shelter procedures.
 - Firefighting equipment locations and operation.

The Emergency Planning Committee, together with the Chief Warden is responsible for:

- Training of staff
 - individual roles and responsibilities.
- Training in the use and operation of
 - Personnel Protective Equipment.
 - Monitoring of warnings and incidents, where to find and how to use the Emergency WA website
- Fire fighting equipment and operation
- The undertaking of evacuation drills
 - Practicing the alert
 - Raising the alarm
 - Access and egress routes.
 - Assembly point locations.

The priority of the Emergency Management Team Chief Warden and team members is the well being of visitors; they are not expected to fight fire. Fire fighting members will be determined by the Emergency Planning Committee and from key personnel from the microbrewery restaurant facility.

Visitors

The information must be displayed to inform visitors that the facility is located within a bushfire prone area.

7. EQUIPMENT REQUIREMENTS

Evacuation Equipment required

- Mobile phone
- Contact list
- Torch
- Bottled water available for visitors
- A bath or beach towel is available for each visitors
- First aid kit complete and up to date

Emergency Evacuation Plan Preparation Checklist

The following questions will assist the individual in developing or reviewing the Emergency Evacuation Plan to identify an off-site location. For an appropriate off-site location	
If there are occupants with support needs that require a similar facility to support them, is the off-site location suitable?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Comment: Patrons with support needs may visit the facility but would have a carer or family member in attendance with them to provide the required support.	
Is the off-site location in an area away from the effects of a bushfire?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Comment: City nominated emergency evacuation facility	
Are there amenities (toilets, food, water etc.) available at the off-site location? (if applicable)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Comment: City nominated emergency evacuation facility	
Can the off-site location accommodate the number of occupants?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Comment: City nominated emergency evacuation facility	
Does the route to the off-site location require transporting through bushfire affected areas or areas that may be affected by an approaching bushfire?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
The single route access to the Albany Leisure and Aquatic Centre passes scrub and forest and may not be safe from an adjoining fire west of the site, in which case the evacuation should be to Emu Point Foreshore reserve via Swarbrick Street.	
Has the owner of the off-site location advised that they are happy to accommodate occupants if evacuation from a bushfire emergency occurs?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Comment: City nominated emergency evacuation facility	

Consider the following questions to assist in planning transport arrangements.

Are private vehicles to be used?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
If using private vehicles will there be sufficient vehicles to transport all the occupants, will they be available when you need them and will there be drivers available? If no, consider another mode of transport	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Have occupants with support needs been considered when determining transport types and necessary timing to evacuate?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Do you require ambulances? If yes, St John Ambulance Australia needs to be consulted.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is a community bus available?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will community buses be available when you need them and will drivers be available?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are other means of transport available?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Do you need any other type of special transport?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

The following questions will assist the individual in developing or reviewing the Emergency Evacuation Plan to identify an on-site building. For an appropriate building, the answers to the below questions should receive a 'yes'.

<p>Is the property well maintained and kept free from a build-up of fuel and leaf litter in gutters and around buildings?</p>	<p>Yes <input checked="" type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>Is there a building on-site that is away from bushland and is unlikely to be impacted by bushfire?</p> <ul style="list-style-type: none"> The restaurant is recommended to be constructed commensurate to BAL 29. 	<p>Yes <input type="checkbox"/></p> <p>No <input checked="" type="checkbox"/></p>
<p>Is the building constructed in a manner that minimises bushfire attack with appropriate Asset Protection Zones?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>n/a</p>	
<p>Can the building accommodate the number of occupants and visitors?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>n/a</p>	
<p>Is there ease of accessibility to the building, and is it easily identifiable?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>n/a</p>	
<p>Is there access to amenities (toilets, food, water, etc.) away from the effects of a bushfire?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>n/a</p>	

BUSHFIRE EMERGENCY PLAN

NAME OF FACILITY Dune Beer Co Microbrewery Restaurant

ADDRESS 245 Emu Point Drive Collingwood Park

PREPARED BY Anthony Rowe, L3 BPAD 36690

OWNER/OPERATOR Dune Beer Co

DATE 25 March 2021

VERSION NUMBER 1

Document Control

Version	Date	Details	Undertaken by
1	24/03/2021	DRAFT	Anthony Rowe
2	25/03/2021	FINAL	Anthony Rowe

Emergency Management Team

Name	Role	Identification Colour	Contact Details
	Chief Warden	White helmet	
	Deputy Chief Warden	White helmet	
	Area Warden	Red helmet	
	First Aid	Green Helmet	

FACILITY DETAILS

This plan is for a microbrewery restaurant at 245 Emu Point Drive Collingwood Park and has been designed to assist management in protecting life and property in the event of a bushfire.

