LOT 10 (NO.115) DIXON ROAD, EAST ROCKINGHAM - SERVICE STATION DEVELOPMENT

Form 1 – Responsible Authority Report (Regulation 12)

DAP Name:	Motro O	utor Joint Dovolonment Assessment	
DAF Name.	Metro Outer Joint Development Assessment Panel		
Local Government Area:		Pockingham	
Applicant:	City of Rockingham Planning Solutions Pty Ltd		
Owner:		vice Pty Ltd	
Value of Development:	\$2.1 mill		
value of bevelopment.		datory (Regulation 5)	
		n (Regulation 6)	
Responsible Authority:		Rockingham	
Authorising Officer:		Jeans, Director Planning and	
Than is a second		ment Services	
LG Reference:		2021.00000095.001	
DAP File No:	DAP/21/		
Application Received Date:	9 April 2		
Previously Deferred Report Due	28 July 2		
Date:			
Revised Report Due Date:	22 Septe	ember 2021	
Application Statutory Process		(plus additional 20 days with	
Timeframe:		t consent and subsequently further	
	47 days	to consider/present the Revised	
	Report u	ipon further information being	
	received		
Attachment(s):	Attachn	nent 1	
		Development Application	
	Attachm		
	Additional Information and Amended		
	Development Plans (June 2021)		
	Attachment 3		
	Traffic Information 1997 Application		
	Attachm		
		e of Submissions	
	Attachm		
		uter Joint Development Assessment	
		inutes and Agenda (August 2021)	
	Attachm	al Information and Amended	
		ment Plans (August 2021)	
Is the Responsible Authority	⊠ Yes	Complete Responsible Authority	
Recommendation the same as the			
Officer Recommendation?		1 COOMMON SCOUNT	
Cco. Nocommondation	□No	Complete Responsible Authority	
		and Officer Recommendation	
		sections	

Responsible Authority Recommendation

That the Metro Outer Joint Development Assessment Panel resolves to:

1. Reconsider its decision dated 6 August 2021; and

Refuse DAP Application reference DAP/21/01976 and the accompanying plans (Attachment 6):

- Site Plan, Drawing No.3357 03, Rev 8, dated 13 August 2021;
- Floor Plans and Elevations Shop, Drawing No.3357 04, Rev 7, dated 13 August 2021;
- Floor Plans and Elevations Commercial Canopy, Drawing No.3357 05, Rev 7, dated 13 August 2021;
- Floor Plans and Elevations Truck Canopy, Drawing No.3357 06, Rev 7, dated 13 August 2021;
- Signage Plan and Schedule, Drawing No.3357 07, Rev 7, dated 13 August 2021;
- 3D Views, Drawing No.3357 08, Rev 7, dated 13 August 2021;
- Landscape Plan, Drawing No.3357 9, Rev 7, dated 13 August 2021;

in accordance with Clause 68 of the Planning and Development (Local Planning Schemes) Regulations 2015 and the provisions of clause 68(2)(c) of the deemed provisions of the City of Rockingham Town Planning Scheme No.2, for the following reason:

Reasons for Responsible Authority Recommendation

- 1. The City has unresolved concerns with respect to modelling assumptions contained within the Traffic Technical Note submitted on 13 August 2021; and
- 2. Traffic generated by the proposed development will adversely impact on the operation of Dixon Road/Day Road intersection, which currently has an unsatisfactory level of service, and will further exacerbate the effect on traffic flow and safety surrounding the site.

Background:

Development Application History

The matter was previously considered by the City of Rockingham Council on 27 July 2021, whereupon it was resolved to adopt a Responsible Authority Report (RAR) recommending refusal of a Service Station development on the subject land, for the following reasons:

"1. Traffic generated by the proposed development will adversely impact on the operation of Dixon Road/Day Road intersection, which currently has an unsatisfactory level of service, and will further exacerbate the effect on traffic flow and safety surrounding the site.

2. The development fails to provide for sufficient on-site car parking to cater for long term planning of the site. There are also unresolved concerns of the City regarding the functionality of the site plan layout."

On 6 August 2021, at the meeting of the Metro Outer Joint Development Assessment Panel (MOJDAP), determination of the application was deferred (Attachment 5) until 1 October 2021 for the following reasons:

- "To consider an alternative arrangement for access onto Dixon Road which would include left in/left out entry and exit onto Dixon Road for light vehicles, to reduce congestion concerns at the Day Road intersection."
- An updated Traffic Assessment be provided accounting for these changed access arrangements and addressing outstanding matters raised in the Responsible Authority Report concerning the overall traffic impact assessment.

On 13 August 2021, the Applicant submitted a revised set of plans and a Technical Traffic Note, including further traffic analysis in support of modified vehicle access arrangements for the development (Attachment 6), in order to attempt to address the reasons for deferral.

Specifically, modifications relate to the Site Plan layout and result in the following changes:

- Removal of the car bays within the heavy vehicle area fronting Dixon Road;
- Modification to the loading bay;
- Relocation of car bays to the northern side of the fuel retail building;
- Inclusion of two parallel bays within the Day Road front setback area; and
- Modification of the Dixon Road light vehicle crossover to allow for a full access movement.

On 18 August 2021, upon request of the City, the Applicant's Traffic Consultant submitted to the City their video data capturing AM and PM peak traffic conditions at the intersection of Dixon Road and Day Road.

Site History

In 1997, the City considered a Development Application for the existing Workshop use (Rockingham Auto Electrics) on the subject land.

While considering the application, concerns were identified regarding potential traffic impact on the adjoining intersection of Day Road and Dixon Road. The intersection was observed to experience congestion during the afternoons peak period (3:30pm - 4:30pm), with queuing vehicles backing up along Day Road, at times past the subject land.

As a result, a modified site plan was submitted and Development Approval granted on 11 April 1997. The approved Site Plan (refer to Figure 1 below) provided for two vehicular crossovers onto Day Road, with access for the south-western most crossover being restricted to 'entry only'. Two unrestricted crossovers were also approved onto Dixon Road.

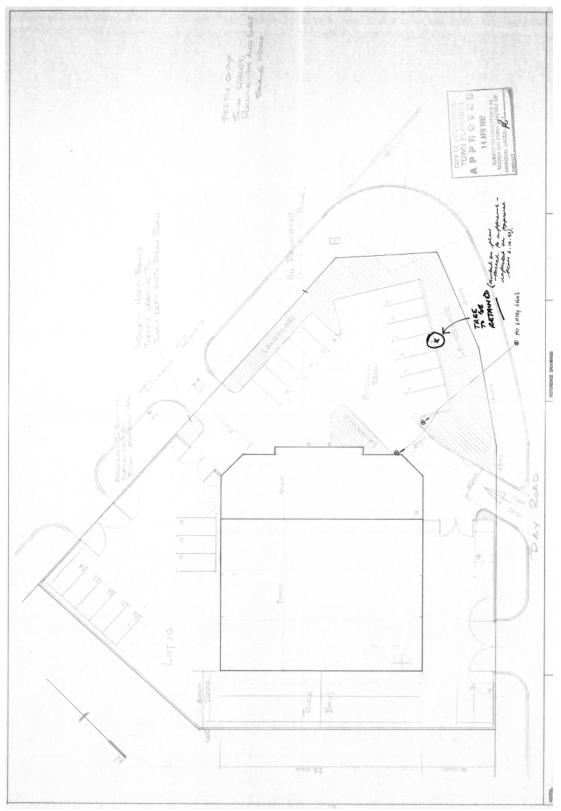


Figure 1. Approved Site Plan for Existing Use

Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme -	Industrial, Other Regional Road
Zone/Reserve	, - 3
Local Planning Scheme	Town Planning Scheme No.2
Local Planning Scheme -	Light Industry
Zone/Reserve	
Structure Plan/Precinct Plan	N/A
Structure Plan/Precinct Plan	N/A
- Land Use Designation	
Use Class and	<u>'D' Discretionary</u>
permissibility:	Service Station
Lot Size:	2,941m ²
Existing Land Use:	Workshop
State Heritage Register	No
Local Heritage	☑ N/A
	☐ Heritage List
	☐ Heritage Area
Design Review	☑ N/A
	☐ Local Design Review Panel
	☐ State Design Review Panel
	□ Other
Bushfire Prone Area	Yes
Swan River Trust Area	No

Proposal:

Revised Development:

The application (as amended) comprises of the following:

- A 181m² Service Station retail building, located centrally within the site, with an active (glazing) frontage oriented to the south-west and south-east;
- Eight light vehicle fuel bowsers (14 petrol and two diesel refuelling spaces) located south-west of the Service Station retail building;
- Three heavy vehicle fuel bowsers (three refuelling spaces) located east of the Service Station retail building;
- 6.5m high canopies to the light and high heavy fuel bowsers;
- Modification of the four existing vehicle crossovers to provide for:
 - A light vehicle 'left-in/left-out' crossover and a separate heavy vehicle 'left-out' crossover along Dixon Road;
 - A full movement light vehicle crossover and a separate heavy vehicle 'entry only' crossover along Day Road.
- Eleven on-site car parking spaces for staff and customers are provided as follows:

- nine car bays within the light vehicle portion of the site;
- two car bays for staff provided north of the retail building within the heavy vehicle portion of the site;
- A service yard and loading bay to the north of the retail building, which are accessed from the heavy vehicle portion of the site;
- Two illuminated Pylon Signs, both 7.2m high, adjoining Dixon Road and Day Road;
- Various directional and wall/facia signs affixed to the Service Station retail building and to the fuel canopies;
- Landscaping treatments adjacent the Dixon Road and Day Road frontages.

It is proposed that the Service Station will operate 24 hours per day, 7 days per week and accommodate up to two staff on site at any one time.

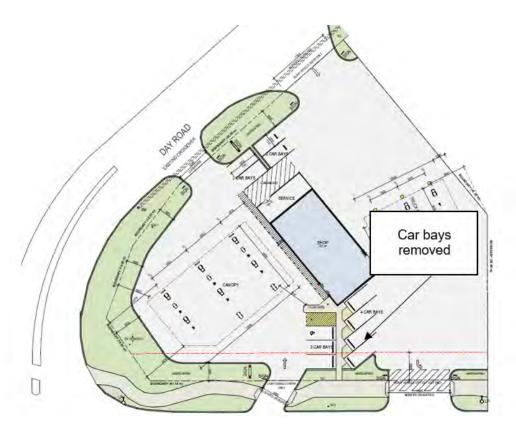


Figure 2. Deferred Site Plan

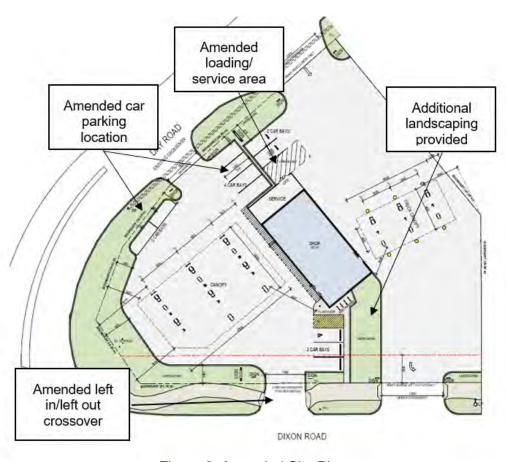


Figure 3. Amended Site Plan

Legislation and Policy:

Legislation

- Planning and Development Act 2005
- Metropolitan Region Scheme
- Planning and Development (Local Planning Schemes) Regulations 2015 (the Regulations)
- Town Planning Scheme No.2 (TPS2)

State Government Policies

State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP3.7)

Local Policies

- Planning Policy 3.3.1 Control of Advertisements (PP3.3.1)
- Planning Policy 3.3.14 Bicycle Parking and End of Trip Facilities (PP3.3.14)
- Planning Policy 3.8.8 East Rockingham Development Guidelines (PP3.8.8)

Consultation:

Public Consultation

The amended proposal has not been advertised for public comment as it was considered that the submissions received to date are still of relevance to the Local Government with respect to the revised proposal being of a similar layout and design. The original application was advertised for public comment and the submissions received are still considered relevant, and are discussed further below.

The original application was advertised between 16 April and 3 May 2021 in the following manner:

- Surrounding landowners and occupiers were notified in writing of the proposed application:
- The application was made available for public inspection at the City's Administration Offices and published on the City's website.

Thirteen submissions were received at the conclusion of the advertising period, including:

- four neutral submissions or submissions in support; and
- nine submissions objected or raised concerns.

Subject Site

Subject Site

Neutral or supporting submissions
Submissions objecting

The locations of the local submitters are shown on the Consultation Map below:

Figure 4. Consultation Plan

Ten submissions were received from locations outside the immediate locality.

All submissions are contained in the Schedule of Submissions (Attachment 4).

Issue Raised	Officer comments
Land use There are too many service stations in Rockingham	It is the City's role to provide recommendations to the MOJDAP on the planning merits of the proposal.
already, in particular on Dixon Road where there are three. There is considered to be no need or desire for another 24 hour service station in this location	The number of existing Service Stations in the area is not a relevant planning consideration, however, the land use considerations have been given due regard.
Amenity Concerns about noise and fumes from vehicles using	There are no 'sensitive' land uses in close proximity to the site that would warrant separation from the proposed Service Station.
the Service Station impacting on existing businesses in Day Road.	The subject site and surrounding land is zoned Light Industrial under TPS2 and is used for a range of related uses.
	Noise generated by the proposed development is considered to be in keeping with the amenity expected for the Light Industrial zone.

Issue Raised	Officer comments
Traffic and Safety Concerns the proposed development will increase the congestion currently experienced at the 'T' intersection of Day Road and Dixon Road, resulting in increased driver frustration and accident risk.	Traffic impacts are discussed within the Planning Assessment section of this RAR.
Boundary wall An adjoining property owner (Dixon Road) seeks more details regarding the existing dividing brick wall, indicating they would support its removal to open up the space.	The plans do not indicate whether the existing masonry wall on the eastern side boundary will be retained. Notwithstanding, removal of a boundary wall in this location is not supported by the City, as it could give rise to traffic or pedestrians that use the adjoining property at No. 119-147 Dixon Road interacting/conflicting with heavy vehicles within the Service Station development.

Referrals/consultation with Government/Service Agencies

No further consultation was undertaken in respect to the revised proposal.

Of the government departments consulted during the initial advertising period on the original proposal, responses were received from:

- Department of Fire and Emergency Services (DFES);
- Department of Planning, Lands and Heritage (DPLH); and
- Department of Water and Environmental Regulation (DWER);

The comments provided are still relevant and addressed as follows.

1. Department of Planning, Lands and Heritage (DPLH)

Land Requirements

The site abuts Dixon Road which is reserved as an ORR in the MRS. The subject land is affected by the ORR reservation for Dixon Road. No development of a permanent nature is supported within reserved land.

Transport Impact Assessment (TIA)

The TIA states that the site will accommodate trucks up to 19.0 metres long. The development will retain crossovers to Dixon Road with modified functionality to left-in (western, passenger vehicles) and left-out (eastern, heavy vehicles). The site currently generates 106 trips per day. The redevelopment is proposed to generate 3,286 trips per day with 200 and 224 trips during AM and PM peak hour periods respectively (1,446 vehicles per day with passing trade discount applied). SIDRA intersection analysis shows poor performance for the Dixon Road/Day Road intersection (e.g. right turning staged movements, 94.3 seconds + 13.3 seconds, Level of Service F).

1. Department of Planning, Lands and Heritage (DPLH) (cont...)

Recommendation

The DPLH has no objection to the proposal on ORR planning grounds and provides the following comments:

It is recommended that the submitted swept path analysis plans for 19.0 metre long vehicles be verified/checked to the satisfaction of the City's Technical Services Directorate. In addition, the need for a left-turning deceleration lane from Dixon Road should be assessed against the relevant Austroads warrants.

City's Comment:

Land Requirements

DPLH comments are noted. The road reservation extends approximately 5m into the subject site across the entire frontage of Dixon Road

The extent of this reservation has been taken into consideration as part of the design of the proposed development, with development being located outside of the reservation with the exception of a proposed pylon sign, landscaping and a portion of the car parking area. In this instance, the Pylon Sign and landscaping can be considered to be erected on a temporarily basis, until such time as the reserved land is required for road upgrading purposes in the future.

Transport Impact Assessment

The traffic implications and TIA are discussed in the Planning Assessment section below.

DPLH Recommendation

In regards the DPLH recommendations:

- Updated swept path analysis have been submitted which demonstrate that 19m long trucks can exit the site onto Dixon Road in an acceptable manner.
- The warrants described in the Austroads' *Guide to Traffic Management Part 6 (Intersections, Interchanges and Crossing Management)* suggest a left turn treatment is required based on turning movement data presented in the TIA. In this particular case, however, given the constraints of the site (i.e. the proposed crossover located less than 20m away from the Tangent Point of the kerb radii at the intersection of Day Road/Dixon Road), the City's Traffic Engineer considers that it would not be possible to provide a left turn treatment, due to insufficient allowable space.

2. Department of Fire and Emergency Services (DFES)

The DFES submission supported the proposal, subject to modifying the Bushfire Management Plan (BMP) to address the following matters:

- Vegetation Classifications Vegetation classifications cannot be substantiated based on the information in the BMP. Evidence is required to support the classifications (or exclusions), and the potential for revegetation has not been considered;
- Site Landscaping the landscaping plan within the BMP should be modified to comply with Schedule 1: Standards for Asset Protection Zones (APZ) outlined in the Guidelines for Planning in Bushfire Prone Areas;
- Siting and design an Asset Protection Zone is required to be spatially identified on the submitted plans.

2. Department of Fire and Emergency Services (DFES) (cont...)

City's Comment:

Vegetation Classifications

An updated BMP has been submitted by the Applicant, which substantiates vegetation classifications to the satisfaction of the City, with the exception that the eastern verge of Darile Street should be mapped in the BMP as classifiable vegetation. While this will have no impact on the BAL12.5 rating, classifying the eastern verge vegetation in Darile Street will afford the City flexibility with respect to verge treatment options in the future.

A condition is recommended in the event that approval is granted to require an updated BMP to address this issue.

Site Landscaping

While the Landscaping Plan (within the BMP) was updated with appropriate notes to address APZ requirements, the Site Plan and the Landscape Plan within the BMP are now inconsistent with the latest amended development plans received on the 13 August 2021.

The road reserve landscaping adjoining the site should be the responsibility of the land owner to maintain, not the City.

The BMP must be amended accordingly.

Siting & Design

The BMP has been updated to spatially indicate an APZ within the lot boundaries, which is acceptable to the City, however, as indicated above, the BMP will need to be updated to reflect the amended site plan layout in the event approval is granted.

Subject to the modifications recommended below, it is considered that that BMP is accurate and can be implemented to reduce the vulnerability of the development to bushfire. The City is satisfied that the development design has demonstrated compliance with SPP3.7.

Recommendation:

In the event that approval is granted, the following condition is recommended:

"Prior to applying for a building permit, the Bushfire Management Plan prepared by Ecological Australia, dated 4 March 2021, shall be updated to:

- Classify the vegetation in the eastern verge of Darile Street to the satisfaction of the City;
- Reflect the layout of the amended Site Plan received on 13th August 2021;
 and
- To indicate that the landowner will be responsible for maintenance of any landscaping within the street verges adjoining the subject site".

3. Department of Water and Environmental Regulations (DWER)

DWER does not object to the proposal, however, recommends:

- a stormwater management plan be prepared for the site in accordance with the Stormwater Management Manual for Western Australia that demonstrates the appropriate management of small, minor and major rainfall events.
- an Emergency Response Plan to be addressed as condition of development approval.

3. Department of Water and Environmental Regulations (DWER) (cont...)

The Department also provided advice regarding:

- the design and location of the underground storage tanks; and
- the site being classified as potentially contaminated investigation required.

City's Comment:

Should development be approved, conditions requiring a Stormwater Management Plan and an Emergency Response Plan are recommended.

Design Review Panel Advice

Not Applicable

Swan Valley Planning

Not Applicable

Planning Assessment:

Assessment of the revised proposal has been limited to areas where discretion is sought to vary a Policy and/or TPS2 requirement. Previously accepted variations by the City have not been considered further as part of this report. The following matters have been identified as key considerations for the determination of the revised application:

- Form of Development (TPS2 Cl 4.10.2)
- Car Parking (TSP2 Cl 4.10.3)
- Traffic Generation;

These matters are discussed below.

Form of Development

Pursuant to Clause 4.10.2 of TPS2, the Local Government shall have regard to the following provision when considering an application for development approval on Industrial zoned land:

"(d) to ensure safe movement of vehicular and pedestrian traffic in the area."

The Applicant submitted a Traffic Technical Note along with the amended Site Plan, in order to justify the modified "left-in/left-out" crossover for light vehicles from Dixon Road.

As discussed in the Traffic Generation section of this RAR, the Technical Note analyses traffic flows and volumes and utilises a SIDRA analysis of the intersection and the proposed crossovers.

While the traffic Technical Note submits that the light vehicle 'left-in/left-out' access onto Dixon Road will not change the existing operating conditions of the intersection (in fact suggests slight improvements), the City's ongoing concerns in respect to the validity of the underlying traffic modelling assumptions have not been addressed. The City's Traffic Engineer considers that if the requested changes were made to the analysis, then it is likely that intersection performance will deteriorate, and appear worse than reported in the Traffic Note.

Given that the intersection presently operates at capacity during PM peak hour (Level of Service 'F'), and in the absence of reliable modelling, it is difficult for the City to support the proposed development without quantifying the actual impact on the intersection.

To this extent, the proposal is considered inconsistent with TPS2, clause 4.10.2 (d), which requires consideration "to ensure safe movement of vehicular and pedestrian traffic in the area".

Car Parking

The table below provides an assessment of the Service Station proposal against the relevant car parking requirements of TPS2.

Use	Rate	Required	Provided
Service Station	1 bay for every service bay, plus 1 bay per employee and	2 employee bays	11 bays
	6 bays per 100m ² NLA of retail floorspace	11 bays (181m² NLA)	
Total		13 bays	11 bays

The proposed development provides a total of 11 car parking spaces which leaves a two (2) bay technical shortfall for customer parking.

Previous concerns the City had in respect to the original Site Plan layout have largely been resolved through the Amended Site Plan submitted, by relocating customer car parking bays from the eastern (heavy vehicle) portion of the site to the western (light vehicle) portion.

Two car parking bays that are partially or wholly within the Other Regional Road Reservation (ORR) will be lost in the event the ORR reserved land within the site is ceded for road widening purposes. The implications being, that if the two (2) car bays in the ORR are lost due to ceding, then the overall parking shortfall increases to a total of four (4) bays accordingly.

Nevertheless, the proposed car parking shortfall can be sustained in this instance by the City, as:

- There are no current plans that would warrant the ceding of land for the widening of Dixon Road in this location, meaning the parking bays proposed within the ORR would remain in place for the foreseeable future;
- The amended Site Plan has reduced the overall shortfall by 50% (from 8 to 4 bays) compared to the previous reported shortfall; and
- There are 16 refuelling bays located at the bowsers, which to a degree would offset parking demand, as some customers purchasing fuel would also purchase convenience products from the retail shop.

Traffic Generation

The MOJDAP has requested the Applicant consider an alternative vehicle access arrangement that would include left in/left out entry and exit onto Dixon Road for light vehicles, to reduce congestion concerns at the Day Road intersection.

The City has reviewed the revised Site Plan and the additional traffic information submitted, and still has concerns with this application, in the context that:

- The subject site is a corner Lot which is currently used for a low traffic generating use. The site currently generates approximately 106 trips per day;
- The redevelopment is assumed to generate 3,286 light vehicle trips per day with 200 and 224 trips during AM and PM peak hour periods respectively (1,446 vehicles per day with passing trade discount applied). In addition, approximately 470 daily heavy vehicle trips are assumed, with approximately 43 and 34 trips per AM and PM peak hours respectively;
- The Dixon Road/Day Road intersection is reported to be currently operating at capacity (Level of Service 'F') during week day PM peak hour, in respect to traffic turning right from Day Road onto Dixon Road;
- PM peak hour is reported between 2:45-3:45pm (refer to City comments below);
- The SIDRA analysis within the traffic reporting incorporates modelling assumptions that the City's Traffic Engineer doesn't agree with; and
- The Applicant's traffic reporting suggests that post-development, the 'left-in/leftout' light vehicle crossover on Dixon Road will generate no change to the current operation of the Dixon Road/Day Road intersection, in respect to (Level of Service (LoS), Degree of Saturation (DoS), delay or 95% queue length.

In articulating the City's concerns, it is important to note the extent to which the intersection currently 'fails', or operates at capacity.

It is acknowledged that the majority of the time the intersection appears to operate satisfactorily, in respect to traffic turning right from Day Road onto Dixon Road.

The TIA submitted identifies the weekday PM peak hour being between 2:45-3:45pm. Anecdotal observations of the City, however, suggest the PM peak hour period may be later in the day, based on the queuing traffic observed at the intersection of Mandurah Road and Dixon Road.

From observing the Applicant's video showing Day Road/Dixon Road intersection operation during the reported peak hour, the following is noted:

- The vast majority of the traffic from Day Road turns right onto Dixon Road, heading in a westerly direction;
- There is minimal delay and queuing from traffic on Day Road turning left onto Dixon Road, heading in an easterly direction;
- Right turn movements from Day Road were generally free flowing with one to three cars and no significant delays;
- One car turning right from Day Road can usually pass through the intersection with no significant delay;

- On occasion a car turning right on Day Road can get significantly delayed by the volume of traffic on Dixon Road, which creates a cascade effect in the stacking of cars turning right behind it;
- When the right turn movement was inhibited by Dixon Road traffic this quickly resulted in stacking of cars - with up to 8 cars observed at 3:30pm. It took 12 minutes for the traffic to clear the intersection;
- The longest observed delay in a car turning right from Day Road was 108 seconds (fifth car in stack) on another occasion it took 86 seconds; and
- Once there is a gap in Dixon Road traffic, the right turn movement from Day Road onto Dixon Road immediately free's up the right turn movement from Day Road and any congestion is then freed.

The above observations appear to lend weight to the Applicant's contentions within the traffic reporting, however, this does not address the concerns of the City's Traffic Engineer regarding the traffic modelling assumptions and the pre-peak hour PM video provided.

For comparison, the Tables below summarise the reported traffic outcomes in respect to the pre and post-development conditions, for both the original Site Plan (submitted on 9 April 2021) and the revised Site Plan (submitted on 13 August 2021).

	Level of Service (LoS)	Delays (right hand turning traffic)	Queue Length	Degree of Saturation
Existing Situation	'F'	78.8 seconds	38m	0.893
Original Site Plan	'F'	107.6 seconds	56m	0.975
City Comment	LoS 'F' is the worst level of service possible.	28.8 seconds additional delay	56m queue length conflicts with Day Road crossover	a degree of saturation exceeding 1.0 would mean long queues on the approaches

Table 1: Intersection Performance Summary based on the Original Site Plan

	Level of Service (LoS)	Delays (right hand turning traffic)	Queue Length	Degree of Saturation
Existing Situation	'F'	78.8 seconds	38m	0.893
Amended Site Plan	'F'	75.5 seconds	37m	0.882
City Comment	LoS 'F' is the worst level of service possible.	3.3 seconds shorter delay than existing	1m queue length shorter than existing	a degree of saturation exceeding 1.0 would mean long queues on the approaches

Table 2: Intersection Performance Summary based on the Amended Site Plan

As can be seen:

- The LoS 'F' is reported to remain the same for both Site Plans, compared to the existing 'pre-development' LoS. LoS 'F' is the worst level of service possible.
- The revised Site Plan is reported to result in 3.3 seconds shorter delay for vehicles turning right onto Dixon Road, than at present. The modelling indicates a reduction in delays at the intersection compared to existing conditions, which the City does not understand the reason for given the increase in traffic attributable to the proposed Service Station development.
- The revised Site Plan is reported to result in a slight (1m) queue length reduction for vehicles turning right onto Dixon Road, than at present.
- The degree of saturation has reduced (to 0.882), compared to existing conditions, which again the City does not understand the reason for considering the intensification of the proposed land use.

Fundamentally though, due to the existing level of service 'F' of the intersection, and the above mentioned concerns about the traffic modelling, the application is unable to be supported on traffic grounds by the City.

Conclusion:

There are still concerns regarding the site plan layout which are unresolved, including the design of the vehicle crossovers and concerns regarding vehicle circulation around the bowsers.

In determining this application, the decision maker is required to give due regard to a range of considerations outlined in the clause 67 of the Deemed Provisions, including:

- "(b) the requirements of orderly and proper planning..." and
- "(t) The amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety".

While there appears to be merit behind the revised application, the City's concerns regarding the traffic reporting are still unresolved.

The implications for the Day Road/Dixon Road intersection performance may potentially be significant if the application is approved based upon inaccurate traffic modelling. Approval of the development will exacerbate the poor existing intersection performance and consequently increase safety risk.

As such and until demonstrated otherwise, it is recommended that the application be refused.

Development Application Report Proposed Service Station

Lot 10 (115) Dixon Road East Rockingham, WA NING SOLUTIONS
URBAN 8 REGIONAL PLANNING

PS

Prepared for Adelaide Nominee's Pty Ltd

April 2021

Copyright Statement 2021

@ Planning Solutions (Aust) Pty Ltd

All rights reserved. Other than for the purposes of and subject to the conditions prescribed under the Copyright Act 1968 (Cth), no part of this report may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic or otherwise, without the prior written permission of Planning Solutions (Aust) Pty Ltd.

No express or implied warranties are made by Planning Solutions (Aust) Pty Ltd regarding the information and analysis contained in this report. In particular, but without limiting the preceding exclusion, Planning Solutions (Aust) Pty Ltd will not verify, and will not assume responsibility for, the accuracy and completeness of information provided to us.

This report has been prepared with particular attention to our Client's instructions and the relevant features of the subject site. Planning Solutions (Aust) Pty Ltd accepts no liability whatsoever for:

- 1. a third party's use of, or reliance upon, this report;
- 2. use of, or reliance upon, this report in relation to any land other than the subject site; or
- 3. the Client's implementation, or application, of the strategies recommended in this report.

Direct all inquiries to:

Planning Solutions Level 1, 251 St Georges Terrace Perth, WA 6000

All correspondence to: GPO Box 2709 Cloisters Square PO 6850

Phone: 08 9227 7970 Fax: 08 9227 7971

Email: admin@planningsolutions.com.au
Web: www.planningsolutions.com.au

Project details

Job number	6621		
Client	Adelaide Nominee's Pty Ltd		
Prepared by	Planning Solutions		
Consultant Team	Town Planning Architect Traffic Engineering Bushfire Management	Planning Solutions Brown Falconer Transcore Eco Logical	

Document control

Revision number	File name	Document date
Rev 0	210406 6621 DA Report - East Rockingham Service Station	6 April 2021

Contents

1	Preliminary	1
1.1	Introduction	
1.2	Background	
1.2.1	Pre-lodgement engagement with the City of Rockingham	
1.2.2	Pre-lodgement engagement with the Department of Planning, Lands and Heritage	1
2	Site Details	2
2.1	Land Description	2
2.2	Location.	2
2.2.1	Regional Context	2
2.2.2	Local Context, Land Use and Topography	
3	Proposed Development	7
3.1	Liberty Service Station	7
3.2	Traffic and access	
3.3	Bushfire management	9
3.4	Landscaping	
3.5	Waste Management	
3.6	Stormwater Management	
3.7	Signage1	
4	Statutory Planning Framework1	1
4.1	Metropolitan Region Scheme	
4.2	State Planning Policy 3.7 Planning in Bushfire Prone Areas1	1
4.3	Development Control Policy 5.1 Regional Roads	
4.4	City of Rockingham Town Planning Scheme No. 21	
4.4.1	Zoning	3
4.4.2	Land use and permissibility	
4.4.3	Town Planning Scheme No.2 Development Standards	
4.4.4	Matters to be considered	
4.5	Local Planning Policies	
4.5.1	Local Planning Polices	
4.5.2	Local Planning Policy 3.3.14 Bicycle Parking and End-of-Trip Facilities	
5	Conclusion	
7	Conclusion	3
Figures		
Figure 1:	Aerial Photograph	
Figure 2:	Zoning Map	
Appendi	ces	
Appendix		
Appendix	1904 14 Can Will William St. William E. Children	
Appendix	6: Clause 42 Certificate	



1 Preliminary

1.1 Introduction

Planning Solutions acts on behalf of Adelaide Nominee's Pty Ltd, the proponent of the proposed development at Lot 10 (115) Dixon Road, East Rockingham (subject site). Planning Solutions has prepared the following report in support of an Application for Development Approval for a proposed service station on the subject site.

This report will discuss various issues pertinent to the proposal, including:

- Background.
- Site details.
- · Proposed development.
- · Town planning considerations.

This application seeks approval for the use and development of a Liberty service station, with associated retail building, light vehicle fuel canopy, heavy vehicle fuel canopy, access, landscaping and car parking. The proposed development is suitably located within an established industrial area and will expand the offering of services and employment opportunities to the surrounding locality.

Accordingly, Planning Solutions respectfully requests the Metro Outer Joint Development Assessment Panel (JDAP) grant approval to the application.

1.2 Background

1.2.1 Pre-lodgement engagement with the City of Rockingham

Consultation and pre-lodgement engagement has occurred with the City of Rockingham (City) with respect to the proposed development. On 1 July 2020, Planning Solutions, representatives of the proponent and Transcore attended a meeting with senior officers at the City, where the following matters were discussed with respect to the proposal:

- The City's officers have no 'in-principle' objection to the suitability of the subject site being developed as
 a service station in accordance with the applicable planning framework.
- Any development application would need to provide justification in support of modified crossovers to Dixon Road, specifically if the intensity and widths were proposed to be increased.
- Consider a way one flow of access through the site.
- The City would require a Transport Impact Assessment and Bushfire Management Plan to be submitted in support of the application.

The City also provided feedback on 24 July 2020 regarding specific design considerations.

1.2.2 Pre-lodgement engagement with the Department of Planning, Lands and Heritage

Planning Solutions and Transcore met with the Department of Planning, Lands and Heritage on 14 August 2020 to discuss the access considerations of the proposal, given Dixon Road is reserved as an 'Other Regional Road'.

During discussions, it was suggested that the Dixon Road crossover system could consist of one left-in crossover for light vehicles and one left-out crossover for heavy vehicles. This would effectively operate as one crossover, given the proposed separation between the two crossovers and their one-way access/egress.

The comments received during pre-lodgement engagement have informed the overall design and configuration of the proposal and the content of this report.

t



2 Site Details

2.1 Land Description

Refer to Table 1 below for a description of the land subject to this development application.

Table 1 - Lot details

Lot	Plan	Volume	Folio	Area (m²)
10	20401	2039	550	2,941

The subject site is not subject to any limitations, interests, encumbrances and/or notifications materially relevant to the proposed development.

Refer to Appendix 1 for a copy of the Certificate of Title and Plan.

2.2 Location

2.2.1 Regional Context

The subject site is located in the City of Rockingham and in the suburb of East Rockingham. The subject site is located approximately 37km southwest of the Perth city centre, 4.7km south-west of the Kwinana town centre, and 4.3km east of the Rockingham town centre.

The subject site fronts Dixon Road at its southern boundary, a key distributor road which is reserved 'Other Regional Roads' under the Metropolitan Region Scheme (MRS). Dixon Road is a main transport corridor between Rockingham, Kwinana and the surrounding industrial area.

Dixon Road links the subject site to Mandurah Road and the Kwinana Freeway, via Kulija Road. Dixon Road is a four lane, dual carriageway road with a solid central median strip. The closest Transperth bus service (route 549) is provided along Dixon Road, within 100m of the subject site to the east, providing a connection between Fremantle Station and Rockingham Station.

A large area of native bushland reserved under the MRS is located south of the subject site, across Dixon Road (Bush Forever site 356).

2.2.2 Local Context, Land Use and Topography

The subject site is located within the industrial suburb of East Rockingham. Dixon Road is generally characterised by a range of light industrial, large format retail and service commercial uses.

The subject site adjoins Dixon Road to the south, Day Road to the west and existing light industrial / service commercial businesses to the north and east.

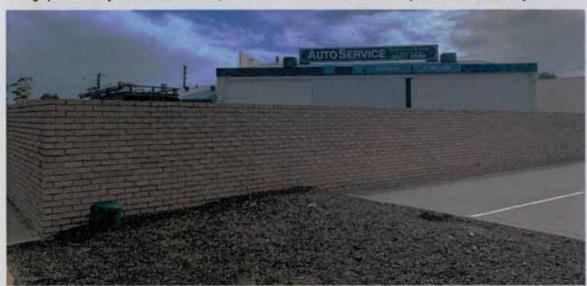
The subject site contains an existing building, used for the purposes of auto services and repairs, located centrally within the site. In terms of access, there are two existing crossovers to Dixon Road and two to Day Road. An existing 2.2m wide (approximately) concrete foot path extends along the Dixon Road frontage, with the landscaped road reserves and street frontages comprising turf and low growing shrubs. The subject site is generally flat, with levels of approximately 4.6m to 4.8m AHD.

Refer to Photos 1-9 and Figure 1, aerial photograph depicting the subject site and surrounds.





Photograph 1: The subject site and Dixon Road, as viewed from the east. The brick wall represents the lot boundary.



Photograph 2: The subject site and existing building as viewed from the Dixon Road reserve to the east.



Photograph 3: The southern lot boundary of the subject site and easternmost crossover to Dixon Road, as viewed from the east.





Photograph 4: The existing westernmost crossover to Dixon Road, as viewed from the east.



Photograph 5: The subject site and existing building, as viewed from Dixon Road, facing north east.



Photograph 6: The existing building and southernmost crossover to Day Road, as viewed from the west, facing east.

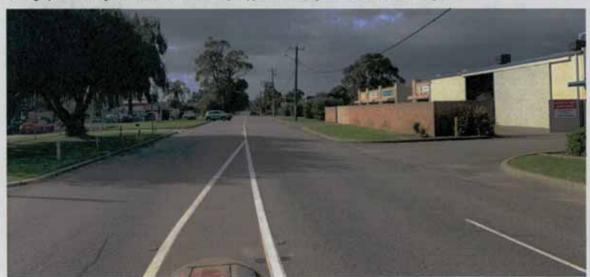




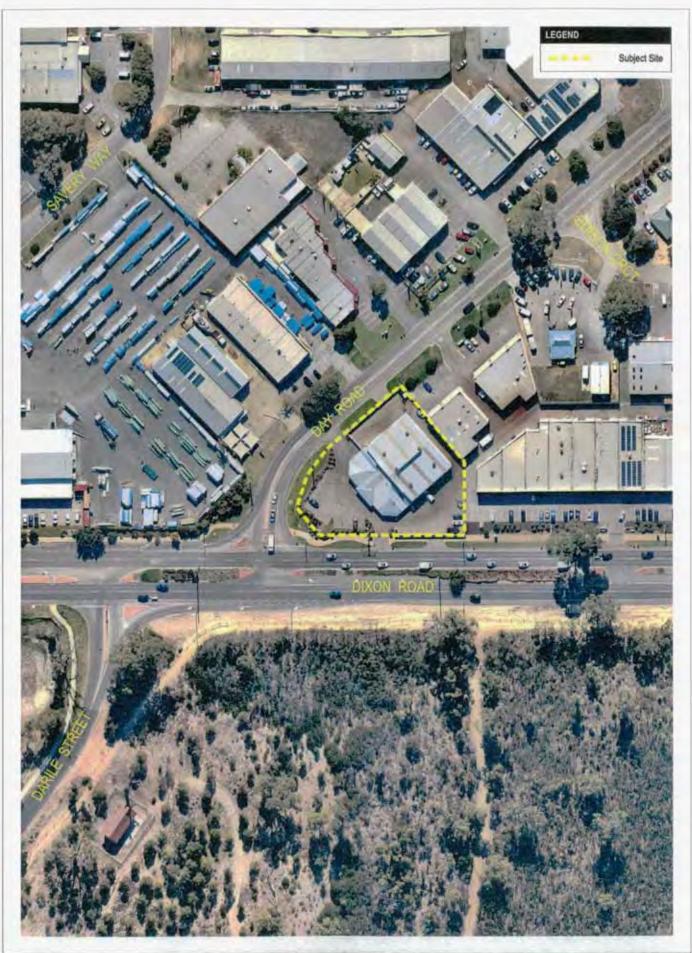
Photograph 7: The subject site and Day Road / Dixon Road intersection, as viewed from the west, facing east.



Photograph 8: The Day Road interface / streetscape opposite the subject site to the west, facing north.



Photograph 9: Day Road facing north. The subject site (including two existing crossovers) is on the right.



PLANNING SOLUTIONS PS

SCALE DATE FILE REVISION

1: 1,100 G A1 29 Aby 2020 ct 200729 6621 Aerial Photograph using 6AL First Draft29 07 2020



AERIAL PHOTOGRAPH

LOT 10 (115) DIXON ROAD EAST ROCKINGHAM WESTERN AUSTRALIA



3 Proposed Development

The proposal involves the development of the subject site as a service station, including associated access, landscaping, car parking and signage. The development is intended to provide essential fuel retailing and convenience services which are easily accessible to the local community.

The overall development configuration has been carefully and holistically considered to ensure internal operation and site functionality are maximised, while ensuring the facility is designed responsively to the site's location fronting Dixon Road, as well as the surrounding locality. The proposed development provides a contemporary built form that will enhance the amenity of the subject site and surrounding area. Importantly, this application is supported by technical traffic engineering and bushfire reporting that demonstrates the proposal will comply with the relevant legislation.

The following sub-sections provide a more detailed description of the components of the proposed development including access, bushfire considerations, car parking, landscaping, traffic generation, signage and stormwater management.

3.1 Liberty Service Station

The Liberty service station development will provide for the retail sale of fuel to both light and heavy vehicles, as well as a range of convenience goods and amenities. Specifically, the proposed service station development comprises:

- A Liberty branded retail building of 207m² gross floor area (GFA) located towards the eastern aspect
 of the site, oriented south west towards the intersection of Dixon Road and Day Road.
- The retail building is set back a minimum of 14.3m from the Dixon Road lot boundary, 15.2m from the Day Road lot boundary and 10m from the eastern lot boundary. The fuel canopy is a visually permeable structure, with a minimum setback of 5m from the Dixon Road lot boundary.
- A service yard and bin store on the south eastern side of the retail building.
- A Liberty branded fuel canopy (for light vehicles) located to the west of the service station retail building, with a clearance of 5.5m and a total height of 6.5m.
- A Liberty branded fuel canopy (for heavy vehicles) located to the east of the service station retail building, with a clearance of 5.5m and a total height of 6.5m.
- Eight fuel bowsers, with sixteen refuelling spaces (two per bowser).
- Twelve car parking bays, including one accessible bay.
- Modification of the existing crossovers to Dixon Road to provide:
 - One 5m wide, left-in only crossover for light vehicle entry.
 - One 11m wide, left-out only crossover for heavy vehicle egress.
- Modification of the northernmost Day Road crossover to provide a 10.7m wide left-in, right-in crossover for heavy vehicle entry.
- Retention of the existing 6.38m wide full movement crossover to Day Road, for light vehicle movements.
- Soft landscaping through the site and along street boundaries (approximately 355m²).
- Design levels of approximately 4.6m AHD for external surfaces.
- Various signage associated with the service station (refer to section 3.7 of this report below).

The proposed service station will operate 24 hours per day, 7 days per week, and accommodate a maximum of two staff on site at any one time.

The proposed service station will provide essential, uninterrupted fuel retailing and convenience services to the local community and patrons travelling along the surrounding road network. Refer to **Appendix 2** for a copy of the development plans and perspective drawings of the proposed development.



3.2 Traffic and access

The proposed service station development has been subject to a detailed traffic analysis, in the form of a Transport Impact Assessment (TIA) conducted by Transcore (refer Appendix 3). Based on this analysis, the proposed development was found to provide acceptable access and parking arrangements.

Four vehicle access points are proposed (four are existing), comprising:

- One 5m wide, left-in only crossover to Dixon Road for light vehicle entry.
- . One 11m wide, left-out only crossover to Dixon Road for heavy vehicle egress.
- . One 10.7m wide left-in, right-in crossover to Day Road for heavy vehicle entry.
- . One 6.38m wide full movement crossover to Day Road, for light vehicle movements.

The proposed vehicle accessways result in efficient and uninterrupted movements of vehicles through the site and seek to rationalise existing vehicle movements to the road network. As demonstrated by the supporting TIA and swept paths, the proposed site layout and access arrangements result in a safe and coordinated circulation system for the overall development and are not expected to result in any adverse impacts on the surrounding road network.

The peak period demand for fuel retailing has been considered, with sufficient space around the fuel canopy to accommodate any potential vehicle queuing. The stacking capacity of the service station has been assessed in more detail to investigate the impacts of higher than average site patronage during peak weekday operational periods (i.e. on cheap fuel days).

It is estimated that the service station would attract up to 112 vehicles during the regular weekday PM peak hour, with cheap fuel days 50% higher than the typical peak weekday PM hour. Accordingly, it has been conservatively assumed that the service station would attract approximately 168 vehicles per hour during this period. A service rate of 15 vehicles per hour per fill point was assumed for the weekday PM peak hour (based on average fill times). Therefore, no potential queue back from the service station to either Dixon Road or Day Road is expected.

The proposed service station has been designed to facilitate the safe and efficient movements of 19m fuel tankers and 12.5m service vehicles. The swept path movements of a 19m fuel tanker are analysed in the TIA, and are shown to have satisfactory access to and from the site (refer **Appendix 3**).

Fuel tankers will access the site in the following manner:

- Left-in or right-in ingress via the northern Day Road crossover.
- Access the refuelling point located underneath the heavy vehicle canopy.
- Left-out egress via the easternmost Dixon Road crossover.

Service vehicles will access the site in the following manner:

- Left-in or right-in ingress via the northern Day Road crossover.
- Reverse into the service bay located at the southern aspect of the retail building.
- Left-out egress via the easternmost Dixon Road crossover.

Fuel deliveries and servicing will generally take place outside of peak traffic periods to ensure minimal disturbance to the site's operations and external traffic. General stock deliveries and bin servicing will take place throughout the week, although frequency may fluctuate depending on the time of year and demand for certain products.



3.3 Bushfire management

As the subject site is located within a designated 'Bushfire Prone Area' in accordance with the Department of Fire and Emergency Services Map of Bushfire Prone Areas, a Bushfire Attack Level (BAL) assessment was undertaken over the site. The BAL assessment confirms the majority of the subject site has a BAL-12.5 rating, with the southern portion of the site having a BAL – 29 rating. Accordingly, a Bushfire Management Plan (BMP) is required in support of this application.

A BMP and Bushfire Risk Management Plan (BRMP) have been prepared in support of the proposed development and sets out appropriate mitigation/bushfire protection measures satisfying the relevant requirements of SPP3.7. Bushfire considerations are further discussed in section 4.2.

Refer to Appendix 4 for a copy of the BMP and BRMP prepared by Eco Logical Australia.

3.4 Landscaping

The proposed development provides approximately 355m² of landscaped areas. The landscaping provision compliments the existing verge plantings surrounding the subject site and includes a variety of low growing native vegetation.

The proposal seeks to retain aspects of the existing verge landscaping surrounding the proposed development. Further detail on landscaping can be provided as a condition of development approval.

3.5 Waste Management

Refuse and recycling will be collected on site by a private contractor. Waste collection vehicles can access the development via the northern crossover from Day Road and traverse to the loading bay. The driver of the waste collection vehicle will move the receptacles to the vehicle, transfer the waste to the vehicle, and return the receptacles to the bin areas. The waste collection vehicle will then exit via the eastern Dixon Road crossover in forward gear.

Waste collection vehicles are expected to access the site during off peak periods. It is expected a waste management plan can be provided at detailed design, as a condition of development approval, to the satisfaction of the City.

3.6 Stormwater Management

Stormwater runoff will be contained onsite to the extent possible, with a stormwater management plan expected to be provided at detailed design through an appropriately worded condition of development approval. Stormwater runoff associated with the Liberty service station will be treated through the use of a SPEL Puraceptor system, which captures runoff within the forecourt area and tanker refuelling area. The Puraceptor is an underground collection system which treats stormwater by separating fuels, oils and other potential contaminants from stormwater runoff. The treated stormwater is then discharged into the site's main stormwater management system, while the captured contaminants are retained within a separate chamber for collection and removal off site.

Use of the SPEL Puraceptor is a standard industry practice, and is generally implemented on all new fuel sites across Australia. A stormwater management plan can be provided post-approval in accordance with a condition of planning approval.

Refer to Appendix 5, SPEL Puraceptor Brochure.



3.7 Signage

The proposal incorporates various advertising signage as part of the overall development. Specifically, the proposal comprises:

- One (1) internally illuminated pylon sign measuring 7.2m high x 2.4m wide x 0.57m (approximately) deep, to be installed within the street setback area fronting Dixon Road and suitably located adjacent to the crossover to be clearly visible to drivers.
- One (1) internally illuminated pylon sign measuring 7.2m high x 2.4m wide x 0.57m (approximately) deep, to be installed within the street setback area fronting Day Road and suitably located to be clearly visible to drivers.
- Four (4) internally illuminated Liberty directional signs measuring 0.8m high x 0.7m wide, to be located adjacent to the Dixon Road and Day Road crossovers.
- Non-illuminated and illuminated fascia/wall signage affixed to the service station retail building (south west and south east elevations), comprising the Liberty logo and branding.
- Non-illuminated and illuminated Liberty branded fascia signage affixed to the service station light vehicle fuel canopy, including a 7-Eleven logo on the north western, south western and south eastern elevations. Illuminated signage is included on the north west and south east elevations of the heavy vehicle canopy.

Refer to Appendix 2 - Development Plans which includes details on the proposed signage.

An assessment of the proposed signage against the City's signage policy is discussed in section 4.5.1 below.



4 Statutory Planning Framework

4.1 Metropolitan Region Scheme

The subject site is zoned 'Industrial' under the provisions of the Metropolitan Region Scheme (MRS). Dixon Road adjoining the subject site at its southern boundary is reserved 'Other Regional Roads' (ORR) under the MRS.

The reservation extends approximately 6.2m into the subject site at its south west aspect (due to the truncation of the lot boundary), and 5m at its south east aspect. The extent of this reservation has been taken into consideration as part of the design of this facility. The proposed development is consistent with the MRS and may be approved accordingly.

Refer to Appendix 6 for a copy of the Clause 42 Certificate depicting the extent of the reservation.

4.2 State Planning Policy 3.7 Planning in Bushfire Prone Areas

The subject site is located within a 'Bushfire Prone Area' under the Department of Fire and Emergency Services (DFES) Map of Bushfire Prone Areas.

State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP3.7) provides the foundation for land use planning to address bushfire risk management in Western Australia. The Guidelines for Planning in Bushfire Prone Areas is a supplementary document used to support SPP3.7. Clause 3.2.1 of the Guidelines provides information relating to the level of information required for designated areas where there is no perceived current hazard.

A BAL assessment was undertaken over the site, confirming the majority of the subject site has a BAL-12.5 rating. The BMP and BRMP prepared in support of the proposed development sets out the appropriate mitigation/bushfire protection measures satisfying the relevant requirements of SPP3.7.

Eco Logical have provided a further assessment against the requirements of SPP3.7 and associated Guidelines for Planning in Bushfire Prone Areas. The proposed development meets the Bushfire Protection Criteria of the Bushfire Guidelines.

Refer to Appendix 4 for a copy of the formal bushfire reporting that was conducted by Eco Logical Australia.

4.3 Development Control Policy 5.1 Regional Roads

The WAPC's Development Control Policy 5.1 Regional Roads (Vehicular Access) (DC 5.1) sets out the general requirements for development involving vehicular access to regional roads. As the subject site fronts and involves access to the Dixon Road ORR reserve, the proposed development has been assessed against the relevant provisions of DC 5.1. Refer Table 2 below.

Table 2 - Assessment against DC5.1

Requirement	Comment	Complies
Cause 3.3.1 In considering applications for access on regional roads, the effects of the proposals on traffic flow and road safety will be the primary consideration. The more important the regional road, the greater the importance attached to these factors. In general, the Commission will seek to minimise the creation of new driveways on regional roads and rationalise existing access arrangements.	The proposed development retains the existing crossovers to Dixon Road and does not propose any additional crossovers. The existing full movement crossovers are proposed to be modified, to become one left-in only crossover for light vehicles and one left-out only crossover for heavy vehicles. A Transport Impact Assessment (TIA) was prepared for the proposed development. The TIA identified that:	*



- The level of trips generated is considered to have minimal material impact on both Dixon Road and Day Road under the WAPC Transport Assessment Guidelines for Developments.
- Acceptable Levels of Service are maintained for Dixon Road and Day Road with the respective intersection having adequate capacity to cater for the proposed development. It is noted that customers of the facility are unlikely to turn right from Day Road onto Dixon Road.

Refer Appendix 3 for a copy of the Transport Impact Assessment.

Clause 3.3.2

Where regional roads are constructed or planned to freeway standards, no access to frontage development is permitted. On regional roads not constructed or planned to freeway standards, there is a general presumption on traffic and safety grounds against the creation of new driveways or increased use of existing accesses to these roads. Where alternative access is or could be made available from side or rear streets or from rights of way, no access shall be permitted to the regional road unless special circumstances apply.

Clause 3.3.5

In determining applications for development involving the formation, laying out or alteration of a means of access to regional roads, the following must be considered:

- the effects of the development on traffic flow and safety, the character and function of the road, the volume and speed of traffic, the width of the carriageway and visibility; and
- ii) the volume and type of traffic generated by the development.

The proposed development retains the existing crossovers to Dixon Road, only modifying their width and means of access (i.e. entry/exit only and light/heavy vehicles only). The development does not propose any additional crossovers.

In the interest of commercial viability and the safe and efficient circulation and ingress to the subject site, including for service vehicles, the retention of the crossovers to Dixon Road is required.

The TIA confirms that the retention of the crossovers and to Dixon Road and their modifications are acceptable from a traffic / access perspective, with no significant impacts to Dixon Road.

The proposed development retains the existing crossovers from Dixon Road, only altering their width and function. The development does not propose any additional crossovers.

The TIA demonstrates that the proposed development is suitable from a traffic and access perspective, and that the road network can accommodate the negligible amount of additional traffic generated by the service station.

It is further noted that only one crossover is proposed to provide access from Dixon Road and only one crossover to provide egress to Dixon Road. This is effectively the same as a single left in left out crossover to Dixon Road. Accordingly, access to Dixon Road is rationalised by this proposal.

The proposed development therefore meets the requirements of DC 5.1. The proposed access arrangements have been appropriately informed by a suitably qualified traffic engineer and warrant approval accordingly.



4.4 City of Rockingham Town Planning Scheme No. 2

4.4.1 Zoning

The subject site is zoned 'Light Industry' under the City of Rockingham Town Planning Scheme No. 2 (TPS2). Pursuant to Clause 4.10.1 of TPS2, the objectives of the Light Industry zone are as follows:

- a) to provide for a range of industrial land uses by establishing guiding principles and policies that are environmentally and socially acceptable;
- b) to encourage and facilitate the establishment of attractive and efficient industrial areas ensuring that acceptable levels of safety and high standards of amenity are provided through the application of appropriate landuse, design and landscaping controls; and
- c) to ensure that industrial areas are developed in a manner which has due regard to potential industries and their infrastructure needs, and that adjacent urban areas are not subjected to pollution and hazards.

The proposal involves the development of the subject site as a service station, to meet demand for retail fuel services and amenities in East Rockingham. The development is appropriately located within an industrial area, with the built form of the development considering its location on Dixon Road and its interface with nearby industrial land uses.

The proposed service station development is considered entirely acceptable and consistent with the objectives of the Light Industry zone for the following reasons:

- The proposed service station development is environmentally and socially acceptable;
- The proposed service station will present as an attractive facility that ensures a high level of passive surveillance and amenity to the locality;
- The proposed development has due regard to its industrial setting and will not result in any pollution or hazards, supporting surrounding industrial land uses by providing light and heavy vehicle refuelling.

The proposed development is consistent with the objectives of the Light Industry zone and warrants approval accordingly. Refer to Figure 2, zoning map.

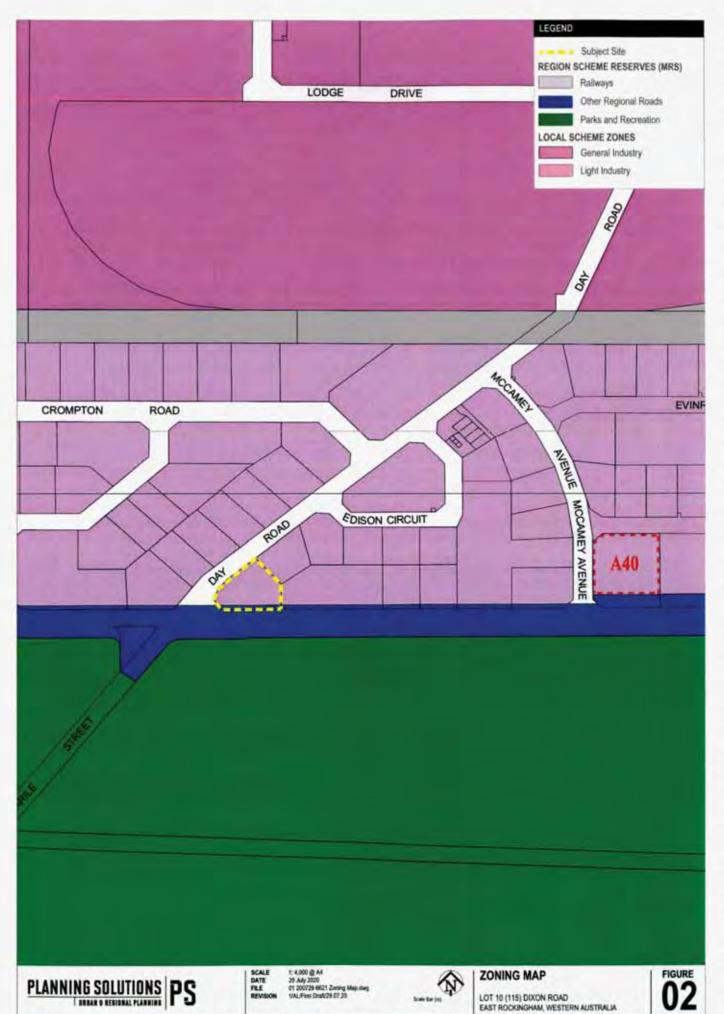
4.4.2 Land use and permissibility

Pursuant to the provisions of Schedule 1 – Interpretations of TPS2, the proposed development seeks approval for a service station, meaning:

premises other than premises used for a transport depot, panel beating, spray painting, major repairs or wrecking, that are used for —

- (a) the retail sale of petroleum products, motor vehicle accessories and goods of an incidental or convenience nature; and/or
- (b) the carrying out of greasing, tyre repairs and minor mechanical repairs to motor vehicles.

Pursuant to Table No. 1 – Zoning Table of TPS2, a service station is a 'D' (discretionary) use within the Light Industry zone and is capable of approval at the City's discretion, and is entirely appropriate and suitable for establishment on the subject site.



CLAMER THIS DOCUMENT IS AND REGISHAR THE PROPERTY OF PLANISHING SOLUTION ON HE WITH HEIT BE COVER IN WINCL ON APPAIR WITHOUT THE WRITTEN COVERED OF PLANISHIS DUCLITION, N.L. MEAN, DUTWINGS AND WRITE AND WRI



4.4.3 Town Planning Scheme No.2 Development Standards

Part 4 of TPS2 outlines the general development standards and requirements for zoned land. Clause 4.10 contains the standards applicable to the industrial zoned land. An assessment against the relevant requirements is provided in **Table 3** below.

Table 3 - Industrial development requirements

Requirement	Provided	Complianc
4.10.2 Form of development		
In considering an application for development approval on industrial zoned land, the Local Government, in addition to any other aim or objective of the Scheme and to any other matter it is required or permitted to consider, shall have regard to the following: a) promotion of a high standard of building development, landscaping and working	a) The proposed service station development is designed to a high standard, with landscaping and appropriate setbacks to ensure no adverse impacts are experienced by surrounding landowners. In addition, the facility features an attractive built form and design which is intended to address its interface with Dixon Road. This includes its integration with existing landscaped verge areas.	
environment; b) protection of the amenity of adjacent residential and open space areas; c) management of drainage systems and land uses to promote groundwater conservation; and d) to ensure safe movement of vehicular and pedestrian traffic in the area.	 b) The proposed development will have no adverse impacts on the amenity of residential and open space areas due to its location in an industrial precinct. 	*
	c) Best practice service station design is implemented to ensure drainage and stormwater management. It is expected a detailed stormwater management plan can be prepared as an appropriately worded condition of development approval.	*
	d) The site layout has been designed to ensure efficient, functional and safe movements of vehicles and traffic. This is supported by the findings of the TIA prepared by Transcore (refer Appendix 3).	
4.10.3 Parking		
Provision shall be made for the on-site parking of motor vehicles for all development on industrial zoned land in accordance with the provisions of clause 4.15 and Table No.2.	Service station: 1 bay for every service bay, plus 1 bay per employee and 6 bays per 100m² NLA of retail floorspace. • The retail building is 207m², requiring 12 bays. • A maximum of 2 employees are proposed on site at any one time, requiring 2 bays. Total required: 14 bays The development proposes an on-paper car parking shortfall of 2 bays. The proposed minor shortfall is considered acceptable as an additional 16 refuelling bays are located adjacent to the fuel bowsers, on top of the 12 that are already factored into the car parking calculations. The refuelling bays theoretically provide 16 additional bays on site, eliminating the 2-bay shortfall and resulting in a 14 bay surplus. We respectfully request the City's discretion to support this minor 'on paper' car parking variation.	Variation



Requirement Pro	Provided	
On all Industrial zoned land within the City, unless otherwise specified in the Industrial Policy or East Rockingham Development Guidelines: a) The facades of all buildings visible from the primary road or open space area shall be of masonry construction or any other material approved by the Local Government in respect of the ground floor level, provided that if concrete panels are used, such panels must have an exposed aggregate or textured finish. The second floor level, or its equivalent may be constructed of any other material in accordance with the Building Code of Australia and to the satisfaction of Local Government.	The construction of the retail building is to be primarily of concrete panel walls with a paint finish, reflecting Liberty's corporate branding. Various cladding, texture and glazing is incorporated to increase amenity of the building. Further details of materials can be provided at the detailed design phase prior to the Issue of the building permit.	*
b) No fence visible from a road or open space reserve shall be constructed of materials/colours which in the opinion of Local Government are unsightly or detract from the amenity of the locality or be used for signage where the approval of the Local Government has not been granted. Any industrial (e.g. chain wire) fencing forward of the street building setback line shall be landscaped to the satisfaction of the Local Government.	N/A - No fencing is proposed as part of this application.	N/A
c) No use of the area between the street alignment and the prescribed building setback line shall be permitted other than for landscaping, or for pedestnan and vehicular circulation and parking, except that not more than 20% of the setback area may be used for trade display purposes, to be approved at the discretion of the Local Government.	The substantial setbacks between the street frontages and the building comprise landscaping, parking, vehicle access and car refuelling. The retail building is set back a minimum of 14.3m from the Dixon Road lot boundary, 15.2m from the Day Road lot boundary and 10m from the eastern lot boundary. The fuel canopy is a visually permeable structure, with a minimum setback of 5m from the Dixon Road lot boundary.	*
4.10.8 Light Industry Zone		
On all land zoned Light Industry, unless otherwise specified in the Industrial Policy or East Rockingham Development Guidelines:	The setback of the car refuelling canopy is 5m to the primary street boundary (Dixon Road). The setback of the retail building is 14.3m to the primary street boundary (Dixon Road).	
a) Setbacks: A minimum front setback of fifteen (15) metres shall apply. Where a lot has frontage to two or more streets, the prescribed front setback of fifteen (15) metres shall apply to the primary street and a minimum setback of three (3) metres shall apply to the secondary street, or streets, unless otherwise determined by the Local Government.	The variation is considered acceptable for the following reasons: • A fuel canopy is more appropriately classed as an open structure and not a building: • In the context of 15m, a 70cm setback variation is largely indistinguishable from a compliant setback.	Variation
b) <u>Landscaping</u> : Provision shall be made for a minimum area of landscaping of 10% of the site, comprising a minimum 5 metre wide planting strip adjacent to the primary street boundary, and a minimum 3 metre wide planting strip on the secondary	The proposed development provides approximately 335m² of soft landscaped area, which represents 12% of the overall 2,941m² subject site area.	*



Requirement	Provided	Compliance	
street plus the street verge to be landscaped a maintained to the satisfaction of the Lo Government.		Variation	

Having regard to **Table 3** above, the proposal is generally consistent with the applicable development requirements of TPS2 and warrants approval accordingly.



4.4.4 Matters to be considered

Clause 67(2) of the *Planning and Development (Local Planning Schemes) Regulations* 2015 (**Deemed Provisions**) sets out the matters for which due regard shall be given when considering an application for development approval. The relevant considerations are addressed in **Table 4** below.

Table 4 - Matters to be considered

Matter to be considered	Provided	
(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;	The aims and provisions of TPS2 are considered and addressed throughout this report.	
(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;	This report demonstrates the proposed development is largely compliant with the City's local planning framework. Scheme Amendment No.178 (East Rockingham Industrial Zones) was presented to the City's Planning and Engineering Services Committee meeting on 15 February 2021 and is not considered to affect the merits of this proposal.	
ui approving,	There are no other known scheme amendments that would affect the merit of this proposal.	
(c) any approved State planning policy; (e) any policy of the Commission;	The relevant State Planning Policies are addressed in section 4 of the report.	
(f) any policy of the State;		
(g) any local planning policy for the Scheme area;	Refer to section 4.5 of this report.	
(j) in the case of land reserved under this Scheme, the objectives for the reserve and the additional and permitted uses identified in this Scheme for the reserve;	N/A - The subject site is not reserved under TPS2.	
 (k) the built heritage conservation of any place that is of cultural significance; 		
(i) the effect of the proposal on the cultural heritage significance of the area in which the development is located;	N/A –The subject site is not included on the City's Register of Places of Cultural Heritage Significance.	
(m) the compatibility of the development with its setting including – (i) the compatibility of the development with the desired future character of its	The design of the service station ensures the built form responds appropriately to the site's context within an industrial area fronting Dixon Road.	
setting; and (ii) the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and	The development features an attractive built form and is of a scale which gives prominence to the Dixon Road / Day Road intersection. The choice of materials, colours and finishes is appropriate for a service station development at this location and is respectful of the site's context.	
appearance of the development.	The subject site is zoned Light Industry under the City's TPS2 and forms part of the East Rockingham Industrial Park. The proposed development is light industrial / commercial in nature, consistent with this classification. The nature of the proposed development is compatible with its surroundings, and poses no undue impact on the locality.	



Matt	er to be considered	Provided
(n)	the amenity of the locality including the following — (i) environmental impacts of the	As cutlined above, the proposed development responds to the character of the industrial area through the use of various colours, materials, textures and landscaping.
	development; (ii) the character of the locality; (iii) social impacts of the development;	The proposed development will have positive social impacts for the locality and its surrounds, through the provisions of essential commercial services within a local centre. 24-hour trading will result in an increased level of passive surveillance in the area during night time periods.
	the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource;	Stormwater considerations have been addressed in section 3.6. Stormwater runoff will be contained onsite to the extent possible, with a stormwater management plan expected to be provided at detailed design through an appropriately worded condition of development approval.
		The service station's stormwater runoff will be treated by a SPEL Puraceptor system (a standard industry practice), which ensures fuels/oils are separated from runoff to prevent potential impacts.
for ap	whether adequate provision has been made in the landscaping of the land to which the polication relates and whether any trees or their vegetation on the land should be deserved;	The subject site does not contain any existing trees of significance. A variety of low growing native vegetation is proposed within the site, adjacent to lot boundaries and along the street frontages. Refer to the concept landscape plan in Appendix 2 .
ta fic la	he suitability of the land for the development king into account the possible risk of oding, tidal inundation, subsidence, ndslip, bush fire, soil erosion, land ogradation or any other risk;	Bushfire risk has been considered in sections 3.3 and 4.2 of this report.
ta	e suitability of the land for the development king into account the possible risk to human halth or safety;	The proposed service station is suitably located within an industrial area, away from any sensitive land uses, and is a discretionary use within the Light Industry zone.
(5)	the edequacy of — (i) the proposed means of access to and egress from the site; and (ii) arrangements for the loading,	A TIA has been prepared which demonstrates the proposed development is sound from a traffic and access perspective – refer Appendix 3. Access to the site from Dixon Road and Day Road is entirely appropriate.
	unloading, manoeuvring and parking of vehicles;	The TIA confirms the suitable movements of 12.5m service vehicles and 19m fuel tankers throughout the site.
(1)	the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;	A TIA has been prepared which demonstrates the proposed development is sound from a traffic and access perspective – refer Appendix 3. Any additional traffic generated by the development is minimal and will not impact on the surrounding road network.
(u)	the availability and adequacy for the development of the following — (i) public transport services;	The availability of alternative transport options near the development site is considered in the Traffic Impact Assessment included at Appendix 3.
	(ii) public utility services;	
	(iii) storage, management and collection of waste;	The details of the storage and collection of waste are addressed in this report. Further details and management procedures can be provided at detailed design, as an appropriately worded condition of development
	 (iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities); 	approval.



Mat	ter to be considered	Provided
	 access by older people and people with disability; 	A footpath (accessible path of travel) is provided along the Dixon Road street frontage. One accessible bay is provided for the development in accordance with Australian Standards.
(v)	the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses.	The proposed development will not result in the loss of a community service. Rather, the proposed development will contribute to the delivery of a critically important service (fuel retailing) and amenities for East Rockingham.
	the history of the site where the development to be located;	The development currently on the subject site is of a light industrial nature.
(x)	the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;	It is noted the proposed development will increase employment opportunities in the locality and provide important services to the community.
(y).	any submissions received on the application;	Submissions will be considered during the assessment of the application.

Having regard to **Table 4** above, it is considered that the proposed development meets the relevant due regards of the Regulations and warrants approval accordingly.

4.5 Local Planning Policies

4.5.1 Local Planning Policy 3.3.1 Control of Advertisements

The City's Local Planning Policy – Control of Advertisements (LPP3.3.1) sets out the standards for signage proposed within the scheme area. Refer to Table 5 for an assessment of the proposed signage against the relevant policy provisions of LPP3.3.1.

Table 5 - Assessment against LPP3.3.1

Signage Policy provision	Provided	Complies
4.3.1 Planning Considerations		
Unless otherwise determined by the Manager, Statutory Planning, the advertiser shall submit a Sign Strategy demonstrating compliance with the objectives of this Planning Policy, prior to the placement of any advertisement on a building or structure.	The objectives of LPP3.3.1 are addressed below.	Refer below
3. Policy Objectives		
(a) Ensure that advertisements are appropriate for their location;	The proposed signs are appropriately located on the development to ensure a satisfactory level of commercial exposure.	1
(b) Minimise the proliferation of advertisements;	The proposed signs do not result in any proliferation of signage, with the signs located on separate façades. The signs are required for the appropriate exposure, identification of the site and retail fuel services offered on site.	~
(c) Ensure that advertisements do not adversely impact on traffic circulation and management, or pedestrian safety;	The proposed signs will not result in any adverse impacts to motorists or pedestrians.	¥



Signage Policy provision	Provided	Complies
(d) Protect the amenity of residential areas, townscape areas and areas of environmental significance;		*
(e) Protect the significance of heritage places or buildings;	Not Applicable - the subject site is not of heritage significance.	N/A
(f) Ensure that advertisements are constructed with quality materials:	Signage will be constructed to a high standard, of appropriate materials and in accordance with Australian Standards.	*
(g) Encourage advertisements located within the Rural or Special Rural Zone or in areas of environmental significance to be sympathetic with the natural environment in terms of materials and colours;	the Rural or Special Rural zone, or an area of environmental significance.	N/A
 (h) Ensure advertisements are generally erected on land where the advertised business, sale of goods or service is being carried out; and 		1
(i) Ensure that advertisements are maintained to a high standard.	Signage will be maintained to ensure a high level of amenity and presentation to the locality.	+
Pylon Signs		
Pylon signs shall not be located within 1.8m of a boundary.	The proposed Liberty ID signs are set back 0.47m from the Dixon Road lot boundary and 0.3m from the Day Road boundary. This is appropriate, as the purpose of the signs is to display important information including the price of fuel to passing trade on both roads.	Variation
	Both variations are considered appropriate, as suitable exposure is required for its two street frontages. The signage is not considered excessive and is appropriate within the industrial context.	
Pylon signs shall not be situated within 6m of any other sign of the same lot.	The two proposed pylon signs are located approximately 40m apart.	1
Pylon signs shall not project over a street, walkway or any other public area by more than 1m.	The proposed pylon signs do not project over any street, walkway or any other public area.	
Pylon signs shall not have a height exceeding 6m, unless it can be demonstrated to the Council that a greater height is warranted and it complies with the objectives of this Planning Policy. In any event, a Pylon Sign shall not exceed 9m in height.	The proposed Liberty ID pylon signs exceed the 6m standard, with a proposed height of 7.2m. The proposed 7.2m high signs are appropriate for the following reasons: The signs will serve a critical role in identifying the Liberty facility to all vehicles travelling east along Dixon Road, including heavy vehicles. The signs will clearly display the price of unleaded fuel and diesel to all vehicles (including heavy vehicles), as required by law. The additional sign height will ensure vehicles travelling in both directions have sufficient opportunity to identify the facility and access the site	Variation
	 The subject site forms part of an industrial centre which comprises a range of businesses. Signage is an essential component which characterises the amenity and services officered within this precinct. 	



Signage Policy provision	Provided	Complies
	 The signs are completely related to the service station, conveying the price of fuel and other important information to motorists travelling in the area. 	
Pylon signs shall not have any part of the sign less than 2.7m from the ground level, unless the sign is designed such that the underside of the face area is located at ground level.	The proposed pylon signs comprise panels which are incorporated from near ground level to the top of the sign itself.	*
Pylon signs shall not have a face area exceeding more than 3.5m width or height.	The pylon signs' faces exceed 3.5m in height.	
Pylon signs shall not have a face area of more	The pylon signs have a face area of approximately 15m ² on one side, exceeding the permitted 4m ²	
than 4m² on each side (single tenancy) or 13m² on each side (multiple tenancy).	This type of sign is found at almost every service station site in Australia, and is specifically designed in this way to ensure vehicles are able to read the content of sign panels. The variation is therefore acceptable.	Variation
Only one (1) pylon sign shall be permitted on a lot with a single tenancy. For lots with two or more tenancies, only one	Two pylon signs are proposed to serve the one tenancy. This variation is acceptable for the following reasons: The subject site has two street frontages. Having two pylon signs would not result in adverse visual impacts or be "out of character" with the surrounding area. The 7.2m high pylon signs are unimposing in comparison to other pylon signs along Dixon Road, which are generally 8m. The two pylon signs are separated by 40m, reducing any perception of signage proliferation. The subject site forms part of an industrial precinct which is characterised by large industrial bulldings and substantial signage (both of a freestanding nature and affixed to building facades). The pylon signs are not inconsistent with this context.	Variation
(1) pylon sign will be generally permitted unless the site is large and has more than one street frontage, in which case one pylon sign per street frontage may be permitted.		N/A

Having regard to Table 5 above, the proposed signage is considered appropriate and warrants approval accordingly.

4.5.2 Local Planning Policy 3.3.14 Bicycle Parking and End-of-Trip Facilities

Planning Policy 3.3.14 Bicycle Parking and End-of-Trip Facilities (PP3.3.14) applies to all applications for Development Approval. Table 1 of PP3.3.14 prescribes the bicycle parking rates for various land uses. As the Service Station use is not specifically listed, it requires the provision of 0.05 short term spaces per visitor and 0.1 long term spaces per staff. Having regard to the provisions of PP3.3.14, the proposed development is considered acceptable, with an appropriate number of bicycle parking spaces able to be provided as a condition of development approval if required.



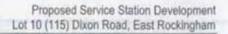
5 Conclusion

This application seeks approval for the development and use of a service station on the subject site, including associated access, landscaping, parking and signage. The development is suitably located within the East Rockingham industrial area and will provide essential services to the community and passing motorists.

The development has been designed in a manner that responds appropriately to the surrounding industrial context and Dixon Road streetscape, with an overall bulk, scale and material palette integrating the development into its setting. Access and circulation arrangements provide for a high level of functionality, convenience and safety, as demonstrated by a suitably qualified traffic engineer. An appropriate level of supporting information is provided to demonstrate any potential amenity impacts are capable of being managed.

The development appropriately responds to all relevant aspects of the planning framework and has been demonstrated to be satisfactory from a traffic and bushfire perspective. Having regard to the above, the proposal clearly demonstrates the suitability of the service station development on the subject site.

We respectfully request the Application for Development Approval is approved by the Metro Outer Joint Development Assessment Panel (JDAP) accordingly.





Appendix 1 Certificate of Title and Plan

WESTERN



AUSTRALIA

REGISTER NUMBER

10/P20401

DUPLICATE N/A

DATE DUPLICATE ISSUED

N/A

VOLUME 2039

FOLIO 550

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 10 ON PLAN 20401

REGISTERED PROPRIETOR:

(FIRST SCHEDULE)

AUTOSERVICE PTY LTD OF 115 DIXON ROAD, ROCKINGHAM

(AN J593702) REGISTERED 20/1/2006

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:

(SECOND SCHEDULE)

*1919638

MORTGAGE TO AUSTRALIA & NEW ZEALAND BANKING GROUP LTD REGISTERED

16/6/2004.

*O485268

MEMORIAL. CONTAMINATED SITES ACT 2003 REGISTERED 1/9/2020.

Warning:

A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.

* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.

Lot as described in the land description may be a lot or location.

-END OF CERTIFICATE OF TITLE---

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:

2039-550 (10/P20401)

PREVIOUS TITLE:

1817-451

PROPERTY STREET ADDRESS:

115 DIXON RD, EAST ROCKINGHAM.

LOCAL GOVERNMENT AUTHORITY:

CITY OF ROCKINGHAM

NOTE 1:

DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING 1919638

ORIGINAL-NOT TO BE REMOVED FROM OFFICE OF TITLES

Application F857845 Volume 1817 Folio 451 WESTERN

AUSTRALIA

REGISTER BOOK VOL. FOL



550 FOL.

Page 1 (of 2 pages) 2039

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned undermentioned land subject to the essements and encumbrances shown in the Second Schedule hereto.

G. Sach

REGISTRAR OF TITLES



Dated 19th April, 1995

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 2258 and being Lot 10 on Plan 20401, delineated on the map in the Third Schedule hereto, limited however to the natural surface and therefrom to a depth of 12.19 metres.

FIRST SCHEDULE (continued overleaf)

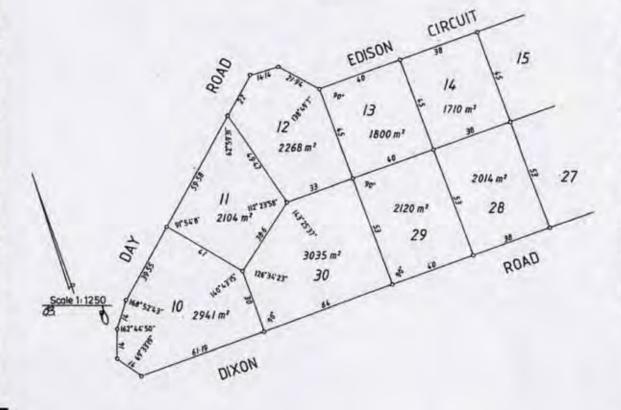
Western Australian Land Authority of B Davidson Terrace, Joondalup



SECOND SCHEDULE (continued overleaf)

NIL

THIRD SCHEDULE



NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

LANDGATE COPY OF ORIGINAL NOT TO SCALE 06/04/2021 10:39 PM Request number: 61842963

Landgate

ARE CAUTIONED AGAINST ALTERING 유 ADDING 7 SHI CERTIFICATE OR ANY NOTIFICATION HEREON

Superseded - Copy for Sketch Only

PERCEN SEAL 8.34 10.11.97 1.10.98 10.11.97 24.7.95 6915975 9660699 NUMBER F934B27 9660299 CANCELLATION D1 scharged Withdrawn Transfer Transfer CERT. NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS SEAL CERTIFICATE OF TITLE VOL. 2039 FOL. 550 8.38 8.34 TIME 24.7.95 24.7.95 10.11.97 REGISTERED Western Australian Land Authority Act 1992. REGISTERED PROPRIETOR .andcruiser Holdings Pty Ltd of 25 Esplanade Rockingham. to Commonwealth Bank of Australia. PARTICULARS to National Australia Bank Ltd. Singal Pty Ltd of 758 Dixon Road, Rockingham. SECOND SCHEDULE (continued) FIRST SCHEDULE (continued) F934828 F934829 6630997 Page 2 (of 2 pages) Mortgage Mortgage femor 1a1



Appendix 2 Development Plans



EAST ROCKINGHAM LIBERTY FUEL STATION

115 DIXON ROAD, EAST ROCKINGHAM, WA

DA ISSUE

 PRE-SHAPE	MACHINE.	
2,660	DECK T	

COMPANY CALCULATION CONTROL CO

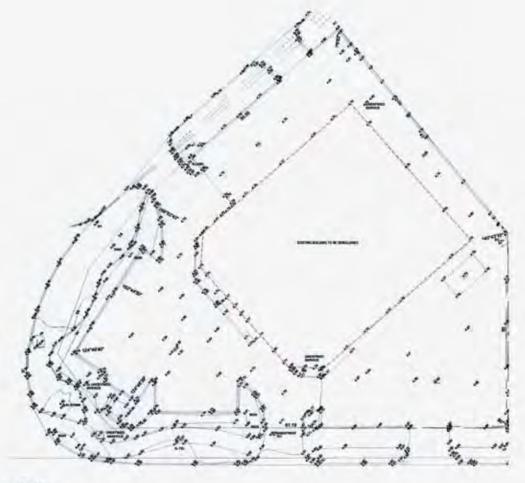
m tone trees m tone trees to the

BROLD BROWN BROWN

EAST ROOKINGHAM

COVER SHEET

Son 1 200 Dove AD Dested WE See 21,52,21 Ad-Sc 20,0008 Deg St 2357 81 Sec 2



1 - SURVEY

BROLL

ACCORD

EAST ROCKINGHAM

BURNEY

Supp. 1:200 Supp. 40 Sup. 11.85.21 Jan Sup. 200000

Deglie 3367 62



SITE PLAN

BROLK

ACCORD

SITE AREA BUILDING AREA CANOPY TRUCK CANOPY FUEL

CARBAYS

2541a/ 251w/ 160e/ 272w/

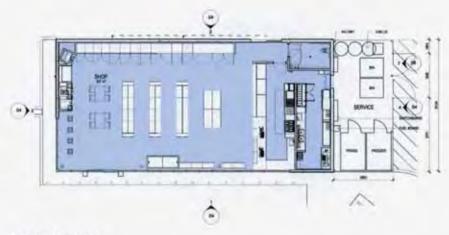
EAST ROCKINGHAM

BITE PLAN

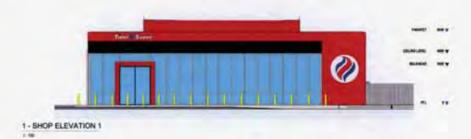
Supe 1 200 Diam 40 Sup 313127 As St. 20068

(kg/m: 3367 63

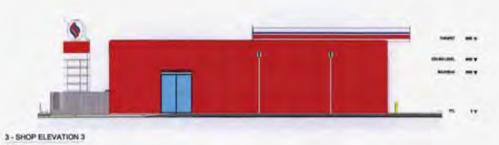




5 - FLOOR PLAN - SHOP



2-SHOP ELEVATION 2



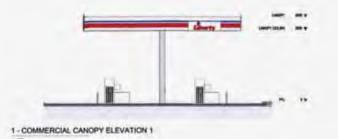


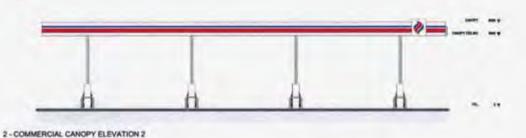
FLOOR FLANE & ELEVATIONS -SHOP State 1 100 Dear All Display BH State 212021 as No. 200008 Dayle 3357 64 for 3 month

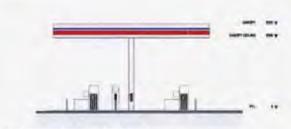
BROLK FALCONER

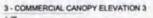
ACCORD EAST ROCKINGHAM

PROPERTY OF THE PARTY OF THE PA









Deliberate Price

(m) #1

* i 011

| DE 4 0 00

100 00

5 - FLOOR PLAN - COMMERCIAL CANOPY

ICH

0)11



4 - COMMERCIAL CANOPY ELEVATION 4

BROLL FALCONER

EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS— COMMERCIAL CANCEY

Sum 1 100 Sum AD Counted NM Sum 11 2021 Advances Summer Summer 2007 88 Am 3 Armeter

7 - OVERALL ELEVATION 2

DA ISSUE

FELDOW SANDS

BROLL

STREET, Trans. Science, Proper Science Science Science Street, Science Street, Street,

ACCORD

EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS -TRUCK CANOPY

Done 1:100 Done AD Drained NA Sine 212121 Airts 200018

Day 10 10 1 A 1007



BROLL

ACCORD

EAST ROCKINGHAM

THUCK TURNING

State 1:300. Door AD Date 21.85.21 At No. 202000

Degree 3367 67 No. 3 minute

PRESENT OF TAXABLE CONTROL OF TA



SIGN 1 - INTERNALLY ILLUMINATED

Thing Stone

SIGN 7 - TIME SAVER



SIGN 2 - INTERNALLY ILLUMINATED



SIGN 8 - NON-ILLUMINATED



SIGN 3 - INTERNALLY ILLUMINATED



SIGN 4 - NON-ILLUMINATED



SIGN 5 - NON-ILLUMINATED



月へのたん ドハレらの人三々

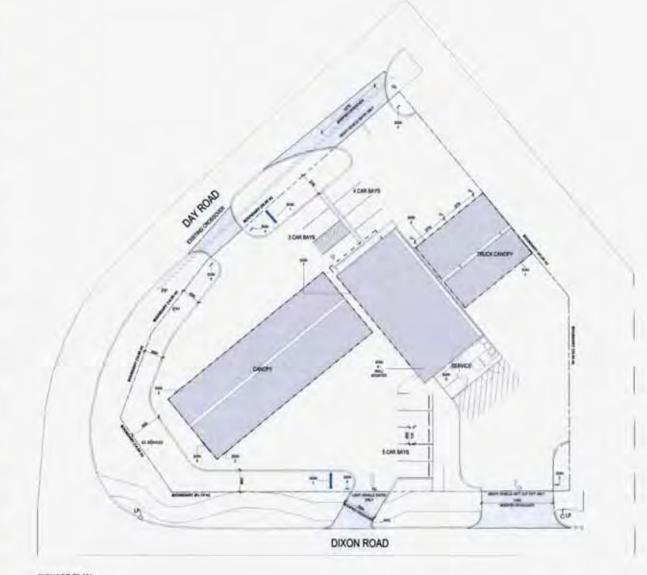
Temptone of sold little agreed any see in

ACCOUNT.

EAST ROCKINGHAM

SIGNAGE PLAN & SCHEDULE

Sale Annual Description At Control IN Contro



SIGNAGE PLAN

1/8

DA ISSUE











FALCONER

STORY Market Planes, Stationary, Market Principles State Companies of State Companies and an artist State Companies and a part St

ACCORD

EAST ROCKINGHAM

3D VIEWS

State Drawn ASI Date 31.65.21 Jah No. 2000008

Deglis 3367 88 No. 3 A MINET



1 - CONCEPT LANDSCAPE PLAN





BROLL

STEP States from School States Supplied to Sentence Of SISS 2003 April of the St

ACCORD

EAST ROCKINGHAM

LANDSCAPE PLAN

Steen As requested Steen AD December 100 Date (10.00,2) As No. 30,000009 December 2007 100 Fee 3 arrange



Appendix 3 Traffic Impact Assessment



Proposed Service Station

115 Dixon Road, East Rockingham

Transport Impact Assessment

PREPARED FOR: Accord Property

April 2021

Document history and status

Author	Revision	Approved by	Date approved	Revision type
M Rasouli	r01	B Bordbar	06/04/2021	Draft
M Rasouli	r01a	B Bordbar	06/04/2021	Final

File name: t20.134.mr.r01a

Author: M Rasouli

Project manager: Behnam Bordbar

Client: Accord Property

Project: 115 Dixon Road, East Rockingham

Document revision: r01a

Project number: t20.134

Copyright in all drawings, reports, specifications, calculations and other documents provided by the Consultant in connection with the Project shall remain the property of the Consultant.

The Client alone shall have a license to use the documents referred to above for the purpose of completing the Project, but the Client shall not use, or make copies of, such documents in connection with any work not included in the Project, unless written approval is obtained from the Consultant or otherwise agreed through a separate contract.

TABLE OF CONTENTS

1.0	SUMMARY1
2.0	INTRODUCTION
3.0	EXISTING SITUATION4
3.1	Existing Site Use, Access and Parking
3.2	SURROUNDING ROAD NETWORK AND TRAFFIC MANAGEMENT ON FRONTAGE ROADS
3.3	EXISTING TRAFFIC VOLUMES ON ROADS AND MAJOR INTERSECTIONS
3.4	HEAVY VEHICLES
3.5	CRASH DATA
3.6	PUBLIC TRANSPORT ACCESS
3.7	PEDESTRIAN AND CYCLIST FACILITIES
4.0	DEVELOPMENT PROPOSAL
4.1	PROPOSED SITE USE
4.2	PROPOSED ACCESS FOR ALL MODES
5.0	CHANGES TO SURROUNDING TRANSPORT NETWORKS
6.0	INTEGRATION WITH SURROUNDING AREA
7.0	TRAFFIC ASSESSMENT
7.1	ASSESSMENT PERIOD
7.2	TRIP GENERATION AND DISTRIBUTION
7	2.1 EXISTING TRIP GENERATION
7	2.2.2 PROPOSED DEVELOPMENT TRAFFIC GENERATION
7	2.2.3 NET TRAFFIC INCREASE
7	2.2.4 PROPOSED DEVELOPMENT TRAFFIC DISTRIBUTION
7.3	Verified the resident and the resident a
7.4	ANALYSIS OF DEVELOPMENT'S CROSSOVERS
7.5	IMPACT ON SURROUNDING ROADS
7.6	IMPACT ON NEIGHBOURING AREAS
7.7	TRAFFIC NOISE AND VIBRATION
8.0	STACKING CAPACITY
9.0	SIGHT LINE ASSESSMENT
9.1	ACCESS VEHICLE SIGHT DISTANCE
9.2	ACCESS PEDESTRIAN SIGHT DISTANCE
10.0	PROVISION FOR HEAVY VEHICLES
11.0	PARKING
12.0	PUBLIC TRANSPORT ACCESS
13.0	PEDESTRIAN AND CYCLIST ACCESS
14.0	CONCLUSIONS

APPENDIX A - SITE PLAN

APPENDIX B - SIDRA RESULTS

APPENDIX C - TURN PATH ASSESSMENT PLANS

APPENDIX D - SIGHT LINE ASSESSMENT

REPORT FIGURES

Figure 1: Location of the subject site2
Figure 2. MRS map
Figure 3. Existing crossovers4
Figure 4: Northbound view along Day Road5
Figure 5: Eastbound view along Dixon Road5
Figure 6: Existing traffic volumes (AM peak hour)6
Figure 7: RAV 4 Network
Figure 8: Existing bus routes (source: TransPerth Map)8
Figure 9: Bike map (source: Department of Transport)9
Figure 10: Development crossovers
Figure 11: Historical traffic volumes on Dixon Road (east of Ennis Road)14
Figure 12: Passing trade development traffic component – weekday AM & PM peak hours1
Figure 13: Additional (non-passing trade) development traffic component - weekday AM & PM peak
hours1
Figure 14: Total peak hour traffic generated by the proposed development – Weekday AM and PM peak
hours2
Figure 15: 2021 Base Traffic near the subject site – Weekday AM and PM peak hour traffic3
Figure 16: Network model – SIDRA layout4
Figure 17. Peak "cheap fuel" hour queuing analysis8
Figure 18. AS 2890.1 Minimum sight lines for pedestrian movements

REPORT TABLES

Table 1. Crash history for the Day Road and Dixon Road intersection	
Table 2: Existing trip generation of the site	1
Table 3: Estimated proposed development traffic generation	1
Table 4: Estimated passing trade and non-passing trade traffic generation	1
Table 5: Observed and modelled queues in SIDRA	5

1.0 Summary

This Transport Impact Assessment (TIA) report has been prepared with respect to the proposed service station to be located at 115 Dixon Road, East Rockingham in the City of Rockingham. The site is located at the northeast corner of the T-intersection of Day Road and Dixon Road in East Rockingham.

The proposal entails a service station with an associated retail building consisting of eight light vehicle bowsers (16 filling points) and three heavy vehicle bowsers (up to 4 filling points). The subject site is currently occupied by an auto service entailing two left in/left out crossovers on Dixon Road and two full movement crossovers on Day Road.

The proposed access arrangement for the site and in particular Dixon Road has been developed in consultation with the City of Rockingham and Department of Planning Land and Heritage (DPLH) and in line with the intent of the WAPC Policy DC 5.1. Accordingly, the Dixon Road crossover system is planned to rationalised and consist of one left in crossover for light vehicles and one left out crossover for heavy vehicles. In effect, the Dixon Road proposed crossovers will operate as one left in/left out crossover with a wide splitter island.

The proposed development layout has been assessed with respect to the movements of fuel tankers, service vehicles and heavy vehicles up to 19.0m long. Swept path assessment confirms that the proposed entry and egress arrangements and the site layout would be able to facilitate safe and efficient vehicle circulation through the site.

The SIDRA Network analysis undertaken as part of the Transport Impact Assessment confirms satisfactory operations of the T-intersection of Day Road and Dixon Road and the development crossovers for post development scenario.

t20.134,mr.r01a

2.0 Introduction

This Transport Impact Assessment (TIA) has been prepared by Transcore on behalf of Accord Property. The subject of this report is a proposed service station to be located at 115 Dixon Road, East Rockingham, in the City of Rockingham. The site is located at the northeast corner of the T-intersection of Dixon Road and Day Road in East Rockingham as shown in Figure 1.



Figure 1: Location of the subject site

The subject site is bounded by Day Road to west and north, Dixon road to the south and industrial developments to the east and north east. The subject site is currently occupied by an auto service shop and is zoned as "Industrial" in Metropolitan Region Scheme Map (MRS) as illustrated in Figure 2.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, operation of the site crossovers, access and egress system for fuel tankers and other heavy vehicles and the capacity of the T-intersection of Dixon road and Day Road.

t20.134.mr.r01a Page 2



Figure 2. MRS map

t20.134.mr.r01a Page 3

3.0 Existing Situation

3.1 Existing Site Use, Access and Parking

The subject site is situated at the north east corner of the T-intersection of the Day Road and Dixon Road. The subject site is currently occupied by an auto service shop and entails two left in/left out crossovers on Dixon Road (crossover 3 & crossover 4) and two full movement crossovers on Day road (crossover 1 and crossover 2) as shown in Figure 3.



Figure 3. Existing crossovers

3.2 Surrounding Road Network and Traffic Management on Frontage Roads

Day Road, in the immediate vicinity of the subject site is constructed as a single carriageway, two-lane divided road with no pedestrian paths in the immediate vicinity of the subject site as shown in Figure 4.

t20.134.mr.r01a Page 4

Day Road is classified as *Distributor A* in the Main Roads WA *Metropolitan Functional* Road Hierarchy and operates under the sign posted speed limit of 60km/h west of McCarney Avenue and 70km/h towards the intersection of Mandurah Road/Day Road.



Figure 4: Northbound view along Day Road

Dixon Road, in the immediate vicinity of the subject site, is constructed as a dual divided carriageway four lane road with sealed shoulders along both sides of the road and wide landescaped median as shown in **Figure 5**. A concrete pedestrian path is provided on the northern side of the road.

Dixon Road is classified as a *Distributor B* Road east of Day Road and a *Distributor A* Road west of Day Road in the Main Roads WA *Functional Road Hierarchy* and operates under the speed limit of 60km/h towards Rockingham townsite and 70km/h east of Evinrude Bend.

Dixon Road is covered by an Other Regional Roads (Blue Roads) reservation in the MRS.



Figure 5: Eastbound view along Dixon Road

3.3 Existing Traffic Volumes on Roads and Major Intersections

The existing traffic turn counts at the intersection of Dixon Road/ Day Road and the site crossovers were established by 24-hour video traffic counts survey on Thursday 4th of June 2020. The AM and PM peak hours were established to be 7:45 to 8:45 and 2:45 to 3:45 respectively.

Figure 6 illustrates the existing traffic volumes for the AM and PM peak hours respectively. This figure also shows the existing trip generation of the site. Access 1 on Day Road and Access 4 on Dixon Road were gated and did not generate any traffic during the peak hours.

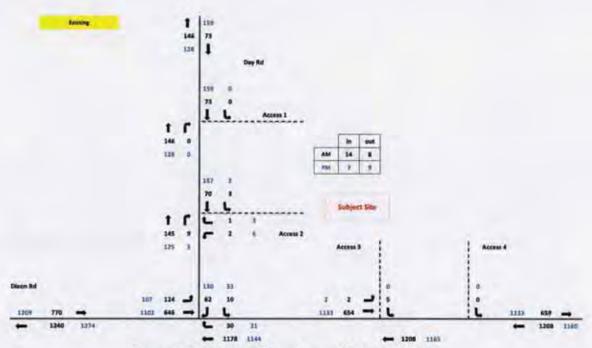


Figure 6: Existing traffic volumes (AM peak hour)

3.4 Heavy Vehicles

Restricted Access Vehicle (RAV) Network routes are designed for access by large heavy vehicle combinations, which is managed by Main Roads WA. Day Road adjacent to the subject site forms RAV Tandem Drive Network 4 with no condition. While, Dixon Road adjacent to the subject site is classified as RAV Tandem Dive Network 4 with following conditions:

- Not to be used as a through route;
- For local delivery, pick up and garaging only; and,
- Driver must carry documentation as proof of local delivery, pick up or garaging address.

The RAV 4 Network classification permits a variety of prime mover and trailer combinations up to a maximum length of 27.5m (refer **Figure 7** for more details). Review of the Main Roads WA classified traffic counts on Dixon Road indicates that the number of B-double trucks are very low on Dixon Road. Accordingly, the development has been designed to only cater for heavy vehicles up to 19.0m long and no heavy vehicle longer than 19.0m would be expected to use the site. This is in line with another service station recently approved and constructed in the locality.

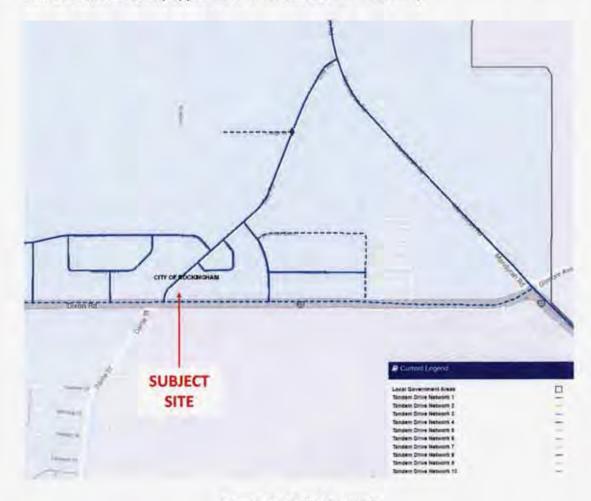


Figure 7: RAV 4 Network

3.5 Crash Data

Information available on Main Roads WA website provides crash statistics for Day Road and Dixon Road intersection during the five-year period ending in December 2019.

The crash records indicate that Day Road and Dixon Road intersection recorded a total of six crashes with five crashes classified as PDO major and one PDO minor in last five-year period. More details on the crash records are provided in **Table 1**.

t20.134.mr.r01a

Table 1. Crash history for the Day Road and Dixon Road intersection

Intersection				Total Crashes	Casualty
Dixon Road/Day	Road			6	0
Daylight	Rear End	Rt Angle	Dry	Wet	Pedestrian
6	2	3	6	1	0

3.6 Public Transport Access

The subject site has access to bus service 549 along Dixon Road as illustrated in **Figure 8.** This bus service runs between Freemantle Station and Rockingham Station via Kwinana Bus Station which provides an opportunity to transfer to connecting bus and rail services. The nearest bus stop is located approximately 52m south east of the subject site along Dixon Road.

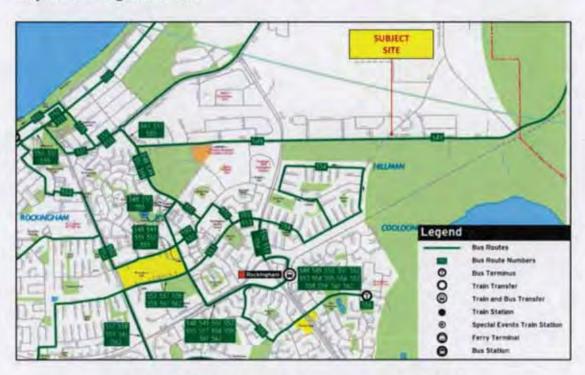


Figure 8: Existing bus routes (source: TransPerth Map)

3.7 Pedestrian and Cyclist Facilities

The Department of Transport's Perth Bike Map series shows a good cyclist connectivity near the subject site as shown in **Figure 9.** Sealed shoulders are provided on either side of Dixon Road. Darlie Street (south of Day Road) is classified as a good road riding environment.

A pedestrian path is provided on the northern side of Dixon Road. Pedestrian crossing facility is available at Dixon Road and Day Road intersection with refuge island on Day Road.



Figure 9: Bike map (source: Department of Transport)

4.0 Development Proposal

4.1 Proposed Site Use

According to the proposed development plan attached in Appendix A of this report, the proposal includes a service station comprising:

- A canopy with a total of 16 filling points for light vehicles;
- A separate canopy with a total of 4 filling points for heavy vehicles up to 19.0m long.
- A convenience (retail) store; and,
- A total of 12 car parking bays inclusive of an ACROD bay.

It is Transcore's understanding that adequate parking supply is provided on site to address the parking requirements for the proposed development.

Although, Dixon Road and Day Road adjacent to the subject site are classified as RAV Tandem Dive Network 4 which permits prime mover and trailer combinations up to a maximum length of 27.5m, the proposal only allows for heavy vehicles up to 19.0m long and no heavy vehicle longer than 19.0m would be expected to use the site. This is because of the very low volumes to RAV 4 vehicles on the abutting roads. Appropriate signage and/or line marking (through consultation with the City) will be provided at the development entry crossover for heavy vehicles on Day Road and Dixon Road to alert the drivers before entering the site. No entry signage will also be provided on Dixon Road entry crossover.

4.2 Proposed Access for all Modes

The proposed access arrangement for the site and in particular Dixon Road has been developed in consultation with the City of Rockingham and Department of Planning Land and Heritage (DPLH) and in consideration of WAPC Policy DC 5.1. Accordingly, the existing Dixon Road crossover system is proposed to be rationalised to consist of one left in crossover for light vehicles and one left out crossover for heavy vehicles.

Figure 10 shows the location of the proposed development crossovers on the surrounding roads. Deliveries and waste collection will be accommodated within the site.

Heavy vehicle access, egress and circulation are discussed further in Section 8.0 of this report.

The layout of the proposed development is shown in the site plan included in **Appendix** A.

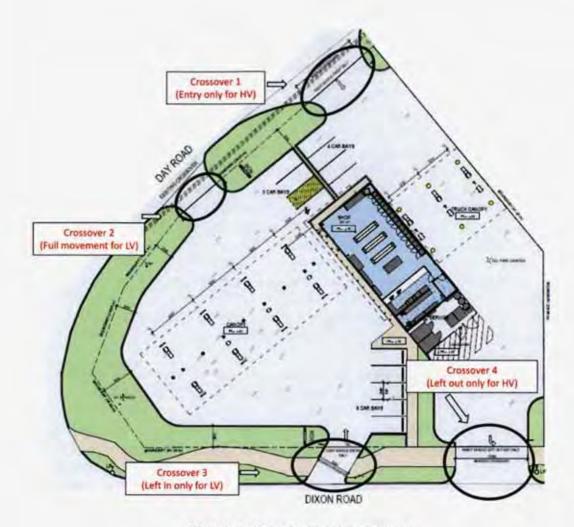


Figure 10: Development crossovers

5.0 Changes to Surrounding Transport Networks

No major changes to the surrounding road network are proposed as the part of proposed development. The existing crossovers on Day Road and Dixon Road will be rationalised and modified to accommodate the turning movements of light and heavy vehicles.

6.0 Integration with Surrounding Area

The proposed development entails a service station which are in line with the existing and future surrounding land uses in the area.

7.0 Traffic Assessment

7.1 Assessment Period

The assessment years that have been adopted for this analysis are existing (2020) and the post-development (2021) scenarios. The 2031 assessment was not undertaken as review of the historical traffic volumes on Dixon Road (east of Ennis Avenue) shows negative traffic growth since 2016/2017 (refer Figure 11). The slight traffic increase in 2020/2021 is consistent with the general traffic increase on most of road network within Perth metropolitan area due to the reduced public transport mode share post Covid Pandemic and is considered not to be an accurate representation of traffic volumes under normal conditions.

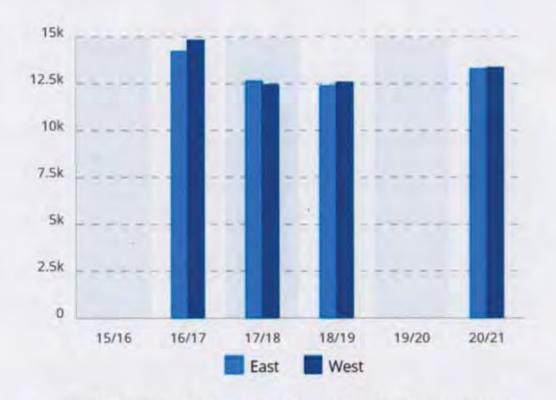


Figure 11: Historical traffic volumes on Dixon Road (east of Ennis Road)

The proposed development is expected to generate highest traffic movements during the weekday peak hour periods of the adjacent road network.

7.2 Trip Generation and Distribution

7.2.1 Existing trip generation

Existing trip generation of the site was established using the video traffic counts survey undertaken at the site crossovers.

Table 2 summarises the existing daily and peak hour traffic generation of the site. which is in line with the reported numbers in Figure 6.

Page 1

Table 2: Existing trip generation of the site

			ENTRY 1	1 A					ENTRY 2	87.2			
		INBOUND			GNUOGINO			INBOUND			OUTBOUND		Total Ins
Tut	LIGHT	HEAVY	TOTAL	UGHT	HEAVY	TOTAL	LIGHT	HEAVY	TOTAL	THERE	HEAVY	TOTAL	and Outs
0745-0800	2	0	- 2	0	0	0	0	0	0	0	0	0	2
0800-0815		0	(600.	**	0	1	**	0		1	0		16
0815-0830		0	**	100	0	-	0	0	0	0	0	0	67
0830-0845	0	0	0	0	0	0	0	0	0	1	0		100
Total AM	11		122		0	•	1	0	7	5	0	M	77
1445-1500	**	0		3	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	0	100	0	0	o	9
1500-1515	0	D	0		0	·	0	0	0	0	0	0	
1515-1530	1	0			0	12	0	0	0	0	0	0	0
1530-1545	2	0	- 2	3	0		-	0	1	0	0	0	9
Total PM	2	0	5	6	0		2	0	*	0	0	0	16
24 HOUR TOTALS	97	2	8	26	1	22	7	0		26	1	'n	106

7.2.2 Proposed Development Traffic Generation

Light Vehicles

The traffic volume that would be generated by the proposed development has been estimated using trip generation rates derived from ITE Trip Generation Manual 10th Edition.

AM Peak hour: 12.47 trips per fuelling point.
 PM Peak hour: 13.99 trips per fuelling point.
 Weekday: 205.36 trips per fuelling point.

For traffic generation 62% and 56% passing trade was assumed as per commercial development traffic modelling assumptions for the AM and PM peak hours respectively in accordance with ITE10 Guidelines.