The plan outlines procedures for both **evacuation** and **shelter-in-place** to enhance the protection of occupants from the threat of a bushfire.

The BEEP is an internal document, to be used by site staff to guide evacuation procedures, with an up-to-date copy maintained within the restaurant and provided to all staff.

The primary action to follow in a bushfire emergency is to:

Evacuate



Shelter in place



NAME OF CONTACT PERSON		TBC	
POSITION / ROLE OF CONTACT PERSON		TBC	
PHONE NUMBER		TBC	
FACILITY TYPE	Restaurant	NUMBER OF BUILDINGS	1
NUMBER OF STAFF	TBC	NUMBER OF OCCUPANTS	130
NUMBER OF OCCUPANTS WITH SUPPORT NEEDS		0	
DESCRIPTION OF SUPPORT NEEDS		Not applicable	

RESPONSIBILITIES

The following outlines who has responsibility for implementing emergency procedures in the event of a bushfire.

Position	Role	Responsibility
OWNER		<ul style="list-style-type: none"> Ensure the facility is prepared for the bushfire season Ensure staff have received relevant training for their responsibility in an emergency
DUTY MANAGER (Emergency Management Team)	Chief Warden	<ul style="list-style-type: none"> Daily - check www.emergency.wa.gov.au for any warnings or alerts Monitor Fire Danger Ratings at all times when visitors are at the facility Monitor conditions on Severe plus FDR days <ul style="list-style-type: none"> Local ABC Radio 630 am Emergency.wa.gov.au Determine with DFES/emergency services that safe evacuation is available Consider any special needs of visitors that may affect the decision and capability to evacuate Determine to Evacuate- advise visitors to evacuate due to an emergency warning and if DFES advise the evacuation route is safe Manage orderly evacuation from site and account for all visitors. Remain contactable (mobile phone) at all times oversee evacuation from the site when the route has been declared safe
	Area Warden	<ul style="list-style-type: none"> Take direction from and carry out tasks allocated by the Chief Warden. Check facilities: account for all visitors. Ensure all visitors have been alerted and evacuation has been initiated in an orderly manner. Maintain communication and keep visitors calm. Update the Chief Warden with situation reports. Contribute to debriefing.

EMERGENCY CONTACTS

Name of Organisation	Office / Contact	Contact details
Fire / Police / Ambulance	Fire or Emergency	000 (112 from a mobile)
Department of Fire & Emergency Services	Emergency Information	13 33 37 (13 DFES)
Emergency WA	Warnings and incidents	www.emergency.wa.gov.au
Bureau of Meteorology	Weather information	1300 659 213

Secondary Contacts

Name of Organisation	Office / Contact	Contact details

PREPAREDNESS

CHECKLIST – ongoing, prior to and during the bushfire season

BUSHFIRE SEASON: COMMENCES 1 DECEMBER AND CONCLUDES 12 MAY OF EVERY YEAR (UNLESS OTHERWISE ADVISED)