As detailed in Table 3, it is estimated that the proposed development would generate approximately 3,286 vehicular trips per day (both inbound and outbound) with approximately 200 and 224 trips during the weekday AM and PM peak hours respectively.

The net additional traffic when accounting for passing trade is +1,446vpd (daily), +76vph (AM peak hour) and +98vph (PM peak hour) on the surrounding road network.

The directional split of inbound and outbound trips for the proposed development is assumed to be about 50/50 for inbound/outbound trips during the peak hours.

Heavy Vehicles

Review of the video traffic counts survey for the subject site indicates that currently about 1,870 heavy vehicles would pass the site on Day Road and Dixon Road. This figure for AM and PM peak hours is about 172 and 138 heavy vehicles. Assuming that about 25% of the heavy vehicles would be attracted to the site the heavy vehicle trip generation of the site is estimated to be:

AM Peak hour: 43 vehicles.
 PM Peak hour: 34 vehicles.
 Weekday: 470 vehicles.

It should be noted that 100% of the heavy vehicle trip generation will be passing traffic.

7.2.3 Net Traffic increase

The net traffic increase on the surrounding roads due to the proposal when accounting for passing trade and existing trip generation of the site is estimated to be about 54vph in AM and 84vph in PM peak hours.

t20.134,mr,r01a Page 1

It should be noted that the provision of eight fuel bowsers (16 filling points) for light vehicles is to ensure increased customer amenity and to reduce the risk of any internal queuing and waiting times. This is in line with the business plan of the operator which has been adopted on other site in the metro area. Therefore, the actual traffic generation of the development and net traffic increase on surrounding roads is likely to be lower than that estimated in this report.

In order to provide a robust assessment and acknowledge the City of Rockingham request for establishing the trip generation of the proposal in accordance with ITE trip rates, the trip generation of the proposal was established considering eight fuel bowsers for light vehicles and applying the ITE rates.

7.2.4 Proposed Development Traffic Distribution

The distribution of traffic to and from the proposed development has been evaluated by considering the catchment area of the proposed development, existing traffic patterns and the identified key traffic routes.

Separate distributions were modelled for passing trade and non-passing trade traffic:

- · Passing trade traffic Figure 12; and,
- Non-passing trade traffic Figure 13.

The total proposed development traffic is reported in Figure 14.

120.134 mr.r01a Page 2

Table 3: Estimated proposed development traffic generation

Md	N.	100 112 112	112
AM	O N	100	
PM Trips		224	224
AM Trips		200	200
Daily Trips		3286	3286
Cross Trade Daily Trips AM Trips PM Trips		0.00	
PM Peak		13.99	
AM Peak		12.47	
Daily Rate		205.36	RAFFIC
Quantity		16	TOTAL
Land use		Service Station	

Land use	Quantity	uantity Daily Rate	AM Pea	k PM Peak	Cross Trade Daily Trips AM Trips PM Trips	Daily Trips	AM Trips	PM Trips	A	AM		M
									N	700	N	100
Service Station	4				00:00	470	43	34	22	21	17	1
	TOTAL	TOTAL TRAFFIC				470	43	34	22	17	17	1

Table 4: Estimated passing trade and non-passing trade traffic generation

Non Passing Trade Component	PM	2	49	49		Non Passing Trade Component	PM	Z	0	
ng Trade	AM	TU0	38	88	₹	ng Trade	AM	DOCT	0	•
Ion Passi		Z	38	88		Ion Pass		N	0	
-		Daily Trips	1446	1446				Daily Trips	0	
	PM	TUO	83	28			PM	TUO	17	***
onent	•	Z	63	8		onent	•	IN	17	
Passing Trade Component	4	TUO	29	29	2	Passing Trade Component		TUO	21	
Passing T	AM	N.	62	29		Passing T	AM	Z	22	44
		Daily Trips	1840	1840				Daily Trips	470	-
Ĭ	Passing	100	2606				Passing Trade	30000	100%	
		AM	Md					AM	M	

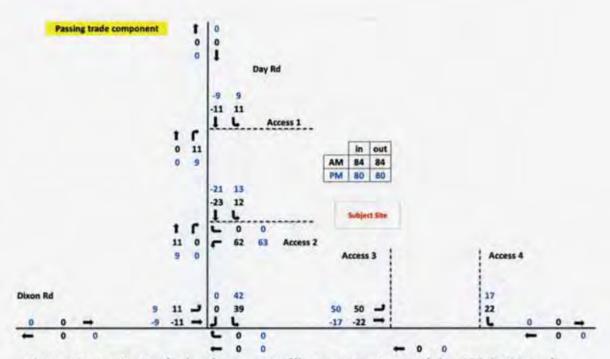


Figure 12: Passing trade development traffic component – weekday AM & PM peak hours

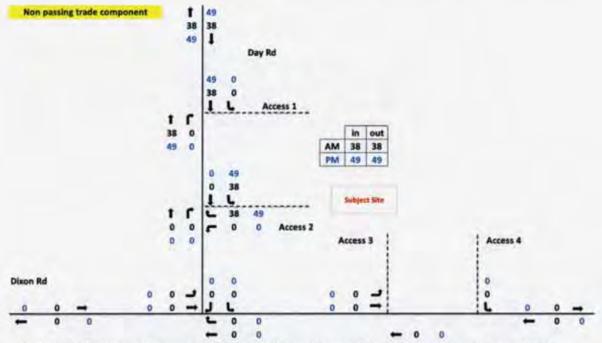


Figure 13: Additional (non-passing trade) development traffic component - weekday

AM & PM peak hours

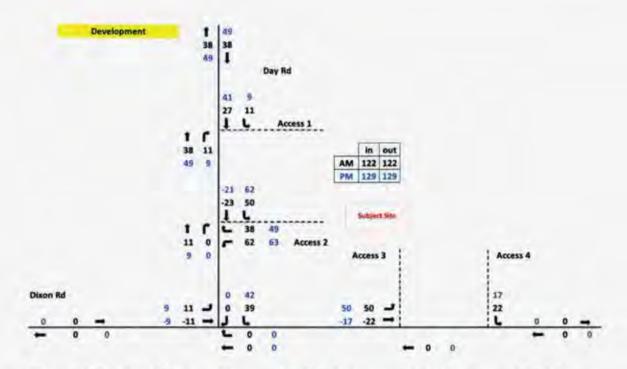


Figure 14: Total peak hour traffic generated by the proposed development – Weekday

AM and PM peak hours

7.3 Traffic Flows

The existing traffic volumes were established by traffic counts survey undertaken by Transcore for Thursday 4th of June 2020 (refer **Figure 6**). The total post development traffic for the assessment year of 2021 is detailed in **Figure 15**. In this figure the existing trip generation of the site has been removed from the existing traffic counts and then added to the development traffic.

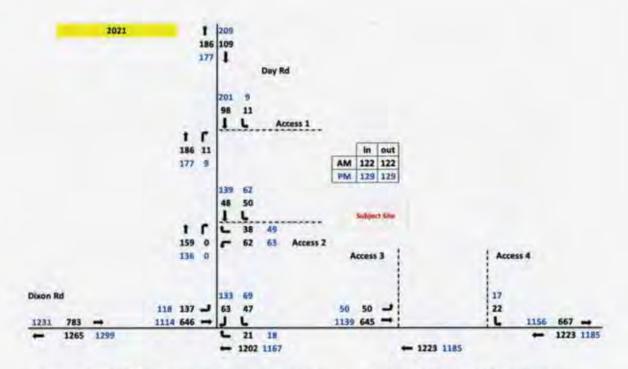


Figure 15: 2021 Base Traffic near the subject site – Weekday AM and PM peak hour traffic

7.4 Analysis of Development's Crossovers

A SIDRA Network model was developed for the subject site crossovers on Day Road and the intersection of Day Road/ Dixon Road in order to assess their operations in the post development scenario for AM and PM peak hours. Relevant heavy vehicle settings and parameters were updated in accordance with Main Roads WA's latest requirements. The Dixon Road crossovers are left in and left out crossovers and would operate satisfactorily. Therefore, they have not been modelled in SIDRA.

Capacity analysis using the SIDRA computer software package was undertaken. This package is a commonly used intersection-modelling tool by traffic engineers for all types of intersections. SIDRA outputs are presented in the form of Degree of Saturation, Level of Service, Average Delay and 95% Queue. These items are defined as follows:

- Degree of Saturation: is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for varied traffic flow up to one for saturated flow or capacity.
- ♣ Level of Service: is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. In general, there are 6 levels of service, designated from A to F, with Level of Service A representing the best operating condition (i.e. free flow) and Level of Service F the worst (i.e. forced or breakdown flow).
- Average Delay: is the average of all travel time delays for vehicles through the intersection.

120.134.mr.r01e Page 3

 95% Queue: is the queue length below which 95% of all observed queue lengths fall

The results of the SIDRA analysis are attached in **Appendix B**. A conceptual diagram of the SIDRA model developed for analysis is shown in **Figure 16**. In this figure the one-way link is not a physical traffic lane at the intersection. This is just a technique to represent the second stage of the Dixon Road right turn movements from the median to Dixon Road westbound.



Figure 16: Network model - SIDRA layout

Intersection of Dixon Road/ Day Road

The SIDRA analysis results indicate that the intersection of Dixon Road/Day Road presently operates at capacity during the PM peak hour for the right turning movements out of Day Road. This is due to the significant through traffic on Dixon Road during the PM peak hour. The intersection operates better during the AM peak hour (refer **Appendix B** for more details). **Table 5** shows the observed queues against the modelled queues in SIDRA for the AM and PM peak hours. It should be noted that the gap acceptance and follow up headway for the turning movements in and out of Day Road have been adjusted slightly in SIDRA to achieve better calibration of existing traffic operations in accordance with the video survey.

In this table the queue for the right turn out of Day Road is calculated for both right turn movements (Stage 1+ Stage 2).

Table 5: Observed and modelled queues in SIDRA

Peak hours	Movement	Observed	Modelled
		Queue (Car)	Queue (Car)
AM	Right - In	1	0.2
	Left-out	0	0
	Right - Out	1	0.6+0.6 = 1.2
PM	Right - In	1	0.3
	Left-out	1	0.2
	Right - Out	5	4.8 + 1.3 = 6.1

The SIDRA analysis results for the post development during AM and PM peak hours render similar results as existing situation with no changes to LoS of the turning movements of the intersection. The most pronounced change is the 95% queue on Day Road which is reported to increase from 38m in existing PM to about 56m in post development PM scenario.

Review of the Day Road crossover operations confirms that both crossovers for light and heavy vehicles would operate satisfactorily with LoS A and minimal queues and delays.

7.5 Impact on Surrounding Roads

The WAPC Transport Impact Assessment Guidelines (2016) provides guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 per cent of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10 per cent may. All sections of road with an increase greater than 10 per cent of capacity should therefore be included in the analysis.

For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 per cent of capacity. Therefore, any section of road where the structure plan traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

The proposed development will not increase traffic flows anywhere near the quoted WAPC threshold to warrant further detailed analysis. As detailed in **Section 7**, the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100 vph.

7.6 Impact on Neighbouring Areas

The traffic generated by the proposed development is not expected to significantly affect surrounding areas and the road network has been designed to accommodate this type of development traffic.

7.7 Traffic Noise and Vibration

Due to the location of the proposed development with respect to the surrounding land uses traffic noise and vibration are relevant only to the residential areas directly fronting major local and regional roads which, at this location, are limited.

It generally requires a doubling of traffic volumes on a road to produce a perceptible 3dB(A) increase in road noise. The proposed development will not increase traffic volumes or noise on surrounding roads anywhere near this level.

120,134 mr,r01a Fage 6

8.0 Stacking Capacity

The stacking capacity of the proposed service station and detailed queue analysis at the filling points have been assessed in more detail to investigate the impacts of higher than average site patronage during peak operational periods. This analysis was undertaken to confirm the capacity of the service station to operate satisfactory under amplified traffic activity conditions (e.g. "cheap fuel" day).

Based on the peak hour trip generation documented in this TIA, it is estimated that the proposed service station would attract up to 112 vehicles during the regular weekday PM peak hour (critical peak hour). In order to ensure a robust assessment, it is conservatively assumed that the trade on "cheap fuel" day would be 50% higher than the typical peak weekday PM hour. Accordingly, it is conservatively assumed that the site would attract about 168 cars per hour on this occasion.

The experience indicates that, under normal circumstances, the rate of service per fill point (time taken for a vehicle to arrive, park at a fill point, get fuel, pay for fuel and leave the fill point and service station site) is usually between 2-3 minutes. In some circumstances refuelling time may extend to about 5 minutes when window washing or other similar activities are practiced. However, during the "cheap fuel" day periods and due to high turnover and "pressure" from the patrons waiting behind the parked vehicle to access the bowser, the refuelling activity is always shortened and typically in order of up to 3min maximum. In this case, and in order to allow for an extreme and overly conservative scenario, the service time is assumed to be a very conservative 4 minutes. Accordingly, a service rate of 240sec (15 vehicles per hour) was estimated for weekday PM peak "cheap fuel" peak hour.

It is assumed that all bowsers will be in operation during the peak periods, giving an order taking service rate and capacity of 240 vehicles per hour. It is also assumed that cars would enter the service channel with the shortest queue, therefore over the peak hour the transactions at each service channel would be evenly split.

, A queue length analysis was undertaken to assess the provision of storage for vehicles within the service channels. For this purpose, an M/M/1 queuing model was adopted for each bowser. The M/M/1 is a single-server queue model that can be used to approximate simple systems.

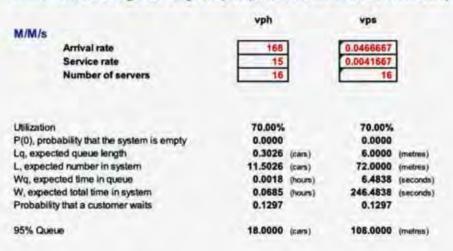
The queuing model adopts the following assumptions:

- Vehicles arrive unevenly following Poisson's probability distribution;
- Service time is exponentially distributed;
- There is one server per queue, i.e. there are 16 queues, one for each filling positions;
- The capacity of the queue in which arriving users wait before being served is infinite (for the purposes of identifying queue space requirements);

- The population of users (i.e. the pool of users) available to join the system is infinite; and,
- The queue is serviced on a first come, first served basis.

The results of the queuing analysis are detailed in Figure 17.

M/M/s - Drive Through Queuing Analysis (Poisson Arrival and Service Rates)



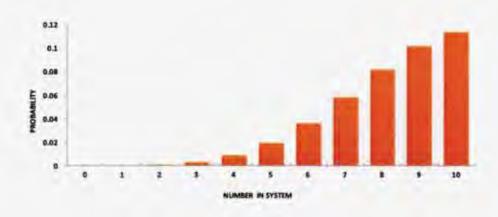


Figure 17. Peak "cheap fuel" hour queuing analysis

In summary, critical "cheap fuel" hour queuing analysis of the service station established the following for the worst-case scenario:

- The system utilisation is at 70% during the "cheap fuel" hour;
- The expected number in the system (refuelling) is 12 vehicles;
- The expected time in the queue for a vehicle to get to a fill point is 6 seconds
- The expected total time in the system is 246 seconds; and,
- The 95th percentile queue within the whole system is 18 cars (16 cars refuelling and 2 cars waiting).

The queue length usually adopted for a robust analysis is the 95th percentile queue. Assuming equal queue distribution it is estimated that in the worst-case scenario there will be 2 cars waiting behind each refuelling vehicle at 8 bowsers. Accordingly, it is concluded that under typical peak conditions all queuing will be accommodated within the subject site with no impact on the surrounding road network.

It should be noted that the provision of 8 fuel bowsers for light vehicles is to ensure increased customer amenity and to reduce the risk of any internal queuing and waiting times. In reality, the trip generation of eight fuel bowsers are lower than what has been conservatively assumed in this TIA.

9.0 Sight Line Assessment

9.1 Access Vehicle Sight Distance

The location and operation of the proposed development crossovers are described in Section 4.2 of this report. In order to ensure safe operations of these crossovers, sight line assessment was undertaken for these crossovers. Australian Standard AS/NZS 2890.1: 2004 — Parking Facilities Part 1: Off-street car parking, Figure 3.2, provides guidance on the sight distance at access driveways.

The speed limit of Dixon Road and Day Road is 60km/h in the immediate vicinity of the subject site. Therefore, the frontage road speed abutting the subject site is considered 60 km/h for the sight line assessment.

In accordance with AS 2890.1, the sight distance is measured from 2.5m behind the edge of the frontage road. The development entry/exit crossover for light vehicles on Day Road achieves the minimum sight distance of 65m along Day Road as specified by of AS 2890.1. The sight line assessment is included in **Appendix D**. Dixon Road crossovers are located in a straight section of Dixon Road and more than the 65m sight distance will be achieved.

9.2 Access Pedestrian Sight Distance

The Australian Standard AS/NZS 2890.1: 2004 – Parking Facilities Part 1: Off-street car parking, Figure 3.3, provides guidance on the sight lines and distance for pedestrian movements which is shown in Figure 18.

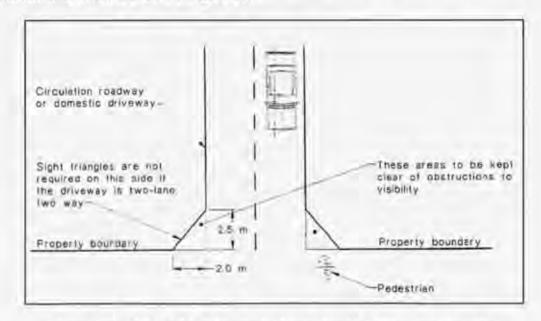


Figure 18. AS 2890.1 Minimum sight lines for pedestrian movements

According to the development plan attached in Appendix A, there is no sight line obstructions at the crossovers and therefore, the sight distance at the crossover meets the requirement of the sight lines for pedestrian movements.

10.0 Provision for Heavy Vehicles

The largest fuel tanker and a service vehicle which is expected to use the subject site is a 19m fuel tanker and 12.5m service truck.

19m fuel tanker

Turn path analysis has been undertaken for 19m fuel tanker to enter the site from crossover 1 on Day Road, access the refuelling point and exit onto Dixon Road in forward gear by turning left via crossover 4.

12.5m service truck

Similarly, turn path analysis for 12.5m service truck has been undertaken showing the truck would enter the site via crossover 1, reverse into the loading bay and then exit onto Dixon Road in forward gear by turning left.

Heavy vehicles

As outlined earlier in this report the largest truck that would use the heavy vehicle bowsers would be 19.0m long truck and turn paths analysis undertaken confirms satisfactory traffic movements of this size truck entering and existing the heavy vehicle bowsers.

Turn path analysis undertaken for fuel tanker, heavy vehicles and service vehicles confirm satisfactory access, egress and circulation. The turn path analysis plans are included in **Appendix C**.

t20,134 mr.r01a Page 12

11.0 Parking

Total car parking provision for the proposed development comprises 12 parking bays inclusive of an ACROD bay.

It is Transcore's understanding that sufficient parking supply is provided to address the parking requirements of the proposed development.

12.0 Public Transport Access

The existing public transport services in the area are described in Section 3.6 of this report.

13.0 Pedestrian and Cyclist Access

Pedestrian and cyclists' facilities are described in Section 3.7 of this report.

14.0 Conclusions

This Transport Impact Assessment (TIA) report has been prepared with respect to the proposed service station to be located at 115 Dixon Road, East Rockingham in the City of Rockingham.

The proposed service station comprises of light and heavy vehicle bowsers with separate canopies and the associated convenience store. The proposed development would entail separate crossovers for heavy vehicle and light vehicles. For heavy vehicles, there will be one entry only crossover on Day Road (crossover 1) and one exit only crossover (crossover 4) on Dixon Road. For light vehicles, there will be one full movement crossover on Day Road (crossover 2) and a left in only crossover (crossover 3) on Dixon Road.

The proposed access arrangement for the site and in particular Dixon Road has been developed in consultation with the City of Rockingham and Department of Planning Land and Heritage (DPLH) and is in line with the intent and objectives of WAPC DC 5.1.

It is Transcore's understanding that sufficient parking supply is provided to address the parking requirement for the proposed development.

Turn path analysis undertaken for 12.5m rigid vehicles and 19.0m fuel tanker vehicles confirms satisfactory access, egress and circulation to/from and within site.

The net traffic increase on surrounding roads as a result of the proposed development when accounting for passing trade and existing trip generation of the site is estimated to be about 54vph in AM and 84vph in PM peak hours. This level of traffic generation is unlikely to have any significant impact on the abutting road network.

The operation of the proposed development crossovers on the Day Road and the T-intersection of Day Road/Dixon Road have been analysed using SIDRA Network modelling tool. The analysis result indicates satisfactory traffic operations of the crossovers and minimal impact on the operation of the intersection.

In conclusion, the findings of this Transport Impact Assessment are supportive of the proposed development.

Appendix A

SITE PLAN







Appendix B

SIDRA RESULTS

V Site: [Dixon Rd & Day Rd - Stage 1 - Existing - AM]

•• Network: N101 [Dixon Rd -Day Rd - Existing - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov	ement	Perform	ance	- Vehic	les									
Mov	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Bac Queo		Prop	Effective Stop	Aver.	Averag 6
		Total web/b		Total veh/b	HV	v/c			Vehicles Di	istance m		Rate	Cycles S	Speed km/h
East	Dixon	Rd (E)	100			100		U. C. C.				700		
12	R2	32	7.7	32	7.7	0.051	7.3	LOSA	0.2	1.5	0.58	0.74	0.58	22.4
Appr	roach	32	7.7	32	7.7	0.051	7.3	NA	0.2	1.5	0.58	0.74	0.58	22.4
North	h: Day I	Rd (N)												
1	12	11	7.7	11	7.7	0.011	8.2	LOSA	0.0	0.3	0.41	0.86	0.41	23.5
2	T1	65	7.7	65	7.7	0.166	14.5	LOSB	0.6	4.8	0.70	1.01	0.70	14.0
Appr	roach	76	7.7	76	7.7	0.166	13.6	LOSB	0.6	4.8	0.66	0.99	0.66	15.2
West	t: Dixon	Rd (W)												
4	L2	131	7.8	131	7.8	0.085	5.8	LOSA	0.4	2.9	0.10	0.52	0.10	48.4
5	TI	680	7.7	680	7.7	0.189	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	60.0
Appr	roach	811	7.7	811	7.7	0.189	1.0	LOSA	0.4	2.9	0.02	0.08	0.02	57.6
All V	ehicles	918	7.7	918	7.7	0.189	22	NA.	0.6	4.8	0.09	0.18	0.09	55.3

MOVEMENT SUMMARY



V Site: [Dixon Rd & Day Rd - Stage 2 - Existing - AM]

•• Network: N101 [Dixon Rd -Day Rd - Existing - AM]

Site Category: (None) Giveway / Yield (Two-Way)

May	Turn	Demand I	lows	Amival	Flows	Deg Sate	Average Delay			Back of eue	Prop Quesied	Effective	Aver /	Averag
		Total veh/h		Total veh/h	HV	v/c	sec	Section		Distance		Rate	Cycles :	Speed km/h
East	Dixon I	Rd (E)			-3	1000		-	100	1000	nen	100	-	17.5
11	TI	1240	7.7	1240	7.7	0.344	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Арре	oach	1240	7.7	1240	7.7	0.344	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North	: Media	n (N)												
3	R2	65	7.7	65	7.7	0.187	11.3	LOSB	0.6	4.6	0.78	0.91	18.0	11.4
Appr	oach	65	7.7	65	7.7	0.187	11.3	LOSB	0.6	4.6	0.78	0.91	0.81	11.4
All V	ehicles	1305	7.7	1305	7.7	0.344	0.6	NA	0.6	46	0.04	0.05	0.04	58.6

V Site: [Dixon Rd & Day Rd - Stage 1 - Existing - PM]

•• Network: N101 [Dixon Rd -Day Rd - Existing - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Mo	ement	Perform	ance	- Vehic	ies									
Moi ID	Turn	Demand i	Flows	Amreal	Flories	Deg Satir	Average Delay	Service	95% Bar Queu		Propi Quesed	Effective Slop	Avez No	Averag e
		Total with		Total vehih	EV		tec		Withinkles D	etalice		Rate	Dycles :	Speed knyh
East	Dixon !			-			-	N 77 1 25						
12	R2	22	7.7	22	7.7	0.077	15.1	LOSC	0.3	2.0	0.81	0.91	0.81	15.0
Арр	roach	22	7.7	22	7.7	0.077	15.1	NA.	0.3	2.0	0.81	0.91	0.81	15.0
Nort	h: Day R	ld (N)												
1	L2	35	7.7	35	7.7	0.052	10.3	LOSB	0.2	1.5	0.55	0.95	0.55	21.0
2	Tt	137	7.7	137	7.7	0.893	66.2	LOSF	4.8	38.3	0.95	1.46	2.70	3.4
App	roach	172	7.7	172	7.7	0.893	54.9	LOSF	4.8	38.3	0.87	1.36	2.27	4.4
Wes	t Dixon	Rd (W)												
4	12	113	7.8	113	7.8	0.073	5.8	LOSA	0.3	2.4	0.08	0.52	0.08	48.5
5	TI	1160	7.7	1160	7.7	0.322	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Арр	roach	1273	7.7	1273	7.7	0.322	0.5	LOSA	0.3	24	0.01	0.05	0.01	58.6
All V	'ehicles	1466	7.7	1466	7.7	0.893	7.1	NA	4.8	38.3	0.12	0.21	0.28	48.2

MOVEMENT SUMMARY

V Site: [Dixon Rd & Day Rd - Stage 2 - Existing - PM]

• Network: N101 [Dixon Rd -Day Rd - Existing - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Mor.	Turn 1	hemand i	Rais	Arrival	-NO AS		Average Delay		95% Bar Guerr		Prop. E.	flective	Aver 4	Acturag
		Total		Total vehiti	HV		560		Vehicles D				Cycles S	iperod kervh
East	Dixon R	d (E)			100	100				- 300		200		E000
11	TI	1204	7.7	1204	7.7	0.334	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	sach	1204	7.7	1204	7.7	0.334	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North	: Mediar	(N)												
3	R2	137	7.7	137	7.7	0.371	12.6	LOSB	1.3	10.7	0.81	0.97	1.03	10.6
Appro	ach	137	7.7	137	7.7	0.371	12.6	LOSB	1.3	10.7	0.81	0.97	1.03	10.6
All Ve	hicles	1341	7.7	1341	7.7	0.371	1.3	NA	1.3	10.7	0.08	0.10	0.11	56.9



V Site: [Dixon Rd & Day Rd - Stage 1 - 2021 - AM]

00 Network: N101 [Network -2021 - AMJ

Site Category: (None) Giveway / Yield (Two-Way)

Mov	ement	Perform	ance	- Vehic	les									
Mev ID	Turn	Demand	Flows	Amyal	Flores	Deg. Satn	Average Delay	Level of Service	95% Bac Queu		Prop. Queued	Effective Stop	Aver	Avetag
		Total veh/h		Total vehih	HV-	wic	sec		Vehicles Di veh	stance m		Rate	Cycles :	Speed km/h
East	Dixon	Rd (E)	100	-	100								100	
12	R2	22	7.7	22	7.7	0.036	7.3	LOSA	0.1	1.0	0.57	0.72	0.57	16.7
Appr	roach	22	7.7	22	7.7	0.036	7.3	NA	0.1	1,0	0.57	0.72	0.57	16.7
Nort	h: Day l	Rd (N)												
1	1.2	49	7.7	49	7.7	0.052	8.3	LOSA	0.2	1.6	0.42	0.90	0.42	23.4
2	TI	66	7.7	66	7.7	0.167	14.4	LOSB	0.6	4.8	0.70	1.01	0.70	14.0
Appr	oach	116	7,7	116	7.7	0.167	11.8	LOSB	0.6	4.8	0.58	0.96	0.58	17.8
Wes	t Dixon	Rd (W)												
4	12	144	7.8	144	7.8	0.094	5.8	LOSA	0.4	3.2	0.08	0.52	0.08	50.4
5	TI	680	7.7	680	7.7	0.189	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	60.0
Appr	roach	824	7.7	824	7.7	0.189	1.0	LOSA	0.4	3.2	0.01	0.09	0.01	58.1
All V	ehicles	962	7.7	962	7.7	0.189	25	NA	0.6	4.8	0.10	0.21	0.10	55.3

MOVEMENT SUMMARY



V Site: [Dixon Rd & Day Rd - Stage 2 - 2021 - AM]

•• Network: N101 [Network - 2021 - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov	ement	Perform	ance	- Vehic	les									
Mov	Turn	Demand !	Flows	Amval	Flows	Deg Satn	Average Detay	Level of Service	95% Bar Queu		Prop. Queued	Effective	Aver. A	Averag
		Total veh/h	HV	Total veh/h	HV	VIC	sec	3011100	Vehicles D		Socred	Rate	Cycles S	speed km/h
East	Dixon							1000					-	
11	TI	1265	7.7	1265	7.7	0.351	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Арре	roach	1265	7.7	1265	7.7	0.351	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
Nort	h: Media	an (N)												
3	R2	66	7.7	66	7.7	0.198	11.9	LOSB	0.6	4.9	0.80	0.91	0.84	11.0
Аррг	roach	66	7.7	66	7.7	0.198	11.9	LOSB	0.6	4.9	0.80	0.91	0.84	11.0
All V	ehicles	1332	7.7	1332	7.7	0.351	0.6	NA:	0.6	4.9	0.04	0.05	0.04	58.5

V Site: [Day Rd & Access 1 - 2021 - AM]

* Network: N101 [Network -2021 - AM]

Site Category: (None) Giveway / Yield (Two-Way)

May ID		Demand	Flores	Tons Annal F		Deg. Sath			95% Back of Queue		Prop.	Elledina	Aver Averag	
***		Total vehilh		Total vehilli	HV	W/c			Vehicles Di		Hammer		Cycles 5	spend km/h
Sout	h: Day	Rd (S)					-0.					1000	100	
11	TI	196	7.7	196	7.7	0.123	0.2	LOSA	0.2	1.7	0.06	0.01	0.06	57.6
12	R2	12	100.0	12	100.	0.123	1.7	LOSA	0.2	1.7	0.06	0.01	0.06	41.5
Appr	oach	207	12.9	207	12.9	0.123	0.3	NA.	0.2	1.7	0.06	0.01	0.06	57.3
Nort	h: Day i	Rd (N)												
4	L2	12	100.0	12	100.	0.068	5.9	LOSA	0.0	0.0	0.00	0.10	0.00	44.7
5	TI	103	7.7	103	7.7	0.068	0.0	LOSA	0.0	0.0	0.00	0.10	0.00	53.2
Appr	oach	115	17.0	115	17.0	0.068	1.1	NA	0.0	0.0	0.00	0.10	0.00	52.1
All V	ehicles	322	14.3	322	14.3	0.123	0.4	NA	0.2	1.7	0.04	0.04	0.04	55.4

MOVEMENT SUMMARY

V Site: [Day Rd & Access 2 - 2021 - AM]

• Network: N101 [Network - 2021 - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Mos	ement	Perform	ance	- Vehic	les	1	7 3							
May ID	Turn	Demand	Flows	Arrival	Flows	Deg Sath	Average Dolay		95% Back of Ourse		Prop Effective Gueund Stop		Aver Averag No e	
		Total volvh		Total veh/b	HV				Vehicles De	stance		Plate	Cycles	Speed km/r
Sout	th: Day				100	10000					200			
11	TI	167	7.7	167	7.7	0.087	0.0	LOSA	0.0	0.1	0.00	0.00	0.00	59.0
12	R2	- 1	0.0	1	0.0	0.087	1.0	LOSA	0.0	0.1	0.00	0.00	0.00	58.8
Арр	roach	168	7.7	168	7.7	0.087	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.0
East	. Acces	s 2 (E)												
1	L2	65	0.0	65	0.0	0.080	0.2	LOSA	0.3	2.2	0.13	0.06	0.13	18.2
3	R2	40	0.0	40	0.0	0.080	1.0	LOSA	0.3	22	0.13	0.06	0.13	18.2
Арр	roach	105	0.0	105	0.0	0.080	0.5	LOSA	0.3	22	0.13	0.06	0.13	18.2
Nort	h: Day l	Rd (N)												
4	L2	53	0.0	53	0.0	0.052	2.6	LOSA	0.0	0.0	0.00	0.28	0.00	19.4
5	T1	51	7.7	51	7.7	0.052	0.0	LOSA	0.0	0.0	0.00	0.28	0.00	34.1
Арр	roach	103	3.8	103	3.8	0.052	1.3	NA	0.0	0.0	0.00	0.28	0.00	23.3
All V	/ehicles	377	4.5	377	4.5	0.087	0.5	NA	0.3	22	0.04	0.09	0.04	33.9

V Site: [Dixon Rd & Day Rd - Stage 1 - 2021 - PM]

•• Network: N101 [Network - 2021 - PM]

Site Category: (None) Giveway / Yield (Two-Way)

	-	_		_	_									
Mo	/ement	Perform	ance	- Vehic	les									
50	Turn	Demand	Flows	Artival	Flows	Deg Sath	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop	Aver. No.	Averag
		Total veh/h		Total veh/h	HV	v/c	sec		Vehicles D	istaince m		Flate	Cycles	Speed km/
East	: Dixon	Rd (E)	-	-		77,0					- 22		-	
12	R2	19	7.7	19	7.7	0.068	15.3	LOSC	0.2	1.8	0.81	0.91	0.81	9.
App	roach	19	7.7	19	7.7	0.068	15.3	NA	0.2	1.8	0.81	0.91	0.81	9.
Nort	h: Day	Rd (N)												
1.	12	73	7.7	73	7.7	0.110	10,5	LOSB	0.4	3.3	0.57	0.99	0.57	20.
2	T1	140	7.7	140	7.7	0.975	94,3	LOSF	7.0	55.8	0.96	1.73	3.74	2.
Арр	roach	213	7.7	213	7.7	0.975	65.7	LOSF	7.0	55.8	0.82	1.47	2.66	3.9
Wes	t Dixor	Rd (W)												
4	12	124	7.8	124	7.8	0.080	5.8	LOSA	0.3	2.7	0.08	0.52	0.08	50,4
5	T1	1173	7.7	1173	7.7	0.325	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.5
Арр	roach	1297	7.7	1297	7.7	0.325	0.6	LOSA	0.3	2.7	0.01	0.05	0.01	58.
All \	/ehicles	1528	7.7	1528	7.7	0.975	9.8	NA	7.0	55.8	0.13	0.26	0.39	44.7

MOVEMENT SUMMARY

V Site: [Dixon Rd & Day Rd - Stage 2 - 2021 - PM]

•• Network: N101 [Network - 2021 - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov ID	Turn	Demand	Flows	Arrival	Flows	Dog. Satn	Average Delay	Service	95% Back of Queue		Prop	Effective Stop	Aver, Averag No. 6	
		Total veh/h	HV	Total veh/h	HV				Vehicles D			Rate	Cycles 5	Speed km/h
East	Dixon	Rd (E)	100					53/0	2000				655	
11	TI	1228	7.7	1228	7.7	0.340	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	1228	7.7	1228	7.7	0.340	0.0	NA.	0.0	0.0	0.00	0.00	0.00	59.9
North	: Media	m (N)												
3	R2	140	7.7	140	7.7	0.394	13.3	LOSB	1.4	11.5	0.83	0.98	1.07	10.2
Appr	oach	140	7.7	140	7.7	0.394	13.3	LOSB	1.4	11.5	0.83	0.98	1.07	10.2
All V	ehicles	1368	7.7	1368	7.7	0.394	1.4	NA.	1.4	11.5	0.08	0.10	0.11	56.7

MOVEMENT SUMMARY

V Site: [Day Rd & Access 1 - 2021 - PM]

• Network: N101 [Network - 2021 - PM]

Site Category. (None) Giveway / Yield (Two-Way)

Mo.	Turn	Demand	Flows	Arrival	Flows	Deg. Sato	Average		95% Bac Quest		Prop E Queued	Rective	Aver.	Averag
-		Total vehills		Tistal vehilh	HV	vic		Service	Wheles D			Stop	Cycles S	speed km/h
Sout	h: Day										0.73	7.00		
11	T1	186	7.7	186	7.7	0.116	0.3	LOSA	0.2	1.8	0.08	0.01	0.08	56.7
12	R2	9	100.0	9	100.	0.116	3.2	LOSA	0.2	1.8	0.08	0.01	0.08	39.4
Арри	roach	196	12.2	196	12.2	0.116	0.5	NA.	0.2	1.8	0.08	0.01	0.08	56.4
Nort	h: Day I	Rd (N)												
4	12	9	100.0	9	100.	0.121	6.1	LOSA	0.0	0.0	0.00	0.05	0.00	47.1
5	Tt	212	7.7	212	7.7	0.121	0.0	LOSA	0.0	0.0	0.00	0.05	0.00	56.9
Арри	roach	221	11.7	221	11.7	0.121	0.5	NA	0.0	0.0	0.00	0.05	0.00	56.4
All V	ehicles	417	11.9	417	11.9	0.121	0.4	NA	0.2	1.8	0.04	0.03	0.04	56.4

MOVEMENT SUMMARY

V Site: [Day Rd & Access 2 - 2021 - PM]

• Network: N101 [Network - 2021 - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov ID	Tian	Demand i	Rows.	Amed	Flows	Deg. Safn		Level of Service	PS% Bak		Prop E	Stop	Aver No.	Averag
		Total vehits		Total within	HV	We			Vehicles Di			Rule	Dycles :	Speed
Sout	h: Day F		800									20.0		
11	TI	143	7.7	143	7.7	0.074	0.0	LOSA	0.0	0.1	0.01	0.00	0.01	58.7
12	R2	1	0.0	-1	0.0	0.074	1.3	LOSA	0.0	0.1	0.01	0.00	0.01	58.6
Арри	roach	144	7.6	144	7.6	0.074	0.0	NA.	0.0	0.1	0.01	0.00	0.01	58.7
East	Access	2(E)												
1	L2	66	0.0	66	0.0	0.100	0.5	LOSA	0.4	2.7	0.27	0.17	0.27	16.5
3	R2	52	0.0	52	0.0	0.100	1.4	LOSA	0.4	2.7	0.27	0.17	0.27	16.5
Appr	roach	118	0.0	118	0.0	0.100	0.9	LOSA	0.4	27	0.27	0.17	0.27	16.5
Nort	h: Day R	d (N)												
4	L2	65	0.0	65	0.0	0.108	2.6	LOSA	0.0	0.0	0.00	0.17	0.00	20.3
5	T1	146	7.7	146	7.7	0.108	0.0	LOSA	0.0	0.0	0.00	0.17	0.00	40.3
Аррг	roach	212	5.3	212	5.3	0.108	0.8	NA	0.0	0.0	0.00	0.17	0.00	28.9
All V	ehicles	474	4.7	474	4.7	0.108	0.6	NA	0.4	2.7	0.07	0.12	0.07	32.2

t20.134.mr.r01a Page 25

Appendix C

TURN PATH ANALYSIS

t20.134.mr.r01a Page 26









115 Dixon Road, East Rockingham Austroads 2013: 12.0m Semi-Trailer Truck Left in 6 Right in Entries to 2nd Bowser

LEGEND Vehicle Body Wheel Path 500mm Clearance

t20.134.sk02b 22/02/2021 Scale: 1:400 @ A3



t20.134.mr.r01a Page 27



115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Exit onto Dixon Road from 1st Bowser

Vehicle Body Wheel Path 500mm Clearance

120.134.sk03b 22/02/2021 Scale: 1.400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Exit onto Dixon Road from 2nd Bowser

LEGEND
Vehicle Body
Wheel Path
500mm Clearance

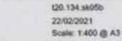
120.134.sk64b 22:02/2021 Scale: 1:400 @ A3 *





115 Dixon Road, East Rockingham Austroads 2013: 12 Sin SU Truck Service Truck Entry

LEGEND Vehicle Body Wheel Path 500mm Clearance







115 Dixon Road, East Rockingham Austroads 2012: 12 5m SU Truck Service Truck Exit

LEGEND Vehicle Body Wheel Path 500mm Clearance



120.134.sk06b 22/02/2021 Scale: 1:400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 899 Passenger Vehicle Passenger Vehicle Circulation

LEGEND Vehicle Body Wheel Path 300mm Clearance

120.134.sk06b 22/02/2021 Scale: 1:400 @ A3



t20.134.mr.r01a Page 30

Appendix D

SIGHT LINE ASSESSMENT

t20.134.mr.r01a Page 3



115 Dixon Road, East Rockingham Sight Distance Assessment Speed = 60km/h Minimum SSD = 65m

120.134.sk11 14/07/2020 Scale: 1:500 @ A3





Appendix 4 Bushfire Management Plan

Bushfire Management Plan:

Development Application: 115 Dixon Road, East

Rockingham

Accord Property









Bushfire Management Plan and Site Details



Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Site Address / Plan Reference: 115 Dixon Road					
Suburb: East Rockingham		St	ate: WA	P/co	de: 6122
Local government area: City of Rockingham					
Description of the planning proposal: Development	Application for a service stat	ion			
BMP Plan / Reference Number: 16254	Version: v	2	Date of	Issue: 4/03	/21
Client / Business Name: Accord Property					
Reason for referral to DFES		-		Yes	No
Has the BAL been calculated by a method other than me been used to calculate the BAL)?	ethod 1 as outlined in A53959	(tick no if AS3959 me	thod 1 has		Ø
Have any of the bushfire protection criteria elements be no if only acceptable solutions have been used to address		of a performance prin	nciple (tick		Ø
Is the proposal any of the following special development	nt types (see SPP 3.7 for defi	nitions)?			
Unavoidable development (in BAL-40 or BAL-FZ)					₽2
Strategic planning proposal (including rezoning applicati	ons)				Ø
Minor development (in BAL-40 or BAL-FZ)					☑
High risk land-use					
Vulnerable land-use					
If the development is a special development type as classifications (E.g. considered vulnerable land-use as t				one of the a	bove listed
High risk land use due to flammable fuels at service sta	tion				
Note: The decision maker (e.g. local government or th above answers are ticked "Yes".	e WAPC) should only refer t	he proposal to DFES	for commen	t if one (or n	nore) of the
BPAD Accredited Practitioner Details and Dec	claration				
Name Alex Aitken	Accreditation Level Level 2	Accreditation No 37739		Accreditation November 2	
Company		Contact No.			
Eco Logical Australia		08 6218 2200			
I declare that the information provided within this bust	nfire management plan is to	the best of my knowle	edge true an	d correct	
Signature of Practitioner					
CHE		Date	04-Mar-21		

DOCUMENT TRACKING

Project Name	Bushfire Management Plan: Development Application: 115 Dixon Road, East Rockingham
Project Number	20PER-16254
Project Manager	Alex Aitken
Prepared by	Alex Aitken (BPAD Level 2 – 37739)
Reviewed by	Daniel Panickar (BPAD Level 3 – 37802)
Approved by	Daniel Panickar (BPAD Level 3 – 37802)
Status	Final
Version Number	v2
Last saved on	4 March 2021

This report should be cited as 'Eco Logical Australia 2021. Bushfire Management Plan: Development Application: 115 Dixon Road, East Rockingham Prepared for Accord Property.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Accord Property (the client).

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Lagical Australia Pty Ltd and the client. The scope of services was defined in consultation with the client, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Templete 2.6.1

Contents

1. Introduction	1
1.1 Proposal details	
1.2 Purpose and application of the plan	1
1.3 Environmental considerations	1
2. Bushfire assessment results	6
2.1 Bushfire assessment inputs	6
2.1.1 Fire Danger Index	6
2.1.2 Vegetation classification	
2.1.3 Topography and slope under vegetation	6
2.2 Bushfire assessment outputs	8
2.2.1 BAL assessment	8
2.2.2 Method 1 BAL assessment	8
2.3 Identification of issues arising from the BAL assessment	9
3. Assessment against the Bushfire Protection Criteria	11
3.1 Compliance	11
3.2 Additional Bushfire Requirements	
4. Implementation and enforcement	14
5. Conclusion	
6. References	
Appendix A – Classified Vegetation Photos	
Appendix B – Standards for Asset Protection Zones	
Appendix C - Vehicular access technical requirements (WAPC 2017)	
List of Figures	
Figure 1: Site overview	3
Figure 2: Site Plan.	
Figure 3: Bushfire Prone Areas	
Figure 4: Vegetation classification	
Figure 5: Bushfire Attack Level (BAL) Contours	
Figure 6: Spatial representation of the bushfire management strategies	
Figure 7: Illustrated tree capony cover projection (WARC 2017)	

List of Tables

Table 1: Classified vegetation as per AS 3959-2018	6
Table 2: Method 1 BAL calculation (BAL contours)	8
Table 3: Summary of solutions used to achieve bushfire protection criteria	11
Table 4: Proposed work program	14

1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Accord Property to prepare a Bushfire Management Plan (BMP) to support a development application for Lot 10 (115) Dixon Road, East Rockingham (hereafter referred to as the subject site, Figure 1). The proposed development will result in an intensification of land use and involves the construction of a new service station.

The subject site is within a designated bushfire prone area as per the Western Australia State Map of Bush Fire Prone Areas (DFES 2019; Figure 3), which triggers bushfire planning requirements under State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7; Western Australian Planning Commission (WAPC) 2015) and reporting to accompany submission of the development application in accordance with the associated Guidelines for Planning in Bushfire Prone Areas v 1.3 (the Guidelines; WAPC 2017).

The subject site is currently zoned as Light Industry under the City of Rockingham (CoR) Town Planning Scheme (TPS) with the site being utilised as a mechanical workshop. The proposed development will incorporate the demolishing of the existing buildings and the construction of a new service station.

This assessment has been prepared by ELA Senior Bushfire Consultant Alex Aitken (FPAA BPAD Level 2 Certified Practitioner No. BPAD37739) with quality assurance undertaken by Senior Bushfire Consultant Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

High risk land uses may expose the community, fire fighters and the environment to dangerous, uncontrolled substances during a bushfire event. High risk land uses may include, but are not limited to: service stations, landfill sites, bulk storage of hazardous materials, fuel depots and certain heavy industries as well as military bases, power generating land uses, saw-mills, highways and railways.

Planning and development applications that incorporate proposals for non-residential, high-risk land uses in bushfire prone areas are to comply with Policy Measure 6.6 which requires a Bushfire Management Plan jointly endorsed by the local government and the Department of Fire and Emergency Services (DFES). In most instance the requirement of the bushfire risk management plan should be incorporated into the proposed site management plans.

1.3 Environmental considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

The subject site has been previously cleared, resulting in no existing native vegetation on site.

No revegetation is proposed within the development and landscaping will be maintained in a low-threat state.

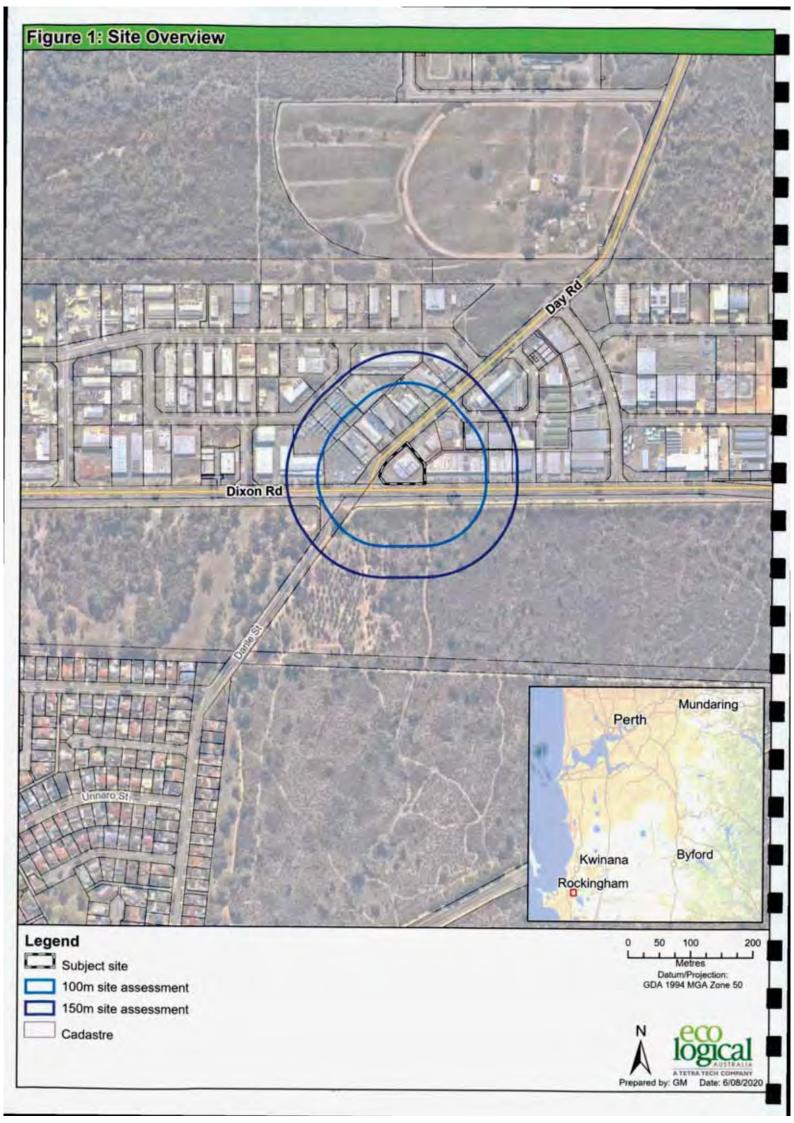


Figure 2: Site Plan

PRELIMINARY



BROLD



2. Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australia, as outlined in Australian Standard (AS) 3959–2018 and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.2 Vegetation classification

Vegetation within the subject site and surrounding 150 m (the assessment area) was assessed in accordance with the Guidelines and AS 3959-2018 Construction of Buildings in Bushfire Prone Areas (SA 2018) with regard given to the Visual guide for bushfire risk assessment in Western Australia (DoP 2016). Site assessment was undertaken on 3 June 2020.

The classified vegetation for the proposed development from each of the identified vegetation plots are identified below, Table 1 and Figure 4.

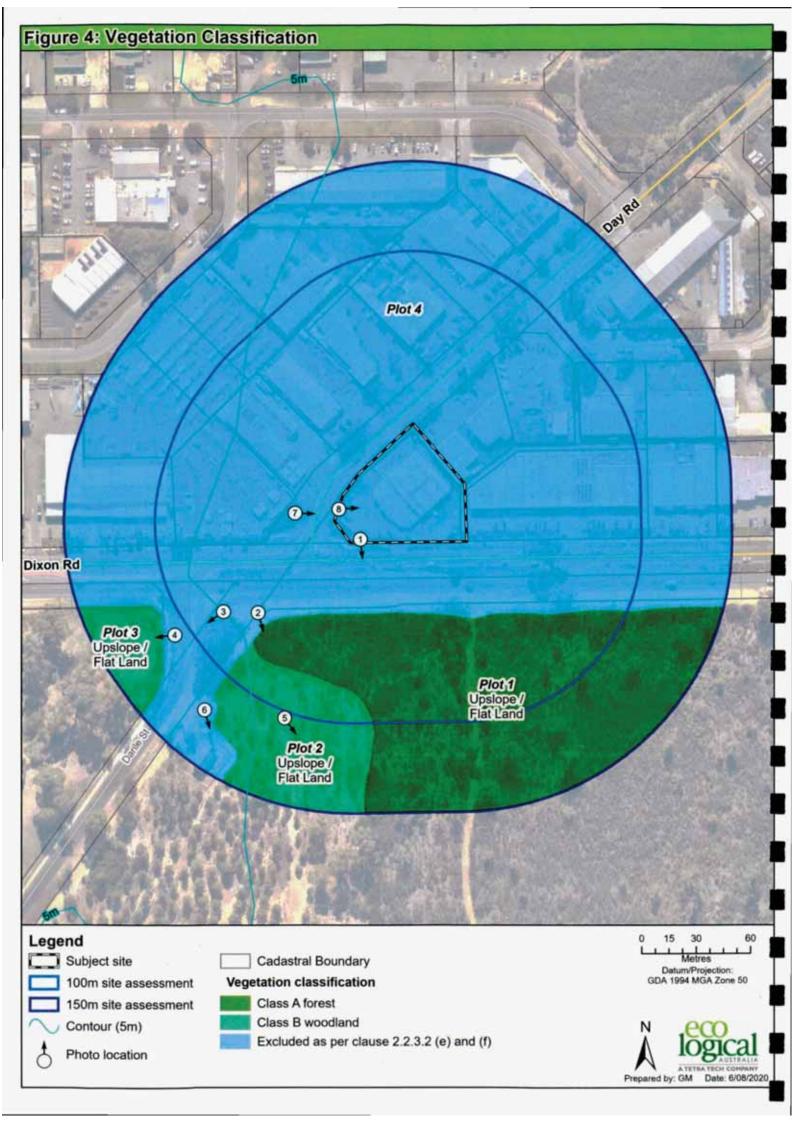
Table 1: Classified vegetation as per AS 3959-2018

Plot	Vegetation Classification	Effective Slope
1	Class A Forest	All upslopes and flat land (0 degrees)
2	Class B Woodland	All upslopes and flat land (0 degrees)
3	Class B Woodland	All upslopes and flat land (0 degrees)
4	Excluded AS 3959-2018 2.2.3.2 (e)	

Photographs relating to each area and vegetation type are included in Appendix A.

2.1.3 Topography and slope under vegetation

Effective slope under vegetation was assessed for a distance of 150 m from the subject site in accordance with the Guidelines and AS 3959-2018 and is depicted in Figure 4. Slope under classified vegetation was assessed and is shown in Table 1.



2.2 Bushfire assessment outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959-2018 and the bushfire assessment inputs in Section 2.1.

2.2.1 BAL assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959-2018.

A Method 1 BAL assessment (as outlined in AS 3959-2018) has been completed for the proposed development and incorporates the following factors:

- · Fire Danger Index (FDI) rating;
- Vegetation class;
- · Slope under classified vegetation; and
- Distance between proposed development area and the classified vegetation.

Based on the identified BAL, construction requirements for proposed buildings can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

2.2.2 Method 1 BAL assessment

Table 2 and Figure 5 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed development in accordance with AS 3959-2018 methodology.

Table 2: Method 1 BAL calculation (BAL contours)

Plot and vegetation classification	Effective slope	Hazard separation distance	BAL rating	Comment
Plot 1	All upslopes and	0-<16	BAL-FZ	No development proposed in this area
Class A Forest	flat land (0 degrees)	16-<21	BAL-40	No development proposed in this area
		21~31	BAL-29	No development proposed in this area
		31-<42	BAL-19	No development proposed in this area
		42-<100	BAL-12.5	Development proposed in this area
Plot 2	All upslopes and	0-<10	BAL-FZ	No development proposed in this area
Class B Woodland	flat land (0 degrees)	10<14	BAL-40	No development proposed in this area
	- Brand	14-<20	BAL-29	No development proposed in this area
		20~29	BAL-19	No development proposed in this area
		29-<100	BAL-12.5	Development proposed in this area
Plot 3	All upslopes and	0-<10	BAL-FZ	No development proposed in this area
Class B Woodland	flat land (0 degrees)	10-<14	BAL-40	No development proposed in this area
	oral cost	14~20	BAL-29	No development proposed in this area
		20-<29	BAL-19	No development proposed in this area
		29~100	BAL-12.5	Development proposed in this area

Plot and vegetation classification	Effective slope	Hazard separation distance	BAL rating	Comment
Plot 4				
Excluded as per clause : AS3959- 2018	2.2.3.2 (e) of	N/A		

Based on the site assessment inputs and BAL assessment, the proposed service station within the subject site has a BAL rating of BAL-12.5.

2.3 Identification of issues arising from the BAL assessment

Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.



3. Assessment against the Bushfire Protection Criteria

3.1 Compliance

The proposed development is required to comply with policy measures 6.2, 6.5 and 6.6 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the proposed development in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summaries how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 6 where relevant.

Table 3: Summary of solutions used to achieve bushfire protection criteria

Bushfire Protection Criteria	AS	P5	N/A	Commen
Element 1: Location A1.1 Development location	123	0	0	The proposed buildings within the subject site will be located in an area subject to BAL ratings of ≤BAL-29 (Figure 5; Figure 6).
				The proposed development is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	88	п	п	The proposed development has an APZ sufficient for the potential radiant heat flux to not exceed 29kW/m² and will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC 2017; Appendix B).
	io.	1	-	The APZ can be contained within the boundaries of the lot or managed in perpetuity in a low fuel state.
				The proposed development is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Two access routes	×			Two access routes to/from the subject site are available on to Dixon Road and Day Road (Figure 6). All roads are public roads and comply with requirements outlined in the Guidelines (Appendix C).
				The proposed development is considered to be compliant with A3.1.
A3.2 Public road		0	133	No public roads are proposed as part of this development.
A3.3 Cul-de-sac			×	No cul-de-sacs are proposed as part of this development.
A3.4 Battle-axe			×	No battle axe lots are proposed.
A3.5 Private Driveway longer than 50 m	0		×	No private driveways longer than 50 m are proposed.
A3.6 Emergency Access way	0		8	No emergency access way is required.

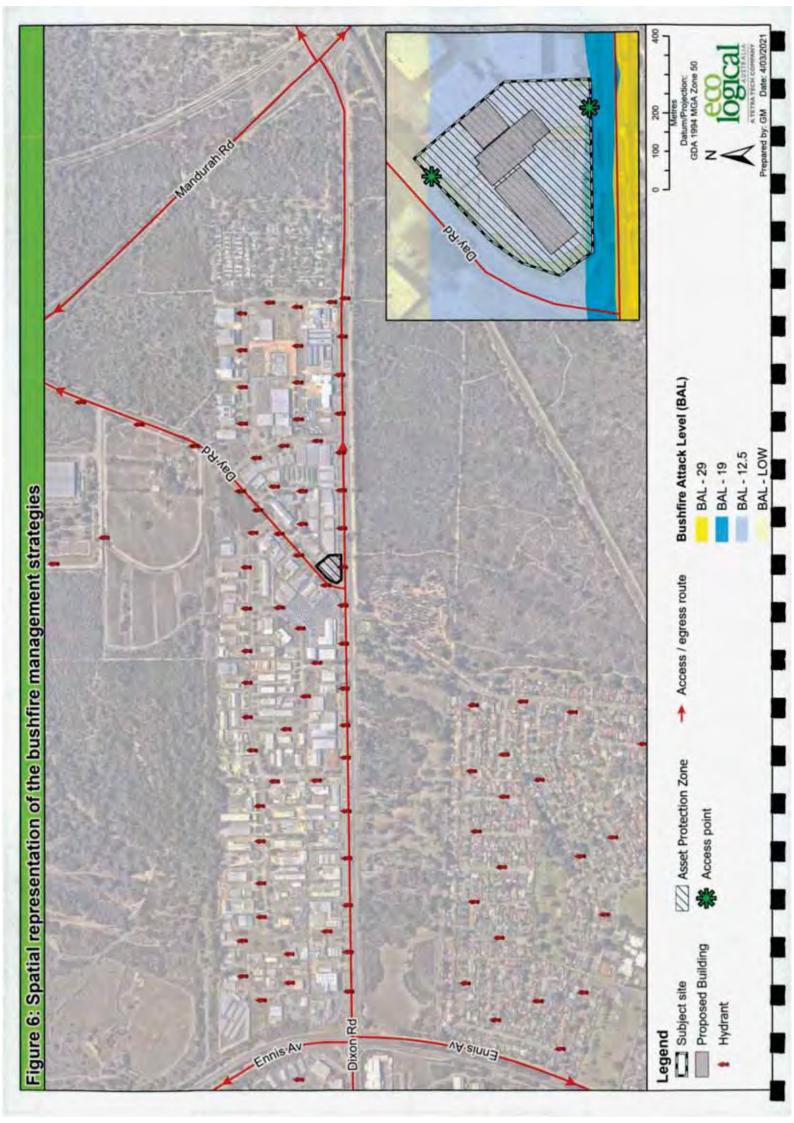
Bushfire Protection Criteria	AS	PS	N/A	Comment
A3.7 Fire-service access routes	0	0	Ø	No fire service access routes are required or proposed.
A3.8 Firebreak width			×	No fire breaks are required or proposed as per the requirements of City of Rockingham Firebreak Notice 2019 (CoR 2019).
Element 4: Water A4.1 Reticulated areas				The subject site will be connected to a reticulated water supply.
	Ø			The proposed development is considered to be compliant with A4.1.
				A4.2 and A4.3 are not applicable to this proposed development.
A4.2 Non-Reticulated areas			120	Reticulated water is present within the area.
A4.3 Individual Lots within non-reticulated areas			⊠	Reticulated water is present within the area.

NOTE - AS: ACCEPTABLE SOLUTION, PS: PERFORMANCE SOLUTION, N/A: NOT APPLICABLE

3.2 Additional Bushfire Requirements

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (Appendix B).

Due to the high risk land use designation, a bushfire risk management plan (BRMP) has been developed that addresses Policy Measure 6.6 of SPP 3.7 (ELA 2020).



4. Implementation and enforcement

Implementation of the BMP applies to the developer, future owners within the subject site and the local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 4. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4: Proposed work program

No	Bushfire management measure	Responsibility	
Prior 1	to occupancy		
1	Ensure proposed building is located outside of areas subject to BAL-FZ and BAL-40 as per the design in Figure 6.	Developer	
2	Ensure all APZs are implemented and maintained	Developer	
3	Implement Bushfire Risk Management Plan	Developer	
Ongoi	ing management		
4	Maintain APZ	Owner / Occupier	

5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development. As such, the proposed development is consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

6. References

City of Rockingham, 2019, City of Rockingham Fire Control Notice.

Department of Fire and Emergency Services, 2019, Map of Bush Fire Prone Areas, [Online], Government of Western Australia, available from: http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx

Department of Planning (DoP), 2016, Visual guide for bushfire risk assessment in Western Australia. DoP, Perth.

Eco Logical Australia (ELA) 2020. Bushfire Risk Management Plan: Development Application: 115 Dixon Road, East Rockingham.

Standards Australia, 2018, Construction of buildings in bushfire-prone areas, AS 3959-2018. SAI Global, Sydney.

Western Australian Planning Commission, 2015, State Planning Policy 3.7 Planning in Bushfire Prone Areas. WAPC, Perth.

Western Australian Planning Commission, 2017, Guidelines for Planning in Bushfire Prone Areas Version 1.3 (including appendices), WAPC, Perth.

Western Australian Planning Commission, 2019, A guide to developing a Bushfire Emergency Evacuation Plan, October 2019.

Appendix A - Classified Vegetation Photos



Class A Forest



Class A Forest



Class B Woodland



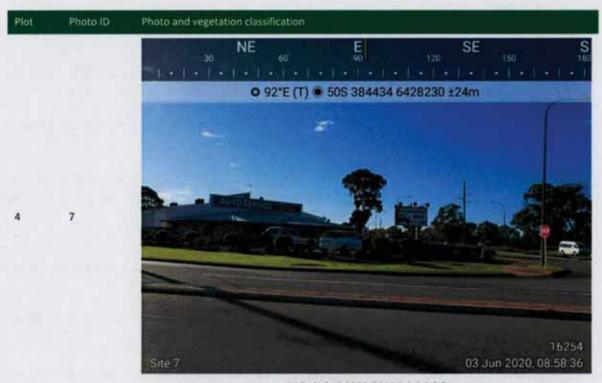
Class B Woodland



Class B Woodland



Class B Woodland



Excluded AS 3959-2018 2.2.3.2 (e)



Excluded AS 3959-2018 2.2.3.2 (e)

Appendix B - Standards for Asset Protection Zones

The following standards have been extracted from the Guidelines for Planning in Bushfire Prone Areas v 1.3 (WAPC 2017).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

- a. 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 fire does not exceed 29kW/m² (BAL-29) in all circumstances.
- b. Location: the APZ should be contained solely within the boundaries of the lot on which a 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).
- c. Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' (below):
 - 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 7).

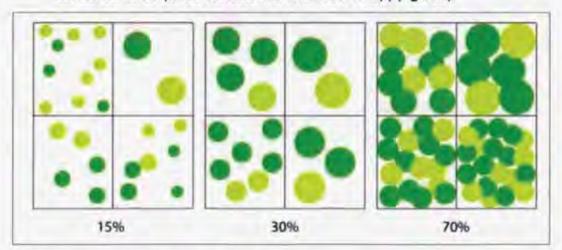


Figure 7: Illustrated tree canopy cover projection (WAPC 2017)

- 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.

Additional notes

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

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. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

Appendix C - Vehicular access technical requirements (WAPC 2017)

Technical requirements	Public road	Cul-de-sac	Private driveway	Emergency access way	Fire service access route
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	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	8,5	8.5	8.5	8.5	8.5

^{*} Refer to E3.2 Public roads: Trafficable surface





©1300 646 131 www.ecoaus.com.au Bushfire Risk Management Plan: Development Application: Liberty Oil - 115 Dixon Road, East Rockingham

Accord Property





Suchfre Risk Management Flan n: Liberty Oil - 115 Dison Road, East Rockingham | Accord Preparty

DOCUMENT TRACKING

Project Name	Bushfire Risk Management Plan:
	Development Application: Liberty Oil - 115 Dixon Road, East Rockingham
Project Number	20PER-15282
Project Manager	Alex Aitken
Prepared by	Alex Aitken (BPAD Level 2 – 3739)
Reviewed by	Daniel Panickar (BPAD Level 3 – 37802
Approved by	Daniel Panickar (BPAD Level 3 – 37802
Status	Final
Version Number	v2
Last saved on	4 March 2021

This report should be cited as 'Eco Logical Australia 2021. Bushfire Risk Management Plan: Development Application: 115 Dixon Road, East Rockingham. Prepared for Accord Property."

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Accord Property (the client) and **Planning Solutions**

Disclaimer
This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Lagical Australia Pty Ltd and the client. The scape of services was defined in consultation with the client, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an angoing basis and readers should obtain up to date information. Eco Lagical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Bushfire Risk Management Plan Development Application: Liberty Cli - 115 Dison Rusel, East Rockingham | Accord Property

Contents

1. Introduction	1
1.1 Project overview	
1.2 Purpose and application of the plan	
2. Bushfire risk assessment methodology	
3. Identified bushfire scenarios	
3.1 Scenario 1 - Bushfire approaching subject site from the south to south-west	
4. Bushfire risk assessment results	
4.1 Risk context	
4.2 Risk identification	
4.3 Risk analysis and evaluation	
4.4 Summary of results	
5. Bushfire mitigation measures	1
5.1 Fire protection and detection equipment	1
5.2 Evacuation plan and assembly points	1
5.3 Personnel training.	1
5.4 Bushfire suppression	1
5.5 Landscaping	1
5.6 Additional measures	1
6, Conclusion	1
7. References	1
Appendix A November to February wind roses for Jandakot Aero (Station No. 09172;	BoM 2020)1
List of Figures	
Figure 1: Site overview	
Figure 2: Site Plan	
Sigure 3: Birk accomment process as per AS/N7S ISO 31000-2009	

Bushire Hisk Management Man Development Application: Liberty Cil., 115 Dison Basel Sant Rechischen | Accord Property

List of Tables

Table 1: Likelihood rating system	6
Table 2: Consequence rating system	6
Table 3: Risk assessment matrix	6
Table 4: Bushfire risk assessment	0

1. Introduction

1.1 Project overview

Eco Logical Australia (ELA) was commissioned by Accord Property to prepare a Bushfire Risk Management Plan (BRMP) to support a development application (DA) being prepared for the development of a Liberty service station located at 115 Dixon Road, East Rockingham (hereafter referred to as the subject site; Figure 1 and Figure 2).

The proposed development will include:

- · Demolition of the existing buildings; and
- Construction of a new retail store, canopies, fuel bowsers, underground fuel tanks, parking areas etc. as depicted in Figure 2.

The proposed development will result in an intensification of land use.

The subject site is located within a designated bushfire prone area as per the Western Australia State Map of Bush Fire Prone Areas (DFES 2019), which triggers bushfire planning requirements under State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7; WAPC 2015) and reporting to accompany submission of the development application in accordance with the associated Guidelines for Planning in Bushfire Prone Areas v 1.3 (the Guidelines; WAPC 2017).

This assessment has been prepared by ELA Senior Bushfire Consultant Alex Aitken (FPAA BPAD Level 2 Certified Practitioner No. BPAD37739.) with quality assurance undertaken by Senior Bushfire Consultant, Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.2 Purpose and application of the plan

The primary purpose of this BRMP is to act as a technical supporting document to inform planning assessment in conjunction with the corresponding Bushfire Management Plan (BMP) also prepared by ELA (ELA 2020).

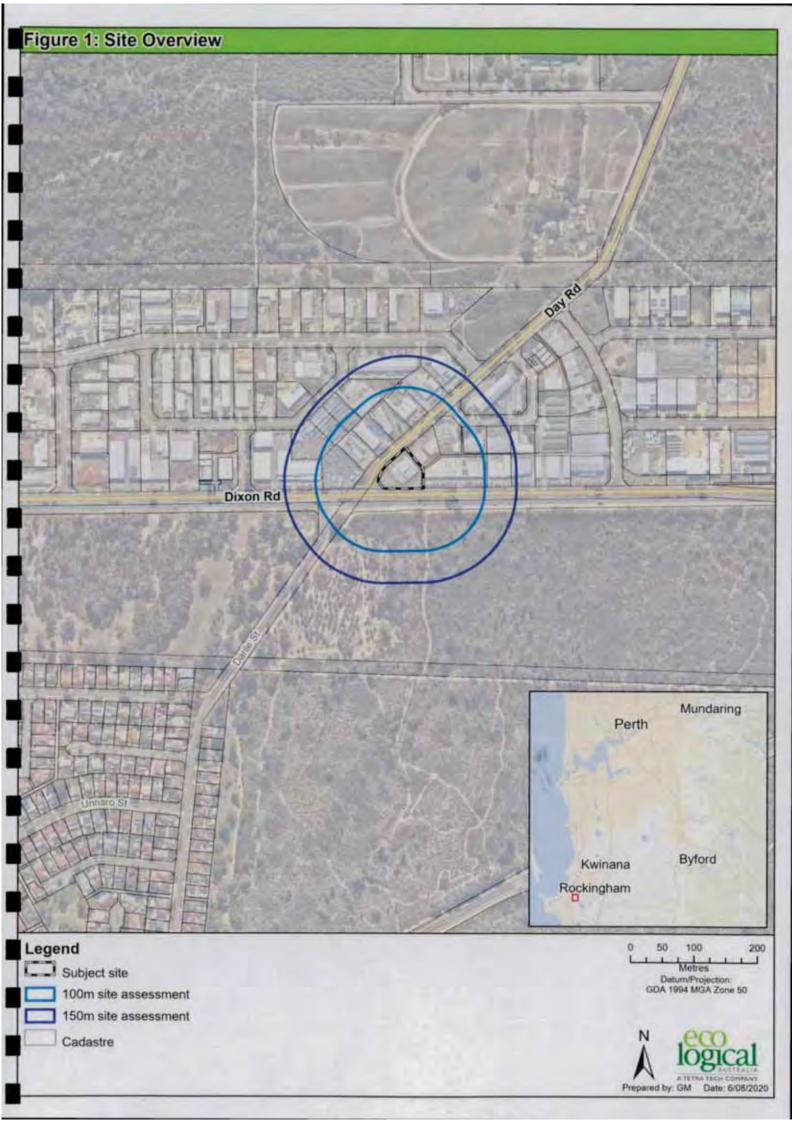
SPP 3.7 (Policy Measure 6.6) requires development applications for high-risk land uses (such as petrol stations) in areas between BAL-12.5 and BAL-29 to be accompanied by a risk management plan for any flammable on-site hazards. The Bushfire Management Plan (BMP) prepared by ELA for the subject site (ELA 2020) identifies all new proposed structures within the subject site as being located within areas subject to a BAL rating of BAL-12.5 or lower.

The Building Code of Australia bushfire construction requirements only apply to residential buildings and associated structures. The Guidelines therefore require the planning process to focus on location and siting of high-risk land uses rather than application of bushfire construction requirements.

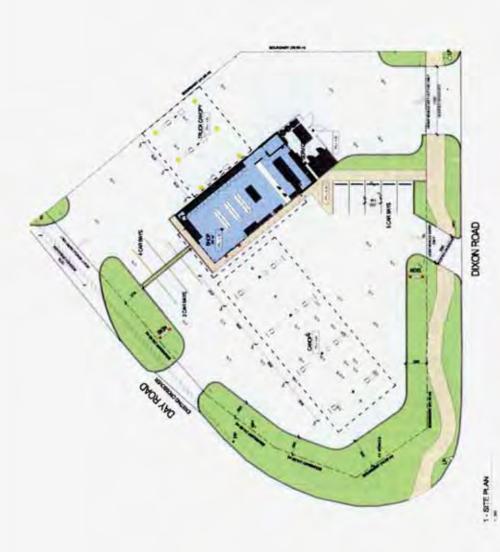
DIFCOLOGICAL AUSTRALIA PTY LTD

Suchfire Risk Management Man evolopment Application: Liberty Oil - 115 Dison Road, East Recklegham | Accord Propert

Under the Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 (the Regulations), the operator will also be required to complete a separate risk assessment that addresses risks other than bushfire for the proposed development. The Regulations also require operators to prepare an emergency plan for petrol stations. An emergency management plan will be developed for the subject site, which will set guidelines for the management of an emergency, disaster or major incident at the site. The emergency plan for the fuel station will reflect the site layout and bushfire risk post-construction.







2. Bushfire risk assessment methodology

Australian and New Zealand Standard AS/NZS ISO 31000:2009 Risk Management–Principles and Guidelines (SA & SNZ 2009) provides an internationally recognised approach to risk management. Methodology for this process is further described in Risk Management Guidelines: Companion to AS/NZS 4360/2004 (SA & SNZ 2004), which defines the risk assessment process as outlined in Figure 3.

AS/NZS ISO 31000:2009 is adopted by the Department of Fire and Emergency Services (DFES), as documented in the agency's Bushfire Risk Management Framework (DFES 2015).

From a bushfire management perspective, this methodology can be useful in determining:

- 1. The inherent bushfire risk (i.e. the initial level of risk prior to risk treatment and mitigation); and
- 2. The residual bushfire risk (i.e. the level of risk remaining following risk treatment and mitigation).

Inherent and residual bushfire risk can be determined on the basis of the following risk criteria:

- <u>Likelihood</u> of ignition and bushfire occurrence takes into consideration the bushfire history of
 the area, risk of ignition, vegetation type, fuel age and load, slope under vegetation and
 predominant fire weather conditions; and
- Consequence or impact from bushfire on life, property and the environment considers the
 degree and severity of potential bushfire scenarios, location of bushfire hazard areas, assets
 present in the area and the level of management and suppression response available.

The bushfire scenarios identified in Section 3 have been subject to bushfire risk assessment through determination of likelihood and consequence in accordance with the rating tables outlined in Table 1 and Table 2¹. This process determines the inherent bushfire risk of the event and informs the level of mitigation or management response required to reduce the risk to an acceptable level. The risk assessment matrix used to determine inherent and residual bushfire risk is outlined in Table 3.

 $^{^{\}rm 1}$ The determined consequence rating is the most likely outcome, not the worst case.

Table 1: Likelihood rating system

Likelihood rating	Description
Almost certain	Consequence expected to occur in most circumstances, may occur once every year or more
Likely	Consequence will probably occur in most circumstances, may occur once every five years
Possible	Consequence might occur at some time, may occur every twenty years
Unlikely	Consequence is not expected to occur, may occur once every one-hundred years
Rare	Consequences may occur only in exceptional circumstances; may occur once every five-hundred or more years

Table 2: Consequence rating system

Consequence rating	Description
Catastrophic	A large number of severe injuries, widespread damage and displacement of the community, significant impact on the environment
Major	Extensive number of injuries requiring hospitalisation, significant damage and impact on the community, longer term impacts on the environment
Moderate	Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment
Minor	Small number of injuries but no fatalities, some damage and disruption but no lasting effects
insignificant	No injuries or fatalities, little damage or disruption

Table 3: Risk assessment matrix

			Consequences		
Likelihood	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	High	High	Description	District	Times.
Likely	Medium	High	High	_	10000
Possible	how	Medium	High	-	limes.
Unlikely	LOW	Low	Medium	High	Ones.
Rare	Low	Low	Medium	High	High
Buck Jewis	BAR response				
Low		The second secon	fard management me ced as time permits.	asures will ensure r	isk level remains lov
Medium	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		pment of site-specific be reduced as soon a		ACTOR AND DESCRIPTION OF THE PERSON OF THE P
High	The second secon		pment of additional si equires urgent action a		nent measures will b
-		Additional site-sp tion response is req	ecific mitigation will build	e required to lower	the risk level and a

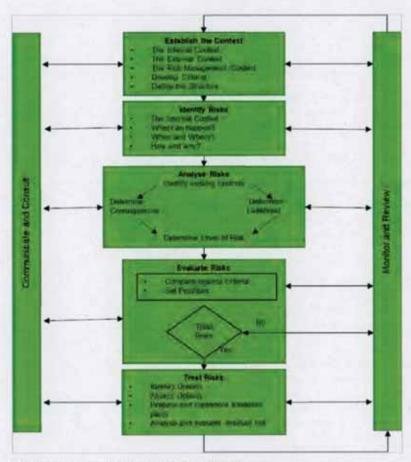


Figure 3: Risk assessment process as per AS/NZS ISO 31000:2009

3. Identified bushfire scenarios

The BMP (ELA 2020) identifies and classifies the existing bushfire hazards within 150 m of the subject site, based on existing vegetation and slope and separation distance to the vegetation.

Based on this information, ELA has assessed potential bushfire scenarios that could affect the subject site. The potential bushfire scenarios have been used to inform a bushfire risk assessment (refer to Section 4) and assist in development of appropriate bushfire mitigation responses (refer to Section 5). The following bushfire scenarios were assessed:

- Bushfire approaching the subject site from the south; and
- Bushfire approaching the subject site from the south (including south-west and south-east).

A description of each potential bushfire scenario is provided in the following subsections and November-February wind roses for Jandakot Aero Weather Station (Station No. 09172, approximately 20.3 km from the subject site) used to identify potential directions of bushfire attack are provided in Appendix A (BoM 2020).

3.1 Scenario 1 - Bushfire approaching subject site from the south to south-west

A bushfire approaching the subject site from the south to south-west through a combination of revegetated forest and open woodlands is likely during the afternoons in the bushfire season (3pm) given the predominant winds for the area come from the southwest at up to 30-40 km/hr (8oM 2020).

The bushfire risk in this scenario is associated with a fire starting within the reserves and public open space to the south of the subject site. Some of this vegetation has also been subject to revegetation due to past rural land uses in the area to the east of Darile Street which is currently comprised of planted eucalypts with no understorey. This revegetated fuel type varies significantly to adjacent intact vegetation to the east which contains a complex stratified structure with varying fuel loads. Vegetation to the south-west is comprised of open woodlands with a grassy understorey.

There is a heightened risk of ignition in these areas due to the frequent public interaction within the reserve. The areas of vegetation have a flat slope providing minor influence to increase the fire behaviour during a bushfire incident.

It is likely however, that the road network and existing development adjacent to these areas will provide an increased opportunity for early detection of a fire. This may allow a rapid fire suppression response, dependent upon the Fire Danger Rating (FDR) during a fire event, which could contain a fire in this area before significant impacts are experienced at the subject site.

Based on the Department of Biodiversity, Conservation and Attractions (DBCA) spatial information (DBCA_firehistory_060) there have been four fires in the reserve to the south in the last 10 years.

4. Bushfire risk assessment results

4.1 Risk context

Risk is being assessed to inform bushfire mitigation for the subject site for the protection of life and property within and adjacent to the site. The risk assessment adopts a broad area and supports a tenure blind approach to ensure wider risk impacts and adjoining lands are captured to suitably address potential risk.

4.2 Risk identification

Bushfire risk is identified in the potential bushfire scenario outlined in Section 3, which indicates the potential bushfire event that could impact life and property within the subject site and adjacent land. This scenario is considered to cover the majority of bushfire events that could occur in order to develop suitable mitigation and manage as much of the bushfire risk as possible.

4.3 Risk analysis and evaluation

Risk analysis and evaluation for the bushfire scenario described in Section 3 is provided in Table 4, which specifies the likelihood and consequence of the scenario with and without management measures to determine inherent and residual risks.

4.4 Summary of results

Due to the storage and handling of flammable materials within the subject site, the potential consequence of a bushfire entering the site would be greater than if flammable materials were not present.

ELA is of the view that following implementation of management measures provided in the Section 5, the risk of ignition will not be reduced due to the ongoing level of public access and presence of off-site classified vegetation and on-site flammable goods. Therefore, bushfire risk management measures are likely to reduce the level of consequence resulting from the bushfire event, rather than the likelihood of the event occurring. For example, an evacuation plan will reduce the potential impacts on life; thus reducing the level of consequence received from the bushfire event, but the likelihood of the event occurring will not be reduced.

Bushings entit	Committee	Liteliane	Contemparate	Attended to A	Wilgation	Lingshoos	Constitution	Special risk
	Safety risk Predominantly open woodland and torest fredominantly open woodland and torest from with a complete structure (i.e. surface, structed and middless transport and revegeration in close provinely to the development with gentle to regigible tolers to influence fire behaviour.							
Scennin E. Buddin impacting subject site from the south to south-west.	Peternial ignition sources are lightering and arton. Greatest level of impact would occur under adverse fire weather conditions with a southerly through to south-westering wind (sommon all year round in the afternoom)	Vandy	Moderates	1	implementation of management measures identified in Section 5	their	portiguilisa	Nedam
	Consequence is not expected to occus, may occur once every fine years based on fine lasticity, suggeression response capability, fuel types, anticipated rate of spread etc.							
	Some injuries requiring medical treatment but no fatalities, localised damage.							

Bushfre Risk Management Plan Development Application: Liberty Oil - 115 Dison Road, East Rockingham J Accord Propert

5. Bushfire mitigation measures

Scenario 1 is presented as the only source of potential bushfire risk with the type of vegetation (open woodland and forest), complex fuel structure (continuing rehabilitation), proximity to the proposed development and the increased risk of ignition in this area (arson). The other areas surrounding are light industrial areas already developed and pose no bushfire risk to the subject site.

Implementation of the management measures provided in the following subsections prioritise protection of life and property and will reduce bushfire risk (residual risk) within the subject site.

5.1 Fire protection and detection equipment

The proposed service station will be fitted with a monitored alarm system, which when activated triggers an automatic response to the nominated security company.

Fire extinguishers will be located within the subject site at each fuel dispenser. There will be emergency stop buttons for the fuel system at the Point of Sale and externally on the front of the retail building. Only personnel trained in the use of extinguishers should be utilising this equipment and only if safe to do so.

A Spill Response Kit will be maintained on the subject site at the front apron of the retail building, accessible to the forecourt. Fire services are to be called in the event of a spill that covers more than 2 m² and cannot be cleaned with a spill kit at site or it is not considered safe to do so.

5.2 Evacuation plan and assembly points

Liberty Oil is required to develop an emergency management plan for the subject site in accordance with Australian Standard 3745-2010 Planning for emergencies in facilities, identifying evacuation triggers and depicting muster points on-site.

5.3 Personnel training

All occupants working at the subject site must be trained in responding to and managing all emergency incidents in accordance with the emergency management plan for the site. A record of training must be kept up to date and debrief sessions held after all training exercises or incidents.

An evacuation exercise must be carried out at least annually. All occupants working on the site are required to participate.

5.4 Bushfire suppression

The Rockingham Fire Station (career Fire & Rescue) is located less than a 1 km from the subject site and is expected to provide a best-case emergency suppression response time of less than 15 minutes in the event of an emergency.

5.5 Landscaping

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (WAPC 2017). Commented [DP1]: client to confirm Commented [DP2]: client to confirm

Commented [DP3]: cheet to confirm

5.6 Additional measures

5.6.1.1 Manifest

Dangerous goods sites must maintain a current manifest and a dangerous goods site plan, to allow an appropriate response by Emergency responders in the event of an emergency, such as a fire.

The manifest and dangerous goods site plan for dangerous goods that will be stored and handled at the service station will need to be developed in accordance with the relevant Dangerous Goods Safety Guidance Note (DMP 2014).

The emergency management plan refers to critical information for emergency response being located in the HAZMAT/HAZCHEM emergency boxes which will be located inside the retail building. This information includes the Emergency Plan, Dangerous Goods Manifest, Register of Dangerous Goods and Hazardous Materials, Safety Data Sheets for bulk products kept on site and dangerous goods site layout plan.

5.6.1.2 Ignition sources

Operators of dangerous goods sites are required to manage potential ignition sources, such as hot works and electrical equipment, within any on-site hazardous areas.

5.6.1.3 Placard and marking

A placard, readily visual for Emergency responders and providing visual warnings of the hazards associated with storage of fuel, will be required at the subject site in accordance with DMP Storage and handling of dangerous materials Code of Practice (DMP 2010).

Signage and notices will also be required in accordance with AS 1940-2004 The storage and handling of flammable and combustible liquids (AS 1940-2004; SA 2004) and any relevant state guidance.

Commented [DP4]: slimi to confirm

Bushfee Rick Management Flan

6. Conclusion

ELA expects that through implementation of the management measures outlined in this BRMP, inherent bushfire risk to life and property within and surrounding the subject site can be reduced.

7. References

Bureau of Meteorology (BoM). 2020. Climate statistics for Australian locations: Monthly climate statistics for Jandakot Aero, [Online], Commonwealth of Australia, available from: http://www.bom.gov.au/climate/averages/tables/cw_09172.shtml, [31 July 2020].

Department of Fire and Emergency Services (DFES) 2015, Guidelines for Preparing a Bushfire Risk Management Plan, Department of Fire and Emergency Services, Western Australia.

Department of Fire and Emergency Services (DFES), 2019. Map of Bush Fire Prone Areas, [Online], Government of Western Australia, available from:

http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx.

Department of Mines and Petroleum (DMP) 2010, Storage and handling of dangerous goods - code of practice (2nd edition), Resources Safety, Department of Mines and Petroleum, Western Australia.

Department of Mines and Petroleum (DMP) 2014, Dangerous Goods Safety Guidance Note, Manifest and site plan requirements for dangerous goods sites, Resources Safety, Department of Mines and Petroleum, Western Australia.

Eco Logical Australia (ELA). 2020. Bushfire Management Plan: 115 Dixon Road, East Rockingham. Prepared for Accord Property.

Standards Australia and Standards New Zealand (SA & SNZ) 2004, Risk Management Guidelines: Companion to AS/NZS 4360:2004, HB 436:2004, Standards Australia/Standards New Zealand, Sydney/Wellington.

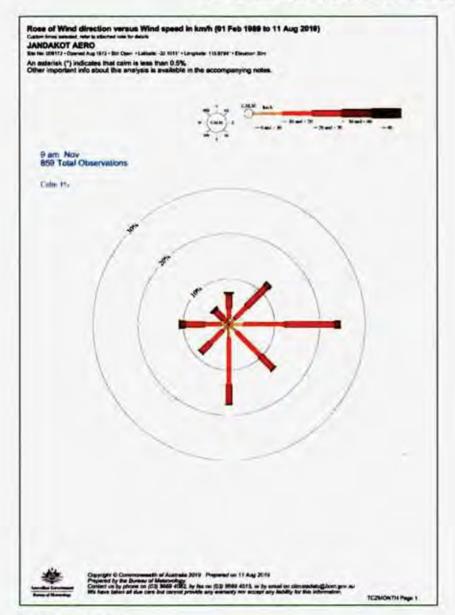
Standards Australia and Standards New Zealand (SA & SNZ) 2009, Australian Standard/New Zealand Standard AS/NZS ISO 31000:2009 Risk management — Principles and guidelines, Standards Australia/Standards New Zealand, Sydney/Wellington.

Standards Australia (SA) 2004, Australian Standard AS 1940-2004 The storage and handling of flammable and combustible liquids, Standards Australia, Sydney.

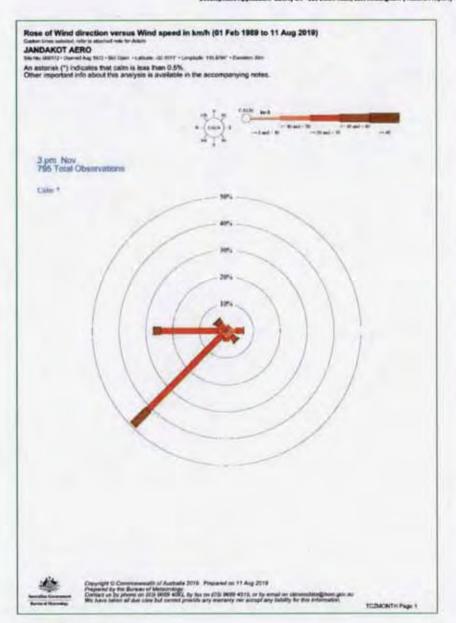
Western Australian Planning Commission (WAPC). 2015. State Planning Policy 3,7 Planning In Bushfire Prone Areas. WAPC, Perth.

Western Australian Planning Commission (WAPC), 2017. Guidelines for Planning in Bushfire Prone Areas Version 1.3 (including appendices). WAPC, Perth. Sudder Risk Management Plan

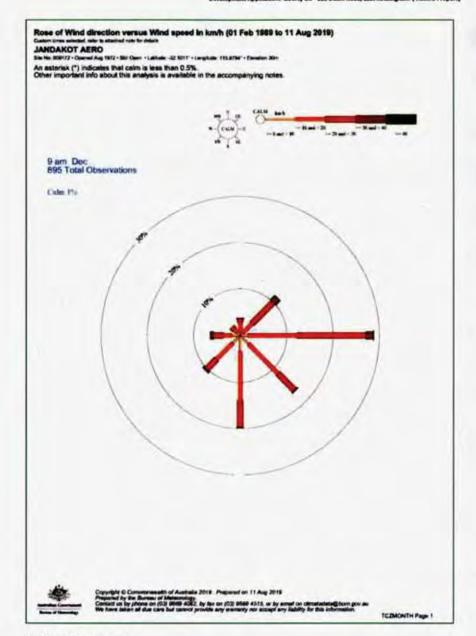
Appendix A November to February wind roses for Jandakot Aero (Station No. 09172; BoM 2020)



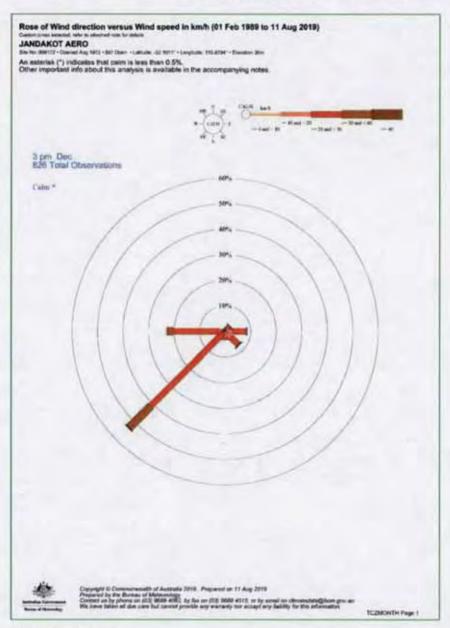
Wind Rose (November - 9am)



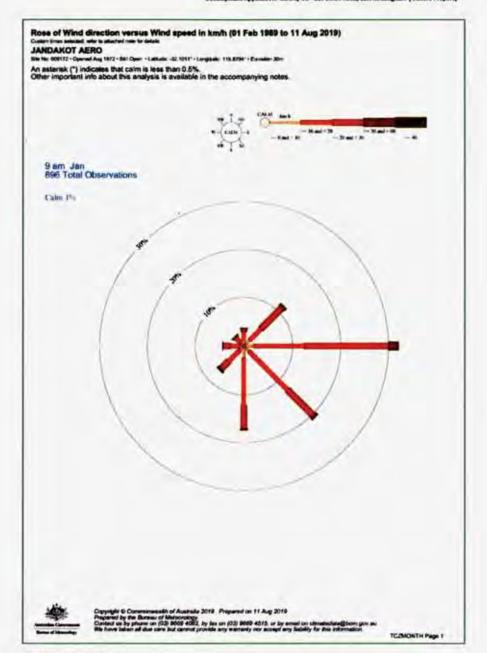
Wind Rose (November - 3pm)



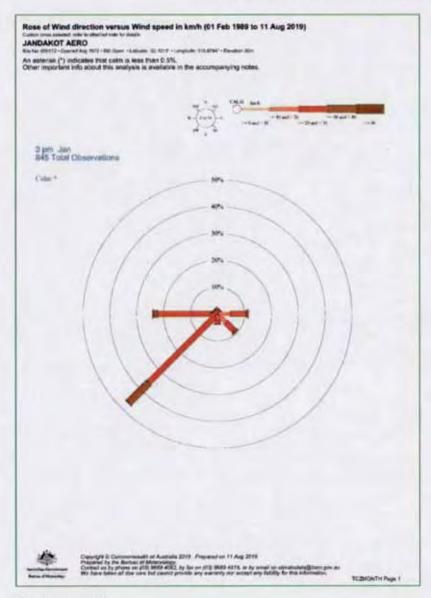
Wind Rose (December - 9am)



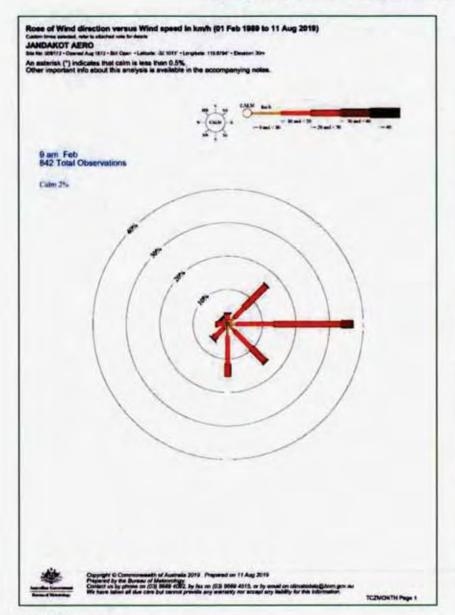
Wind Rose (December - 3pm)



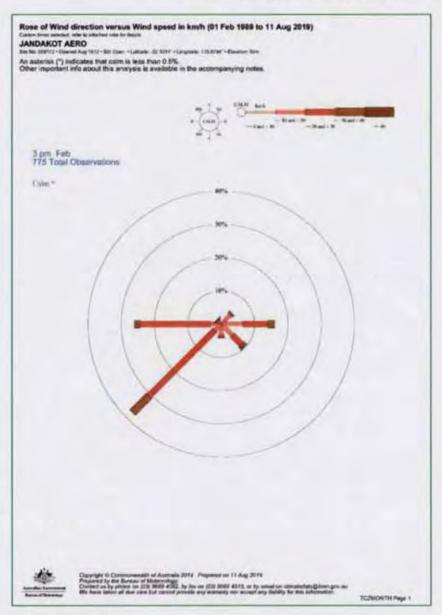
Wind Rose (January - Sam)



Wind Rose (January - 3pm)



Wind Rose (February - 9am)



Wind Rose (February - 3pm)





@1300 646 131 www.ecoaus.com.au



Appendix 5 SPEL Puraceptor



Pollution Prevention

Stormwater Treatment & Hydrocarbon Capture

Petrol Stations

Australia

SPEL STORMWATER SOLUTIONS

Standards & Guidelines for Petrol Station Stormwater Pollution Control

There is no Australian Standard for oil/water separators

There are only guidelines for hydrocarbon discharge limits for stormwater discharge.

All State and territory regulating environmental authorities (or EPA) have guidelines with varying terminology stating that hydrocarbons are not to be visual (10ppm) in stormwater and receiving waters.

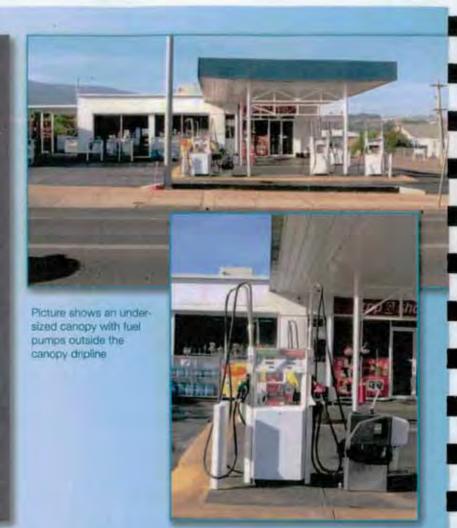
European Standard (oil and petrol separators)

In the absence of an Australian Standard, the European British Standard 858.1 applies when compliance is the regulating issue.

It is the world's most stringent standard for hydrocarbons separation for the use of oil/petrol separators in surface water drainage systems. Prevents the emission of petrol odours.

Australian Runoff Quality

The Australian Runott Quality A Guide to Water Sensitive Urban Design (Engineers Australia) ISBN 0 85825-852-8 Chapter 9 'Hydrocarbon Management refers to The Standard and the European Agency UK Oil Separator Selection and Design' for petrol stations.



Non-Compliant Sites

Petrol stations with the following defects.

- · Canopy drip line that does not allow for the 10 degree inset
- Fuel hose line that reaches outside the drip line
- · Fuel bowsers that have no canopy
- Defective Oil/Water plate separator (Sewer connected)



Picture shows a common site at petrol stations - uncovered fuel pumps.



Picture shows a defective forecourt design with oils and fuels discharging directly to the street drain.



Unseemly & highly visible hydrocarbons polluting the stormwater. The concentration in the picture is in excess of 100ppm

Solution for Non-Compliant Petrol Stations

SPEL Puraceptor Class 1 stormwater treatment system is a solution for the treatment, capture and retention of hydrocarbons off petrol stations.

SPEL Puraceptor Class 1 can rationalize the existing use of service stations in conformity with the applicable environmental guidelines and put in place ongoing operational measures to prevent the likelihood of contamination in the case of an unforeseen future event.

SPEL's Puraceptor Class 1 oil/water separator is connected to the stormwater [provides the site with the highest degree of environmental protection; - a protection that complies with the councils, and the EPA's guidelines.]



Petrol forecourt and surrounds at a busy metropolitan petrol station rendered compliant. The catchment consists of a grated drain encompassing the complete perimeter of the under-sized canopy. Surface water and forecourt runoff drains to the Puraceptor located under the two trafficable covers in the foreground.

Puraceptor Benefits

- Full retention Class 1 treatment oil/water separator. It treats all liquid. There is no bypass.
- Complies with federal and state government regulating environmental guidelines for water quality.
- University tested and certified to independent European Standard EN BS 858.1 for the capture and retention of hydrocarbons with a discharge quality of no visible trace from a tested inflow concentrator of 5.000ppm.
- · Capture and contain oil/fuel spillages.
- Can be sized to capture and contain a spill from a refuelling tanker and prevent discharge to stormwater.
- Passive gravity function ensuring treatment is continuous.
- Equipped with an intrinsically safe oil alert probe providing regular detection for oil build-up. Set to alarm when oil hydrocarbons attain 10% of the chamber's volume.
- Oil alert probe enables self-monitoring, suitable for unmanned and remote locations.
- Equipped with a flame trap ensuring fire water is extinguished.
- Equipped with a vapour trap preventing vapours from discharging and preventing the emission of odours.
- · Water tight structure
- Minimum 50 years life span:
- · Low frequency and low cost maintenance
- Operations & Maintenance manual with a ledger for accurate recording of maintenance operations.
- Maintenance performed from ground level: no entering of tank is required, satisfying O.H.& S requirements.

Puraceptor Certification

Australian Independent Tests

The Puraceptor has been independently tested at Australia's preeminent hydraulics research facility, the University of South Australia (UNISA), and at the UK's leading hydraulics research faculty HR Wallingford.

 NATA analysis of the tests shows a water quality of 'no visible trace' of hydrocarbons from an inflow concentration of 5,000ppm.

In-Situ Testing

NATA analysis of Puraceptors operating at similar applications in Australia reveal 'no detection' of hydrocarbons from a captured concentration of 8,000ppm.

Council Approvals

The increasing awareness by councils of the superior European Standard has prompted many to review their current procedures and in only the past eighteen months over sixty councils have approved SPEL for service stations and similar applications with units' already operational in excess of forty sites.



MAINTENANCE

- . Designed for high performance and low maintenance over a long life span
- . Visible oils (TPH) are skimmed from the surface of the water level
- Easy and safe to access and clean, with access shafts positioned on all chambers.
- . No entering of the unit is required
- . Not mandatory for the unit to be cleaned every 3 months.
- Only oils, sediment and gross pollutants need to be removed.
 All stormwater does not require removal.
- The cylindrical design ensures sediment collects easily on the floor of the chambers effecting easy, quick removal. There are no square corners or unreachable cavities and recesses.
- · Waste is removed by a vacuum loading track. (Suction truck)



Stammeter discharge quality is < 1.86 mg/l hydrocarbon content exceeding the Environmental Protection Agency (E.P.A.) requirements of 10 mg/l hydrocarbon content.

Test sampling access: Field test discharged samples are taken from sampling point and analysed by NATA accredited laboratories.



The probe is freely suspended in the probe protection tabe in the separator at the correct level. When the oil-layer or depth of hydrocarbons reaches the predetermined level, the top of the probe will be immersed in the oil, breaking the circuit and activating the alarm. It is intrinsically 'fall-safe' system providing complete assurance that is operative. If a fault occurs it will be signaled immediately.



SPELS PURACEPTOR tanks contain an immersed inlet dip pipe to extinguish flames and prevent inflammable vapours form passing through to the drainage system. Complies with Section 6.3.4 of 8S EN 856.1.2006. SPEL PURACEPTOR can withstand temperatures of up to 140°C.



The AUTOMATIC CLOSURE DEVICE (A.C.D.) is a precisely engineered device comprising a water-buoyant ball that is sensitive to any change in the water density as a consequence of light figuids build up, thereby automatically activating a process of depressing the A.C.D. to SHUT OFF the separator, preventing pollutants from discharging to drains and waterways.

Secondary Separation Chamber

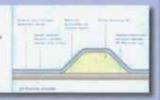


Oil Retention Chamber



SPEL © PURACEPTOR units are glass reinforced plastic vessels made by the technical advanced chop hoop filament winding process (patented) producing circumferential and longitudinal strength complying with AS 2634-1963 for tank design.

"State of the control of the control



SPEL PURACEFTOR Class 1 separators incorporate coalescer units. They consist of a quality stainless steel mesh container with an adjustable handle and high volume reticulated form leaser.

The coalescer unit is mounted in the second chamber, providing a coalescence process for the separation of smaller globules of light liquid pollutants before final discharge to stormwater.



FURACEPTOR"

OIL CAPTURE & CONTAINMENT

ACT 02 5128 1000 NZ +64 9 276 9045 NSW / NT 02 8838 1000 QLD 07 3290 8677 SA 58 8275 8000

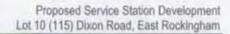
Head Office

02 8838 1000

VIC / TAS 03 5274 1336

83 - 87 Fennell Street, Parramatta NSW 2150

WA 08 9350 1000





Appendix 6 Clause 42 Certificate



Enquiries: Trevor Servaas (08) 6551 9110

Our Ref: 42 / 60722160

Your Ref: 6621

PLANNING SOLUTIONS (AUST) PTY LTD LVL 1, 251 ST GEORGES TCE PERTH 6000 WA

Dear Sir/Madam

CERTIFICATE UNDER CLAUSE 42 OF THE METROPOLITAN REGION SCHEME ISSUED BY THE WESTERN AUSTRALIAN PLANNING COMMISSION

In reply to your request, please find enclosed Certificate Number: 60722160

It is advised that the enclosed Certificate has been prepared to conform with the current Statutory requirements (as at the date of signature) of the Metropolitan Region Scheme

Yours faithfully,

Coagan

Ms Sam Fagan Secretary Western Australian Planning Commission

29 June 2020



Metropolitan Region Scheme

Form 5



Scheme Certificate

In accordance with clause 42 of the Metropolitan Region Scheme the following information relates to:

Location: Dixon Rd, East Rockingham Certificate of Title: Vol: 2039 Folio:550

Plan: 20401

Legend for reserved land and zones

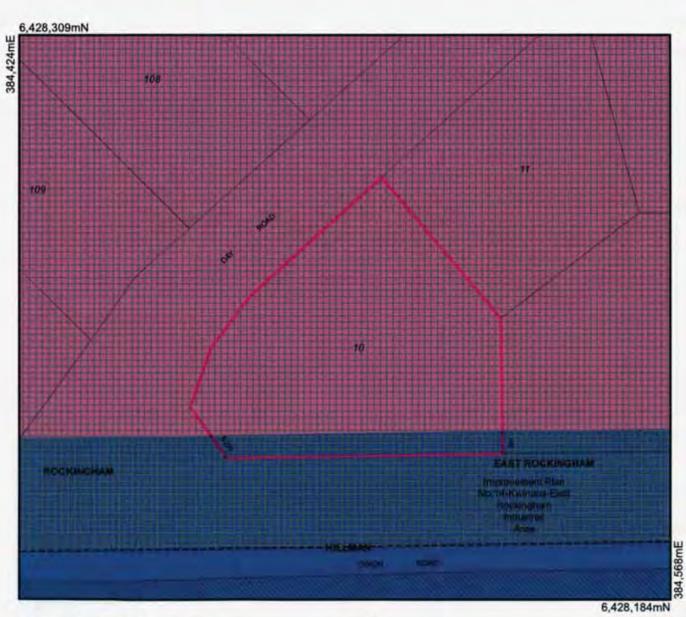
Improvement plan Industria

Bush forever areas Other regional roads

Certificate: 60722160

Receipt: None

Date: 29/06/2020

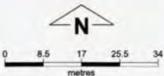


This certificate relates only to the provisions of the: Metropolitan Region Scheme

and does not claim to indicate the land use allocation under any local government provision.

Produced by Data Analytics, Department of Planning, Lands and Heritage, Perth WA.

Base information supplied by: Western Australian Land Information Authority SLIP 1096-2018-1



Coordinates based on MGA Zone 50 (GDA 94) All dimensions are in metres Subject to survey Coagan

Ms Sam Fagan Secretary Western Australian Planning Commission

METROPOLITAN REGION TOWN PLANNING SCHEME ACT 1959 (AS AMENDED)

Improvement Plan No. 14

Kwinana-East Rockingham Industrial Area

File 819/2/26/2 V2.

NOTICE is hereby given that the State Planning Commission acting pursuant to section 37A of the Metropolitan Region Town Planning Scheme Act 1959 (as amended) has certified and recommended that for the purpose of advancing the planning development and use of the land depicted in the First Schedule hereunder, that land should be made the subject of an Improvement Plan.

1120

GOVERNMENT GAZETTE, WA

[8 April 1988

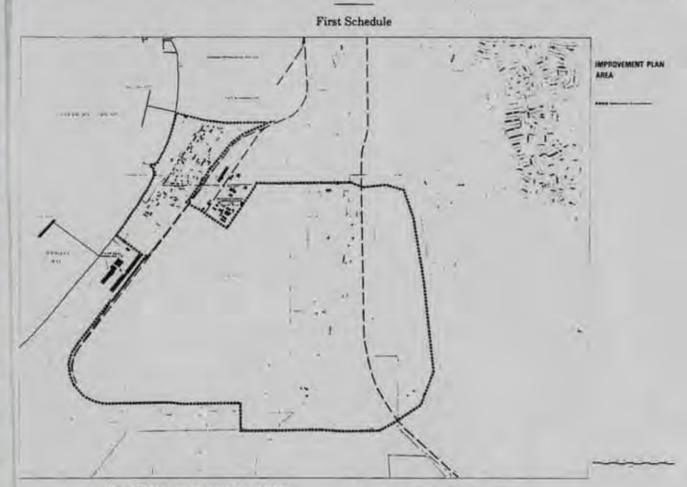
Such recommendation as signed and sealed by the State Planning Commission on 12 February 1988 has been accepted by the Minister for Planning and approved by His Excellency the Governor and will be known as Improvement Plan No. 14.

Improvement Plan No. 14 is effective as of 29 March 1988 when approved by His Excellency the Governor.

Copies of the Commission certificate together with supporting plans and texts for Improvement Plan No. 14 are

available for public inspection during the normal business hours from Monday to Friday inclusive of each week, except on public holidays, at the places mentioned in the Second Schedule hereunder.

> GORDON G. SMITH, Secretary, State Planning Commission.