Action	Frequency	Responsibility
To be completed just prior to the bushfire season (by November 30 each year)		
1. Ensure all roof and building junctions are clear of litter	Annual	Owner
2. Check roofs and building surfaces present no gaps greater than 2 mm. By external inspection or observation of daylight in the roof cavity. Screen any gaps (steel mesh 2 mm aperture) or fill with mineral wool or non-flammable sealant	Annual	Owner
3. Ensure the required training of the Emergency Management Team has been undertaken, commensurate to the individuals responsibilities.	Annual	Owner
4. All objects attached to the building are non-combustible or easily removable, and the removing mechanism is in working order	Annual	Owner
5. The hydrants and hoses supplied for firefighting are in working order and clearly signposted with operating instructions fire fighting equipment has been tested and serviced in accordance with Australian Standard 1851-2012 <i>Routine service of fire protection systems and equipment</i> ,	Annual	Owner
6. The Evacuation Diagram is clearly displayed	Annual	Owner
To be completed during the bushfire season between 1 December and 12 May each year by the Emergency Management Team.		
7. Ensure fire extinguishers are charged, ready for use and the instructions on use are attached.	Ongoing	Owner or Manager
8. Ensure Evacuation Equipment is available <ul style="list-style-type: none"> Bottled water available for each visitor A bath or beach towel is available for each visitor First aid kit is complete and up to date 	Ongoing	Owner or Manager
9. The building is free of flammable materials, none located within 3 m	Ongoing	Owner or Manager
10. Regularly check the Incidents and Warnings www.emergency.wa.gov.au and ensure the Emergency Alert App is activated.	Ongoing	Owner or Manager
11. Emergency Contacts details are current and identified on the Evacuation Diagram	Ongoing	Owner or Manager

The Department of Fire and Emergency Services provides community and emergency advice about predicted and current conditions that advise about the level of bushfire threat.

The Fire Danger Rating (FDR) is based on the forecast weather conditions, the higher the rating, the higher the threat.

Extreme or Catastrophic ratings are the highest level and represent unsafe conditions.

Fire Danger Rating (DFES)

Emergency Warnings

CATASTROPHIC

EXTREME

The worst conditions for a fire. Homes are not designed or built to withstand a fire in these conditions. The only safe place is away from bushfire risk areas.

SEVERE

VERY HIGH

Seek out information and be ready to leave or stay and actively defend your property if a fire starts. Only stay if you are 100% prepared.

HIGH

LOW - MODERATE

Be vigilant. Check your fire plan and continue to monitor conditions as they can change quickly.

EMERGENCY WARNING

An out of control fire is approaching very fast. You need to act immediately to survive. If you haven't prepared your home, it is too late. You must leave now if it is safe to do so.

WATCH AND ACT

A fire is approaching and is out of control. Put your plan into action. If your plan is to leave, make sure you leave early. Only stay if you are mentally, physically and emotionally prepared to defend your property, and you have all the right equipment.

ADVICE

A fire has started, but there is no immediate danger. Stay alert and watch for signs of a fire.

AWARENESS AND PRE-EMPTIVE PROCEDURES

The following outlines the actions that must be taken to ensure occupants maintain an awareness of the bushfire threat and the appropriate procedures to follow.

Actions	Frequency	Responsible Person
Days forecast Very High or Severe Fire Danger rating		
Check the Emergency WA website daily for alerts and warnings www.emergency.wa.gov.au	Check hourly and actively monitor any incidents within 10 Km	Chief Warden
Check grounds and buildings are free of accumulated rubbish/leaf litter, and storage bins are closed	Daily in the morning	Chief Warden
Days forecast Extreme Fire Danger rating		
Check the Emergency WA website daily for alerts and warnings www.emergency.wa.gov.au	Check hourly and actively monitor any incidents, prepare to evacuate, check with DFES if within 5 Km	Chief Warden
Check grounds and buildings are free of accumulated rubbish/leaf litter, and storage bins are closed	Morning and Afternoon	Chief Warden

An 'Advice,' 'Watch and Act' or 'Emergency Warning' alert or other communication has been issued by an emergency service authority

Pre-emptive Closure	Public announcement made on the preceding day	Emergency Planning Committee
Or follow Extreme Fire Danger rating procedures		

EMERGENCY PROCEDURE, LOCATION, AND TRANSPORT DETAILS

Evacuation

Designated evacuation assembly point/s

1. The restaurant

Primary off-site location

Name of venue **Albany Leisure and Aquatic Centre**

Address of venue 52-70 Barker Rd, Centennial Park

Nearest cross street Blair Street

Map reference XVQH+QF Centennial Park

Venue phone number (08) 6820 3400

Primary route to location From Emu Point Drive turn right onto Troode Street. Turn left onto Collingwood Road and at the roundabout take the 3rd exit onto Angove Road. At the roundabout take the 1st exit onto Campbell Road then at the next roundabout take the 3rd exit to North Road. After 1 km turn left onto Sanford Road, then turn right and follow the road to the Leisure and Aquatic Centre carpark

Secondary route to location From Emu Point Drive turn right onto Troode Street. Continue onto Lower King Road then turn left onto Ulster Road. At the roundabout take the 3rd exit onto North Road. After 1 km turn left onto Sanford Road, then turn right and follow the road to the Leisure and Aquatic Centre carpark

Primary transportation arrangements

Visitors will have transport adequate for all members of their party.