KWINANA INDUSTRIAL AREA

IMPROVEMENT PLAN No.14

Second Schedule

Public Inspection (during normal business hours) -

- Office of the State Planning Commission, 8th Floor, Oakleigh Building, 22 St. George's Terrace, Perth 6000.
- Office of the Municipality of the Town of Kwinana, Gilmore Avenue, Kwinana 6167.
- Office of the Municipality of the Shire of Rockingham, Council Avenue, Rockingham 6168.
- J. S. Battye Library, Alexander Library Building, Cultural Centre, Francis Street, Northbridge 6000.

PS ref: 6621

City ref: 20.2021.95.1 DAP Ref: DAP/21/01976

11 June 2021

City of Rockingham PO Box 2142 Rockingham DC WA 6967

Attention: Chris Parlane, Senior Planning Officer

Dear Sir,

LOT 10 (115) DIXON ROAD, EAST ROCKINGHAM DEVELOPMENT APPLICATION – PROPOSED SERVICE STATION DEVELOPMENT RESPONSE TO REQUESTS FOR FURTHER INFORMATION

Planning Solutions acts on behalf of Adelaide Nominee's Pty Ltd, the proponent of the proposed development at Lot 10 (115) Dixon Road, East Rockingham (subject site).

We refer to correspondence received from the City of Rockingham (City) via email on Wednesday 19 May 2021, containing various Requests for Further Information (RFI). Specifically, this correspondence contains the following requests for further information or comments:

- City's assessment comments.
- Summary of submissions received during advertising of the proposed development.
- Responses received from external referral authorities including:
 - o Department of Planning Lands and Heritage (DPLH).
 - o Department of Fire and Emergency Services (DFES).
 - o Department of Water and Environmental Regulation (DWER).

This letter, accompanying development plans and technical reports respond to each of the abovementioned requests for further information or comments on the proposed development. The following documentation is attached to this submission in response to the above matters:

- Attachment 1 Updated development plans prepared by Brown Falconer architects.
- Attachment 2 Traffic technical note prepared by Transcore responding to the traffic matters.
- Attachment 3 Updated vehicle swept path modelling based on the new layout, prepared by Transcore.
- Attachment 4 Updated Bushfire Management Plan prepared by Eco Logical Australia.

The abovementioned documents are considered to appropriately address the City's, DPLH's, DFES's and DWER's comments and responses to submissions, in addition to the further information contained within this submission.

1 Modified Plans

Please find enclosed in **Attachment 1**, a set of modified development plans. The plans have been modified based on the commentary and feedback receive. The following changes are noted:

Site Plan:

- Modification of the light vehicle fuel canopy and reorientation of the bowsers. One bowser has been removed, now providing a 3 x 3 x 2 bowser configuration. The canopy has reduced in length, has become wider and provides an increased 8.6m setback to the Dixon Road lot boundary.
- Relocation of the service yard and loading bay from the south eastern aspect of the retail building, to the north western aspect.
- Reduction in retail building floor space from 207m² to 181m² and a minor relocation westwards.
- Provision of three car bays (including one accessible bay) to the south of the retail building. The shared bay is located in close proximity to the building entrance for convenience.
- Provision of four car parking bays to the south of the retail building.
- Minor modification to the design of the Day Road heavy vehicle crossover, to prevent vehicles from traversing over the property boundary to the north.
- Four car parking bays are now provided north of the loading bay. The two northern bays are for staff use.
- Reorientation of the heavy vehicle refuelling canopy and bowsers to accommodate three refuelling spaces. This is allowed for by the shift of the retail building.
- Addition of line marking at the Dixon Road heavy vehicle crossover to depict exit only access. Two directional signs are proposed adjacent to the crossover to advise of exit only.
- Pram ramps added to the footpath at the Dixon Road crossovers.

Landscape Plan:

Notations added to comply with DFES comments and requirements.

The updated plans are contained in **Attachment 1** of this letter.

2 Response to City's Request for Further Information

Refer to **Table 1** below for our detailed response to the City's request for further information. This should be read in conjunction with the remaining information that is included within this correspondence.

Please note that the majority of the traffic comments provided by the City have been responded to in the separate traffic technical note prepared by Transcore (refer to **Attachment 2**).

Table 1 – Response to City's RFI (via email on 19 May 2021)

City's comment	Applicant response	
Traffic		
Drawings		
1. The site plan suggests that the extent of the proposed development along Dixon Road would be encroaching into the existing road shoulder which is not acceptable. Please confirm that the proposed development shall not encroach into the existing road shoulder, otherwise amend the site plan accordingly.	The proposed development does not encroach into the existing road shoulder and is contained wholly within the lot boundaries of the subject site.	

City's comment

Applicant response

2. The proposed full turning movement at the light vehicle crossover off Day Road would require patrons to complete a U-turn within the site to exit back to Day Road (as the crossover off Dixon Road is an entry only). Please demonstrate how the vehicles would be able to circulate within the site to complete this U-turn when other vehicles are being serviced at the bowsers. The proposed 8.0m spacing between browsers may not have sufficient clearance to allow a vehicle to pass through between the other two vehicles currently being serviced at the bowsers. It is also noted that travelling in the opposite direction would increase traffic safety risks.

These types of vehicle movements are not unusual within service stations. The proposed spacing between the northern browsers and the proposed retail store will have sufficient clearance to allow a vehicle to pass through this area. The swept paths for the revised layout shows that the proposed spacing between the bowsers is sufficient for a B99 passenger car to pass through when car are refuelling at bowsers either side (refer Sk24a).

- Vehicles commonly travel in opposite directions within service station developments (at low speeds), depending on how they access the site and which side of the car their fuel tank is on. It is therefore unsubstantiated that this poses safety risks.
- 3. The width of forecourt pavement at the southwestern corner of the site appears to be narrow and would not allow a vehicle to pass through when a car is being serviced at the bowser. Please provide a swept path diagram indicating how this would work. Otherwise, consider widening this area.

Please refer to Sk23a. There is sufficient space for a B99 vehicle to traverse along the south western aspect of the site when two cars are refuelling.

4. The modified light vehicle crossover off Dixon Road is proposed to be approximately 5.0m wide and for entry only. Consider reducing the width of this crossover as the proposed 5.0m is considered to be wide and would allow patrons to exit from this location. It is noted that further pavement markings and signage would be required to restrict the intended traffic flow from this crossover.

The modified light vehicle entry only crossover from Dixon Road is proposed to be 5m wide. Further pavement markings and directional signage can be confirmed at detailed design.

5. The modified heavy vehicle crossover off Day Road would have one of its wings encroaching into the frontage of the adjacent lot, which is noncompliant. Please amend the design accordingly to have all parts of the crossover within the frontage of the proposed development.

The heavy vehicle entry only crossover from Day Road has been modified so that the crossover itself and any truck movements do not encroach on the adjacent lot to the north.

6. The modified heavy vehicle crossover off Dixon Road (i.e. exit only) is proposed to be 11.0m wide, therefore patrons may likely disregard the intended one-way traffic flow and enter from this access point. Please consider providing additional treatments (eg. pavement markings, signage, or modifying the alignment of the crossover etc.)to ensure that patrons (i.e. light and heavy vehicles) do not enter from this access point.

Please refer to the updated site plan. Line marking is proposed at the Dixon Road heavy vehicle crossover to depict exit only access. Two directional signs are proposed adjacent to the crossover to advise of exit only.

City's comment Applicant response 7. It is understood that three bowsers are proposed The revised site plan shows that three bowsers are for the heavy vehicles which was suggested able available for trucks to refuel. The swept paths show the to accommodate for four (4) fueling positions. The satisfactory movements of trucks in the eastern portion proposed 5.77m centerline spacing between the of the site. bowsers is likely only able to accommodate for two (2) fuel positions. Please confirm that this is the 2 intended arrangement, otherwise the spacing between the bowsers will require to be widened for them all to be used at the same time. 8. Manual measurements from the site plan The car parking bays on the updated site plan are a suggests that the standard car parking bay located compliant 2.6m wide. directly opposite the universal bay has a proposed width of 2.3m therefore does not conform to the minimum bay width requirement of 2.6m in accordance with AS2890.1. Please amend design accordingly and ensure that all standard bays are at least 2.6m wide. 9. Please provide at least a 1.0m horizontal Signage locations have been specifically selected to clearance between the road pavement and any ensure the required visibility to motorists. vertical structure within the site (i.e. signs in this particular case). Manual measurements from the site plan suggests that there are a number of signs located less than this minimum requirement. Please amend the plans accordingly. 10. Please provide pram ramps on both sides of the Please refer to the updated development plans in proposed modified crossover along Dixon Road. Attachment 1. Pram ramps have been provided along the Dixon Road crossovers. 11. Please provide a kerb ramp to the proposed A flush kerb is now proposed adjacent to the shared "Shop" within the site to allow for universal access bay, for convenient access to the retail building from (i.e. located within close proximity to the universal the accessible bay. bay). 12. What is the purpose of the four car parking bays The two car parking bays to the north west of the located opposite the universal bays? The City is loading bays (accessed by the heavy vehicle crossover concerned that if these are visitor bays then it on Day Road) can be used as staff bays. increases traffic safety risks because they would Seven car parking bays are now located south of the interact with intended heavy vehicle movements in retail building. the area. These risks would be minimised if they are staff bays. 13. The swept path analysis shown in the "Truck" Please refer to the updated swept paths and revised Turning" drawing suggest that the design vehicle loading bay location. There is now no conflict between envelope would encroach into the proposed truck turn paths and the loading bay. loading bay which is not acceptable. Please amend swept path analysis accordingly.

Bushfire

 The City concurs with DFES in respect to the need for more clarity regarding the vegetation classifications. Please update the BMP as per DFES comments accordingly. Please refer to **Attachment 4** for the updated Bushfire Management Plan (BMP) prepared by Eco Logical.

City's comment		Applicant response
2.	The proposed landscape plan is to be reviewed by the Bushfire Consultant and included within the Bushfire Management Plan, as currently the City is concerned that it is unlikely that the proposed mass planted areas that reach 600mm high will adhere to the Asset Protection Guidelines.	Please refer to Attachment 4 for the updated BMP, which includes the updated landscape plan. The land plan had been updated in response to DFES' comments.
3.	Within the BRMP there are statements which have not been confirmed by the proponent (where comments state "client to confirm"). Please update the BRMP to confirm these matters.	We understand the comments are acceptable to the proponent.

In consideration of **Table 1** above, the City's requests for additional information have been appropriately responded to, with the development plans amended as required.

3 Response to submissions

A summary of public consultation submissions was received from the City on 19 May 2021. A total of 13 submissions were received, comprising 4 submissions in support and 9 submissions objecting to the proposed development. A response to the key themes raised in the submissions is provided in **Table 2** below.

Table 2 – Response to submissions (via email on 19 May 2021)

Submission	Applicant response	
Land Use		
There are too many service stations in Rockingham already, in particular on Dixon Road where there are three. There is considered to be no need or desire for another 24 hour service station in this location.	This is a commercial consideration and not a planning consideration.	
Amenity		
Concerns about noise and fumes from vehicles using the service station impacting on existing businesses in Day Road.	The proposed development is suitably located within an industrial area, away from any sensitive premises. a service station is a 'D' (discretionary) use within the Light Industry zone.	
	The assumption that a service station produces odour and fumes is unsubstantiated. The stage 1 vapour recovery system is implemented to ensure the capture of any fumes when refuelling is occurring.	
Traffic		
1. The proposed service station will increase congestion at the 'T' intersection of Day Road and Dixon Road, which is already experiencing congestion. Day Road is a popular transit and heavy traffic route from Mandurah Road to Dixon Road.	Please refer to the TIA prepared by Transcore. It is acknowledged that the Day Road / Dixon Road intersection currently experiences less that satisfactory levels of service.	
	However, the TIA confirms that the proposed service station would generate negligible levels of additional traffic to what is already on the road network.	
	The net traffic increase on the surrounding road network due to the proposal is estimated to be 54vph in AM peak hour (0745 - 0845) and 84vph in PM peak hour (1445 - 1545). This equates to less than 1 additional vehicle per minute during the morning peak	

Submission	Applicant response hour and 1.4 additional vehicles per minute during the morning peak hour. The vast majority of traffic is already on the road
	network, with the proposed service station capturing passing trade and generating very little additional traffic on its own.
2. How will the west bound Dixon Road traffic flow be affected by the right hand turn access into Day Road by vehicles accessing the service station? Vehicles leaving the service station via the full access crossover on Day Road to travel west (on	It is unlikely the westbound Dixon Road traffic flow would be affected at all. There is an existing right turn pocket (approximately 80m long) on Dixon Road that allows westbound traffic to make a right turn onto Dixon Road.
Dixon Road) will add congestion to the right hand turn traffic flow from Day Road onto Dixon Road, resulting in increased driver frustration and accident risk.	It is acknowledged that the Day Road / Dixon Road intersection currently experiences less that satisfactory levels of service. The TIA confirms that the proposed service station would generate negligible levels of additional traffic.
	The safety of the Dixon Road crossover has been examined by Transcore in the TIA and no additional safety risks are expected from the proposed development.
Boundary Wall	
An adjoining property owner (Dixon Road) seeks more details regarding the existing dividing brick wall, indicating they would support it's removal to open up the space.	This is a matter to be discussed and negotiated between the adjoining property owner and the proponent.

4 Response to comments received from DPLH

Refer to **Table 3** below for our detailed response to the comments and recommendations received from the Department of Planning Lands and Heritage (**DPLH**). This should be read in conjunction with the remaining information that is included within this correspondence.

Importantly, the DPLH has no objection to the proposal on ORR planning grounds.

Table 3: Response to DPLH comments and recommendations

DPLH's comments	Applicant response
Land Requirement	
	Noted. No buildings are located within the ORR reservation, only access, signage, landscaping and parking.
Transport Impact Assessment	

DPLH's comments

Applicant response

2. The above report, prepared by Transcore dated April 2021, states that the site will accommodate trucks up to 19.0 metres long. The development will retain crossovers to Dixon Road with modified functionality to left-in (western, passenger vehicles) and left-out (eastern, heavy vehicles). The site currently generates 106 trips per day. The redevelopment is proposed to generate 3,286 trips per day with 200 and 224 trips during AM and PM peak hour periods respectively (1,446 vehicles per day with passing trade discount applied). SIDRA intersection analysis shows poor performance for the Dixon Road/Day Road intersection (e.g. right turning staged movements, 94.3 seconds + 13.3 seconds, Level of Service F).

The DPLH's comments are noted.

Recommendation

- 3. The Department of Planning, Lands and Heritage has no objection to the proposal on ORR planning grounds and provides the following comments:
 - It is recommended that the submitted swept path analysis plans for 19.0 metre long vehicles be verified / checked to the satisfaction of the City's Technical Services Directorate. In addition, the need for a left-turning deceleration lane from Dixon Road should be assessed against the relevant Austroads warrants.

The non-objection from the DPLH is acknowledged. The swept paths prepared for the 19m long trucks confirm suitable movements accessing the site, manoeuvring within the site and egressing the site.

5 Response to comments received from DFES

maturity as per AS3959. Vegetation classification – Plot 4

Refer to **Table 4** below for our detailed response to the comments and recommendations received from the Department of Fire and Emergency Services (**DFES**). This should be read in conjunction with the remaining information that is included within this correspondence.

Table 4 - Response to comments and recommendations from DFES

DFES's comment Applicant response Policy Measure 6.5 a) (ii) Preparation of a BAL contour map Vegetation classification – Plot 2 1. Vegetation plot 2 cannot be substantiated as Please refer to the updated Bushfire Management Plan Class B Woodland with the limited information and (BMP) contained in Attachment 4. photographic evidence available. The potential for revegetation has not been considered. The Plot 2 vegetation has been reclassified as Class A Aerial imagery identifies active revegetation (tube Forest. The change in vegetation classification stock) within the Dixon Road Conservation suggested by DFES (although not supported by Eco Precinct and the presence of juvenile eucalypt Logical) does not affect the BAL rating for the subject species. The BMP should detail specifically how site. the Class B Woodland classification was derived as opposed to Class A Forest. If unsubstantiated, the vegetation classification should be revised to consider the vegetation at

DFES's comment

 Vegetation plot 4 cannot be wholly substantiated as non- vegetated or managed to low threat in accordance with AS3959 with the limited information and photographic evidence available.

Evidence to support the classification of the eastern verge of Darlie Street and adjacent to the fenced building compound in the vicinity of photo ID 6 is required. An enforceable mechanism is required to provide certainty that the vegetation exclusion can be achieved in perpetuity and that it is enforceable.

If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS3959.

Applicant response

Plot 4 vegetation (refer to Photo 6 of the BMP) is within a fenced compound, surrounding the heritage building.

A review of aerial imagery suggests that vegetation surrounding the Hillman Abattoir and Stables heritage building is maintained annually.

Vegetation associated with the road verge is assumed to be maintained by the relevant authority in a low threat state. If not, it would likely be a traffic hazard.

In any case, we understand a change in vegetation classification would not affect the BAL rating for the subject site.

Site Landscaping

4. The BMP and the Bushfire Risk Management Plan prescribe that landscaping within the subject site will comply with Schedule 1: Standards for Asset Protection Zones (Schedule 1 Standards) contained in the Guidelines.

The Landscape Plan in appendix 2 of the Development Application report identifies 'low level planting' and 'typical mass planting' to a maximum 600 mm height, as well as 'road reserve planting by others'.

Vegetation 0.5 metres to 5 metres in height is defined in the Schedule 1 Standards as shrubs. Shrubs within asset protection zones should not be located under trees or within 3 metres of a 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.

The BMP makes the assumption that the 'road reserve planting by others' will be established and maintained in perpetuity to a low threat condition in accordance with AS3959.

The landscape plan has been amended, please refer to **Attachment 1**.

DFES' comments are acknowledged, with the following notation provided on the landscape plan:

- Any low level planting within asset protection zones above 500 mm in height will not be located under trees or within 3m of any buildings and will not be planted in clumps greater than 5m² in area.
- Any clumps of shrubs will be managed and separated from each other / any exposed window or door by at least 10m.

It is a reasonable expectation that road reserve vegetation will be managed by the City of Rockingham.

Policy Measure 6.5 c) Compliance with the Bushfire Protection Criteria

Siting and Design

1. A2.1 – insufficient information

The acceptable solution is for an asset protection zone (APZ) to be spatially identified on the submitted plans.

Please refer to Figure 6 of the updated BMP. The Asset Protection Zone (APZ) has been spatially identified, being the area within the lot boundaries of the subject site.

DFES's comment	Applicant response
Bushfire Risk Management Plan (BRMP)	
The referral has included a BRMP for the purposes of addressing the policy requirements.	Correct. This is commonplace for service stations as part of the dangerous goods licensing process.
It is note that the BRMP (page 11) states that Liberty Oil is required to develop an emergency management plan for the subject site in accordance with Australian Standard 3745-2010 Planning for emergencies in facilities, identifying evacuation triggers and depicting muster points on-site.	

6 Response to comments received from DWER

Refer to **Table 5** below for our detailed response to the comments and recommendations received from the Department of Fire and Emergency Services (**DWER**). This should be read in conjunction with the remaining information that is included within this correspondence.

Table 5 – Response to comments and recommendations from DWER

DFES's comment		Applicant response
Stormwater Management		
1.	The applicant has indicated that a stormwater management plan will be provided after approval is granted. The Department recommends the stormwater drainage system be designed, constructed and managed in accordance with the Stormwater Management Manual for Western Australia (DWER, 2004).	Noted. A Stormwater Management Plan can be prepared/provided at the detailed design stage as an appropriately worded condition of development approval.
	 The stormwater management plan for the entire development area should demonstrate how and where the small, minor and major rainfall events will be managed and include the following: Stormwater runoff be fully contained onsite for small and minor storm events (1 and 0.2 Exceedance per Year runoff). Required storage for each rainfall event, basin sizing and design should be detailed. The first 15 mm of stormwater runoff (1 Exceedance per Year runoff) from uncontaminated impervious surfaces to undergo water quality treatment via bioretention. Measures to prevent contaminated stormwater runoff mixing with other stormwater runoff from impervious areas and how the SPEL Puraceptor is integrated into the overall stormwater management system. Permitted outflow of stormwater runoff from the site. 	

DFES's comment	Applicant response
Emergency Response Plan	
1. In accordance with DWER's Water Quality Protection Note No.10 (WQPN 10) - 'Contaminant spills – emergency response (February 2006)', an effective Emergency Response Plan is to be prepared as part of the development approval process. WQPN 10 provides guidance on developing and implementing an effective emergency response plan.	An Emergency Response Plan can be prepared as an appropriately worded condition of development approval.
Underground fuel tanks	
 The Department provides the following advice in regards to underground fuel tanks, In accordance with the Department's WQPN No. 62 – 'Tanks for underground chemical storage', tank systems should not be located in contact with the watertable (unless protected against buoyancy forces and corrosion). If tanks are in contact with the groundwater all tanks and pipe work should be constructed of corrosion-resistant materials that conform to Australian Standards such as reinforced plastic or metal construction with corrosion- resistant coating and cathodic protection. All new or upgraded tanks and their pipe work (excluding any gas venting and tank fill lines that are normally dry) should have double-walled construction, with an interstitial leak-monitoring space. This is particularly important when located close to sensitive water resources or where the tank 	Noted.

The proposed development is acceptable in consideration of DWER's comments.

may come into contact with the watertable.

• All underground tank systems should have provision for leak monitoring.

7 Conclusion

The amended development plans, traffic technical note, updated Bushfire Management Plan and responses contained within this letter address the City's comments received on 19 May 2021 and public submissions received during the consultation period. We respectfully request the City proceed to finalise its assessment and favourable recommendation of the application to the Development Assessment Panel.

Should you have any queries or require further clarification in regard to the above matter please do not hesitate to contact the undersigned.

Yours faithfully,

OLIVER BASSON SENIOR PLANNER

210610 6621 Letter to City of Rockingham - response to requests for information

ATTACHMENT 1 AMENDED DEVELOPMENT PLANS



EAST ROCKINGHAM LIBERTY FUEL STATION

115 DIXON ROAD, EAST ROCKINGHAM, WA

DA ISSUE

FOR DEVELOPMENT APPROX

Rev.	Amendment	
-0	PRELIMINARY DA PACKAGE	16
1	CLIENT FEEDBACK	19
2	CLIENT FEEDBACK	26
3	DA ISSUE	31
4	PRELIMINARY DA ISSUE	04
6	DATESTIE	4.5

1	COVER SHEET	
12	SURVEY	
33	SITE PLAN	
)4	FLOOR PLANS & ELEVATIONS - SHOP	
05	FLOOR PLANS & ELEVATIONS - COMMERCIAL CANOPY	5
36	FLOOR PLANS & ELEVATIONS - TRUCK CANOPY	5

DSCLAMER. The drawing(s) provided herewith shall be used for the purposes for which it easy provided. The electronic drisk files for all or part of the drawings carry no guarantees whathouver as to that's occurrer, content or fact of same. The use of electronic date files are with the required for any other thing plany samely fast. They electronic date files are with the required for any other thing plany samely fast. They

BROLK

9/300 Rokeby Road, Subiaco, Western Australia 60 Telephone : 08 6382 0303 ARN 65 007 846 6

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

COVER SHEET

EXISTING BUILDING TO BE DEMOLISHED 10

SURVEY 1:200

DA ISSUE

Rev.	Amendment	Date
0	PRELIMINARY DA PACKAGE	16.02.21
1	CLIENT FEEDBACK	19.02.21
2	CLIENT FEEDBACK	26.02.21
3	DAISSUE	31.03.21
4	PRELIMINARY DA ISSUE	04.06.21
5	DA ISSUE	11.06.21

SURVEY PREPARED BY LANDSURVEYS

BROLK FALCONER

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

SURVEY

Scale 1:200
Drawn AD Checked WK
Date 11:06:21
Job No. 2020058
Dwg No. 3357 02 Rev: 5 AI SHEET

DA ISSUE

Rev.	Amendment	Da
0	PRELIMINARY DA PACKAGE	16.02
1	CLIENT FEEDBACK	19.02
2	CLIENT FEEDBACK	26.02
3	DA ISSUE	31.03
4	PRELIMINARY DA ISSUE	04.06
5	DA ISSUE	11.06

SITE AREA BUILDING AREA CANOPY TRUCK COMMERCIAL CANOPY	2941m ² 195m ² 128m ² 313m ²
CARBAYS	11
LANDSCAPE AREA	330m²

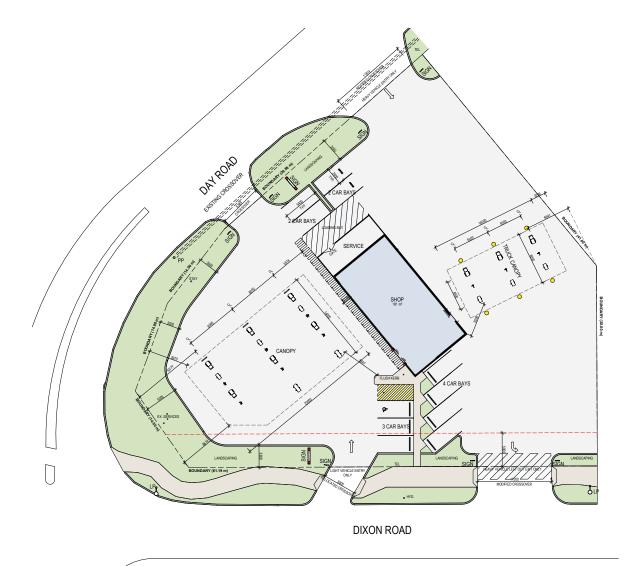
BROLK FALCONER

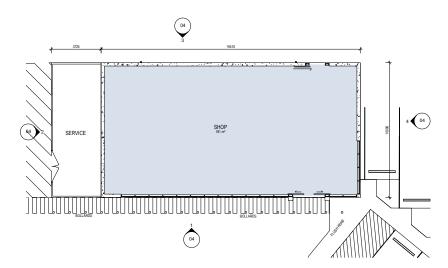
ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

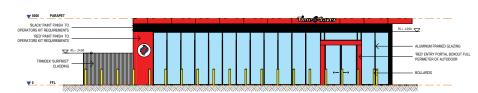
SITE PLAN

icale	1:200	
Irawn	AD	Checked WK
late	11.06.21	/
ob No.	2020058	Ψ
lwa No	3357 03	Rev: 5 A1SI





5 - FLOOR PLAN - SHOP



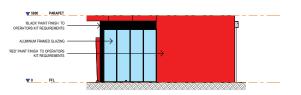
1 - SHOP - SOUTH - WEST ELEVATION



3 - SHOP - NORTH - EAST ELEVATION

▼ RL+ 2400

2 - SHOP - NORTH - WEST ELEVATION



4 - SHOP - SOUTH - EAST ELEVATION

DA ISSUE

Arrendment

PRELIMINARY DA PACKAGE
CLIENT FEEDBACK
CLIENT FEEDBACK
DA ISSUE
PRELIMINARY DA ISSUE
DA ISSUE

16.02.21 19.02.21 26.02.21 31.03.21 04.06.21 11.06.21

ほるのより FALCONER

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS -SHOP

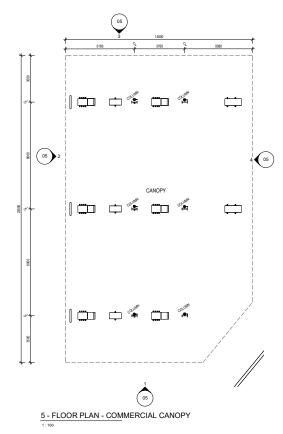
 Scale
 1:100

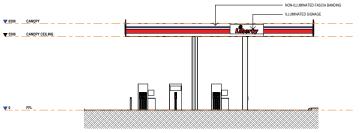
 Drawn
 AD
 Checked WK

 Date
 11.06.21

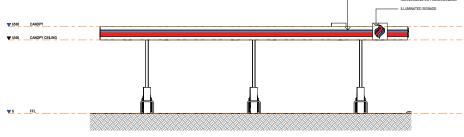
 Job No.
 2020058

Dwg No. 3357 04 Rev: 5 A1 SHEET

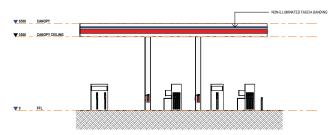




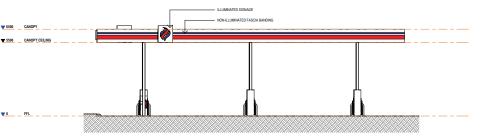
1 - COMMERCIAL CANOPY - SOUTH - WEST ELEVATION



2 - COMMERCIAL CANOPY - NORTH - WEST ELEVATION



3 - COMMERCIAL CANOPY - NORTH - EAST ELEVATION



4 - COMMERCIAL CANOPY - SOUTH - EAST ELEVATION

DA ISSUE

Rev.	Amendment	Di
0	PRELIMINARY DA PACKAGE	16.02
1	CLIENT FEEDBACK	19.02
2	CLIENT FEEDBACK	26.02
3	DAISSUE	31.03
4	PRELIMINARY DA ISSUE	04.08
6	DATISSTA	110

ほるのドド FALCONER

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS -COMMERCIAL CANOPY

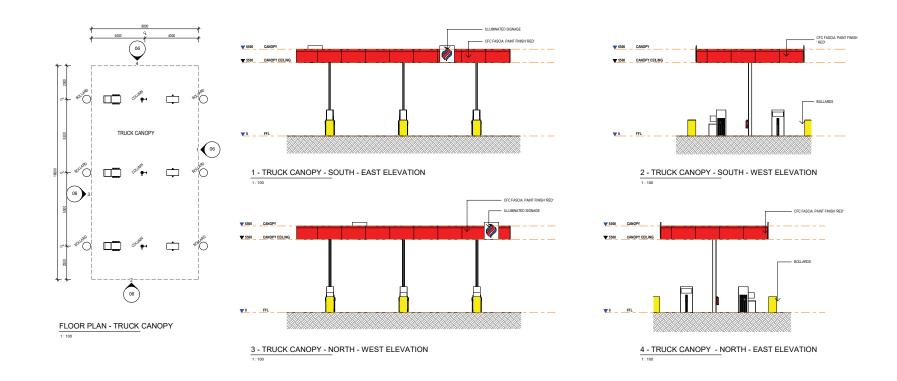
 Scale
 1:100

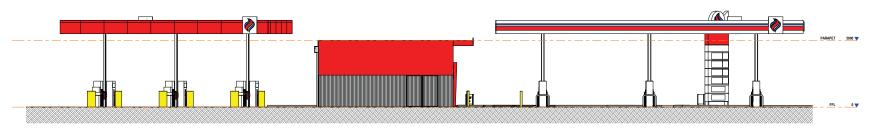
 Drawn
 AD
 Checked WK

 Date
 11.06.21

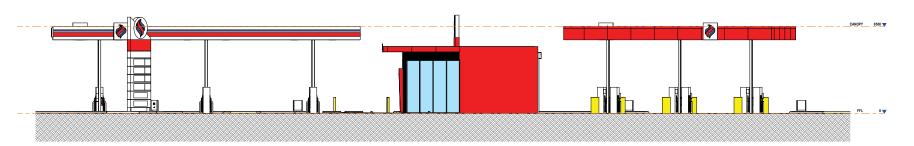
 Job No.
 2020058

Dwg No. 3357 05 Rev: 5 A1 SHEET





6 - OVERALL ELEVATION 1



7 - OVERALL ELEVATION 2

DA ISSUE

Rev.	Amendment	Date
0	PRELIMINARY DA PACKAGE	16.02.2
1	CLIENT FEEDBACK	19.02.2
2	CLIENT FEEDBACK	26.02.2
3	DAISSUE	31.03.2
4	PRELIMINARY DA ISSUE	04.06.2
	DATISSTA	11001

ほるのドド FALCONER

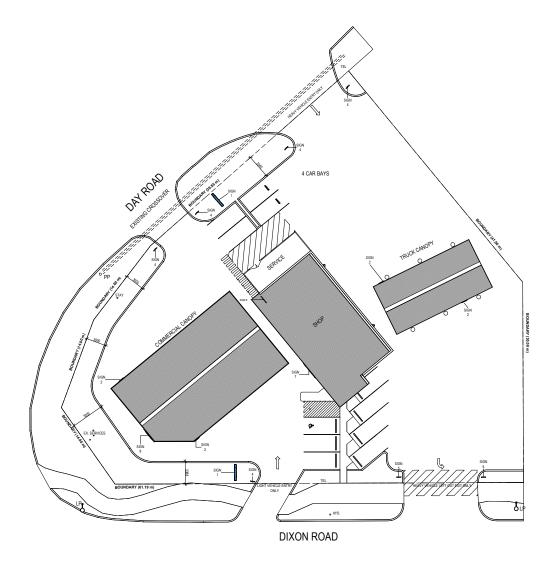
ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS -TRUCK CANOPY

Scale 1:100
Drawn AD Checked WK
Date 11.06.21
Job No. 2020058

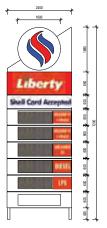
Dwg No. 3357 06 Rev: 5 A1 SHEET



SIGNAGE PLAN

DA ISSUE

Rev.	Amendment	Da
0	PRELIMINARY DA PACKAGE	16.02
1	CLIENT FEEDBACK	19.02
2	CLIENT FEEDBACK	26.02
3	DAISSUE	31.03
4	PRELIMINARY DA ISSUE	04.06
5	DAISSUE	11.06



SIGN 1 - INTERNALLY ILLUMINATED
1:80



SIGN 7 - TIME SAVER



SIGN 2 - INTERNALLY ILLUMINATED



SIGN 8 - NON-ILLUMINATED



SIGN 3 - INTERNALLY ILLUMINATED



SIGN 4 - NON-ILLUMINATED



SIGN 5 - NON-ILLUMINATED



SIGN 6 - NON-ILLUMINATED

ほるのより

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

SIGNAGE PLAN & SCHEDULE

 Scale
 As indicated

 Drawn
 AD
 Checked WK

 Date
 11.06.21

 Job No.
 2020058





DA ISSUE

lev.	Amendment	0
0	PRELIMINARY DA PACKAGE	16.0
1	CLIENT FEEDBACK	19.0
2	CLIENT FEEDBACK	26.0
3	DA ISSUE	31.0
4	PRELIMINARY DA ISSUE	04.0
5	DA ISSUE	11.0









BROLK FALCONER

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

3D VIEWS

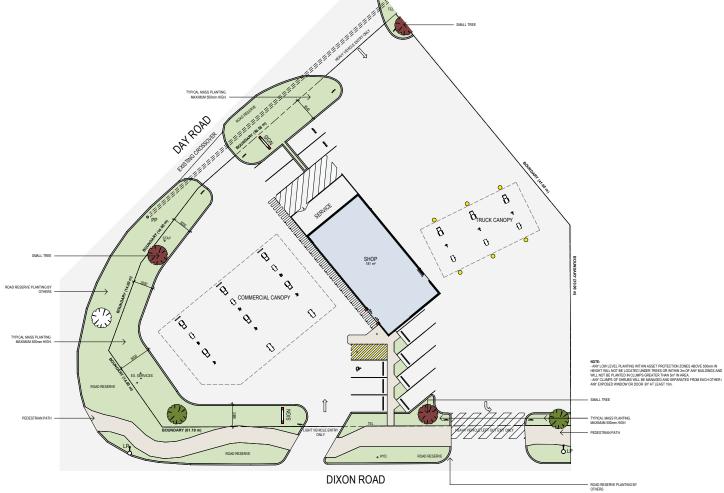
 Scale
 Checked WK

 Drawn
 AD
 Checked WK

 Date
 11.06.21

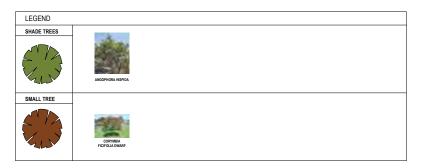
 Job No.
 2020058

Dwg No. 3357 08 Rev: 5 A1 SHEET



1 - CONCEPT LANDSCAPE PLAN





DA ISSUE

Rev.	Amendment	
0	PRELIMINARY DA PACKAGE	16:
1	CLIENT FEEDBACK	19:
2	CLIENT FEEDBACK	26
3	DA ISSUE	31
4	PRELIMINARY DA ISSUE	043

ほるのより FALCONER

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

LANDSCAPE PLAN

Dwg No. 3357 09 Rev: 5 A1 SHEET

ATTACHMENT 2 TRAFFIC TECHNICAL NOTE



Technical Note: No 1a Date: 11/06/2021

Project No: t20.270

Project: Proposed Service Station - Lot 10 (No.115) Dixon Road, East Rockingham

Subject: Addressing City of Rockingham Comments

INTRODUCTION

Transcore prepared a Transport Impact Assessment (TIA) on behalf of Accord Property with respect to the Development Application (DA) for a proposed service station to be located at 115 Dixon Road in April 2021. Following review of the DA, the City of Rockingham provided a number of comments in an email dated 19 May 2021.

This technical note is prepared to address the City's comments with respect to the traffic and transport matters. City's comments and Transcore's responses are provided in a table on page 2 of this technical note. A revised Site Plan is also prepared which is provided in Appendix A of this technical note.

Proposed Service Station - Lot 10 (No.115) Dixon Road, East Rockingham | responses to City's Comments

March 2021

	CITY OF ROCKINGHAM COMMENTS	STATUS/COMMENT
	Traffic Issues	
1	The SIDRA analysis completed for the intersection of Dixon Road/Day Road suggests an unsatisfactory Level of Service F (i.e. the worst level) and degree of saturation very close to 1.0 (i.e. 0.975).	Site observations and the SIDRA analysis results indicate that the intersection of Dixon Road/Day Road presently operates close to capacity during the PM peak hour for the right turn movements out of Day Road. This is due to the significant through traffic volumes on Dixon Road during the PM peak hour. This level of operations is likely at all intersections along Dixon Road during peak periods. In fact, this is happening on all roads and intersection with similar levels of traffic throughout metropolitan Perth.
		However, it is important to note that the additional traffic generated by the proposed development will not change the existing traffic operations of the intersection in a significant way. The SIDRA analysis results for the post development scenario during AM and PM peak hours render similar results as existing situation with no changes to LoS of the turning movements of the intersection. The most pronounced change is the 95% queue on Day Road which is reported to increase from about 40m in existing PM peak hour to about 55m in post development PM peak hour. The reported 95% queue of 55m will not have any impact on the traffic operations and in particular the queue will not extend beyond the development Day Road crossover. Review of the Day Road crossover SIDRA results confirms that both crossovers for light and heavy vehicles would operate satisfactorily with LoS A and minimal queues and delays.

		The main reason for undertaking SIDRA Network assessment is to investigate the interaction of the intersection with the crossovers. In this case, the purpose was to investigate the possibility of blockage of the Day Road crossover by queue backs from the intersection.
		Transcore undertook video traffic counts to establish the existing traffic operations of the intersection and to calibrate the SIDRA modelling. The calibrated model was used to investigate the 95% queue and traffic operation of the development crossovers on Day Road and the intersection as a network.
		Please note that the revised plan shows less light vehicle bowsers on site which would result in less traffic generation from the site and would improve the SIDRA results.
	Comments on TIA	
1	Section 1.0 mentioned that "The proposal entails a service station with an associated retail building consisting of eight light vehicle bowsers (16 filling points) and three heavy vehicle bowsers (up to 4 filling points)". Please note that the proposed 5.77m spacing between the heavy vehicle bowsers may only allow two (2) fuel positions only.	The revised plan shows that three fill points can be uses concurrently.
2	Section 1.0 mentioned that "Accordingly, the Dixon Road crossover system is planned to rationalized and consist of one left in crossover for light vehicles and one left out crossover for heavy vehicles". Please provide more details on the proposed treatment (eg. pavement marking, signage, etc.) because the wide crossover proposed in both locations would not restrict vehicles from exiting and entering for the light and heavy vehicles crossover	crossovers.

t20.134.mr.tn01a Page **3** of **13**

	respectively.	
3	Section 1.0 mentioned that "The proposed development layout has been assessed with respect to the movements of fuel tankers, service vehicles and heavy vehicles up to 19.0m long". Both Day Road and Dixon Road is a RAV4 network therefore heavy vehicles up to 27.5m in length are able to use both roads. How would restrictions be implemented to ensure that heavy vehicles larger than a 19.0m semi-trailer would not enter the site? Please provide more details regarding the crossover treatments mentioned in Section 4.1	Noted. Appropriate signage and line marking will be provided at the development entry crossover for heavy vehicles on Day Road to alert the drivers before entering the site. This situation is similar for the BP service station recently approved and constructed (now operational) in close proximity of this development and on the same side of Dixon Road.
4	Section 3.2 mentioned that Dixon Road has a posted speed limit of 70km/hr east of Evinrude Bend. Should this be McCamey Avenue instead?	Noted it is east of McCamey Avenue. The posted speed limit is 70km/h eastbound fronting the subject site.
5	Section 3.3 mentioned that "The existing traffic turn counts at the intersection of Dixon Road/Day Road and the site crossovers were established by 24-hour video traffic counts survey on Thursday 4th of June 2020". Please provide this traffic counts data as part of the Appendix such that it can be assessed.	The existing traffic turn counts are reported in the TIA and are also in the SIDRA tables.
6	Section 3.5 mentioned that "Information available on Main Roads WA website provides crash statistics for Day Road and Dixon Road intersection during the five year period ending in December 2019". Please update Table 1 as there are more recent crash data for five-year period ending in December 2020.	The reported crashes to December 2019 were the information available at the time of preparation of the report. The reported crashes indicate zero casualty for this site.
7	Section 3.6 mentioned that "The nearest bus stop is located approximately 52m south east of the subject site along Dixon Road". The statement is true for westbound buses however the bus stop for eastbound is located approximately 100m east of the subject site along Dixon Road. Please incorporate this information	Noted and agree that the bus stop for eastbound is located approximately 100m east of the subject site along Dixon Road. However, the inclusion of this information is not necessary.

t20.134.mr.tn01a Page **4** of **13**

	in the TIA	
8	Section 4.1 mentioned that "No entry signage will also be provided on Dixon Road entry crossover". Should this be "No entry signage will also be provided on Dixon Road exit crossover"?	Noted. Appropriate signage will be provided to guide the vehicles for the entry and exit to/ from the crossovers.
9	Section 5.0 mentioned that "No major changes to the surrounding road network are proposed as part of the proposed development". Please note that the City has preliminary designs for the Woodbridge secondary access which would create a fourway intersection at Dixon Road/Day Road. Please liaise with the City's Engineering Services for details, to understand any implications this may have for the proposed development.	Noted. It is requested that City should provide this information, including timing, for consideration, however creation of a four-way intersection on Dixon Road (without roundabout or traffic signal control) should not be pursued.
10	Section 7.2.2 mentioned that "For traffic generation 62% and 56% passing trade was assumed as per commercial development traffic modelling assumptions for the AM and PM peak hours respectively in accordance with ITE10 Guidelines". The City does not have access to the mentioned document therefore please provide the relevant extract such that its validity could be assessed.	Based on Table E47 and E38 and Figure E18 and E19 of the ITE Guidelines, the weekday AM peak hour passing trade is 62% and PM peak hour passing trade is 56% for land use 945.
11	Section 7.2.2 suggests that 25% of the heavy vehicles would be attracted to the proposed development. Please provide justification for adopting this percentage.	This is an assumption. This assumption about traffic attraction is considered reasonable in the context of the access arrangement for the proposed development (which is available from Day Road only) and considering the existing traffic congestion at the intersection during the peak hours.
12	Section 7.2.2 mentioned that 43 and 34 heavy vehicles would be attracted to the proposed development therefore would generate 86 and 68 vehicle trips (i.e. each vehicle would enter and exit the site during the peak hour) during the AM and PM peak hour respectively. Please amend traffic analysis accordingly	43 and 34 heavy vehicles reported in Table 3 are inbound and outbound trip generation as stated in the TIA.

t20.134.mr.tn01a Page **5** of **13**

13	Would it be possible to show the trip distribution percentage for the approaches in Figure 12 and 13?	The trip distribution percentage for the approaches in Figure 12 and 13 can be easily calculated from these figures as the in and out volumes in the small table are the relevant total AM and PM peak hour trip generations.
14	Please note that the peak hour traffic volumes in Table 3 should be double the number of vehicles (i.e. each vehicle entering and exiting the site during the peak hour). Please amend traffic analysis accordingly	43 and 34 heavy vehicles reported in Table 3 are inbound and outbound trips.
15	The passing trade component for the heavy vehicles assumes a 50/50 split between Dixon Road (to the south) and Day Road (to the north). The City expects that more should be distributed to/from Dixon Road as there are higher traffic volumes. Please provide justification, otherwise please assign more to Dixon Road. The existing traffic count data may provide information regarding the number of heavy vehicles along Day Road and Dixon Road, therefore the proportion could be adopted based on existing traffic survey. Please amend traffic analysis accordingly.	During the peak hours, passing traffic from westbound flow on Dixon Road is not expected due lack of gaps in eastbound traffic and convenience. It is unlikely that a truck which come from the east, turn right across 2 lanes of traffic on Dixon Road during the peak hours to access the site. Accordingly, Transcore has assumed equal passing traffic distribution for Dixon Road eastbound and Day Road southbound.
16	How was the proportion for passing trade component for the light vehicles determined? The City recommends that the existing traffic survey be used to provide insight into trip distribution. Please amend traffic analysis accordingly.	The passing traffic component has been established from ITE guidelines. Passing trade for light vehicles would not follow the existing trip pattern at the intersection as there is no service station at this location currently.
17	Figure 12 suggests that there are no right turn movements for passing trade component at the intersection of Dixon Road/Day Road. Please provide justification as it is likely that there will be some passing trade which would make the right turn movement. The City recommends that the existing traffic survey be used to provide insight into trip distribution. Please amend traffic analysis	Refer above comments.

t20.134.mr.tn01a Page **6** of **13**

	accordingly.	
18	Figure 13 suggests that all non-passing trade component would be coming from the north (i.e. Day Road). The City considers this to be unlikely and some should be allocated to come from Dixon Road. The City recommends that the existing traffic survey be used to provide insight into trip distribution. Please amend traffic analysis accordingly.	Refer above comment. Drivers will select a service station based on convenience and ease of accessibility. During the peak hours drivers will avoid to make problematic right turns if it involves reasonably long delays.
19	Regarding Figure 13, please provide reasons for not having any right turn movements at "Access 2".	Refer above comments.
20	Section 7.4 mentioned that "The most pronounced change is the 95% queue on Day Road which is reported to increase from 38m in existing PM to about 56m in post development PM scenario". This increased in queue length would extend up to "Access 2" and therefore would impact the performance of this vehicle crossover, which the City has serious concern about.	Review of the Day Road crossover operations confirms that both crossovers for light and heavy vehicles would operate satisfactorily with LoS A and minimal queues and delays. As mentioned earlier (refer point 1) the purpose of SIDRA Network analysis was to establish the interaction of the traffic operations of the intersection with the crossovers.
21	Section 8.0 mentioned that "Assuming equal queue distribution it is estimated that in the worst-case scenario there will be 2 cars waiting behind each refueling vehicle at 8 bowsers". This suggests that there will not be sufficient queue space within the site.	The 95th percentile queue within the whole system is 18 cars (16 cars refuelling at bowsers and 2 cars waiting). The two cars queuing can easily be accommodated within the site. the revised site plan shows less fill points for light vehicles which would reduce the trip generation of the site and would improve the queue space within the site.
22	The SIDRA analysis for the existing PM peak hour at the intersection of Dixon Road/Day Road suggests that the right turn movement from Day Road to Dixon Road already has an unsatisfactory Level of Service F (i.e. 78.8 seconds delay) with a degree of saturation of 0.893, exceeding the recommended value (i.e. 0.8) from Austroads' Guide to Traffic Management Part 3 – Transport Study and Analysis Methods. The SIDRA analysis for the proposed development suggests that it will significantly further	The SIDRA analysis results are only a theoretical assessment. This level of service is likely at all priority-controlled intersections along Dixon Road and all other priority-controlled intersections on similar roads within Perth metro area. Please refer to comments to point 1 above.

t20.134.mr.tn01a Page **7** of **13**

23	reduce the Level of Service (i.e. 107.6 seconds delay or 28.8 seconds additional delay) with a degree of saturation of 0.975 (note that a degree of saturation exceeding 1.0 would mean long queues on the approaches). The SIDRA analysis completed for the existing and proposed PM peak hour at the intersection of Dixon Road/Day Road suggests that there would be a vehicle queue length of 10.7m and 11.5m within the central median respectively. This queue length cannot be accommodated within the existing central median (i.e. approximately 6.5m wide). Please revise the traffic analysis accordingly.	This is the way SIDRA reports the results. The reality is that if a vehicle is stored in the median another vehicle will not enter the median as it will be in the path of oncoming vehicles. The 50% (or average queue) queue reported by SIDRA is less than 6.5m. The average queue is more representative of reality.
	Swept paths	
1	Please provide a clearer resolution for the swept path analysis such that a more thorough assessment could be made	Clearer resolution for the swept path analysis in pdf format will be provided separately to the City.
2	The City has the following concerns regarding the swept path analysis provided; a. Clash with kerbing; b. Clash with proposed structural elements; c. Clash with another service vehicle; d. Commercial vehicles not serviced within the proposed loading bay; e. Encroaching into the footpath	These issues are simply because of the resolution of the plans in the report. Further, the 500mm clearance should not be confused with the vehicle body. Base on high resolution turn paths which are prepared for the revised plan it is evident the design vehicle: a. does not clash with kerbs. b. does not clash with proposed structural elements. c. does not clash with another service vehicle. d. Loading bay has been moved in the revised plan. e. does not encroach into the footpath.
3	AS2890.1 requires that the sight distance assessment be taken to the road centerline instead of the middle of the traffic lane. Please amend the assessment accordingly in Appendix D.	Dixon Road is straight and level along this section and therefore sight line is not an issue. The sightlines should be assessed in line with the travel path of oncoming vehicles and the position of the driver within the vehicle. Available sightline will be more if it is measured to the separator line.

t20.134.mr.tn01a Page **8** of **13**

	Drawings	
1	The site plan suggests that the extent of the proposed development along Dixon Road would be encroaching into the existing road shoulder which is not acceptable. Please confirm that the proposed development shall not encroach into the existing road shoulder, otherwise amend the site plan accordingly.	Noted. Drawing will be checked by the architect of the project.
2	The proposed full turning movement at the light vehicle crossover off Day Road would require patrons to complete a U-turn within the site to exit back to Day Road (as the crossover off Dixon Road is an entry only). Please demonstrate how the vehicles would be able to circulate within the site to complete this U-turn when other vehicles are being serviced at the bowsers. The proposed 8.0m spacing between browsers may not have sufficient clearance to allow a vehicle to pass through between the other two vehicles currently being serviced at the bowsers. It is also noted that travelling in the opposite direction would increase traffic safety risks.	These types of movement are not unusual within service stations. The proposed spacing between the northern browsers and the proposed retail store will have sufficient clearance to allow a vehicle to pass through this area. Also tur paths for the revised plan shows that the proposed spacing between the bowsers are sufficient for a B99 passenger car to pass through (refer Sk24a).
3	The width of forecourt pavement at the south-western corner of the site appears to be narrow and would not allow a vehicle to pass through when a car is being serviced at the bowser. Please provide a swept path diagram indicating how this would work. Otherwise, consider widening this area	Refer above comment and sk23a and Sk24a.
4	The modified light vehicle crossover off Dixon Road is proposed to be approximately 5.0m wide and for entry only. Consider reducing the width of this crossover as the proposed 5.0m is considered to be wide and would allow patrons to exit from this location. It is noted that further pavement markings and signage	Noted. The width of this crossover will be reviewed during the detailed design stage of the project.

t20.134.mr.tn01a Page **9** of **13**

	would be required to restrict the intended traffic flow from this crossover.	
5	The modified heavy vehicle crossover off Day Road would have one of its wings encroaching into the frontage of the adjacent lot, which is non-compliant. Please amend the design accordingly to have all parts of the crossover within the frontage of the proposed development.	Noted. The design of this crossover will be reviewed during the detailed design stage of the project.
6	The modified heavy vehicle crossover off Dixon Road (i.e. exit only) is proposed to be 11.0m wide, therefore patrons may likely disregard the intended one-way traffic flow and enter from this access point. Please consider providing additional treatments (eg. pavement markings, signage, or modifying the alignment of the crossover etc.) to ensure that patrons (i.e. light and heavy vehicles) do not enter from this access point.	This width is required for the satisfactory exit movement of the heavy vehicles. Appropriate pavement markings and signage will be provided to ensure that patrons do not enter from this crossover.
7	It is understood that three bowsers are proposed for the heavy vehicles which was suggested able to accommodate for four (4) fueling positions. The proposed 5.77m centerline spacing between the bowsers is likely only able to accommodate for two (2) fuel positions. Please confirm that this is the intended arrangement, otherwise the spacing between the bowsers will require to be widened for them all to be used at the same time.	The revised plan shows that three bowsers are available for filling the trucks.
8	Manual measurements from the site plan suggests that the standard car parking bay located directly opposite the universal bay has a proposed width of 2.3m therefore does not conform to the minimum bay width requirement of 2.6m in accordance with AS2890.1. Please amend design accordingly and ensure that all standard bays are at least 2.6m wide.	All bays in the revised plan are 2.6m wide.

t20.134.mr.tn01a Page **10** of **13**

9	Please provide at least a 1.0m horizontal clearance between the road pavement and any vertical structure within the site (i.e. signs in this particular case). Manual measurements from the site plan suggests that there are a number of signs located less than this minimum requirement. Please amend the plans accordingly.	Appropriate separation distance will be reviewed during the detailed design stage of the project.
10	Please provide pram ramps on both sides of the proposed modified crossover along Dixon Road	Noted and will be addressed during the detailed design stage of the project.
11	Please provide a kerb ramp to the proposed "Shop" within the site to allow for universal access (i.e. located within close proximity to the universal bay)	Noted and will be addressed during the detailed design stage of the project.
12	What is the purpose of the four car parking bays located opposite the universal bays? The City is concerned that if these are visitor bays then it increases traffic safety risks because they would interact with intended heavy vehicle movements in the area. These risks would be minimised if they are staff bays.	The revised plan shows different parking configuration within the heavy vehicle service station site. The turn path analysis undertaken indicates no conflict between the heavy vehicle turn paths and the proposed parking bays.
13	The swept path analysis shown in the "Truck Turning" drawing suggest that the design vehicle envelope would encroach into the proposed loading bay which is not acceptable. Please amend swept path analysis accordingly	Please refer to sk21a and sk22a of the turn paths for the entry and exit of the service vehicles at the new location of the service bay in the revised plan.

t20.134.mr.tn01a Page **11** of **13**

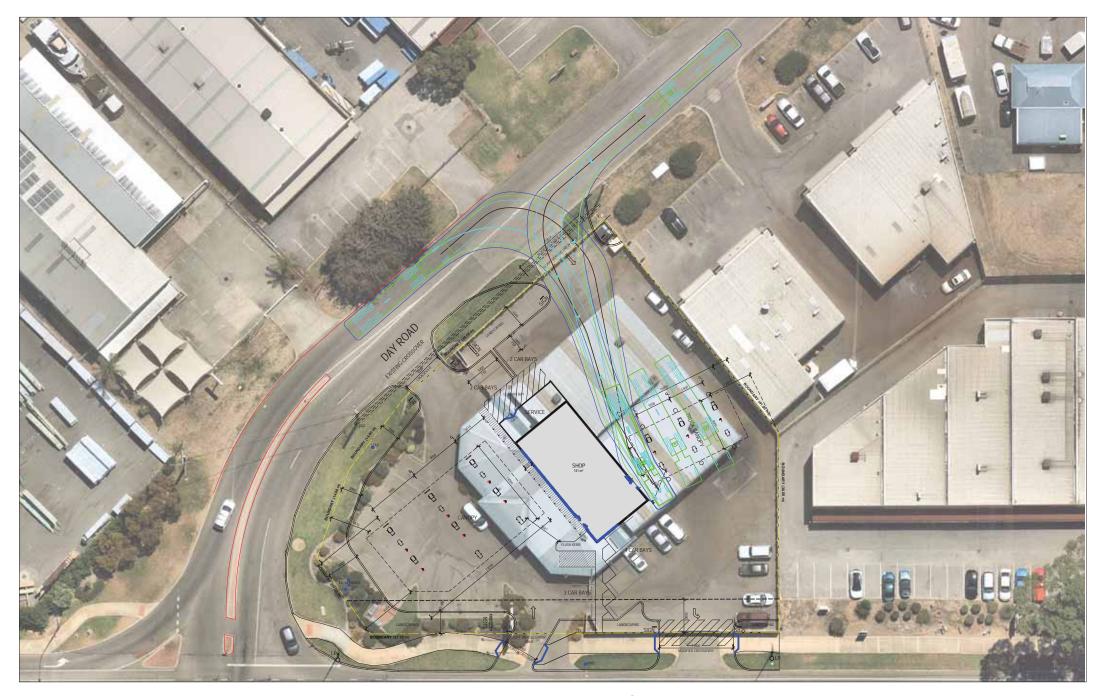
Appendix A

Revised Site Plan



t20.134.mr.tn01a Page **13** of **13**

ATTACHMENT 3 UPDATED SWEPT PATHS

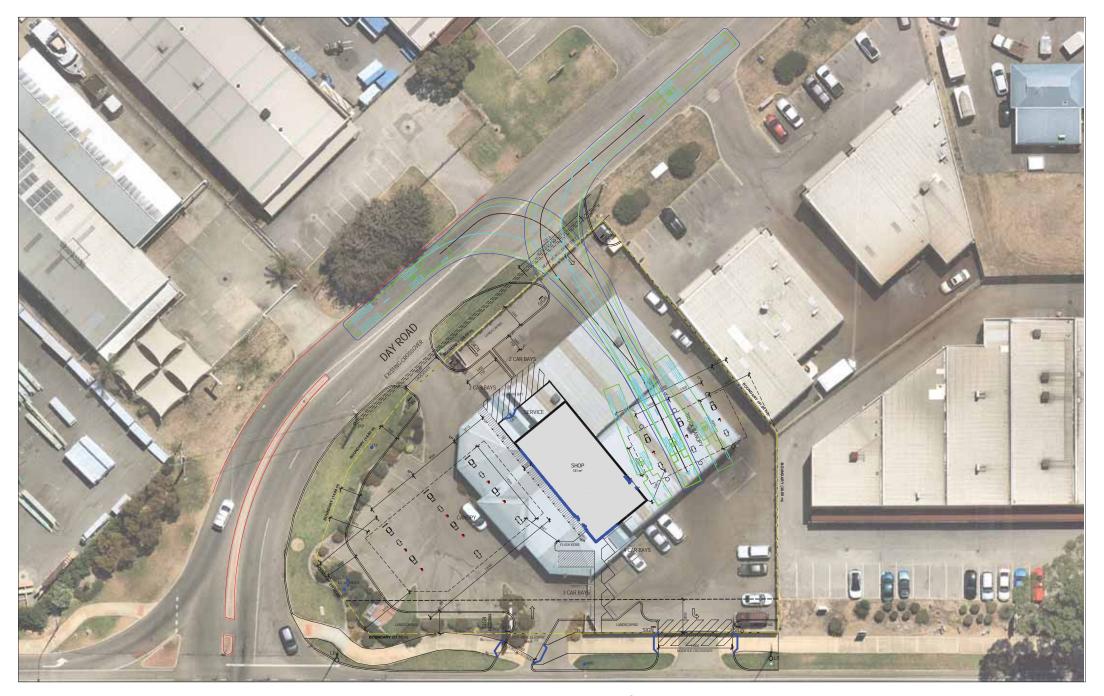


115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Left-in & Right-in Entries to 1st Bowser LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk15a 11/06/2021 Scale: 1:400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Left-in & Right-in Entries to 2nd Bowser

LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk16a 11/06/2021 Scale: 1:400 @ A3



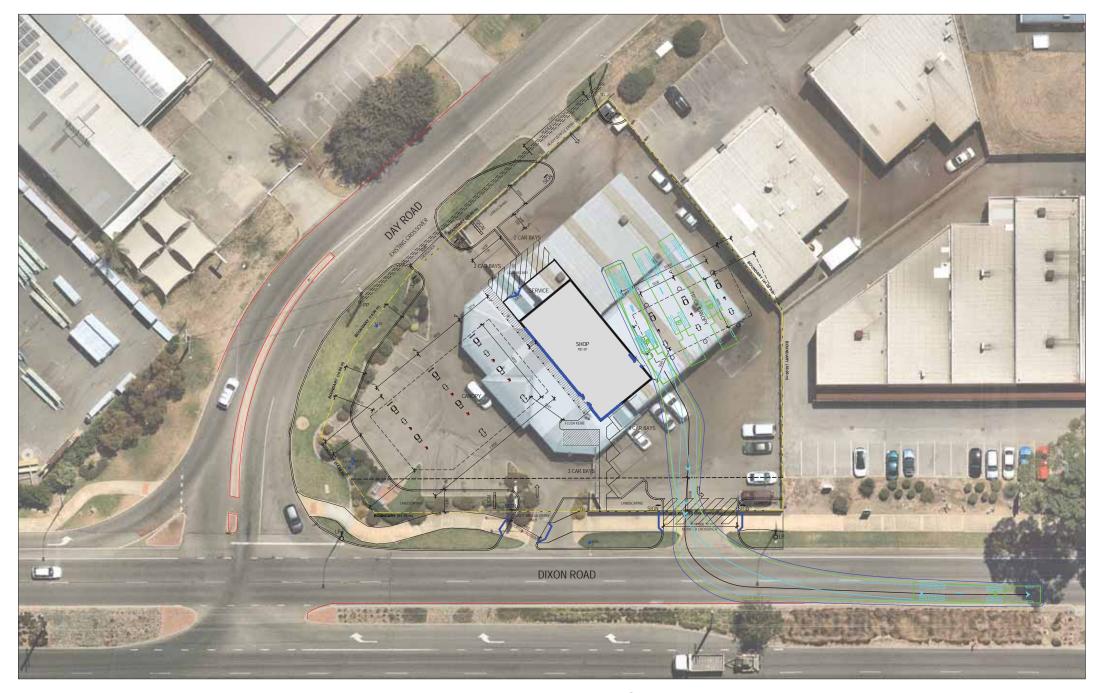


115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Left-in & Right-in Entries to 3rd Bowser LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk17a 11/06/2021 Scale: 1:400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Exit onto Dixon Road from 1st Bowser LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk18a 11/06/2021 Scale: 1:400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Exit onto Dixon Road from 2nd Bowser LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk19a 11/06/2021 Scale: 1:400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 19.0m Semi-Trailer Truck Exit onto Dixon Road from 3rd Bowser

LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk20a 11/06/2021 Scale: 1:400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 12.5m SU Turck Service Truck Entry

LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk21a 11/06/2021 Scale: 1:400 @ A3





115 Dixon Road, East Rockingham Austroads 2013: 12.5m SU Turck

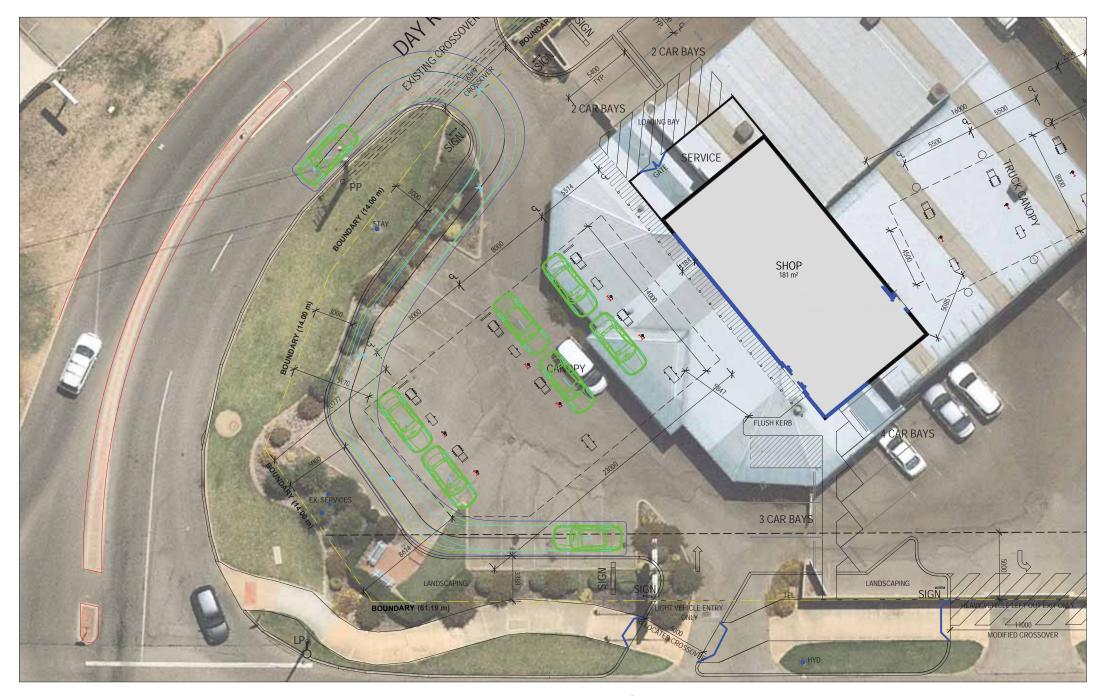
Service Truck Exit

LEGEND Vehicle Body Wheel Path 500mm Clearance



t20.134.sk22a 11/06/2021 Scale: 1:400 @ A3





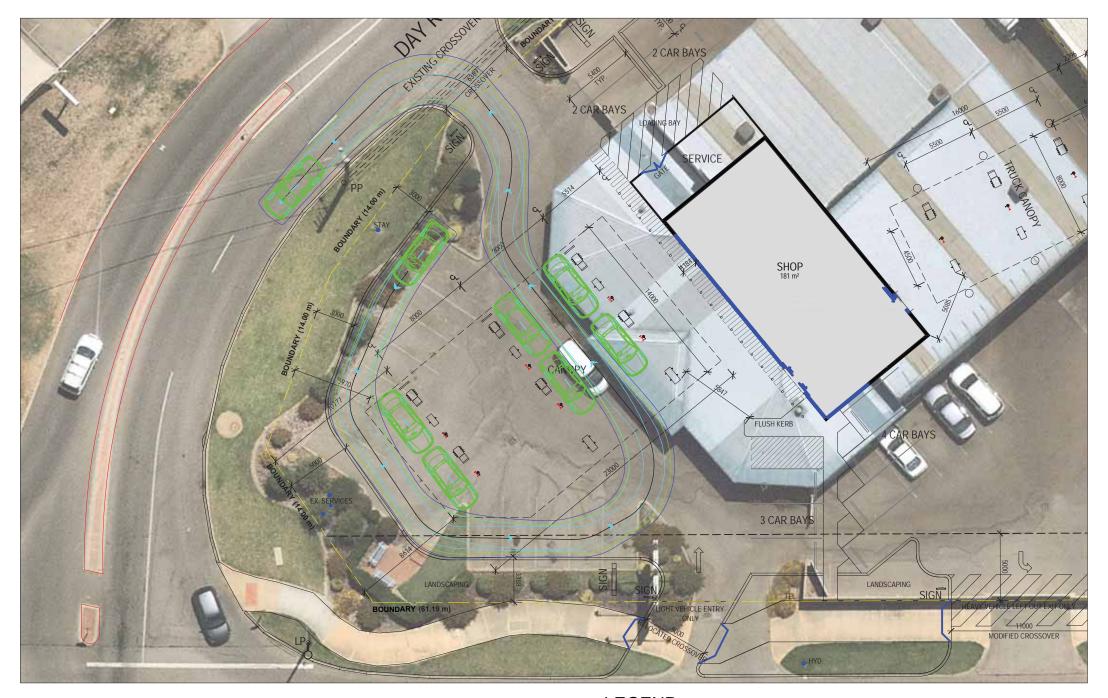
115 Dixon Road, East Rockingham Austroads 2013: B99 Passenger Vehicle Passenger Vehicle Circulation

LEGEND Vehicle Body Wheel Path 300mm Clearance



t20.134.sk23a 11/06/2021 Scale: 1:200 @ A3





115 Dixon Road, East Rockingham Austroads 2013: B99 Passenger Vehicle Passenger Vehicle Circulation

LEGEND Vehicle Body Wheel Path 300mm Clearance



t20.134.sk24a 11/06/2021 Scale: 1:200 @ A3



ATTACHMENT 4 UPDATED BUSHFIRE MANAGEMENT PLAN



Bushfire Management Plan and Site Details

Site Address / Plan Reference: 115 Dixon Road

Suburb: East Rockingham



P/code: 6122

State: WA

Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Local government area: City of	Rockingham						
Description of the planning prop	posal: Develo	pment Application for a service	e station				
BMP Plan / Reference Number: 16254 Version: v3 Date of Issue: 10/06/21							
Client / Business Name: Accord Property							
Reason for referral to DFE	S					Yes	No
Has the BAL been calculated by a been used to calculate the BAL)?		than method 1 as outlined in AS	33959 (tick no if AS	3959 met	hod 1 has		Ø
Have any of the bushfire protect no if only acceptable solutions have				nance prin	ciple (tick		\square
Is the proposal any of the follow	ving special de	velopment types (see SPP 3.7 fo	r definitions)?				
Unavoidable development (in BA	\L-40 or BAL-FZ	Z)					Ø
Strategic planning proposal (incl	uding rezoning	applications)					
Minor development (in BAL-40 o	or BAL-FZ)						
High risk land-use						Ø	
Vulnerable land-use ☑							
If the development is a special classifications (E.g. considered v	-					one of the	above listed
High risk land use due to flammable fuels at service station							
Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".							
BPAD Accredited Practitio	ner Details	and Declaration					
NameAccreditation LevelAccreditation No.AccreditationAlex AitkenLevel 237739November							
Company Contact No.							
Eco Logical Australia 08 6218 2200							
I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct							
Signature of Practitioner	a			Date	10-Jun-21	L	

Bushfire Management Plan:

Development Application: 115 Dixon Road, East

Rockingham

Accord Property







DOCUMENT TRACKING

am

This report should be cited as 'Eco Logical Australia 2021. Bushfire Management Plan: *Development Application: 115 Dixon Road, East Rockingham* Prepared for Accord Property.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Accord Property (the client).

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and the client. The scope of services was defined in consultation with the client, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Template 2.8.1

Version control	
Version	Purpose
v1	Draft – Submission to client
v2	Final – for submission with development application
v3	Final – modified in response to comments from the Department of Fire and Emergency Services

Contents

1. Introduction	1
1.1 Proposal details	1
1.2 Purpose and application of the plan	
1.3 Environmental considerations	
2. Bushfire assessment results	6
2.1 Bushfire assessment inputs	6
2.1.1 Fire Danger Index	6
2.1.2 Vegetation classification	6
2.1.3 Topography and slope under vegetation	6
2.2 Bushfire assessment outputs	8
2.2.1 BAL assessment	8
2.2.2 Method 1 BAL assessment	8
2.3 Identification of issues arising from the BAL assessment	C
3. Assessment against the Bushfire Protection Criteria	11
3.1 Compliance	11
3.2 Additional Bushfire Requirements	12
4. Implementation and enforcement	14
5. Conclusion	15
6. References	
Appendix A – Classified Vegetation Photos	
Appendix B – Standards for Asset Protection Zones	
Appendix C - Vehicular access technical requirements (WAPC 2017)	
Appendix D : Proposed Landscaping Plan	24
List of Figures	
Figure 1: Site overview	3
Figure 2: Site Plan	4
Figure 3: Bushfire Prone Areas	
Figure 4: Vegetation classification	
Figure 5: Bushfire Attack Level (BAL) Contours	
Figure 6: Spatial representation of the bushfire management strategies	
Figure 7: Illustrated tree canopy cover projection (WAPC 2017)	21

List of Tables

Table 1: Classified vegetation as per AS 3959-2018	6
Table 2: Method 1 BAL calculation (BAL contours)	
Table 3: Summary of solutions used to achieve bushfire protection criteria	
Table 4: Proposed work program	

1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Accord Property to prepare a Bushfire Management Plan (BMP) to support a development application for Lot 10 (115) Dixon Road, East Rockingham (hereafter referred to as the subject site, Figure 1). The proposed development will result in an intensification of land use and involves the construction of a new service station.

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2019; Figure 3), which triggers bushfire planning requirements *under State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; Western Australian Planning Commission (WAPC) 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

The subject site is currently zoned as Light Industry under the City of Rockingham (CoR) Town Planning Scheme (TPS) with the site being utilised as a mechanical workshop. The proposed development will incorporate the demolishing of the existing buildings and the construction of a new service station.

This assessment has been prepared by ELA Senior Bushfire Consultant Alex Aitken (FPAA BPAD Level 2 Certified Practitioner No. BPAD37739) with quality assurance undertaken by Senior Bushfire Consultant Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

High risk land uses may expose the community, fire fighters and the environment to dangerous, uncontrolled substances during a bushfire event. High risk land uses may include, but are not limited to: service stations, landfill sites, bulk storage of hazardous materials, fuel depots and certain heavy industries as well as military bases, power generating land uses, saw-mills, highways and railways.

Planning and development applications that incorporate proposals for non-residential, high-risk land uses in bushfire prone areas are to comply with Policy Measure 6.6 which requires a Bushfire Management Plan jointly endorsed by the local government and the Department of Fire and Emergency Services (DFES). In most instance the requirement of the bushfire risk management plan should be incorporated into the proposed site management plans.

1.3 Environmental considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

1

The subject site has been previously cleared, resulting in no existing native vegetation on site.

No revegetation is proposed within the development and landscaping will be maintained in a low-threat state.

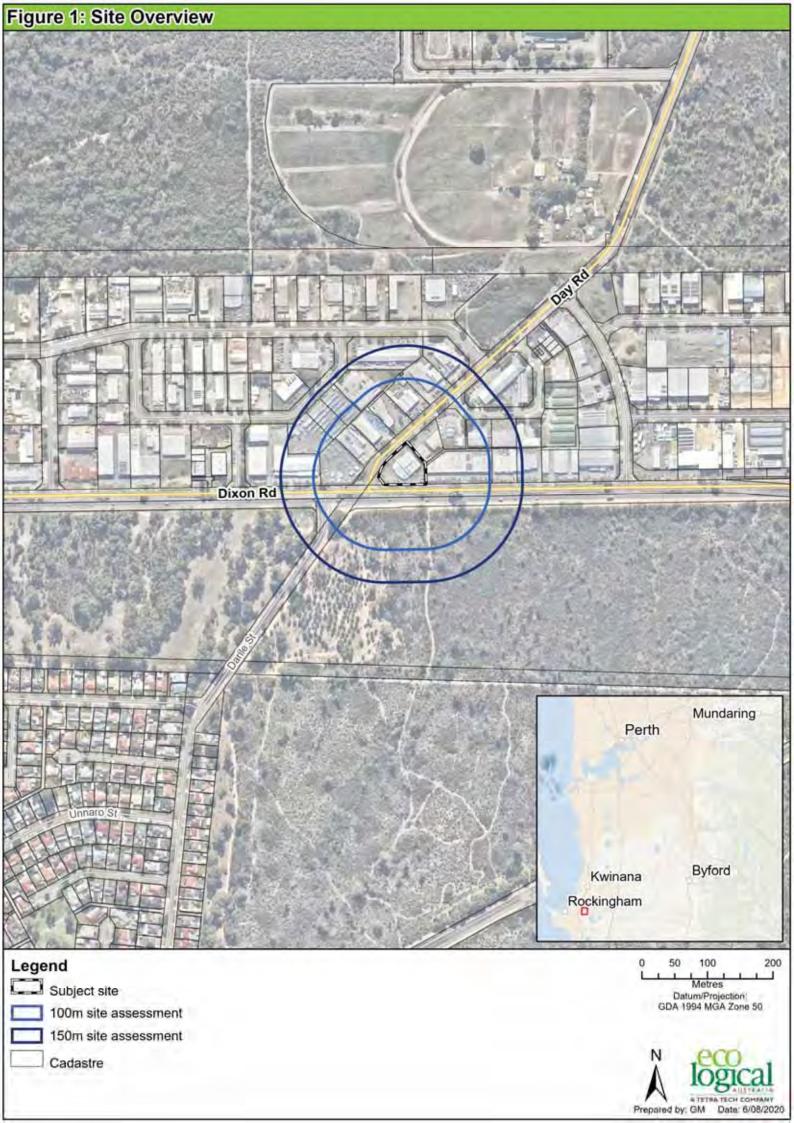
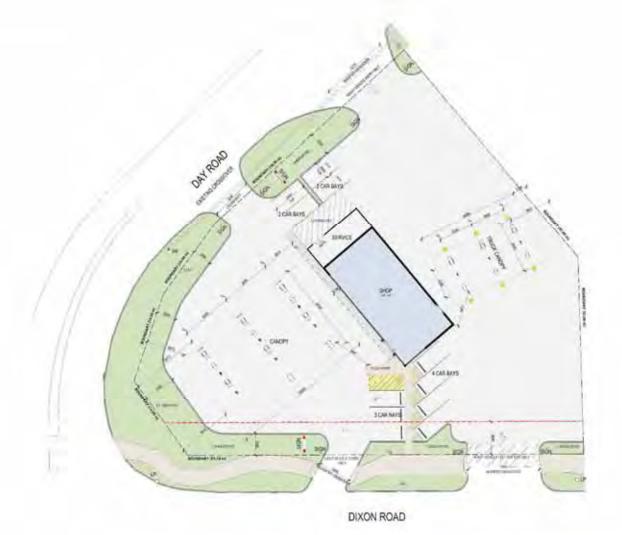


Figure 2: Site Plan





BITE KREA BUILDING KREA GANOPY TRUCK COMMERCIAL CHICAY

2581e/ 1959* 1280* 213e/ 11

CHISASS LANDSCAPE MEN.

Star

BROLK

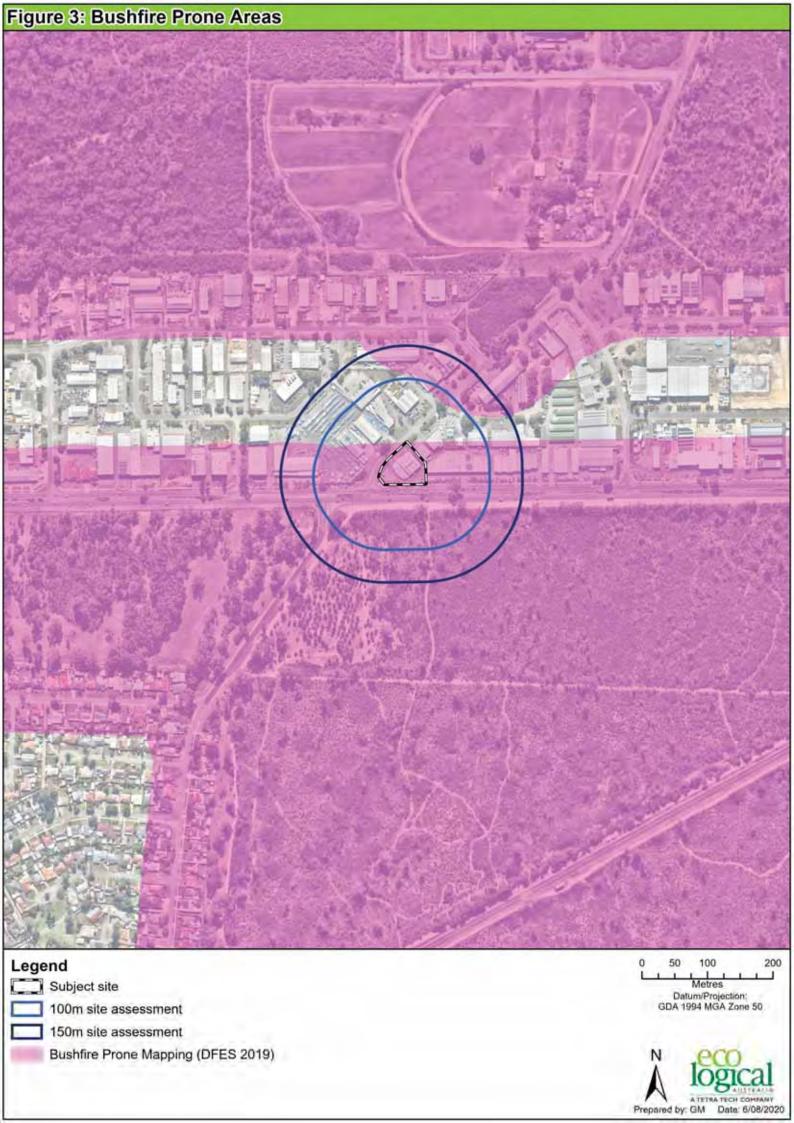
EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

SITEPLAN

Sees 1.000 Sees A3 Sele 5850075 Sel-Sel 200008

(mp in 3387 83

SITE PLAN



2. Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 Fire Danger Index

A blanket Fire Danger Rating (FDI) 80 is adopted for Western Australia, as outlined in Australian Standard (AS) 3959–2018 and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.2 Vegetation classification

Vegetation within the subject site and surrounding 150 m (the assessment area) was assessed in accordance with the Guidelines and *AS 3959-2018 Construction of Buildings in Bushfire Prone Areas* (SA 2018) with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 3 June 2020.

The classified vegetation for the proposed development from each of the identified vegetation plots are identified below, Table 1 and Figure 4.

Table 1: Classified vegetation as per AS 3959-2018

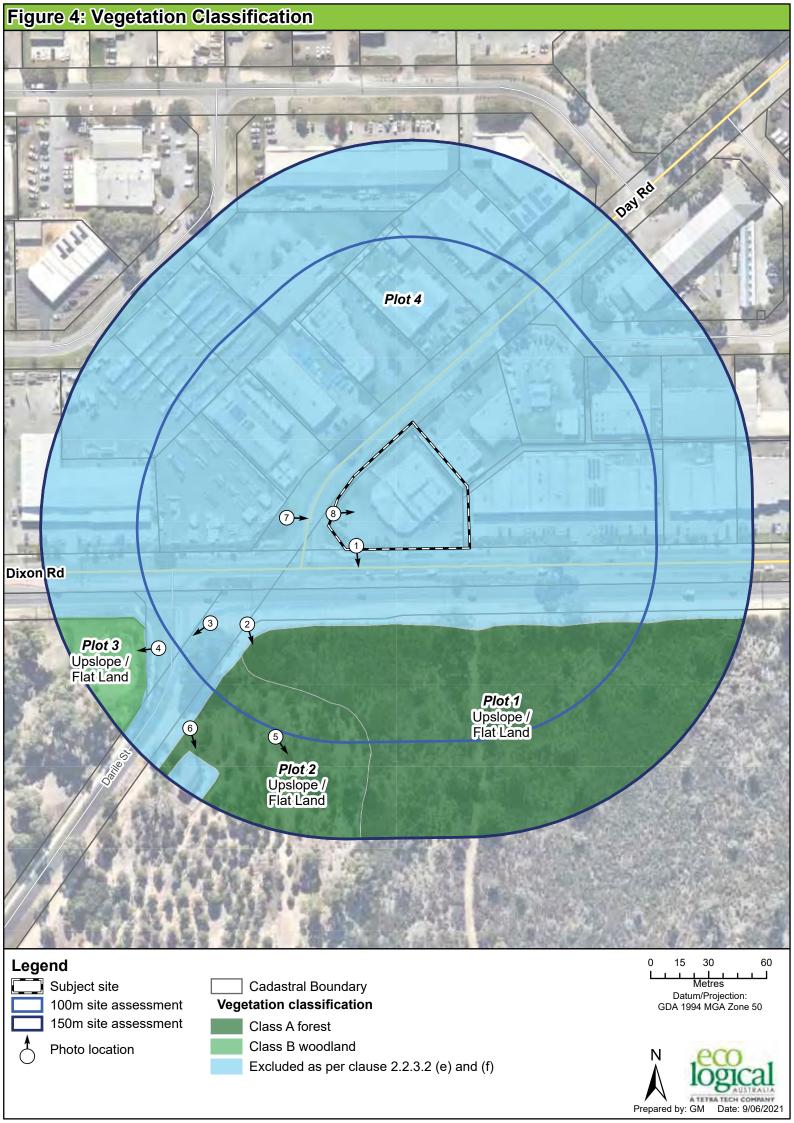
Plot	Vegetation Classification	Effective Slope
1	Class A Forest	All upslopes and flat land (0 degrees)
2	Class A Forest	All upslopes and flat land (0 degrees)
3	Class B Woodland	All upslopes and flat land (0 degrees)
4	Excluded AS 3959: 2018 2.2.3.2 (e)	-

Note: Plot 2 vegetation classification is based on advice from DFES utilising aerial imagery that ELA does not support, however this classification does not affect the overall BAL rating for the development.

Photographs relating to each area and vegetation type are included in Appendix A.

2.1.3 Topography and slope under vegetation

Effective slope under vegetation was assessed for a distance of 150 m from the subject site in accordance with the Guidelines and AS 3959: 2018 and is depicted in Figure 4. Slope under classified vegetation was assessed and is shown in Table 1.



2.2 Bushfire assessment outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959-2018 and the bushfire assessment inputs in Section 2.1.

2.2.1 BAL assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959: 2018.

A Method 1 BAL assessment (as outlined in AS 3959-2018) has been completed for the proposed development and incorporates the following factors:

- Fire Danger Index (FDI) rating;
- Vegetation class;
- Slope under classified vegetation; and
- Distance between proposed development area and the classified vegetation.

Based on the identified BAL, construction requirements for proposed buildings can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

2.2.2 Method 1 BAL assessment

Table 2 and Figure 5 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed development in accordance with AS 3959: 2018 methodology.

Table 2: Method 1 BAL calculation (BAL contours)

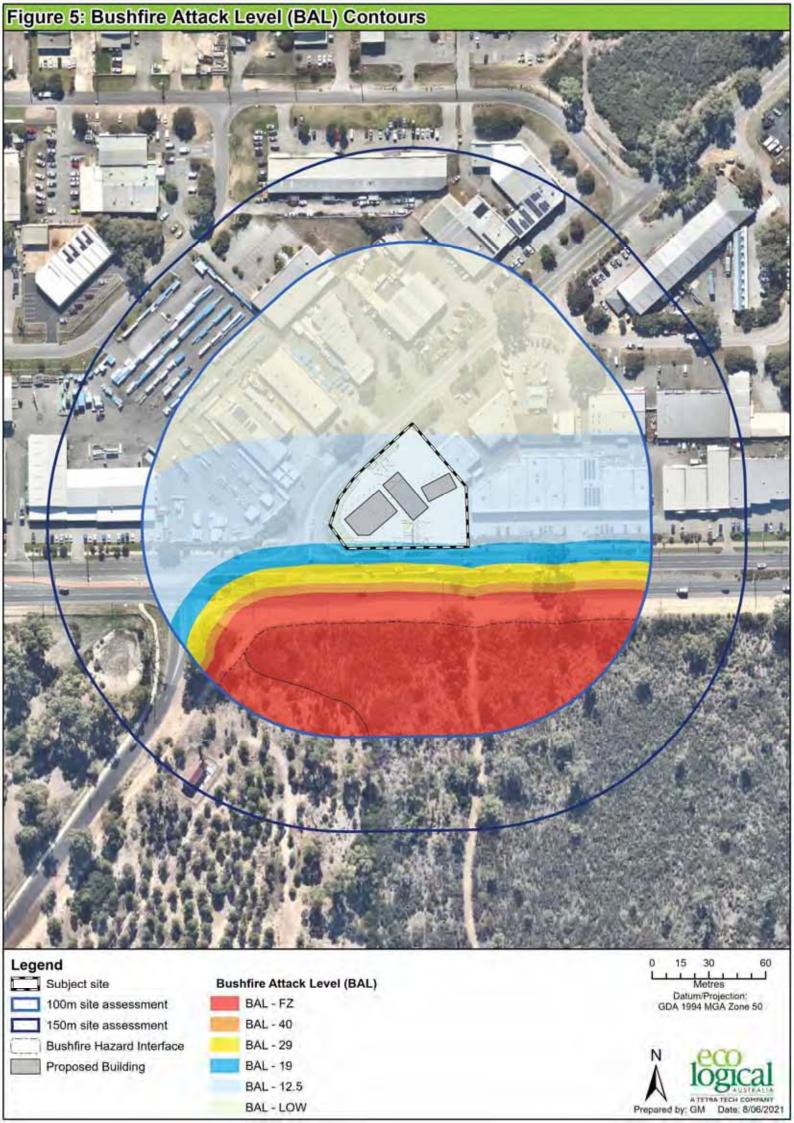
Plot and vegetation classification	Effective slope	Hazard separation distance	BAL rating	Comment
Plot 1 All upslopes and		0-<16	BAL-FZ	No development proposed in this area
Class A Forest	flat land (0 degrees)	16-<21	BAL-40	No development proposed in this area
	acg. ccs/	21-<31	BAL-29	No development proposed in this area
		31-<42	BAL-19	No development proposed in this area
		42-<100	BAL-12.5	Development proposed in this area
Plot 2	All upslopes and	0-<16	BAL-FZ	No development proposed in this area
Class A Forest	flat land (0 degrees)	16-<21	BAL-40	No development proposed in this area
	ucgi ecs)	21-<31	BAL-29	No development proposed in this area
		31-<42	BAL-19	No development proposed in this area
		42-<100	BAL-12.5	Development proposed in this area
Plot 3	All upslopes and	0-<10	BAL-FZ	No development proposed in this area
Class B Woodland	flat land (0 degrees)	10-<14	BAL-40	No development proposed in this area
	205.000)	14-<20	BAL-29	No development proposed in this area
		20-<29	BAL-19	No development proposed in this area
		29-<100	BAL-12.5	Development proposed in this area

Plot and vegetation classification	Effective slope	Hazard separation distance	BAL rating	Comment
Plot 4	2.2.2 (a) af	N/A		
Excluded as per clause 2. AS3959: 2018	.2.3.2 (e) of	N/A		

Based on the site assessment inputs and BAL assessment, the proposed service station within the subject site has a BAL rating of BAL-12.5.

2.3 Identification of issues arising from the BAL assessment

Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.



3. Assessment against the Bushfire Protection Criteria

3.1 Compliance

The proposed development is required to comply with policy measures 6.2, 6.5 and 6.6 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the proposed development in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summaries how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 6 where relevant.

Table 3: Summary of solutions used to achieve bushfire protection criteria

Bushfire Protection Criteria	AS	PS	N/A	Comment
Element 1: Location A1.1 Development location	\boxtimes			The proposed buildings within the subject site will be located in an area subject to BAL ratings of ≤BAL-29 (Figure 5; Figure 6). The proposed development is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	×			The proposed development has an APZ sufficient for the potential radiant heat flux to not exceed 29kW/m² and will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC 2017; Appendix B). The APZ can be contained within the boundaries of the lot or managed in perpetuity in a low fuel state. The proposed development is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Two access routes	\boxtimes			Two access routes to/from the subject site are available on to Dixon Road and Day Road (Figure 6). All roads are public roads and comply with requirements outlined in the Guidelines (Appendix C). The proposed development is considered to be compliant with A3.1.
A3.2 Public road				No public roads are proposed as part of this development.
A3.3 Cul-de-sac				No cul-de-sacs are proposed as part of this development.
A3.4 Battle-axe			\boxtimes	No battle axe lots are proposed.
A3.5 Private Driveway longer than 50 m			\boxtimes	No private driveways longer than 50 m are proposed.
A3.6 Emergency Access way				No emergency access way is required.

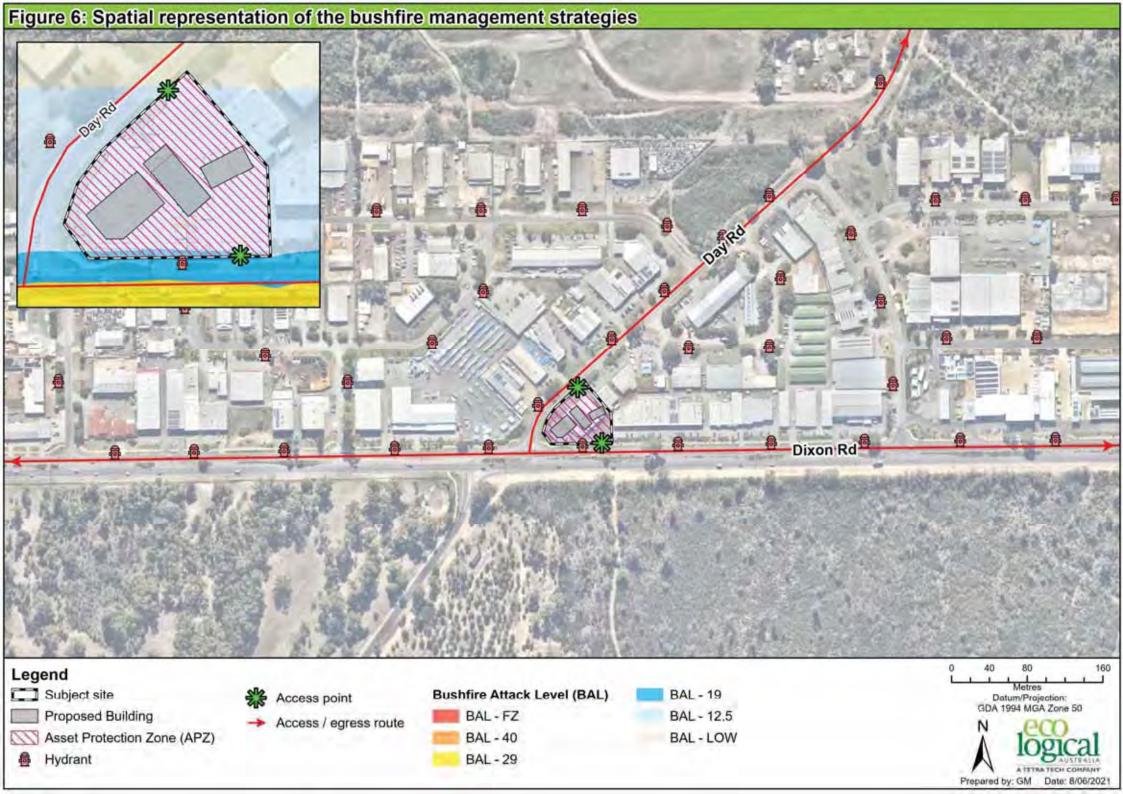
Bushfire Protection Criteria	AS	PS	N/A	Comment
A3.7 Fire-service access routes				No fire service access routes are required or proposed.
A3.8 Firebreak width				No fire breaks are required or proposed as per the requirements of City of Rockingham Firebreak Notice 2019 (CoR 2019).
Element 4: Water A4.1 Reticulated areas	\boxtimes			The subject site will be connected to a reticulated water supply. The proposed development is considered to be compliant with A4.1. A4.2 and A4.3 are not applicable to this proposed development.
A4.2 Non-Reticulated areas			\boxtimes	Reticulated water is present within the area.
A4.3 Individual Lots within non-reticulated areas			\boxtimes	Reticulated water is present within the area.

NOTE – AS- ACCEPTABLE SOLUTION, PS- PERFORMANCE SOLUTION, N/A- NOT APPLICABLE

3.2 Additional Bushfire Requirements

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (Appendix B) and shown as Appendix D.

Due to the high risk land use designation, a bushfire risk management plan (BRMP) has been developed that addresses Policy Measure 6.6 of SPP 3.7 (ELA 2020).



4. Implementation and enforcement

Implementation of the BMP applies to the developer, future owners within the subject site and the local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 4. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4: Proposed work program

No	Bushfire management measure	Responsibility						
Prior to	Prior to occupancy							
1	Ensure proposed building is located outside of areas subject to BAL-FZ and BAL-40 as per the design in Figure 6.	Developer						
2	Ensure all APZs are implemented and maintained	Developer						
3	Implement Bushfire Risk Management Plan	Developer						
Ongoin	Ongoing management							
4	Maintain APZ	Owner / Occupier						

5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development. As such, the proposed development is consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

6. References

City of Rockingham, 2019, City of Rockingham Fire Control Notice.

Department of Fire and Emergency Services, 2019, *Map of Bush Fire Prone Areas, [Online]*, Government of Western Australia, available from: http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx

Department of Planning (DoP), 2016, Visual guide for bushfire risk assessment in Western Australia. DoP, Perth.

Eco Logical Australia (ELA) 2020. Bushfire Risk Management Plan: Development Application: 115 Dixon Road, East Rockingham.

Standards Australia, 2018, *Construction of buildings in bushfire-prone areas, AS 3959-2018*. SAI Global, Sydney.

Western Australian Planning Commission, 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. WAPC, Perth.

Western Australian Planning Commission, 2017, *Guidelines for Planning in Bushfire Prone Areas Version* 1.3 (including appendices), WAPC, Perth.

Western Australian Planning Commission, 2019, *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*.

Appendix A – Classified Vegetation Photos



Class A Forest



Class A Forest

1

2

Plot Photo ID Photo and vegetation classification



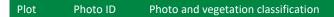
2 3

Class B Woodland



2 '

Class B Woodland





Class B Woodland



Excluded AS 3959: 2018 2.2.3.2 (e)

Note: area surrounding the historical building is maintained inside the fenceline as low threat vegetation. Maintenance undertaken by City of Rockingham.

3 5

© ECO LOGICAL AUSTRALIA PTY LTD

6



Excluded AS 3959-2018 2.2.3.2 (e)



Excluded AS 3959-2018 2.2.3.2 (e)

Appendix B – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas* v 1.3 (WAPC 2017).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

- **a. 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 fire does not exceed 29kW/m² (BAL-29) in all circumstances.
- **b. Location:** the APZ should be contained solely within the boundaries of the lot on which a 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).
- **c. Management:** the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' (below):
 - 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 7).

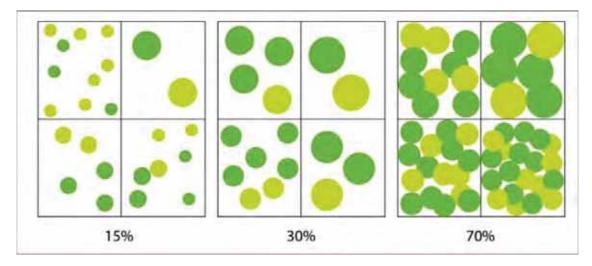


Figure 7: Illustrated tree canopy cover projection (WAPC 2017)

- 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.

Additional notes

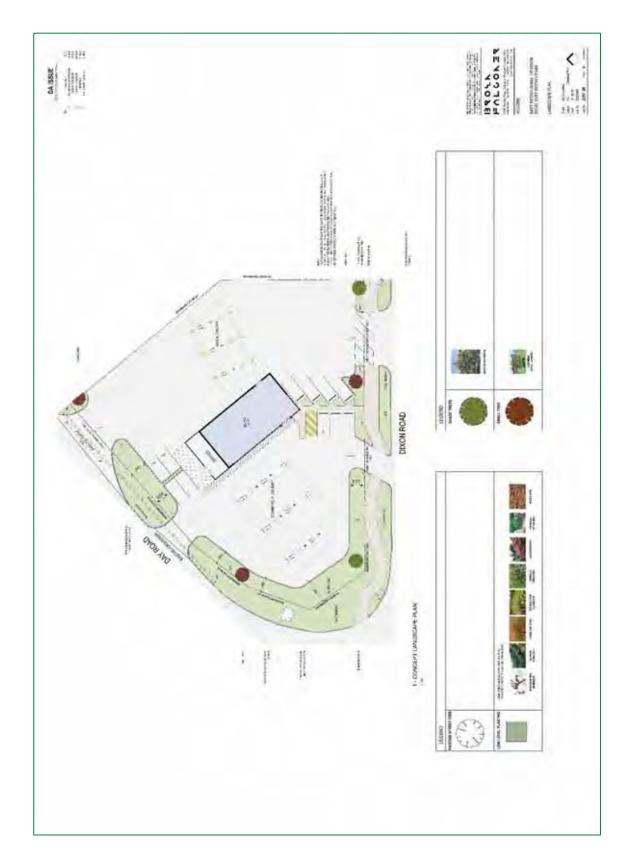
The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

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. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

Appendix C - Vehicular access technical requirements (WAPC 2017)

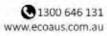
Technical requirements	Public road	Cul-de-sac	Private driveway	Emergency access way	Fire service access route
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight 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	8.5	8.5	8.5	8.5	8.5
* Refer to E3.2 Public roads	s: Trafficable surfa	ce			

Appendix D: Proposed Landscaping Plan









Bushfire Risk Management Plan:

Development Application: Liberty Oil - 115 Dixon

Road, East Rockingham

Accord Property







DOCUMENT TRACKING

Project Name	Bushfire Risk Management Plan: Development Application: Liberty Oil - 115 Dixon Road, East Rockingham
Project Number	20PER-15282
Project Manager	Alex Aitken
Prepared by	Alex Aitken (BPAD Level 2 – 3739)
Reviewed by	Daniel Panickar (BPAD Level 3 – 37802
Approved by	Daniel Panickar (BPAD Level 3 – 37802
Status	Final
Version Number	v3
Last saved on	11 June 2021

This report should be cited as 'Eco Logical Australia 2021. Bushfire Risk Management Plan: *Development Application: 115 Dixon Road, East Rockingham.* Prepared for Accord Property.'

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Accord Property (the client) and Planning Solutions

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and the client. The scope of services was defined in consultation with the client, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Template 2.8.1

Contents

1. Introduction	
1.1 Project overview	
1.2 Purpose and application of the plan	1
2. Bushfire risk assessment methodology	5
3. Identified bushfire scenarios	8
3.1 Scenario 1 - Bushfire approaching subject site from the south to south-west	8
4. Bushfire risk assessment results	g
4.1 Risk context	
4.2 Risk identification	
4.3 Risk analysis and evaluation	
4.4 Summary of results	
5. Bushfire mitigation measures	11
5.1 Fire protection and detection equipment	11
5.2 Evacuation plan and assembly points	11
5.3 Personnel training	
5.4 Bushfire suppression	
5.5 Landscaping	
5.6 Additional measures	12
6. Conclusion	13
7. References	14
Appendix A November to February wind roses for Jandakot Aero (Station No. 0917	2; BoM 2020)15
List of Figures	
Figure 1: Site overview	3
Figure 2: Site Plan	2
Figure 3: Risk assessment process as per AS/NZS ISO 31000:2009	

List of Tables

Table 1: Likelihood rating system	6
Table 2: Consequence rating system	
Table 3: Risk assessment matrix	
Table 4: Bushfire risk assessment	

1. Introduction

1.1 Project overview

Eco Logical Australia (ELA) was commissioned by Accord Property to prepare a Bushfire Risk Management Plan (BRMP) to support a development application (DA) being prepared for the development of a *Liberty* service station located at 115 Dixon Road, East Rockingham (hereafter referred to as the subject site; Figure 1 and Figure 2).

The proposed development will include:

- Demolition of the existing buildings; and
- Construction of a new retail store, canopies, fuel bowsers, underground fuel tanks, parking areas etc. as depicted in Figure 2.

The proposed development will result in an intensification of land use.

The subject site is located within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2019), which triggers bushfire planning requirements under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

This assessment has been prepared by ELA Senior Bushfire Consultant Alex Aitken (FPAA BPAD Level 2 Certified Practitioner No. BPAD37739.) with quality assurance undertaken by Senior Bushfire Consultant, Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.2 Purpose and application of the plan

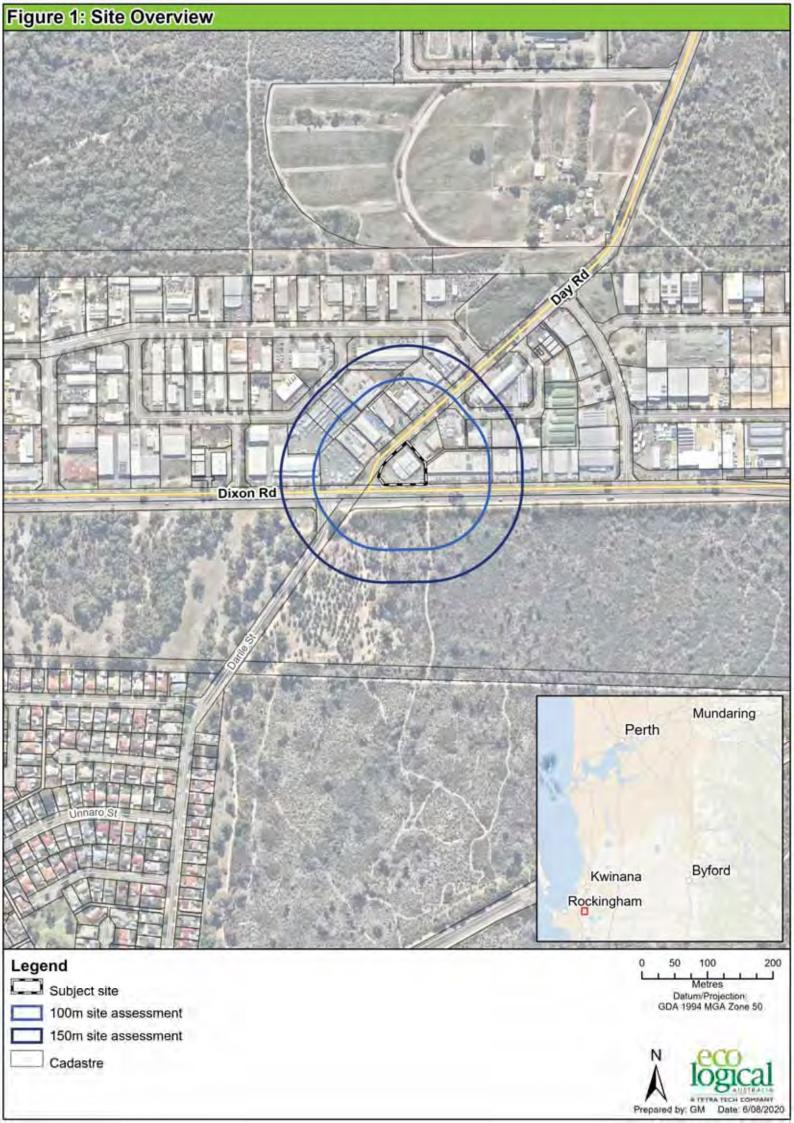
The primary purpose of this BRMP is to act as a technical supporting document to inform planning assessment in conjunction with the corresponding Bushfire Management Plan (BMP) also prepared by ELA (ELA 2020).

SPP 3.7 (Policy Measure 6.6) requires development applications for high-risk land uses (such as petrol stations) in areas between BAL-12.5 and BAL-29 to be accompanied by a risk management plan for any flammable on-site hazards. The Bushfire Management Plan (BMP) prepared by ELA for the subject site (ELA 2020) identifies all new proposed structures within the subject site as being located within areas subject to a BAL rating of BAL-12.5 or lower.

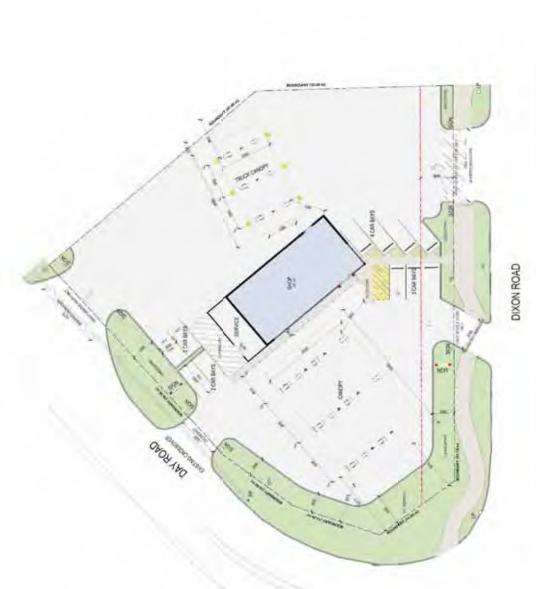
The Building Code of Australia bushfire construction requirements only apply to residential buildings and associated structures. The Guidelines therefore require the planning process to focus on location and siting of high-risk land uses rather than application of bushfire construction requirements.

© ECO LOGICAL AUSTRALIA PTY LTD

Under the *Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007* (the Regulations), the operator will also be required to complete a separate risk assessment that addresses risks other than bushfire for the proposed development. The Regulations also require operators to prepare an emergency plan for petrol stations. An emergency management plan will be developed for the subject site, which will set guidelines for the management of an emergency, disaster or major incident at the site. The emergency plan for the fuel station will reflect the site layout and bushfire risk post-construction.