Estimated travelling time to destination 10 minutes

Secondary off-site location

Name of venue **The Emu Point Foreshore reserve**

Address of venue Swarbrick Street

Nearest cross street Miller Street

Map reference 2W4V+6P Emu Point

Primary route to location Head north along Emu Point Drive and continue on Mermaid Avenue. Turn left at Hunter Street and follow to Roe Parade and the foreshore reserve.

Secondary route to location na

Secondary transportation arrangements na

Estimated travelling time to destination 4 minutes

Shelter-in-Place

The **primary action** to follow if there is an imminent bushfire threat is to **EVACUATE** following confirmation (DFES or emergency services) that a safe evacuation route is available.

Designate Onsite Building: the Restuarant

Shelter in place is not recommended and should not be required, however, if DFES or emergency services have advised it is too late to leave, visitors should assemble in the restaurant with ready access to an exit.

EMERGENCY RESPONSE

Procedures for evacuation and shelter-in-place in the event of a bushfire.

Trigger	Action	Responsible Person
EVACUATE		
<p>DFES have advised to evacuate and Emu Point Drive is safe</p> <p>A Fire is observed to the East</p>	<p>Instruct visitors on evacuation destination</p> <p>Obtain visitors contact information (mobile phone details).</p> <p>Evacuate visitors by private vehicle to Albany Leisure and Aquatic Centre 52-70 Barker Rd, Centennial Park - or to home destinations if safe.</p> <p>Account for all visitors reaching their destinations.</p>	<p>Chief Warden</p> <p>Emergency Management Team</p>
<p>DFES have advised Emu Point Drive is unsafe</p> <p>A fire is advised or observed to be approaching from the west</p>	<p>Instruct visitors on evacuation destination</p> <p>Obtain visitors contact information (mobile phone details).</p> <p>Evacuate by vehicle to the Emu Point Foreshore reserve.</p> <ul style="list-style-type: none"> - Issue the emergency evacuation equipment to visitors (bath or beach towel and bottled water). - Account for all visitors at the facility and oversee evacuation to the foreshore - If the fire approaches cover head and mouth with bath or beach towel for protection and to filter smoke. - Move to avoid uncomfortable radiant heat and stay hydrated. - Monitor the fires passing. - Return to the restaurant if safe to do so and oversee evacuation from the locality when declared safe. 	<p>Chief Warden</p> <p>Emergency Management Team</p>

SHELTER IN PLACE

DFES advise it is too late to Leave
The fire has arrived at the site from the west

Implement Survival Procedures (from the DFES Homeowners Bushfire Survival Manual).

- Close all doors and windows
- Block smoke ingress.
- Move to avoid radiant heat through western windows.
- Observe the fires passing.
- Keep calm and stay hydrated.
- Monitor the building condition for ignitions.

Do not stay in a burning building.

- When the fire front has passed, exit the building via an east facing exit
- Avoid radiant heat.
- Assemble visitors in a clear space separated from flammable objects.
- use fire equipment to attend to any small ignitions on or around the building.

If there is no sign of fire in the building

- When the fire front has passed, exit the building via an east facing exit
- Inspect the building and use fire equipment to attend to any small ignitions on or around the building.
- Determine the building is safe
- Monitor the building condition for ignitions.
- Evacuate visitors from the area when safe to do so.
- Account for all visitors.