1111 . 1

BIT ORA DAUDHI ARA CARREDA CARCH CARREDA CARCH CARRES LAGORES

BAOLCON EN

EAST ROCCEGNAR, 115 DICON ROAD, EAST ROCCEGNARA

SITE PLAN

2. Bushfire risk assessment methodology

Australian and New Zealand Standard *AS/NZS ISO 31000:2009 Risk Management–Principles and Guidelines* (SA & SNZ 2009) provides an internationally recognised approach to risk management. Methodology for this process is further described in *Risk Management Guidelines: Companion to AS/NZS 4360/2004* (SA & SNZ 2004), which defines the risk assessment process as outlined in Figure 3.

AS/NZS ISO 31000:2009 is adopted by the Department of Fire and Emergency Services (DFES), as documented in the agency's Bushfire Risk Management Framework (DFES 2015).

From a bushfire management perspective, this methodology can be useful in determining:

- 1. The inherent bushfire risk (i.e. the initial level of risk prior to risk treatment and mitigation); and
- 2. The residual bushfire risk (i.e. the level of risk remaining following risk treatment and mitigation).

Inherent and residual bushfire risk can be determined on the basis of the following risk criteria:

- <u>Likelihood</u> of ignition and bushfire occurrence takes into consideration the bushfire history of the area, risk of ignition, vegetation type, fuel age and load, slope under vegetation and predominant fire weather conditions; and
- <u>Consequence</u> or impact from bushfire on life, property and the environment considers the degree and severity of potential bushfire scenarios, location of bushfire hazard areas, assets present in the area and the level of management and suppression response available.

The bushfire scenarios identified in Section 3 have been subject to bushfire risk assessment through determination of likelihood and consequence in accordance with the rating tables outlined in Table 1 and Table 2¹. This process determines the inherent bushfire risk of the event and informs the level of mitigation or management response required to reduce the risk to an acceptable level. The risk assessment matrix used to determine inherent and residual bushfire risk is outlined in Table 3.

_

¹ The determined consequence rating is the most likely outcome, not the worst case.

Table 1: Likelihood rating system

Likelihood rating	Description
Almost certain	Consequence expected to occur in most circumstances, may occur once every year or more
Likely	Consequence will probably occur in most circumstances, may occur once every five years
Possible	Consequence might occur at some time, may occur every twenty years
Unlikely	Consequence is not expected to occur, may occur once every one-hundred years
Rare	Consequences may occur only in exceptional circumstances; may occur once every five-hundred or more years

Table 2: Consequence rating system

Consequence rating	Description
Catastrophic	A large number of severe injuries, widespread damage and displacement of the community, significant impact on the environment
Major	Extensive number of injuries requiring hospitalisation, significant damage and impact on the community, longer term impacts on the environment
Moderate	Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment
Minor	Small number of injuries but no fatalities, some damage and disruption but no lasting effects
Insignificant	No injuries or fatalities, little damage or disruption

Table 3: Risk assessment matrix

			Consequences		
Likelihood	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	High	High	Extreme	Extreme	Extreme
Likely	Medium	High	High	Extreme	Extreme
Possible	Low	Medium	High	Extreme	Extreme
Unlikely	Low	Low	Medium	High	Extreme
Rare	Low	Low	Medium	High	High
Risk level	Risk response				
Low	· ·	pplication of standar eliminated or reduced	<u> </u>	sures will ensure risk	level remains low
Medium	, ,	otable risk. Developm vel and risk should be		ŭ	
High	' '	otable risk. Developm he risk level and requ			nt measures will be
Extreme	· ·	Additional site-speci on response is requir	o .	required to lower th	ne risk level and an

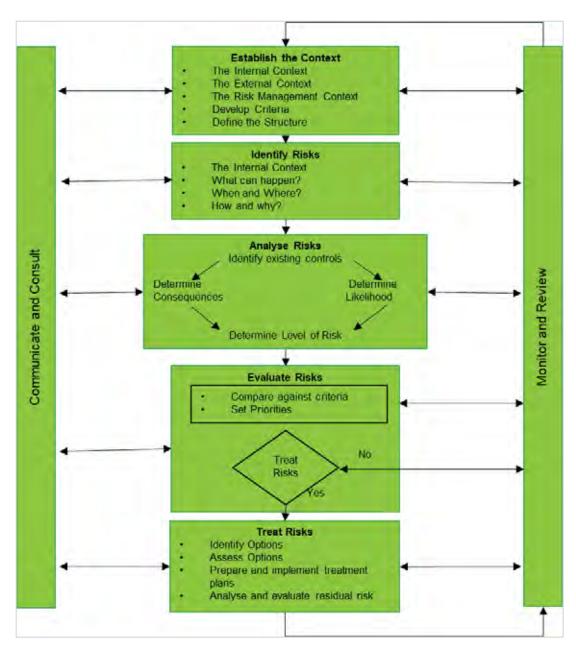


Figure 3: Risk assessment process as per AS/NZS ISO 31000:2009

3. Identified bushfire scenarios

The BMP (ELA 2020) identifies and classifies the existing bushfire hazards within 150 m of the subject site, based on existing vegetation and slope and separation distance to the vegetation.

Based on this information, ELA has assessed potential bushfire scenarios that could affect the subject site. The potential bushfire scenarios have been used to inform a bushfire risk assessment (refer to Section 4) and assist in development of appropriate bushfire mitigation responses (refer to Section 5). The following bushfire scenarios were assessed:

- Bushfire approaching the subject site from the south; and
- Bushfire approaching the subject site from the south (including south-west and south-east).

A description of each potential bushfire scenario is provided in the following subsections and November-February wind roses for Jandakot Aero Weather Station (Station No. 09172, approximately 20.3 km from the subject site) used to identify potential directions of bushfire attack are provided in Appendix A (BoM 2020).

3.1 Scenario 1 - Bushfire approaching subject site from the south to south-west

A bushfire approaching the subject site from the south to south-west through a combination of revegetated forest and open woodlands is likely during the afternoons in the bushfire season (3pm) given the predominant winds for the area come from the southwest at up to 30-40 km/hr (BoM 2020).

The bushfire risk in this scenario is associated with a fire starting within the reserves and public open space to the south of the subject site. Some of this vegetation has also been subject to revegetation due to past rural land uses in the area to the east of Darile Street which is currently comprised of planted eucalypts with no understorey. This revegetated fuel type varies significantly to adjacent intact vegetation to the east which contains a complex stratified structure with varying fuel loads. Vegetation to the south-west is comprised of open woodlands with a grassy understorey.

There is a heightened risk of ignition in these areas due to the frequent public interaction within the reserve. The areas of vegetation have a flat slope providing minor influence to increase the fire behaviour during a bushfire incident.

It is likely however, that the road network and existing development adjacent to these areas will provide an increased opportunity for early detection of a fire. This may allow a rapid fire suppression response, dependent upon the Fire Danger Rating (FDR) during a fire event, which could contain a fire in this area before significant impacts are experienced at the subject site.

Based on the Department of Biodiversity, Conservation and Attractions (DBCA) spatial information (DBCA_firehistory_060) there have been four fires in the reserve to the south in the last 10 years.

4. Bushfire risk assessment results

4.1 Risk context

Risk is being assessed to inform bushfire mitigation for the subject site for the protection of life and property within and adjacent to the site. The risk assessment adopts a broad area and supports a tenure blind approach to ensure wider risk impacts and adjoining lands are captured to suitably address potential risk.

4.2 Risk identification

Bushfire risk is identified in the potential bushfire scenario outlined in Section 3, which indicates the potential bushfire event that could impact life and property within the subject site and adjacent land. This scenario is considered to cover the majority of bushfire events that could occur in order to develop suitable mitigation and manage as much of the bushfire risk as possible.

4.3 Risk analysis and evaluation

Risk analysis and evaluation for the bushfire scenario described in Section 3 is provided in Table 4, which specifies the likelihood and consequence of the scenario with and without management measures to determine inherent and residual risks.

4.4 Summary of results

Due to the storage and handling of flammable materials within the subject site, the potential consequence of a bushfire entering the site would be greater than if flammable materials were not present.

ELA is of the view that following implementation of management measures provided in the Section 5, the risk of ignition will not be reduced due to the ongoing level of public access and presence of off-site classified vegetation and on-site flammable goods. Therefore, bushfire risk management measures are likely to reduce the level of consequence resulting from the bushfire event, rather than the likelihood of the event occurring. For example, an evacuation plan will reduce the potential impacts on life; thus reducing the level of consequence received from the bushfire event, but the likelihood of the event occurring will not be reduced.

	Comments	Likelihood	Consequence	Inherent risk	Mitigation	Likelihood	Consequence	Residual risk
Safety risk Predominar fuels with a elevated ar revegetatio developme slopes to in	Safety risk Predominantly open woodland and forest fuels with a complex structure (i.e. surface, elevated and mature trees) with areas of revegetation in close proximity to the development with gentle to negligible slopes to influence fire behaviour.							
	Potential ignition sources are lightning and arson. Greatest level of impact would occur under adverse fire weather conditions with a southerly through to south-westerly wind (common all year round in the afternoons).	Likely	Moderate	High	Implementation of management measures identified in Section 5	Likely	Insignificant	Medium
	Consequence is not expected to occur, may occur once every five years based on fire history, suppression response capability, fuel types, anticipated rate of spread etc.							
= ;4	Some injuries requiring medical treatment but no fatalities, localised damage.							

5. Bushfire mitigation measures

Scenario 1 is presented as the only source of potential bushfire risk with the type of vegetation (open woodland and forest), complex fuel structure (continuing rehabilitation), proximity to the proposed development and the increased risk of ignition in this area (arson). The other areas surrounding are light industrial areas already developed and pose no bushfire risk to the subject site.

Implementation of the management measures provided in the following subsections prioritise protection of life and property and will reduce bushfire risk (residual risk) within the subject site. Several items have been included as part of the planning assessment in conjunction with the corresponding Bushfire Management Plan (BMP, ELA 2020) and may be updated as part of operational documentation with site specific detail.

5.1 Fire protection and detection equipment

The proposed service station will be fitted with a monitored alarm system, which when activated triggers an automatic response to the nominated security company.

Fire extinguishers will be located within the subject site at each bay. There will be emergency stop buttons for the fuel system at the Point of Sale and externally on the front of the retail building. Only personnel trained in the use of extinguishers should be utilising this equipment and only if safe to do so.

A Spill Response Kit will be maintained on the subject site at the front apron of the retail building, accessible to the forecourt. Fire services are to be called in the event of a spill that covers more than 2 m² and cannot be cleaned with a spill kit at site or it is not considered safe to do so.

5.2 Evacuation plan and assembly points

Liberty Oil is required to develop an emergency management plan for the subject site in accordance with *Australian Standard 3745-2010 Planning for emergencies in facilities*, identifying evacuation triggers and depicting muster points on-site.

5.3 Personnel training

All occupants working at the subject site must be trained in responding to and managing all emergency incidents in accordance with the emergency management plan for the site. A record of training must be kept up to date and debrief sessions held after all training exercises or incidents.

An evacuation exercise must be carried out at least annually. All occupants working on the site are required to participate.

5.4 Bushfire suppression

The Rockingham Fire Station (career Fire & Rescue) is located less than a 1 km from the subject site and is expected to provide a best-case emergency suppression response time of less than 15 minutes in the event of an emergency.

5.5 Landscaping

All landscaping areas within the subject site will be maintained in accordance with *Standards for Asset Protection Zones* (WAPC 2017).

5.6 Additional measures

5.6.1.1 Manifest

Dangerous goods sites must maintain a current manifest and a dangerous goods site plan, to allow an appropriate response by Emergency responders in the event of an emergency, such as a fire.

The manifest and dangerous goods site plan for dangerous goods that will be stored and handled at the service station will need to be developed in accordance with the relevant Dangerous Goods Safety Guidance Note (DMP 2014).

The emergency management plan refers to critical information for emergency response being located in the HAZMAT/HAZCHEM emergency boxes which will be located inside the retail building. This information includes the Emergency Plan, Dangerous Goods Manifest, Register of Dangerous Goods and Hazardous Materials, Safety Data Sheets for bulk products kept on site and dangerous goods site layout plan.

5.6.1.2 Ignition sources

Operators of dangerous goods sites are required to manage potential ignition sources, such as hot works and electrical equipment, within any on-site hazardous areas.

5.6.1.3 Placard and marking

A placard, readily visual for Emergency responders and providing visual warnings of the hazards associated with storage of fuel, will be required at the subject site in accordance with DMP Storage and handling of dangerous materials Code of Practice (DMP 2010).

Signage and notices will also be required in accordance with AS 1940-2004 The storage and handling of flammable and combustible liquids (AS 1940-2004; SA 2004) and any relevant state guidance.

6. Conclusion

ELA expects that through implementation of the management measures outlined in this BRMP, inherent bushfire risk to life and property within and surrounding the subject site can be reduced.

7. References

Bureau of Meteorology (BoM). 2020. *Climate statistics for Australian locations: Monthly climate statistics for Jandakot Aero*, [Online], Commonwealth of Australia, available from: http://www.bom.gov.au/climate/averages/tables/cw_09172.shtml, [31 July 2020].

Department of Fire and Emergency Services (DFES) 2015, Guidelines for Preparing a Bushfire Risk Management Plan, Department of Fire and Emergency Services, Western Australia.

Department of Fire and Emergency Services (DFES). 2019. *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from:

http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx.

Department of Mines and Petroleum (DMP) 2010, Storage and handling of dangerous goods - code of practice (2nd edition), Resources Safety, Department of Mines and Petroleum, Western Australia.

Department of Mines and Petroleum (DMP) 2014, *Dangerous Goods Safety Guidance Note, Manifest and site plan requirements for dangerous goods sites*, Resources Safety, Department of Mines and Petroleum, Western Australia.

Eco Logical Australia (ELA). 2020. Bushfire Management Plan: 115 Dixon Road, East Rockingham. Prepared for Accord Property.

Standards Australia and Standards New Zealand (SA & SNZ) 2004, *Risk Management Guidelines: Companion to AS/NZS 4360:2004*, HB 436:2004, Standards Australia/Standards New Zealand, Sydney/Wellington.

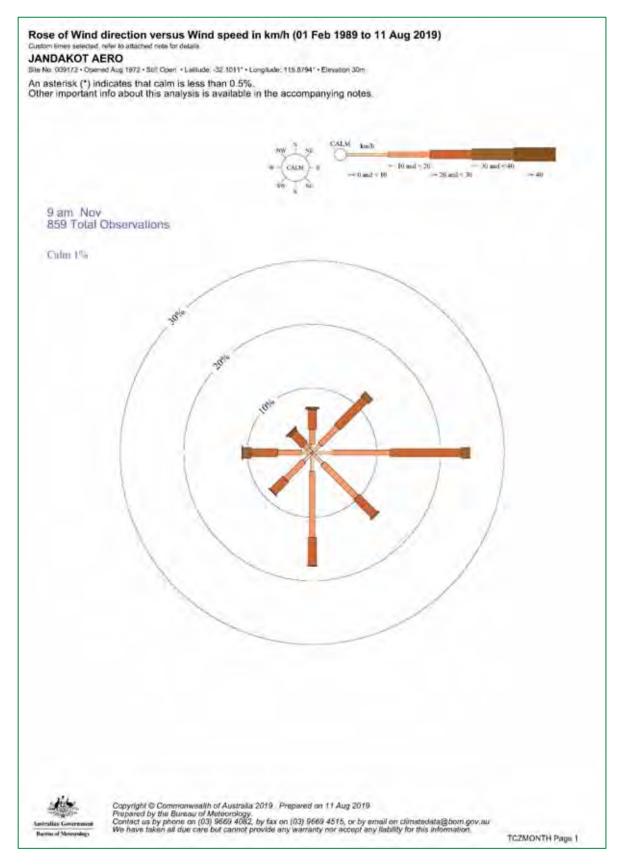
Standards Australia and Standards New Zealand (SA & SNZ) 2009, Australian Standard/New Zealand Standard AS/NZS ISO 31000:2009 Risk management – Principles and guidelines, Standards Australia/Standards New Zealand, Sydney/Wellington.

Standards Australia (SA) 2004, Australian Standard AS 1940–2004 The storage and handling of flammable and combustible liquids, Standards Australia, Sydney.

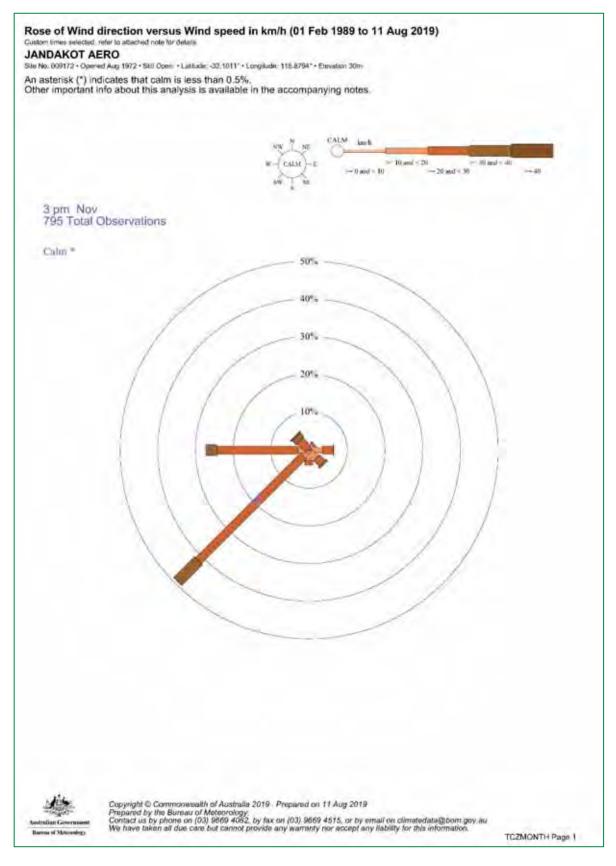
Western Australian Planning Commission (WAPC). 2015. *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. WAPC, Perth.

Western Australian Planning Commission (WAPC). 2017. Guidelines for Planning in Bushfire Prone Areas Version 1.3 (including appendices). WAPC, Perth.

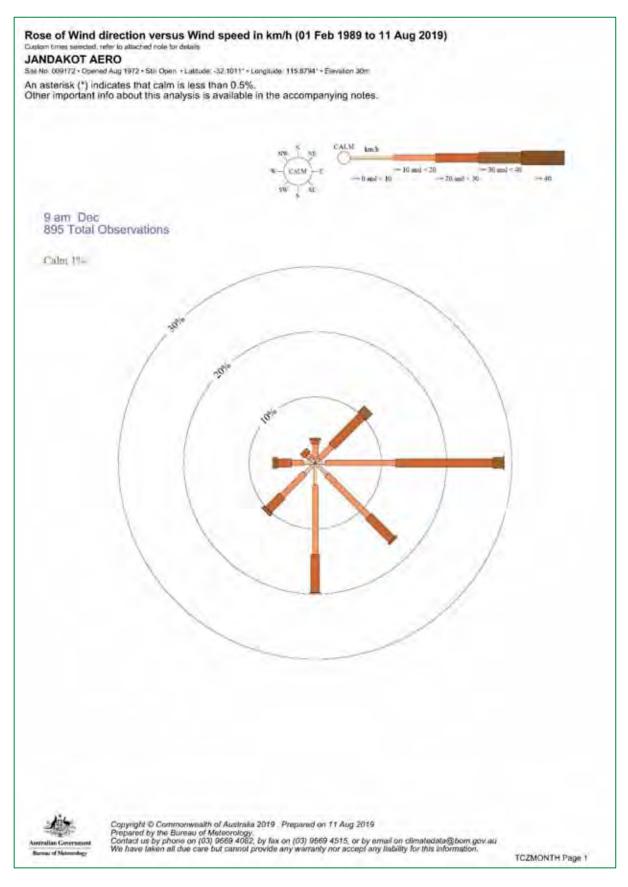
Appendix A November to February wind roses for Jandakot Aero (Station No. 09172; BoM 2020)



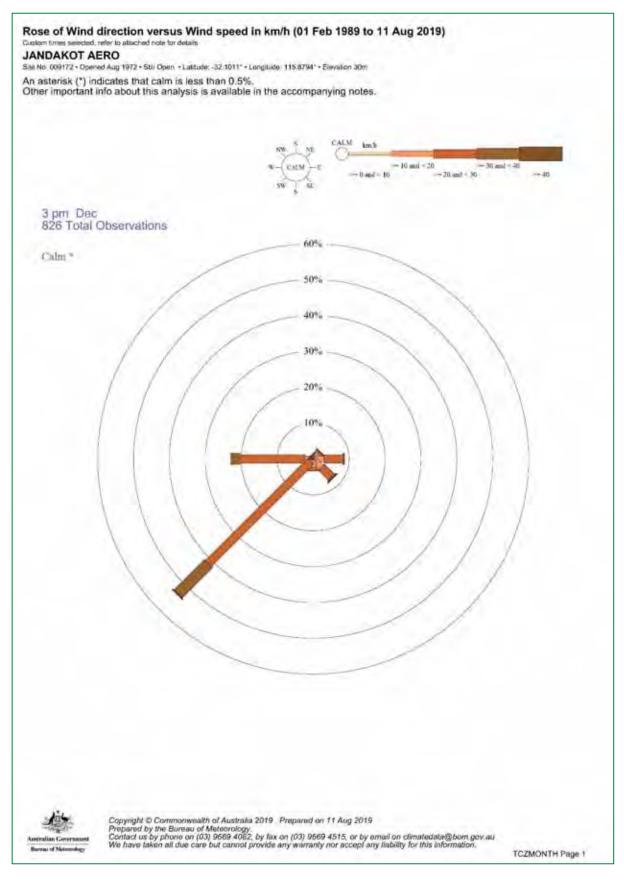
Wind Rose (November - 9am)



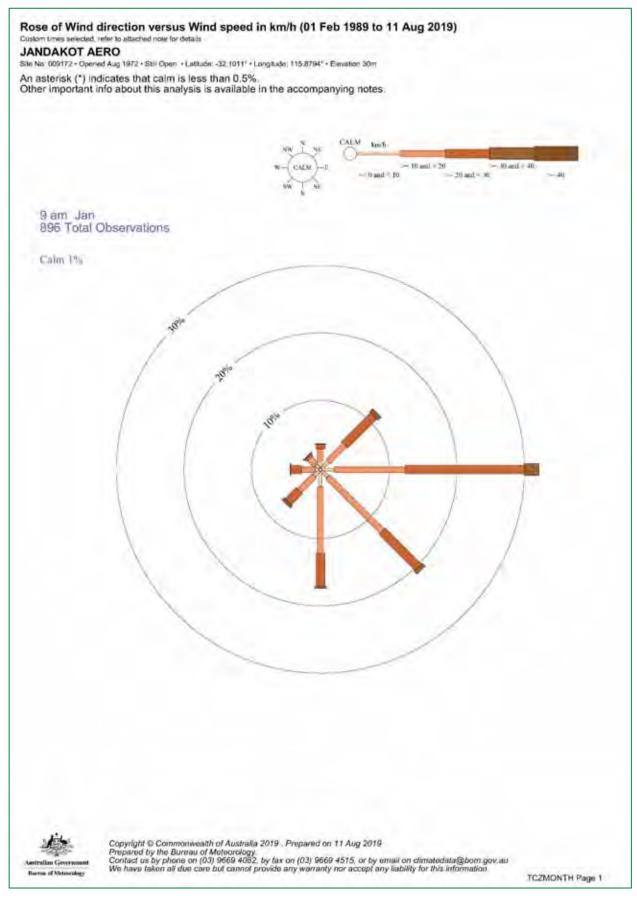
Wind Rose (November - 3pm)



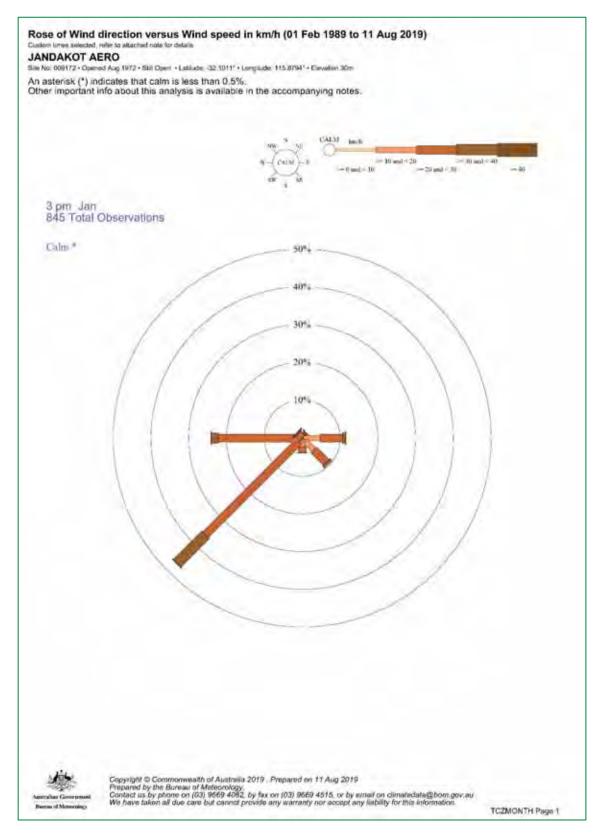
Wind Rose (December - 9am)



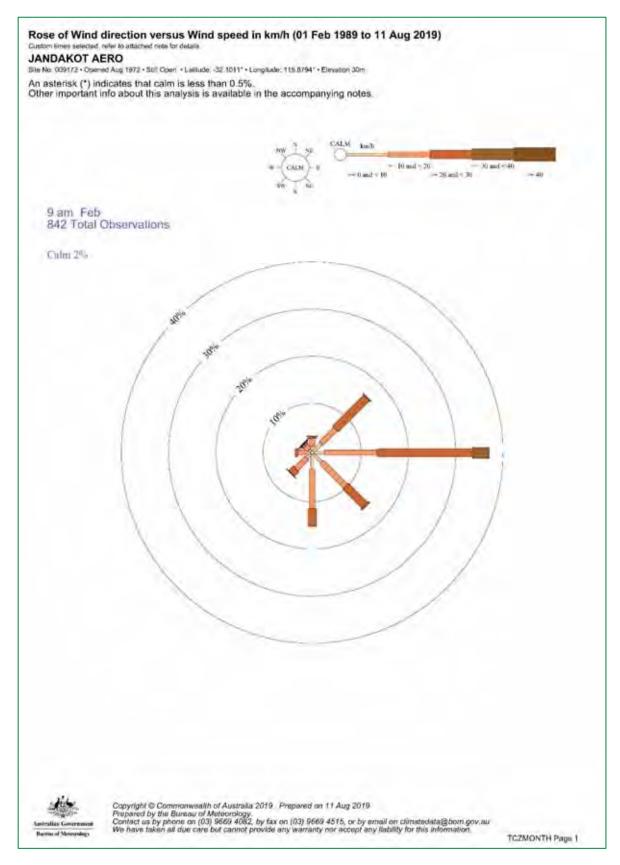
Wind Rose (December - 3pm)



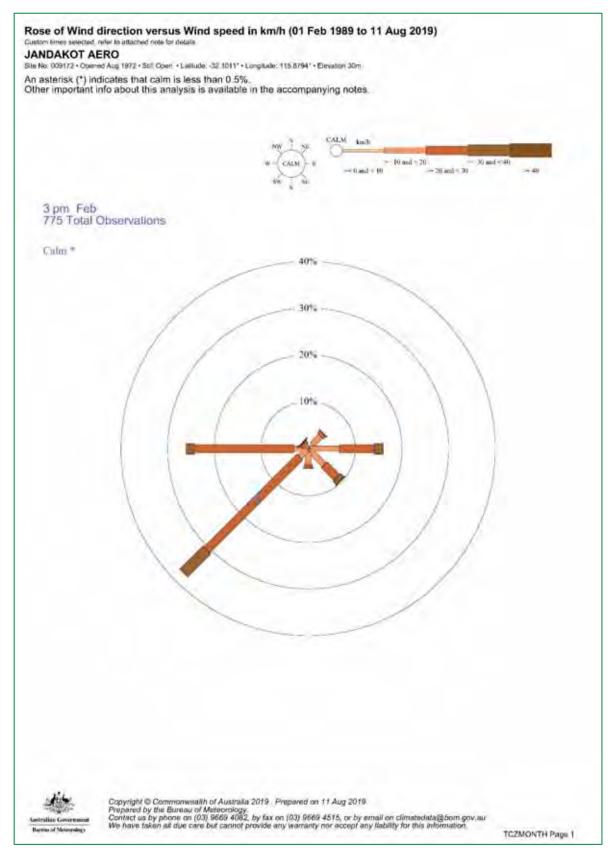
Wind Rose (January - 9am)



Wind Rose (January - 3pm)



Wind Rose (February - 9am)



Wind Rose (February - 3pm)







ROCKINGHAM AUTO ELECTRICS

SINOGAL PTY. LTD. A.C.N. 051 765 505 TELEPHONE: 527 8999 • FACSIMILE: 527 8996 75b DIXON ROAD, ROCKINGHAM W.A. 6168

Technical Services

24-03-97

Attention Stuart Marshall

Dear Sir

After observing the traffic flow situation at the Dixon Rd, Day Rd intersection during the afternoon peak hour every day last week I was able to collect data which I have put into a table (included).

A close look at that data shows the following,

The Dixon Rd, Day Rd intersection becomes very congested at times during peak hour.

On occassions traffic banks up to and past Edson Crt.

During those occassions crossovers on lot 10, 11 & 12 would be totally inaccessible.

On 3 occassions during the 5 days the Southern end of Edson Crt was cut off.

It is evident from the table that when the traffic is banked up for long periods it coincides with vehicles turning right from Dixon Rd into Day Rd. These vehicles stop on Dixon Rd facing West directley in front of the Day Rd stop sign, while waiting for oncoming traffic to pass and for a break in the vehicles turning left into Day rd, they block the path of vehicles at the stop sign, thus causing further bank up on Day Rd.

This sutuation is at its worst at the present day. Traffic signals and a second lane would solve the problem if and when installed.

As previosely discussed with Plannning and Engineering, The traffic in and out of our proposed premises will be minimal, we carry out vehicle repairs only (no retail), we have calculated our worst case situation as 40 vehicles per day. Our database also shows that over the last 4 years 12 % of our customers are from the Kwinana area, that averages out to approximately 5 cars per day.

Most clients from Rockingham area will access our premeses via Dixon Rd and will tend to leave the same way. Most clients coming from Kwinana area will access our premeses via Day Rd and then turn left at the stop sign into Dixon Rd, they will also tend to leave the same way.

These 5 vehicles per day from Kwinana will add to the bank up at the stop sign when accessing our premises and upon leaving (which will usually be during peak hour) they will turn right onto Dixon Rd and then right into Day Rd blocking the path of vehicles at the stop sign helping to cause cronic bank up on Day Rd.

After spending this last week at this intersection collecting data, I realise that the intersection cannot stand much more pressure, so I propose that you allow the second crossover on Day Rd as a one way access (in only). I would be happy with a condition to errect signs on the inside of the driveway reading NO EXIT ONE WAY and also a sign on the inside of the Dixon Rd driveway reading KWINANA TRAFFIC TURN LEFT.

This would take pressure off the intersection, as Kwinana clients would turn left into the second Day Rd driveway, rather than adding to the bank up at the stop sign, and upon leaving most would obey the sign to turn left into Dixon Rd.

A second cross over as a 1 way access would actually improve the situation.

I ask that you please give careful consideration to this proposal and grant the second crossover under these conditions.

Yours Sincerly

Sino Galati

	PUBLIC SCHEDULE OF SUBMISSIONS			
Name	Address	Comment		
1. Ms Colleen Smith	Colleen.lsmith123 4@hotmail.com	To whom it may concern at Rockingham city and someone who lived here since for 30 years we don't need a 24 hour station we have 3 now it.dsnt.matter if it's 24 theirs a newone and bp near. Rockingham shopping centre wehve enough ithink i really hope this doesn't get approved yours sincerely Colleen Smith		
2. Mr Dennis Vrcic	8 Farris Street ROCKINGHAM WA 6168 (No email provided)	This is not need on Dixon Road. It's stupid to have four petrol stations on one road. Especially near a slow intersection.		
3. Mr Timothy Lambert	12 Reflection Mews SAFETY BAY WA 6169 trl 2@bigpond.co m	There are already three service stations on Dixon Road why do we need another one? In 10 years time service stations will start to disappear as the percentage of electric vehicles on the road increases dramatically. The Council should be looking towards a zero emissions environment and approving new service stations shouldn't be part of that policy. What we should be seeing is more high speed charging stations going in and less petrol stations.		
4. Mr Ronald Heese	rolyheese@gmail. com	There are already too many service stations in Rockingham and particularly on Dixon no more thanks		
5. Ms Wendy Twight	12 Stanton Street SAFETY BAY WA 6169 Wendy.twight@g mail.com	I 'object' to the proposed service station the following reasons:- 1. There are two existing service stations on Dixon Road, currently 2. The noise from the trucks & cars attending the service station will affect the businesses on Day Rod 3. Fumes from the trucks and heavy traffic 4. Congestion on the Day Rd & Dixon Rd T. section 5. Day Rd was always a quiet street, now it will be extremely busy with main heavy vehicles such as truck throughout the 24 hr period.		
6. Ms Rachael Frances Gem Property Sale & Management	10 Rushbrooke Drive WELLARD WA 6171 rachael@gempro perty.net.au	No Objections- I own the building @ 1/117 Dixon Rd (next door) and I would like to know more details/proposal on the existing dividing brick wall - I would like to see this taken away to open up the space- I acknowledge there will be added truck noise.		
7. Mr Jarl Andersen	19 McKenzie Road SHOALWATER WA 6169 jarl.andersen@big pond.com	The Planning Solutions Zoning Map 02 (A40), clearly shows a working servo is already there on the same side of Dixon Road only 200m east on the corner of McCamay Avenue. In other words, there is no requirement for another facility of this kind here. Beyond satisfying regulatory tick-box compliance, is this really being given some thoughts, or is it just going to receive rubber stamp approval at the next council meeting, just as with the 7/11 servo on Council Avenue opposite Rockingham Shopping Centre, although this location would have been well suited as a electric vehicle fast-recharge facility. Please consider this: 1) The automotive evolution is fast moving away from fossil fuel driven traffic, meaning the community won't need an oversupply of fossil fuel servos in the near future. Rather, the City Council aught to seriously consider how, on behalf of the community, it can promote the establishment of electric vehicle fast-recharge facilities within Rockingham. Minimum, as a condition of approval, any fossil fuel servo proposal must come with a business model and design that accommodates electric vehicle fast-recharge. 2) How will the west bound Dixon Road traffic flow be affected by right-hand-turn access to the proposed servo?		

PUBLIC SCHEDULE OF SUBMISSIONS			
Name	Address	Comment	
No.7 – cont		Right-hand-turn access will likely be via Day Road. However, it will add congestion and frustration to the right-hand-turn traffic flow from Day Road onto Dixon Road, with the result of increased accident risk. It is of course further exacerbated by the Day Road servo entry doubling as an exit, from where (some) motorists will want to return left onto Day Road in order to join the right-hand-turn queue onto Dixon. Remember, Day Road is a popular transit route from Mandurah Road to Dixon Road and right-hand-turn queues form daily. What about the businesses along Day Road opposite the servo? Their business models are also vehicle access dependant. Any roadway modifications in the area to safely accommodate traffic to and from the proposed Liberty servo, will be borne by the taxpayers. All up, the proposal is back-to-the-future, offering nothing of value to Rockingham going forward.	
8. Mrs Pauline Harris	Unit 5, 6 Bay View Street ROCKINGHAM WA 6168 pk_maharris@we stnet.com.au	If the City deems that there are insufficient service stations on Dixon Road to service the community I have no objection. Is it possible that there are enough service stations on this road already.	
9. Mr Steve Belohlawek	23 Lewington Street ROCKIINGHAM WA 6168 belohlaweks@hot mail.com	NO! How about the Council DEMOLISH the old petrol station at the corner of Parkin & Patterson as a priority before building any new petrol stations. The old one at the beach front has a been a blight on the character of Rockingham for 20 years! GET RID OF IT. Make it a park with trees to sit under.	
10. Ms Alison Dymond	11 Eurpoa Place DUDLEY PARK WA 6210 Council@rentwest .com.au	Whilst I have no objections to this, my first thought was the issue for vehicles exiting Day Road heading West onto Dixon - this already poses an issue so having more traffic right at that corner, is a concern. I reviewed the Traffic Impact Assessment and noticed that the assessment was conducted was done between 7.45am and 8.45am and 2.45pm and 3.45pm which, given the industries around the area, I would not consider as peak time - there are a lot of light industrial businesses that would begin work a lot earlier. Day Road also leads to and from Mandurah Road - heading to more industrial.	
11. Mrs Leah McDougall	3 Canterbury Mews PORT KENNEDY WA 6172 leahmcdougall87 @gmail.com	I feel that this is not the ideal location for another service station. Already existing is a 7Eleven service station and a BP service station less than 1km from the proposed site. If the developer is open to suggestion: A service station location closer to the Ennis Avenue and Dixon Road intersection would be more profitable, and more valued by customers accessing the Kwinana industrial strip.	
12. Tint a Car Rockingham	Unit 9, 117 Dixon Road ROCKINGHAM WA 6168 Rockingham@tint acar.com.au	Support.	
13. Ms Kristine Pettersson	PO Box 7168 APPLECROSS NORTH WA 6153 kristine.p@westn et.com.au	Object – There are already three service stations located at Dixon Rd, at numbers 29, 129 and 137. Thus, two of the existing service stations are in close proximity to the proposed site at 115 Dixon Rd. The Day Road/Dixon Road intersection is extremely busy at certain times of the day, and currently has no traffic lights. I do not believe there is a public need for another service station at this point in time.	

	SERVICING	AUTHORITY SCHEDULE OF SUBMISSIONS
Name	Address	Comment
Name 1. Mr Simon Luscombe Department of Planning, Lands and Heritage	T	I refer to your correspondence dated 15 April 2021. In accordance with the Western Australian Planning Commission's (WAPC) Instrument of Delegation dated 30 May 2017, the following comments are provided. This proposal seeks approval for a service station comprising 16 filling points (8 bowsers) for light vehicles and 4 filling points for heavy vehicles. Land Requirements The site abuts Dixon Road which is reserved as an Other Regional Road (ORR) in the Metropolitan Region Scheme (MRS) and Category 3 per Plan Number SP 694/4. The subject land is affected by the ORR reservation for Dixon Road, per the attached Western Australian Planning Commission (WAPC) Land Requirement Plan number 1.7033. This requirement has been acknowledged on submitted plans. No development of a permanent nature is supported within reserved land. Transport Impact Assessment The above report, prepared by Transcore dated April 2021, states that the site will accommodate trucks up to 19.0 metres long. The development will retain crossovers to Dixon Road with modified functionality to left-in (western, passenger vehicles) and left-out (eastern, heavy vehicles). The site currently generates 106 trips per day. The redevelopment is proposed to generate 3,286 trips per day with 200 and 224 trips during AM and PM peak hour periods respectively (1,446 vehicles per day with passing trade discount applied). SIDRA intersection analysis shows poor performance for the Dixon Road/Day Road intersection (e.g. right turning staged movements, 94.3 seconds + 13.3 seconds, Level of Service F). Recommendation The Department of Planning, Lands and Heritage has no objection to the proposal on ORR planning grounds and provides the following comments: • It is recommended that the submitted swept path analysis plans for 19.0 metre long vehicles be verified / checked to the satisfaction of the City's Technical Services Directorate. In addition, the need for a left-turning deceleration lane from Dixon Road should be assessed against the relevant Austroads warran
		the City's Technical Services Directorate. In addition, the need for a left-turning deceleration lane from Dixon Road should be assessed against the relevant Austroads warrants.
		Land Requirement Plan 1.7033

	SERVICING	AUTHORITY	SCHEDULE OF SUBMISSIONS	
Name	Address	Comment		
2. Mr Joel Gajic Department of Fire & Emergency Services (Late Submission – Received 7th May 2021)	PO Box P1174 PERTH WA 6844 advice@dfes.wa. gov.au	I refer to your email dated 15 April 2021 regarding the submiss a Bushfire Management Plan (BMP) (Version 2), prepared by Ecological Australia and dated 4 March 2021, for the above development application. This advice relates only to State Planning Policy 3.7: Planning Bushfire Prone Areas (SPP 3.7) and the Guidelines for Planning Bushfire Prone Areas (Guidelines). It is the responsibility of the proponent to ensure the proposal complies with relevant plann policies and building regulations where necessary. This advice not exempt the applicant/proponent from obtaining approvals the apply to the proposal including planning, building, health or any approvals required by a relevant authority under written laws. 1. Policy Measure 6.5 a) (ii) Preparation of a BAL contour responses to the proposal including Proparation of a BAL contour responses to the proposal including Proparation of a BAL contour responses to the proposal including Proparation of a BAL contour responses to the proposal including Proparation of a BAL contour responses to the propagation of the pr		
		Issue Vegetation	Assessment Vegetation plot 2 cannot be substantiated as Class B	Action Modification to
		classification – Plot 2	Woodland with the limited information and photographic evidence available. The potential for revegetation has not been considered. Aerial imagery identifies active revegetation (tube stock) within the Dixon Road Conservation Precinct and the presence of juvenile eucalypt species. The BMP should detail specifically how the Class B Woodland classification was derived as opposed to Class A Forest. If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS3959.	the BMP is
		Issue	Assessment	Action
		Vegetation Classification – Plot 4	Vegetation plot 4 cannot be wholly substantiated as non-vegetated or managed to low threat in accordance with AS3959 with the limited information and photographic evidence available. Evidence to support the classification of the eastern verge of Darlie Street and adjacent to the fenced building compound in the vicinity of photo ID 6 is required. An enforceable mechanism is required to provide certainty that the vegetation exclusion can be achieved in perpetuity and that it is enforceable. If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS3959.	Modification to the BMP is required.
		Site Landscaping	The BMP and the Bushfire Risk Management Plan prescribe that landscaping within the subject site will comply with Schedule 1: Standards for Asset Protection Zones (Schedule 1 Standards) contained in the Guidelines. The Landscape Plan in appendix 2 of the Development Application report identifies 'low level planting' and 'typical mass planting' to a maximum 600 mm height, as well as 'road reserve planting by others'. Vegetation 0.5 metres to 5 metres in height is defined in the Schedule 1 Standards as shrubs. Shrubs within asset protection zones should not be located under trees or within 3 metres of a 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. The BMP makes the assumption that the 'road reserve planting by others' will be established and maintained in perpetuity to a low threat condition in accordance with AS3959.	Comment only. The decision maker to be satisfied with the vegetation exclusions and vegetation management proposed within the subject site and adjacent road verge.

	SERVICING	AUTHORITY	SCHEDULE OF SUBMISSIONS	
Name	Address	Comment		
No.2 – cont		2. Policy Me Criteria	easure 6.5 c) Compliance with the Bushf	ire Protection
		Element	Assessment	Action
		Siting & Design	A2.1 – insufficient information The acceptable solution is for an asset protection zone (APZ) to be spatially identified on the submitted plans.	Modification to the BMP required.
		3. Policy Me	asure 6.6 Vulnerable or High-Risk Land	Uses
		Issue	Assessment	Action
		Bushfire Risk Management Plan (BRMP)	The referral has included a BRMP for the purposes of addressing the policy requirements. It is note that the BRMP (page 11) states that Liberty Oil is required to develop an emergency management plan for the subject site in accordance with Australian Standard 3745-2010 Planning for emergencies in facilities, identifying evacuation triggers and depicting muster points on-site.	Comment only.
	107 Breakwater	compliance of However, more accurately id measures. A design, these to DFES. The Planning appropriate the BMP is a development document prepulication be as this plannal Assessment DFES for our of the properties of the plannal of th	e further information, please contact me on	achieved. Insure it Itigation Ivelopment Ifurther referral Ible(s) above. Ing In criteria. As Ithe Ications to the Iolanning Islopment Icision to Itelephone
3. Mr Brett Dunn Manager - Planning Advice Department of Water and Environmenta I Regulation	Parade MANDURAH WA 6210 Mark.hingston@d wer.wa.gov.au	by the Depart dated 15 April and provides The DWER i The pote from the fuel/chen stormwater The applicant be provided the stormwater managed in	treering the above development applical treering the above development applical treering the above development application of Water and Environmental Regularil 2021. The Department has reviewed the the following advice. I dentifies the following risks associated with a minimal for groundwater contamination due to underground fuel storage tanks, from minimal spills and from hydrocarbon contaminater runoff from impervious surfaces. I Management at has indicated that a stormwater manager after approval is granted. The Department ter drainage system be designed, construct accordance with the Stormwater Managem Australia (DWER, 2004).	tion (DWER) application this proposal, fuel leakage or and major ated ment plan will recommends ted and

	SERVICING AUTHORITY SCHEDULE OF SUBMISSIONS			
Name	Address	Comment		
No.3 - cont		The stormwater management plan for the entire development area should demonstrate how and where the small, minor and major rainfall events will be managed and include the following:		
		 Stormwater runoff be fully contained onsite for small and minor storm events (1 and 0.2 Exceedance per Year runoff). Required storage for each rainfall event, basin sizing and design should be detailed. 		
		 The first 15 mm of stormwater runoff (e Exceedance per Year runoff) from uncontaminated impervious surfaces to undergo water quality treatment via bio-retention. 		
		 Measures to prevent contaminated stormwater runoff mixing with other stormwater runoff from impervious areas and how the SPEL Puraceptor is integrated into the overall stormwater management systems. 		
		Permitted outflow of stormwater runoff from the site.		
		Emergency Response Plan		
		 In accordance with DWER's Water Quality Protection Note No.10 (WQPN 10) - 'Containment spills - emergency response (February 2006)', an effective Emergency Response Plan is to be prepared as part of the development approval process. WQPN 10 provides guidance on developing and implementing an effective emergency response plan. 		
		Underground fuel tanks		
		The Department provides the following advice in regards to underground fuel tanks,		
		In accordance with the Department's WQPN No.62 - 'Tanks for underground chemical storage', tank systems should not be located in contact with the watertable (unless protected against buoyancy forces and corrosion). If tanks are in contact with the groundwater all tanks and pipe work should be constructed of corrosion-resistant materials that conform to Australian Standards such as reinforced plastic or metal construction with corrosion-resistant coating and cathodic protection.		
		 All new or upgraded tanks their pipe work (excluding any gas venting and tank fill lines that are normally dry) should have double-walled construction, with an interstitial leak-monitoring space. This is particularly important when located close to sensitive water resources or where the tank may come into contact with the watertable. 		
		 All underground tank systems should have provision for leak monitoring. 		
		Issue: Contaminated Site		
		Advice		
		Please see the attached Section 58 (6) advice letter from the Department's Contaminated Sites Branch.		
		In the event there are modifications to the proposal that may have implications on aspects of environment and/or water management, the Department should be notified to enable the implications to be assessed.		
		If you have any queries relating to the above matter please contact Mark Hingston as DWER's Mandurah office on 9550 4222.		

	SERVICING	AUTHORITY SCHEDULE OF SUBMISSIONS
Name	Address	Comment
No.3 - cont		Letter from DWER's Contaminated Sites Branch I refer to your letter dated 15 April 2021 to the Department of Water and Environmental Regulation (the department) regarding an application to the City of Rockingham for the proposed development
		of the above-mentioned land. As per the requirements under section 58(6)(b) of the <i>Contaminated Sites Act 2003</i> (CS Act), advice is required as to the suitability of the land for the proposed development. Lot 10 is currently zoned 'light industry' under the City of Rockingham's town planning scheme. The department understand that the proposed development comprises a service station.
		Land at Lot 10 on Plan 20401, as shown on certificate of title 2039/550, was classified under the CS Act as possibly contaminated - investigation required on 29 July 2020 and a memorial (reference number O04085268ML) was placed on the certificate of title.
		The classification was based on a baseline soil and groundwater investigation carried out in June 2020. At the time of classification, a complete report has not been submitted to the department, however, a copy was subsequently received in April 2021. The investigation found that hydrocarbons (such as from petrol, diesel or oil) were present in soil and groundwater adjacent to the on-site waste oil pit. Concentration in soil exceeded Management Limits¹ and Health Screening Levels for direct contact for intrusive maintenance workers² for commercial and land. Concentration in groundwater exceeded assessment levels for the non-potable use of groundwater³. Volatile organic compounds (VOCs) (such as solvents including chlorinated hydrocarbon solvents) were also found to be present in groundwater.
		The department understand that the waste oil pit has been decommissioned. However, further investigations are required to confirm the groundwater flow direction and to characterise the nature and extent of soil and groundwater impacts. If VOCs persist in soil and/or groundwater, soil vapour investigations may also be required adjacent to the existing site building.
		As a change to a more sensitive land use is not proposed, the department recommends that the approval should not include a contamination condition. However, given the uncertainties associated with the current contamination status of Lot 10, the department cannot comment on the suitability of the site for the proposed service station development.
		The department recommends that the following advice note be applied to any approval granted by the planning authority: Advice
		The Department of Water and Environmental Regulation notes that hydrocarbons (such as from petrol, diesel or oil) been found to be present in soil and groundwater beneath the site which appears to be associated with a waste oil pit. Volatile organic compounds (VOCs) (such as solvents including chlorinated hydrocarbon solvents) were also found to be present in groundwater. The nature and extent of the possible contamination has not been fully characterised and therefore risks posed to future site users are unknown.
		The west oil pit is recommended to be removed prior to or as part of the development works, along with any impacted soil.

SERVICING AUTHORITY SCHEDULE OF SUBMISSIONS		
Address	Comment	
1	Validation and groundwater sampling should then be undertaken to determine whether residual impacts remain. Further investigations are recommended to characterise potential risks posed by vapour intrusion to the health of future site users prior to construction of any new buildings at the site. Due to the risks associated with the disturbance of potential contaminated soil or groundwater at the site, development works should be undertaken in accordance with an appropriate construction environmental management plan. The construction environmental management plan should contain measures including (but not limited to) the management of waste soil, dewatering, odour and stormwater during construction. Due to potential risks to health of workers undertaking intrusive works during the development, all ground disturbing works should be undertaken in accordance with a site-specific health and safety plan. The site is not located within an area that is mapped as having a risk of encountering acid sulfate soils. The department therefore advises that no specific comment is required in relation to acid sulfate soil management during development. If you have any queries in relation to the above, please contact Environmental Officer, Penny Woodberry on 6364 7197. As published in the 'National Environmental Protection (Assessment of Site Contamination) Measure 1999' (The NEPM).	
	² As published in 'Health screening levels for petroleum hydrocarbons in soil and groundwater' (Friebel and Nadebaum, Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE), 2011). ³ As published in guideline 'Assessment and management of contaminated sites' (Department of Environment Regulation, 2014).	
	T	

Attachment 5

6 August 2021 Meeting Agenda and Minutes

AGENDA - MOJDAP/113 - Agenda - 6 August 2021

MINUTES - MOJDAP/113 - Minutes - 6 August 2021

From: Josh Watson < josh@planningsolutions.com.au>

Sent: Friday, 13 August 2021 4:32 PM

To: Chris Parlane < Chris.Parlane@rockingham.wa.gov.au>

Cc: David Banovic < <u>David.Banovic@rockingham.wa.gov.au</u>>; Oliver Basson

<oliver.basson@planningsolutions.com.au>

Subject: Lot 10 (115) Dixon Road, East Rockingham | Updated Plans and Information | PS 6621

Hi David and Chris,

We refer to the last Friday's JDAP meeting for the proposed service station development on the abovementioned site. At that meeting, the panel deferred the item for the following reasons:

- 1. To consider an alternative arrangement for access onto Dixon Road which would include left in/left out entry and exit onto Dixon Road for light vehicles to reduce congestion concerns at the Day Road intersection.
- 2. An updated Traffic Assessment be provided accounting for these changed access arrangements and addressing outstanding matters raised in the Responsible Authority Report concerning the overall traffic impact assessment.

In response to this deferral, we have prepared updated development plans to address the vehicle access component. 210813 6621 Updated DA Plans.pdf

Specifically, the following modifications have been made to the plans:

- Removal of the car bays within the heavy vehicle area fronting Dixon Road.
- Modification to the loading bay.
- Relocation of the car bays to the northern side of the retail building.
- Inclusion of two parallel bays within the Day Road front setback area.
- Modification of the Dixon Road light vehicle crossover to allow for left in and left out access.

The modified access arrangement is consistent with the expectations and discussion that occurred at the JDAP meeting. The proposed development includes 11 car bays in addition to the bays next to the bowsers (including trucks). This concentration of parking is considered satisfactory to support the ongoing operations of the service station on site, especially when considering the bays adjacent to the bowsers. It was acknowledged that one car bay is within the Other Regional Roads reservation. As acknowledged at the JDAP Meeting by Mike Ross, there are no short/medium term plans for the upgrade of Dixon Road. In addition, this car bay is still located within the current subject site, with the are not ceded for road widening. Therefore, this car bay within the road widening area should be considered in the overall car parking for this site.

To support the modified vehicles access, a technical note from Transcore has been prepared with further SIDRA analysis for the modified vehicle movements (refer attached). This analysis confirms the proposed development will have a negligible impact on the intersection of Day Road and Dixon Road. The left out movement for the light vehicles to Dixon Road reduces the amount of vehicles needing to utilise the Dixon Road / Day Road intersection and addresses the City's previous concerns.

In response to the email below, the City's officers previous did not have a concern about the left in movement from Dixon Road to the subject site. It was acknowledged in the RAR that due to the constraint of the crossover being too close to the intersection a left turn pocket could not be provided. In considering the requirement for slip lanes, constraints within the road network and locations need to be considered. The concerns from the City's officers related to the Day Road crossover and impact on the intersection. Therefore, the inclusion of the left out from the subject site to Dixon Road by utilising the crossover does improve this situation.

Taking into consideration the above and attached information, we consider the reasons for deferral have been addressed appropriately and warrant the support of the City officers accordingly.

If you would like to discuss the above, please do not hesitate to give me a call.