**Chief Warden
Emergency Management
Team**

RECOVERY

Action	Responsible Person
Account for all visitors	Chief Warden
Inspect building; declare safe to return or stay	Chief Warden
Evacuate visitors from the fire ground when safe as advised by DFES or when an All Clear is publically advised.	Chief Warden
Debrief <ul style="list-style-type: none">- assess the severity of the event- would the actions taken be sufficient to ensure the safety of staff and visitors in an extreme event- were there any unexpected problems not accounted for in the existing emergency plan- update the emergency plan to include any learnings from the event	Emergency Planning Committee with the Emergency Management Team

Attachment 1 – Emergency Plan and Evacuation Map

BUSHFIRE EMERGENCY RESPONSE PLAN

FACILITY DETAILS

Location - 245 Emu Point Drive Collingwood Park

Facility – Dune Beer Co Microbrewery and Restaurant

Visitors – Maximum 130

EMERGENCY WARNINGS (DFES)

ADVICE

EMERGENCY

CONTACT PERSONS	ROLE	CONTACT NO.
	Chief Warden	
	Area Warden	
	Area Warden	
	Area Warden	

Chief Warden

Area Wardens

- | | |
|---|--|
| <ul style="list-style-type: none"> Determine with DFES/emergency services that safe evacuation is available. advise visitors to evacuate due to an emergency warning and confirm the evacuation destination and route Manage orderly evacuation from the site and ensure all visitors have been accounted for. Remain contactable (mobile phone) at all times. Assess and monitor the building condition for occupancy . | <ul style="list-style-type: none"> Ensure all visitors are accounted for. Guide visitors in an orderly manner. Maintain communication and keep visitors calm. Keep visitors together until evacuation occurs. Remain contactable (mobile phone) at all times. Account for visitor whereabouts and confirm to the Chief Warden when visitors have safely evacuated. |
|---|--|

INFORMATION SOURCES

Local ABC radio 630 am

DFES information line 13 33 37

Emergency WA www.emergency.wa.gov.au

Bureau of Meteorology 1300 659 213

EMERGENCY CONTACTS

Fire, Police or Ambulance 000 (112 from a mobile)

Trigger:
An ADVICE warning has been issued across telecommunications media of an incident nearby (within 10 km).

Response:

The Chief Warden (duty manager) will take the following information into consideration when determining if and when to evacuate:

- The severity of the bushfire incident.
- Approximate time for the bushfire to impact the building.
- If the decision is made to evacuate, follow the procedure under Watch and Act.

WATCH AND ACT

Trigger: (Fire reported to the east)

DFES or Police have advised **EVACUATION IS REQUIRED** (Public Notice)

or

Smoke or fire is observed in the east and DFES have confirmed safe evacuation along Emu Point Drive and onto the **Albany Leisure and Aquatic Centre** is available.

Response:

- Turn off air conditioning and close all doors, windows, and window blinds.
- Assemble visitors and staff in the restaurant and account for all persons.
- Obtain visitors contact information (mobile phone details).
- Advise visitors of evacuation destination and route.
- Evacuate visitors by private vehicle to **Albany Leisure and Aquatic Centre** 52-70 Barker Rd, Centennial Park or confirmed alternative evacuation centre - or to home destinations if safe.
- Confirm all visitors reach their destinations .

Trigger: (Fire reported to the west)

DFES or Police have advised Emu Point Drive is **NOT SAFE** for travel towards Albany Town Centre and the Albany Leisure and Aquatic Centre.

Confirm travel north east on Emu Point Drive is safe.

- Advise visitors of Emergency Assembly Point and route to the Emu Point Foreshore reserve
- Obtain visitors contact information (mobile phone details).
- Evacuate visitors by private vehicle to Emu Point foreshore reserve.
- Keep visitors together at the Emu Point foreshore reserve.
- Keep visitors informed of the fire progress and when the All Clear for the location is given.

Trigger:

DFES or Police have advised it is NOT SAFE FOR EVACUATION – too late to leave.

Response:

Implement Survival Procedures.

- Turn off air conditioning and close all doors and windows.
- Block smoke ingress (use wet towels at doorways).
- Move away from windows to avoid radiant heat.
- Observe the fires passing.
- Keep calm and stay hydrated.

Monitor the building condition for ignitions.

Do not stay in a burning building.

- When the fire front has passed, exit the building via an east facing exit
- Avoid radiant heat.
- Assemble visitors in a clear space separated from flammable objects.
- use fire equipment to attend to any small ignitions on or around the building.

If there is no sign of fire in the building

- When the fire front has passed evacuate the building to a safe outside space, the carpark unless burning vehicles are present.
- Inspect the building and use fire equipment to attend to any small ignitions on or around the building.
- Determine the building is safe.
- Monitor the building condition for ignitions.
- Account for all visitors.

ALL CLEAR

When emergency services have deemed the area safe:

- Obtain visitors mobile phone numbers. Instruct visitors on the safe. evacuation to the Albany township or their home destinations if safe.
- Monitor grounds and buildings, particularly roofs for smouldering material and small fires for 24 hours after the event. Extinguish small fires if safe to do so.
- Debrief with the Emergency Planning Committee.

EMERGENCY EVACUATION DIAGRAM

ALARM

1. IF YOU SEE SMOKE
2. IF YOU SEE FIRE

PHONE 000 or 112 (mobile)

Describe your location and where the smoke or fire is

3. IF YOU ARE TOLD TO LEAVE

EVACUATE BY VEHICLE TO

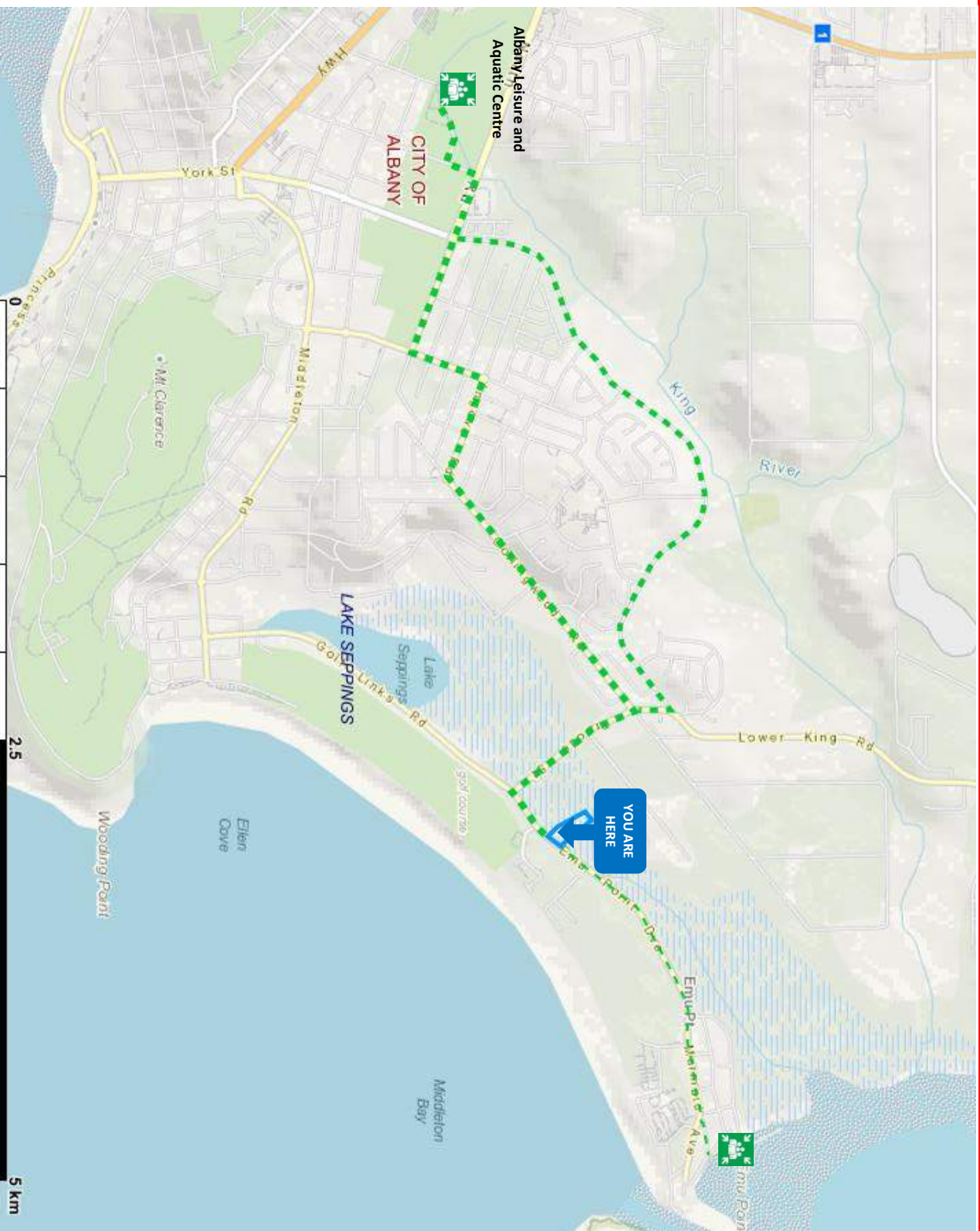
ALBANY LEISURE AND AQUATIC CENTRE

52-70 BARKER ROAD, CENTENNIAL PARK
or a centre otherwise advised by DFES (directly or via publicly broadcast information and warnings)

1. Close all windows and doors (staff)
2. Evacuate to **ALBANY LEISURE AND AQUATIC CENTRE** by vehicle from Emu Point Drive - Troode Street – Collingwood Road – Angove Road – Campbell Road – North Road – Sanford Road
DO NOT TRAVEL THROUGH FIRE.

If advised it is not safe to travel towards the Albany Town Centre and the Albany Leisure and Aquatic Centre, then:

1. Evacuate to the Emu Point Foreshore reserve via Emu Point Road - Mermaid Avenue – Hunter Street - Roe Parade.
2. Keep guests together
3. Monitor emergency information
 - a. ABC Local radio 630 am
 - b. DFES on 13 33 37
 - c. Emergency WA - www.emergency.wa.gov.au
4. Oversee return of guests to the restaurant (if safe) or to their homes when Emu Point Drive is declared safe.



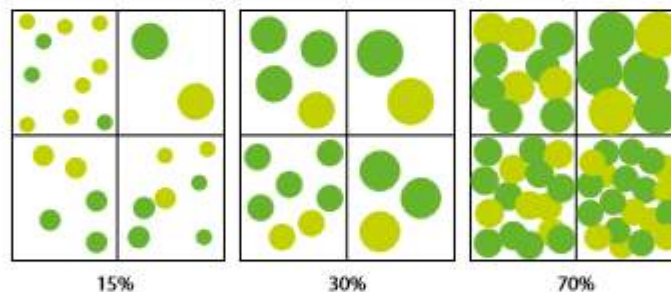
APPENDIX 3 - APZ Guidelines

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

- **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.
- **Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.
- **Fine Fuel load:** combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.
- **Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.

Figure 18: Tree canopy cover – ranging from 15 to 70 per cent at maturity



- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

APPENDIX 4 – Access Standard

Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5

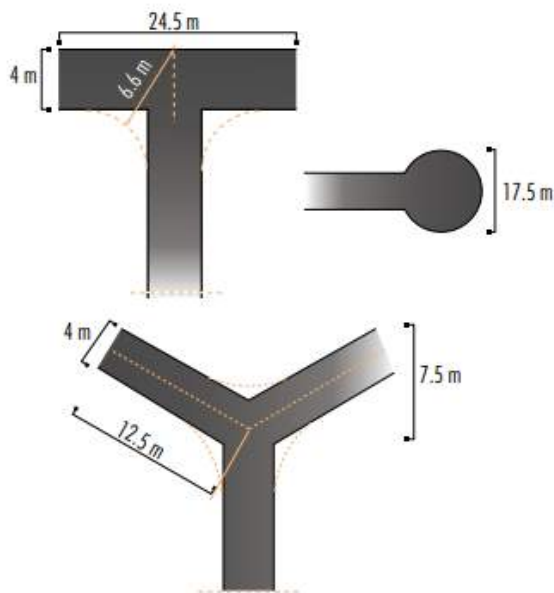


Figure 22: Design requirements for a private driveway longer than 50 metres
Turning areas should allow type 3.4 fire appliances to turn safely

APPENDIX 5 – References

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