Kind regards,

Josh Watson Senior Associate



<u>0416 027 486</u> | <u>08 9227 7970</u> | <u>josh@planningsolutions.com.au</u>

Office: Level 1, 251 St Georges Terrace, Perth, WA 6000 Postal: GPO Box 2709 Cloisters Square PO 6850

www.planningsolutions.com.au

City Parking Locations : City of Perth | Wilson

Planning Solutions' Email Disclaimer



EAST ROCKINGHAM LIBERTY FUEL STATION

115 DIXON ROAD, EAST ROCKINGHAM, WA

DA ISSUE ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	D
0	PRELIMINARY DA PACKAGE	16.0
1	CLIENT FEEDBACK	19.0
2	CLIENT FEEDBACK	26.0
3	DA ISSUE	31.0
4	PRELIMINARY DA ISSUE	04.0
5	DA ISSUE	11.0
6	DA ISSUE	09.0

01	COVER SHEET	7
02	SURVEY	, 7
03	SITE PLAN	8
04	FLOOR PLANS & ELEVATIONS - SHOP	7
05	FLOOR PLANS & ELEVATIONS - COMMERCIAL CANOPY	7
06	FLOOR PLANS & ELEVATIONS - TRUCK CANOPY	7
07	SIGNAGE PLAN & SCHEDULE	7
80	3D VIEWS	7
09	LANDSCAPE PLAN	7

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

はなり アンファリンド

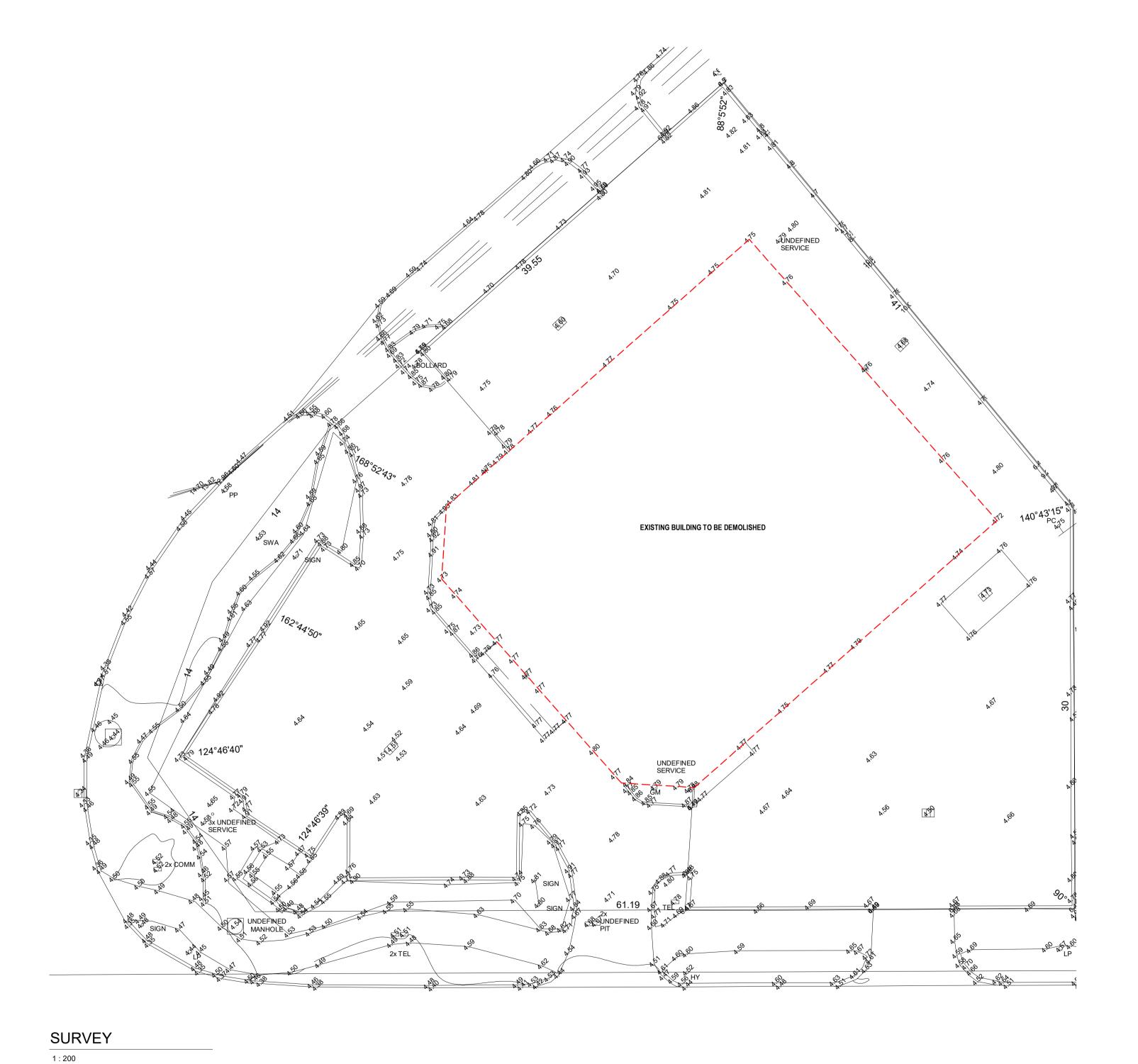
9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

COVER SHEET

Drawn

AD



DA ISSUE ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
0	PRELIMINARY DA PACKAGE	16.02.21
1	CLIENT FEEDBACK	19.02.21
2	CLIENT FEEDBACK	26.02.21
3	DA ISSUE	31.03.21
4	PRELIMINARY DA ISSUE	04.06.21
5	DA ISSUE	11.06.21
6	DA ISSUE	09.08.21
7	DA ISSUE	13.08.21

SURVEY PREPARED BY LANDSURVEYS

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

ほんりつ アロア

9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

SURVEY

Scale 1:200 Drawn AD Checked WK Date 13.08.21

Dwg No. **3357 02** Rev: **7** A1 SHEET



DIXON ROAD

SITE PLAN

1:200

DA ISSUE ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
0	PRELIMINARY DA PACKAGE	16.02.21
1	CLIENT FEEDBACK	19.02.21
2	CLIENT FEEDBACK	26.02.21
3	DA ISSUE	31.03.21
4	PRELIMINARY DA ISSUE	04.06.21
5	DA ISSUE	11.06.21
6	REVIEW	30.07.21
7	DA ISSUE	09.08.21
8	DA ISSUE	13.08.21

SITE AREA BUILDING AREA CANOPY TRUCK COMMERCIAL CANOPY	2941m ² 195m ² 128m ² 313m ²
CARBAYS	11
LANDSCAPE AREA	357m²

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

ほんのイア 日マアライ

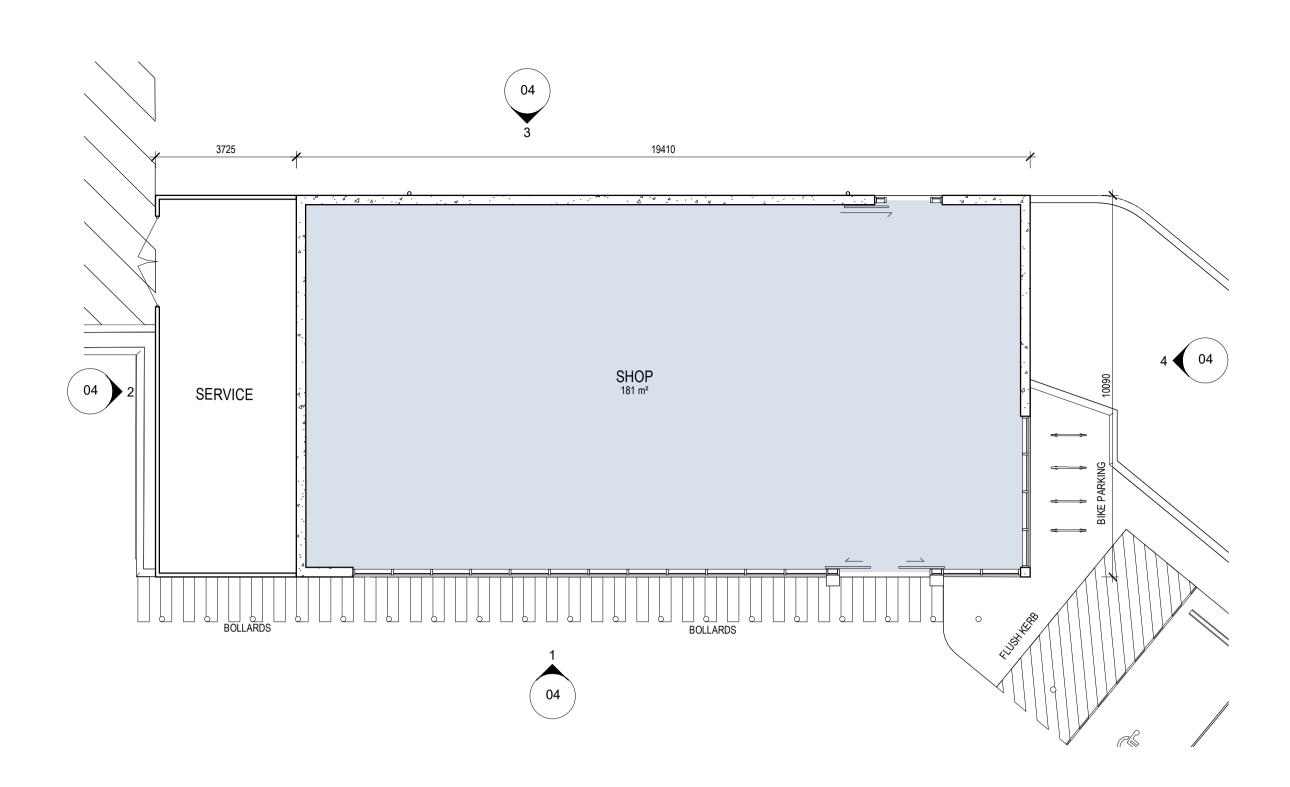
9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

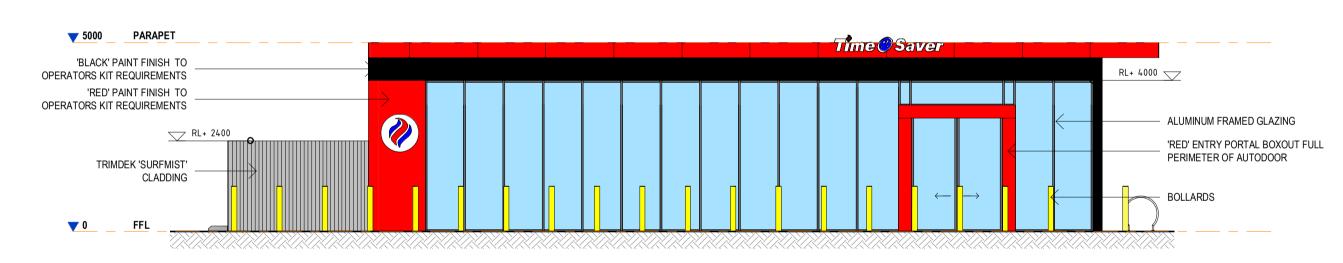
SITE PLAN

Scale 1:200 Drawn AD Checked WK Date 13.08.21 Dwg No. **3357 03** Rev: **8** A1 SHEET



5 - FLOOR PLAN - SHOP

1:100



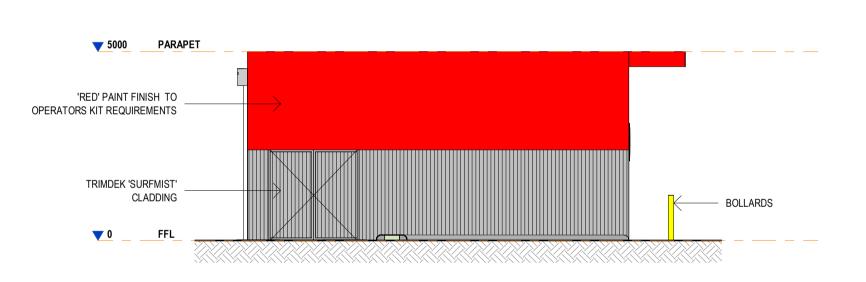
1 - SHOP - SOUTH - WEST ELEVATION

1 : 100



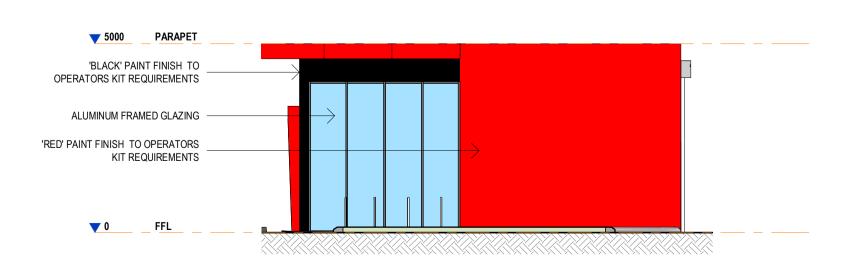
3 - SHOP - NORTH - EAST ELEVATION

1:100



2 - SHOP - NORTH - WEST ELEVATION

1 : 100



4 - SHOP - SOUTH - EAST ELEVATION

1:100

DA ISSUE
ISSUED FOR DEVELOPMENT APPROVAL

PRELIMINARY DA PACKAGE

CLIENT FEEDBACK
CLIENT FEEDBACK

DA ISSUE

PRELIMINARY DA ISSUE

DA ISSUE DA ISSUE 19.02.21 26.02.21

31.03.21

04.06.21 11.06.21 09.08.21 13.08.21

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

FALCONER

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS - SHOP

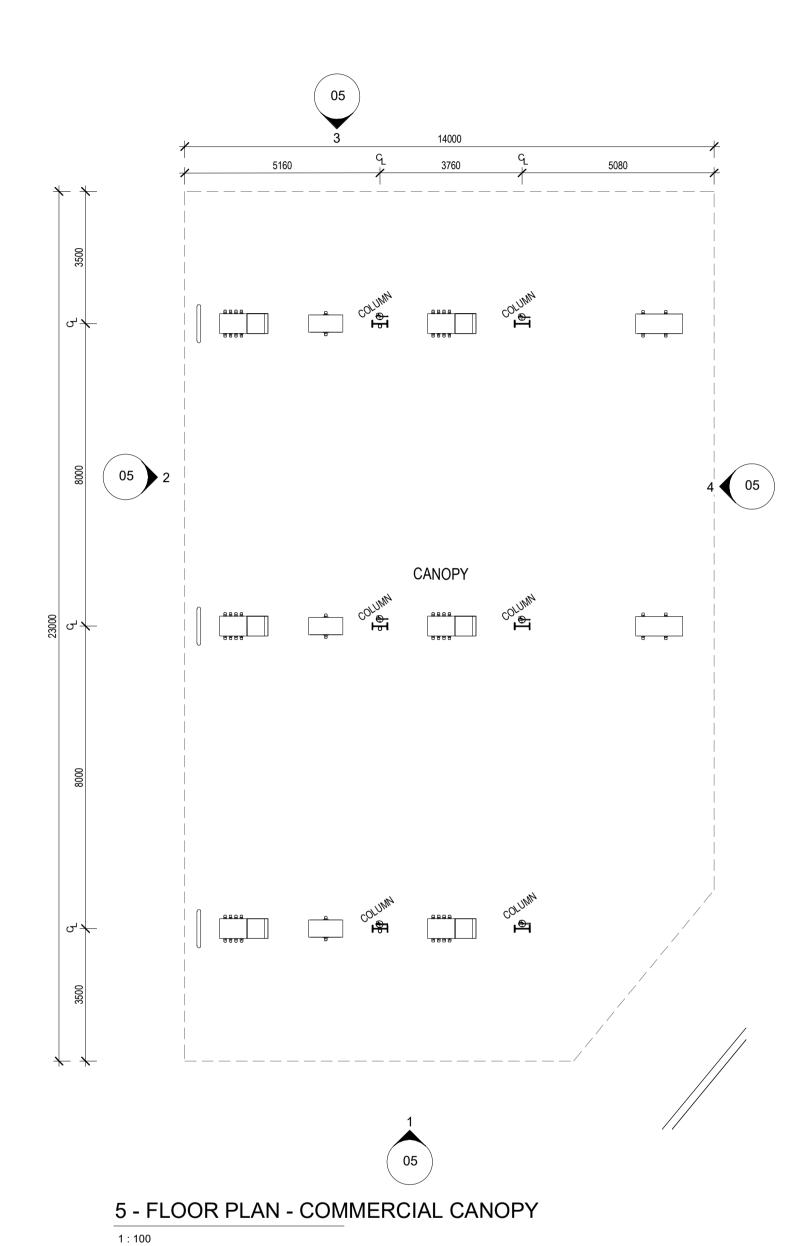
 Scale
 1:100

 Drawn
 AD
 Checked WK

 Date
 13.08.21

 Job No.
 2020058

Dwg No. **3357 04** Rev: **7** A1 SHEET



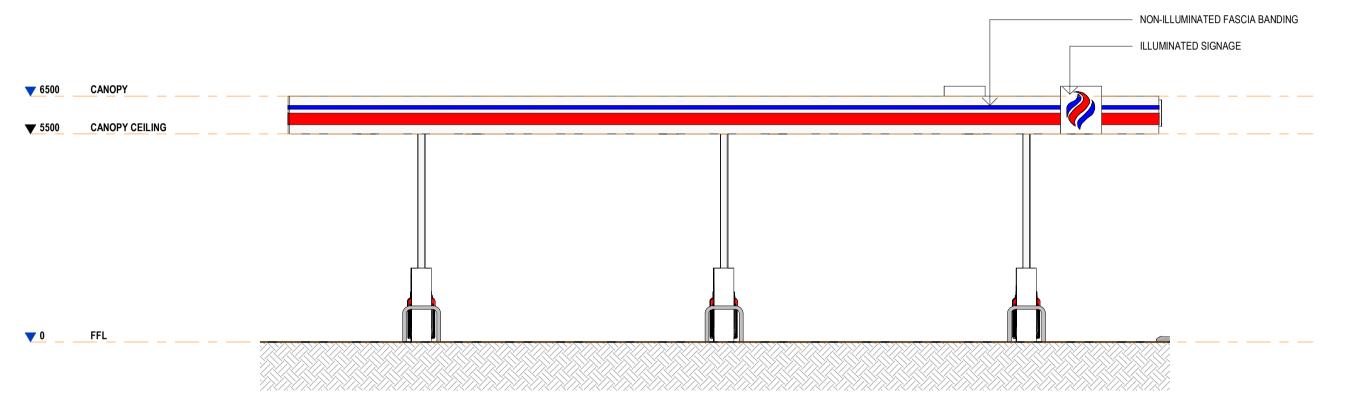
NON-ILLUMINATED FASCIA BANDING
ILLUMINATED SIGNAGE

V 5500 CANOPY CEILING

V 0 FFL

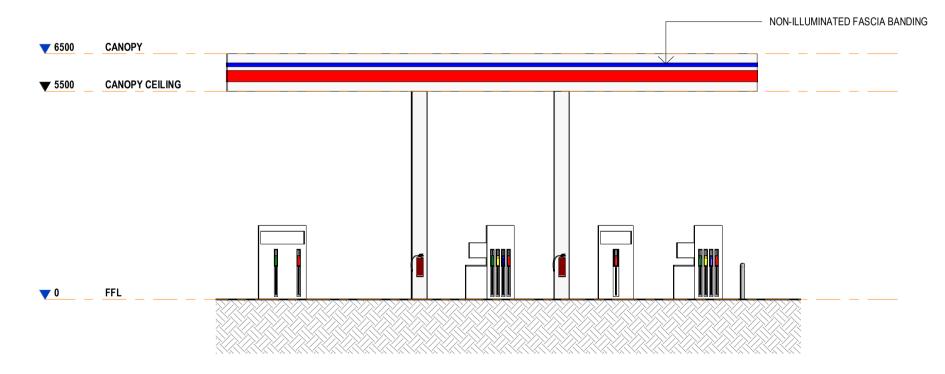
1 - COMMERCIAL CANOPY - SOUTH - WEST ELEVATION

1:100



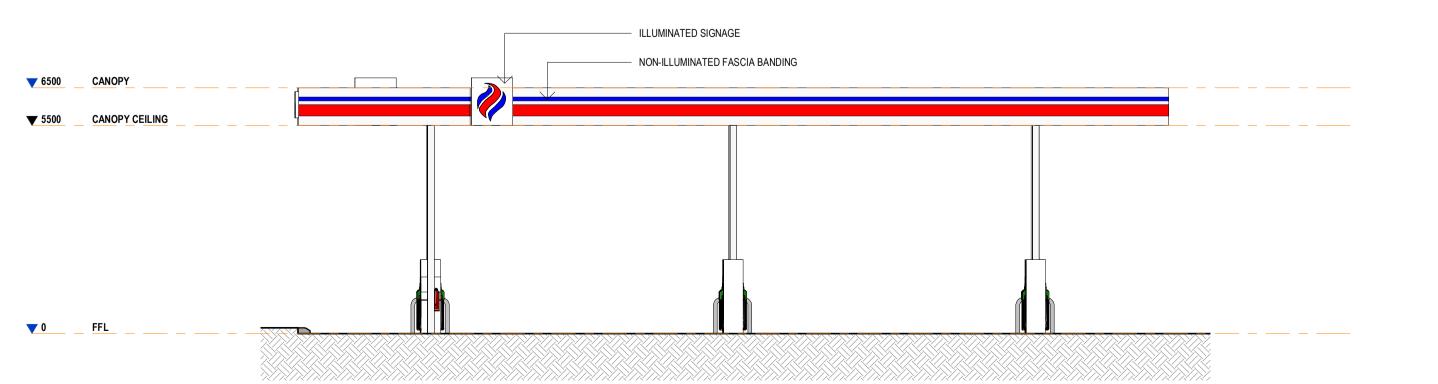
2 - COMMERCIAL CANOPY - NORTH - WEST ELEVATION

1 : 100



3 - COMMERCIAL CANOPY - NORTH - EAST ELEVATION

1 : 100



4 - COMMERCIAL CANOPY - SOUTH - EAST ELEVATION

1:100

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

DA ISSUE
ISSUED FOR DEVELOPMENT APPROVAL

PRELIMINARY DA PACKAGE CLIENT FEEDBACK CLIENT FEEDBACK

DA ISSUE PRELIMINARY DA ISSUE

DA ISSUE

DA ISSUE

26.02.21

31.03.21

09.08.21

ほんのとと ドクトへのと 三く

9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS - COMMERCIAL CANOPY

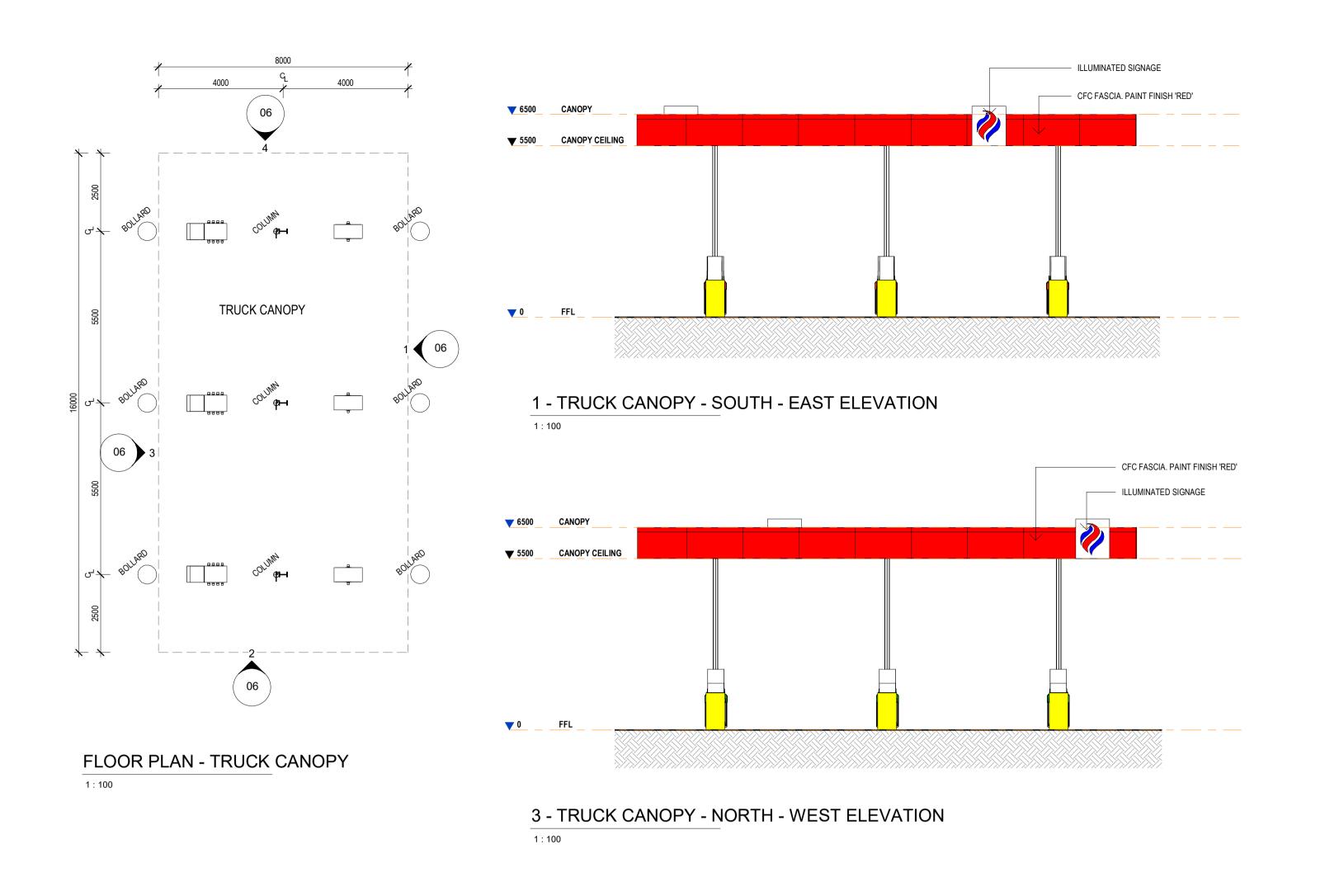
 Scale
 1:100

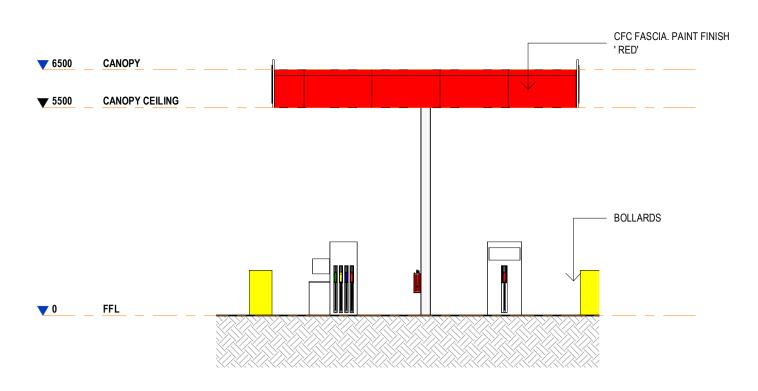
 Drawn
 AD
 Checked WK

 Date
 13.08.21

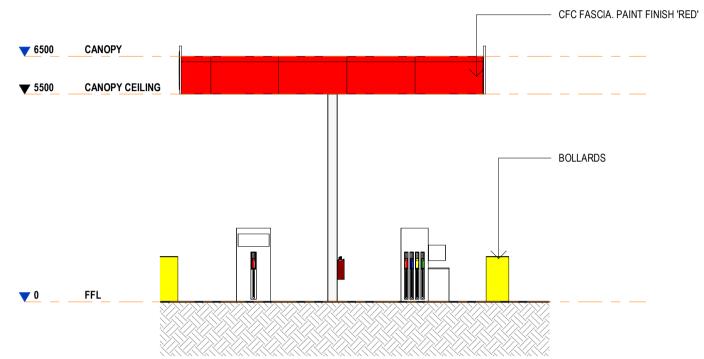
Job No. 2020058

Dwg No. **3357 05** Rev: **7** A1 SHEET



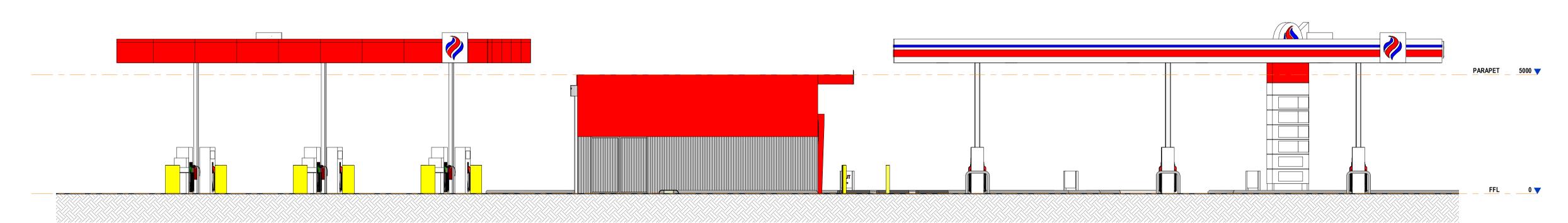


2 - TRUCK CANOPY - SOUTH - WEST ELEVATION



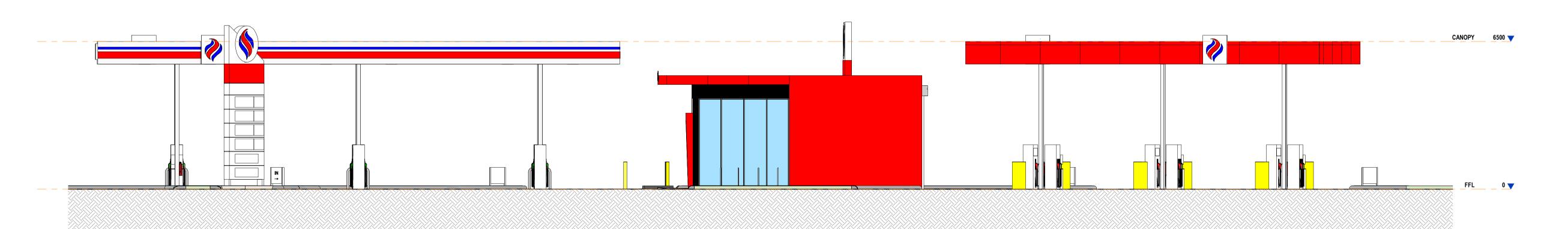
4 - TRUCK CANOPY - NORTH - EAST ELEVATION

1:100



6 - OVERALL ELEVATION 1

1 : 100



7 - OVERALL ELEVATION 2

1 · 10

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

DA ISSUE
ISSUED FOR DEVELOPMENT APPROVAL

PRELIMINARY DA PACKAGE

CLIENT FEEDBACK CLIENT FEEDBACK

DA ISSUE

PRELIMINARY DA ISSUE

DA ISSUE DA ISSUE DA ISSUE 19.02.21 26.02.21

31.03.21 04.06.21 11.06.21 09.08.21 13.08.21

ほんのイア ドマア・ファ

9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

ACCORD

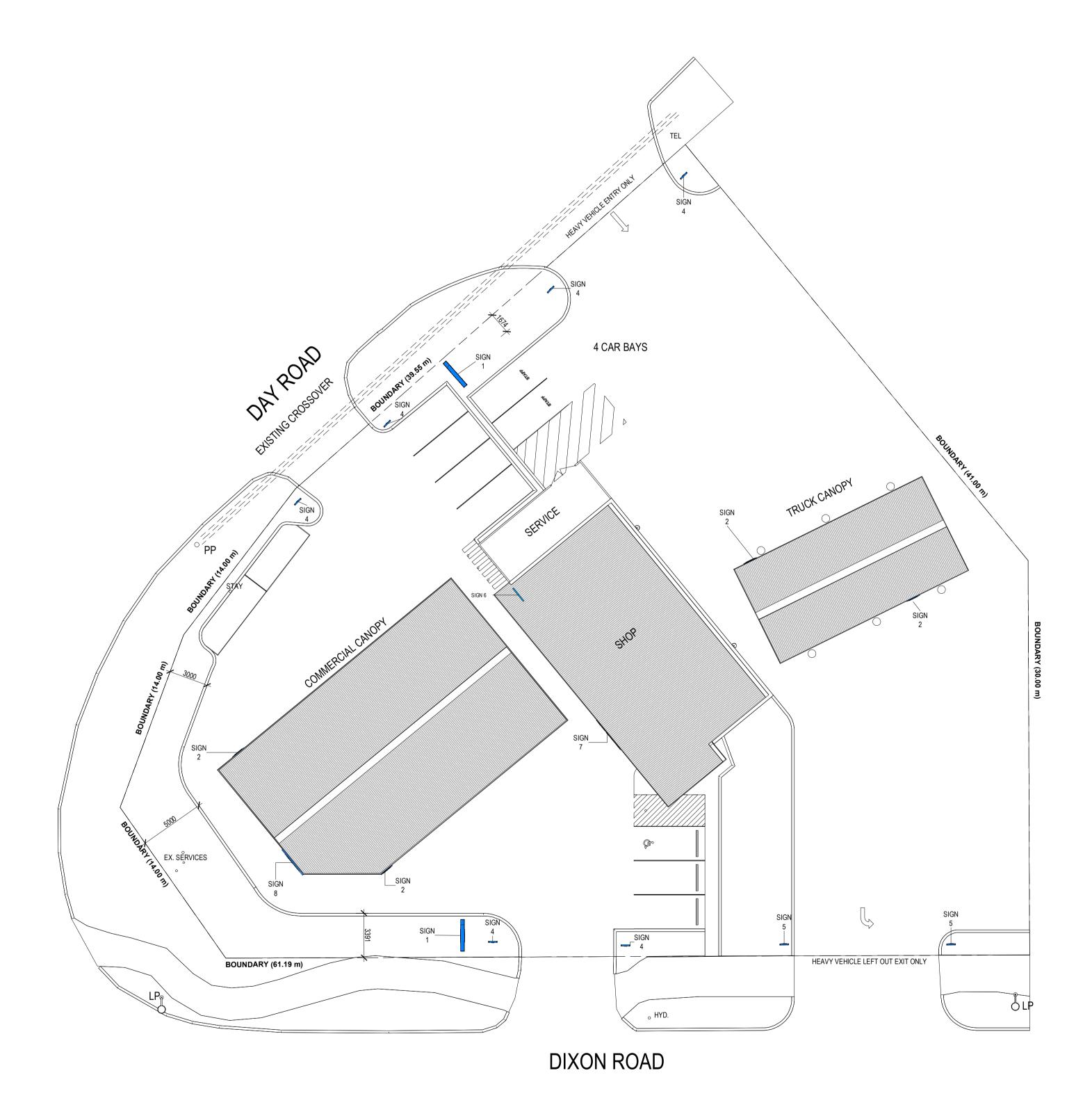
EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

FLOOR PLANS & ELEVATIONS - TRUCK CANOPY

Scale 1:100
Drawn AD Checked WK
Date 13.08.21

Job No. 2020058

Dwg No. **3357 06** Rev: **7** A1 SHEET

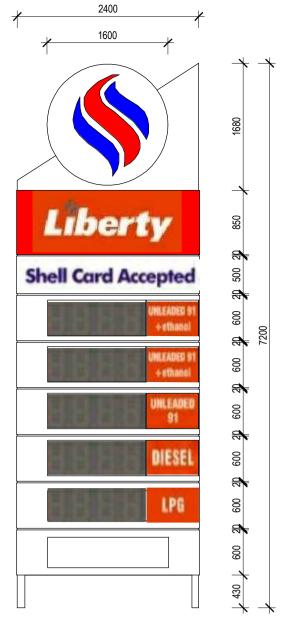


SIGNAGE PLAN

1:200

DA ISSUE ISSUED FOR DEVELOPMENT APPROVAL

Date
16.02.21
19.02.21
26.02.21
31.03.21
04.06.21
11.06.21
09.08.21
13.08.21 PRELIMINARY DA PACKAGE CLIENT FEEDBACK CLIENT FEEDBACK DA ISSUE PRELIMINARY DA ISSUE DA ISSUE DA ISSUE DA ISSUE

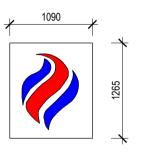


SIGN 1 - INTERNALLY ILLUMINATED

1 : 50

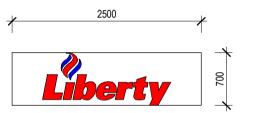






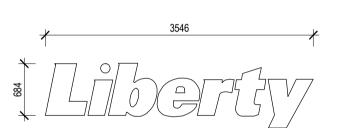
SIGN 2 - INTERNALLY ILLUMINATED

1:50



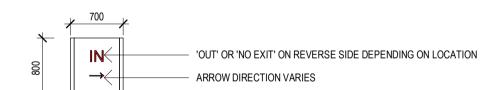
SIGN 8 - NON-ILLUMINATED

1:50



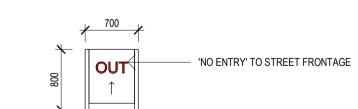
SIGN 3 - INTERNALLY ILLUMINATED

1:50



SIGN 4 - NON-ILLUMINATED

1:50



SIGN 5 - NON-ILLUMINATED

1:50



SIGN 6 - NON-ILLUMINATED

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

3801k FALCONER

9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

SIGNAGE PLAN & SCHEDULE

Scale As indicated Drawn AD Checked WK Date 13.08.21 Dwg No. **3357 07** Rev: **7** A1 SHEET









DA ISSUE
ISSUED FOR DEVELOPMENT APPROVAL

ev.	Amendment	
0	PRELIMINARY DA PACKAGE	16.
1	CLIENT FEEDBACK	19.
2	CLIENT FEEDBACK	26.
3	DA ISSUE	31.
4	PRELIMINARY DA ISSUE	04.
5	DA ISSUE	11.
6	DA ISSUE	09.
7	DA ISSUE	13

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

はなのドア マロンロンコン

9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

3D VIEWS

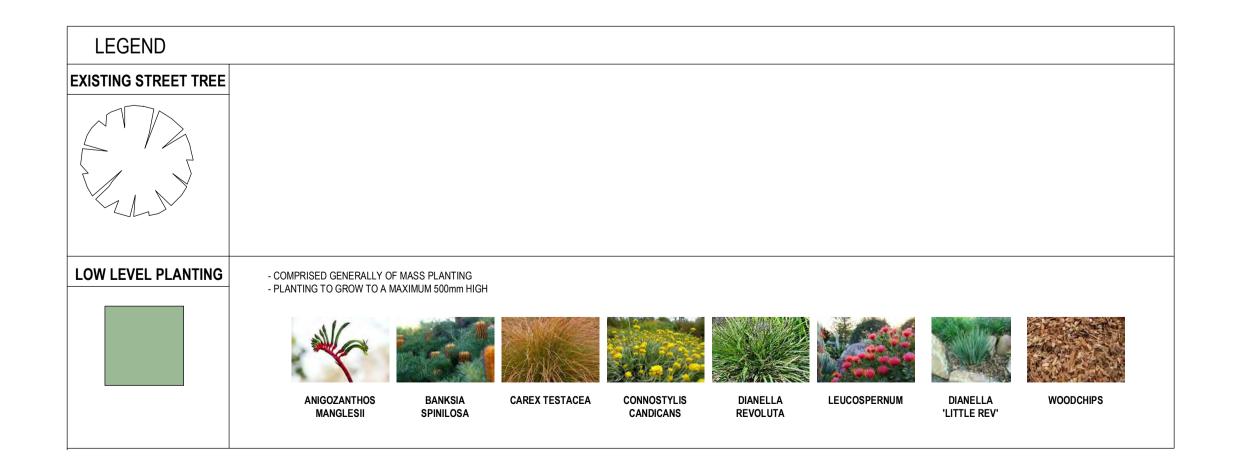
Drawn AD Checked WK Date 13.08.21

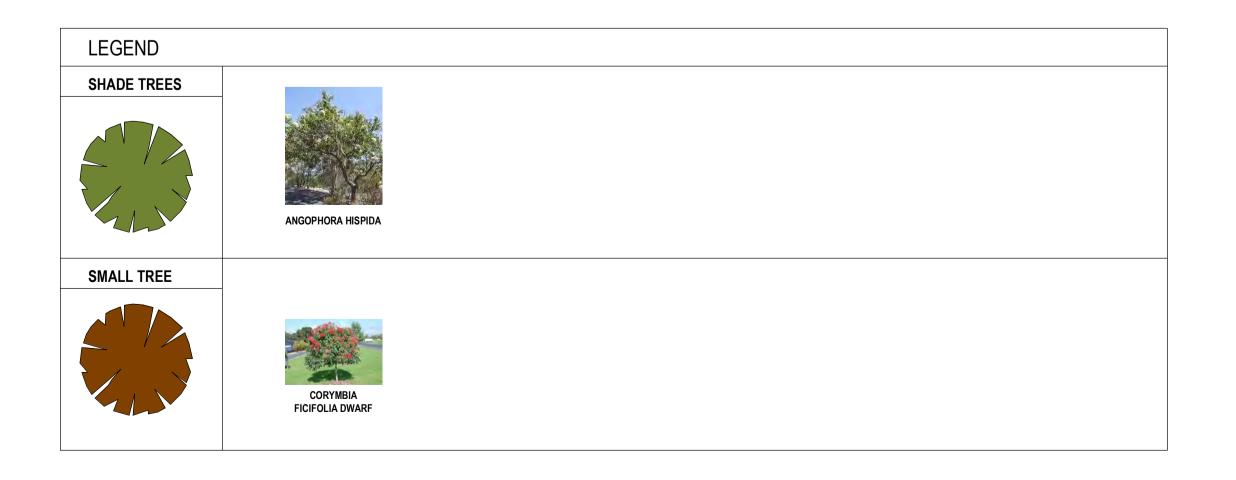
Job No. 2020058 Dwg No. **3357 08** Rev: **7** A1 SHEET



CONCEPT LANDSCAPE PLAN

1:200





DA ISSUE

ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
0	PRELIMINARY DA PACKAGE	16.02.21
1	CLIENT FEEDBACK	19.02.21
2	CLIENT FEEDBACK	26.02.21
3	DA ISSUE	31.03.21
4	PRELIMINARY DA ISSUE	04.06.21
5	DA ISSUE	11.06.21
6	DA ISSUE	09.08.21
7	DA ISSUE	13.08.21

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

IBROLK FALCOKER

9/300 Rokeby Road, Subiaco, Western Australia 6004 Telephone: 08 6382 0303 ABN 65 007 846 586 brownfalconer.com.au

ACCORD

EAST ROCKINGHAM, 115 DIXON ROAD, EAST ROCKINGHAM

LANDSCAPE PLAN

Scale As indicated
Drawn AD Checked WK
Date 13.08.21
Job No. 2020058

Dwg No. 3357 09 Rev: 7 A1 SHEET



Technical Note: No 1a **Date:** 12/08/2021

Project No: t20.134

Project: Lot 10 (115) Dixon Road, East Rockingham, DAP Ref no. DAP/21/01976

Subject: Revised traffic modelling and analysis

INTRODUCTION AND BACKGROUND

Following Metro Outer Joint Development Assessment Panel meeting on 6th August 2021 and deferral of the abovementioned project, Transcore has now undertaken a revised traffic modelling and SIDRA analysis on the basis of retention of the existing subject site western crossover on Dixon Road (left in/left out) format for light vehicles.

The retention of this crossover in its current format was suggested by City of Rockingham officer's and both City and JDAP members requested revised analysis of the proposed service station on this basis. All the other crossovers on Dixon Road and Day Road remain unchanged. The provision of the proposed left out movement for light vehicles on Dixon Road would reduce the traffic pressure on the intersection of Day Road/ Dixon Road.

Accordingly, a revised development plan has been prepared (refer **Appendix A**) and additional traffic modelling and analysis were undertaken based on the revised plan. The purpose of this technical note is to document the outcome of the additional modelling and analysis.

PROPOSED DEVELOPMENT TRAFFIC GENERATION

The trip generation of the proposed development conservatively assumed to be the same as the trip generation estimation in April 2021 TIA for the original plan (refer **Appendix B**). This trip generation is considered to be conservative because the revised plan shows six HS fuel bowser and two HS DSL bowser. The HS DSL bowsers are not expected to generate the same traffic as HS fuel bowsers and therefore, the traffic generation used for the purpose of analysis are conservative.

TRAFFIC FLOWS

The existing traffic volumes were established by traffic counts survey undertaken by Transcore for Thursday 4th of June 2020 (refer **Figure 1**). The total post development traffic for the assessment year of 2021 is detailed in **Figure 2**. In Figure 2 the existing trip generation of the site has been removed from the existing traffic counts and the proposed development traffic was added to the balance.

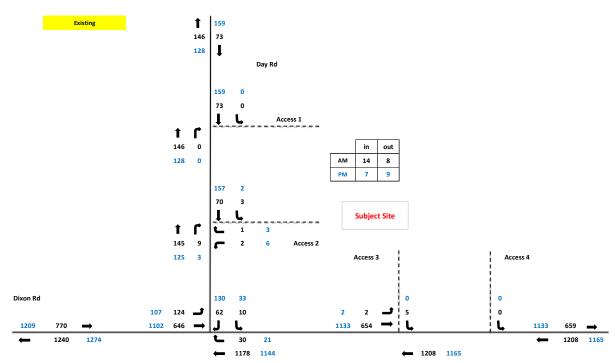


Figure 1: Existing traffic volumes (AM and PM peak hour)

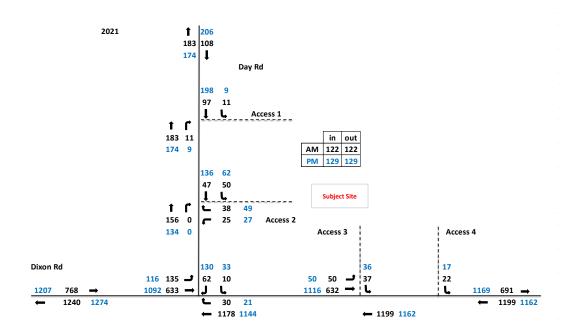


Figure 2: 2021 total development and existing traffic – Weekday AM and PM peak hour traffic

ANALYSIS OF THE INTERSECTION AND DEVELOPMENT'S CROSSOVERS

A SIDRA Network model was developed for the subject site crossovers on Day Road and the intersection of Day Road/ Dixon Road in order to assess their operations in the post development scenario for AM and PM peak hours. Relevant heavy vehicle settings and parameters were updated in accordance

t20.134.mr.tn01a Page **2** of **15**

with Main Roads WA's latest requirements. The development Dixon Road crossovers are left in/ left out (for light vehicles) and left out only (for heavy vehicles) and would operate satisfactorily with no capacity issues. Therefore, they have not been modelled in SIDRA.

The results of the SIDRA analysis are attached in **Appendix C**.

The SIDRA analysis results indicate that the intersection of Dixon Road/Day Road presently operates at capacity during the PM peak hour for the right turning movements out of Day Road. This is due to volume of through traffic on Dixon Road during the PM peak hour. The intersection operates better during the AM peak hour (refer Appendix C for more details).

The addition of the development-generated traffic to the intersection of Day Road/ Dixon Road resulted in no change in overall queues and delays during the AM and PM peak hours. No change in LoS, DoS and queues for any of the turns is reported during the post-development scenario. This is because all the left turn from the service station onto Dixon Road would use the retained Dixon Road crossover. In fact, the revised Dixon Road light vehicle crossover results in slight reduction in pass by traffic component of the existing Dixon Road eastbound traffic which would result in slight improvements in traffic operations of the right in movement from Dixon Road to Day Road.

Table 1 summarises the outcome of the SIDRA analysis for the critical movements of the intersection for the existing and 2021-time horizons.

Table 1: Sidra results for existing and 2021 scenarios

Peak	Movement		E	xisting	2021				
hours	Movement	LoS	DoS	Queue (m)	LoS	DoS	Queue (m)		
	Right - In	Α	0.05	1.5	Α	0.05	1.5		
AM	Left-out	Α	0.01	0.3	Α	0.01	0.3		
7.00	Right - Out	В	0.17	5	В	0.17	5		
	Right - In	С	0.08	2	В	0.08	2		
PM	Left-out	В	0.05	1.5	В	0.05	1.5		
	Right - Out	F	0.9	38	F	0.9	37		

t20.134.mr.tn01a Page **3** of **15**

CONCLUSION

The results of the revised SIDRA analysis based on retention of the existing western Dixon Road crossover for light vehicles (left in/left out) for the proposed service station shown no changes in the traffic operation of Dixon Road/Day Road intersection. In particular, no changes in LoS, DoS, delay or 95% queue length on Day Road were reported.

t20.134.mr.tn01a Page **4** of **15**

Appendix A

Revised Development Plan

t20.134.mr.tn01a Page **5** of **15**



SITE PLAN

Scale 1: 200 Disser AD Crecked WK Diser 10:00:21 Jah No 2020058 Day No 3357 63 Ray 6 ANDRET

DA ISSUE

2941m² 195m² 128m² 313m² LANDSCAPE AREA

Appendix B

Trip Generation

Table 1: Estimated proposed development traffic generation

LV				• •								
Land use	Quantity	ity Daily Rate AM Peak PM Peak Cross Trade Daily Trips AN		aily Trips AM Trips		AM		PM				
									IN	OUT	IN	OUT
Service Station	16	205.36	12.47	13.99	0.00	3286	200	224	100	100	112	112
	3286	200	224	100	100	112	112					

HV												
Land use	Quantity	Daily Rate	ily Rate AM Peak PM Peak		Cross Trade	Daily Trips	AM Trips	PM Trips	AM		PM	
									IN	OUT	IN	OUT
Service Station	4				0.00	470	43	34	22	21	17	17
	470	43	34	22	21	17	17					

Table 2: Estimated passing trade and non-passing trade traffic generation

LV
Passing Trade Component

	Passing					
	Trade		Al	И	PI	М
AM	62%	Daily Trips	IN	OUT	IN	OUT
PM	56%	1840	62	62	63	63
		1840	62	62	63	63

LV
Non Passing Trade Component

	А	М	PM			
Daily Trips	IN	OUT	IN	OUT		
1446	38	38	49	49		
1446	38	38	49	49		

Passing Trade Component

	Passing					
	Trade		Al	И	PI	М
AM	100%	Daily Trips	IN	OUT	IN	OUT
PM	100%	470	22	21	17	17
		470	22	21	17	17

Non Passing Trade Component

	А	М	P	М
Daily Trips	IN	OUT	IN	OUT
0	0	0	0	0
0	0	0	0	0

Appendix C

SIDRA Results

V Site: [Dixon Rd & Day Rd - Stage 1 - Existing - AM]

+ Network: N101 [Dixon Rd -Day Rd - Existing - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Move	Movement Performance - Vehicles													
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Bacl Queue		Prop. Queued	Effective Stop	Aver. No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles Dis veh	stance m		Rate	Cycles	Speed km/h
East:	Dixon	Rd (E)												
12	R2	32	7.7	32	7.7	0.051	7.3	LOSA	0.2	1.5	0.58	0.74	0.58	22.4
Appro	oach	32	7.7	32	7.7	0.051	7.3	NA	0.2	1.5	0.58	0.74	0.58	22.4
North	: Day F	Rd (N)												
1	L2	11	7.7	11	7.7	0.011	8.2	LOSA	0.0	0.3	0.41	0.86	0.41	23.5
2	T1	65	7.7	65	7.7	0.166	14.5	LOS B	0.6	4.8	0.70	1.01	0.70	14.0
Appro	oach	76	7.7	76	7.7	0.166	13.6	LOS B	0.6	4.8	0.66	0.99	0.66	15.2
West	: Dixon	Rd (W)												
4	L2	131	7.8	131	7.8	0.085	5.8	LOSA	0.4	2.9	0.10	0.52	0.10	48.4
5	T1	680	7.7	680	7.7	0.189	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	60.0
Appro	oach	811	7.7	811	7.7	0.189	1.0	LOSA	0.4	2.9	0.02	0.08	0.02	57.6
All Ve	hicles	918	7.7	918	7.7	0.189	2.2	NA	0.6	4.8	0.09	0.18	0.09	55.3

MOVEMENT SUMMARY

V Site: [Dixon Rd & Day Rd - Stage 2 - Existing - AM]

фф Network: N101 [Dixon Rd -Day Rd - Existing - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov	Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Arrival Flows		Deg. Satn	Average Level of Delay Service		95% Bacl Queue		Prop. Queued	Effective Stop	Aver. No.	Averag e		
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles Dis	stance m		Rate	Cycles	Speed km/h
East:	Dixon	Rd (E)												
11	T1	1240	7.7	1240	7.7	0.344	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	1240	7.7	1240	7.7	0.344	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North	: Media	an (N)												
3	R2	65	7.7	65	7.7	0.187	11.3	LOS B	0.6	4.6	0.78	0.91	0.81	11.4
Appro	oach	65	7.7	65	7.7	0.187	11.3	LOS B	0.6	4.6	0.78	0.91	0.81	11.4
All Ve	ehicles	1305	7.7	1305	7.7	0.344	0.6	NA	0.6	4.6	0.04	0.05	0.04	58.6

∇ Site: [Dixon Rd & Day Rd - Stage 1 - Existing - PM]

♦♦ Network: N101 [Dixon Rd -Day Rd - Existing - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Move	emen	t Perform	ance	- Vehi	cles									
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Ba Que		Prop. Queued	Effective Stop	Aver. / No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles [veh	Distance m		Rate	Cycles S	Speed km/h
East:	Dixon	Rd (E)												
12	R2	22	7.7	22	7.7	0.077	15.1	LOSC	0.3	2.0	0.81	0.91	0.81	15.0
Appro	oach	22	7.7	22	7.7	0.077	15.1	NA	0.3	2.0	0.81	0.91	0.81	15.0
North	North: Day Rd (N)													
1	L2	35	7.7	35	7.7	0.052	10.3	LOS B	0.2	1.5	0.55	0.95	0.55	21.0
2	T1	137	7.7	137	7.7	0.893	66.2	LOSF	4.8	38.3	0.95	1.46	2.70	3.4
Appro	oach	172	7.7	172	7.7	0.893	54.9	LOSF	4.8	38.3	0.87	1.36	2.27	4.4
West	: Dixor	n Rd (W)												
4	L2	113	7.8	113	7.8	0.073	5.8	LOSA	0.3	2.4	0.08	0.52	0.08	48.5
5	T1	1160	7.7	1160	7.7	0.322	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	1273	7.7	1273	7.7	0.322	0.5	LOSA	0.3	2.4	0.01	0.05	0.01	58.6
All Ve	ehicles	1466	7.7	1466	7.7	0.893	7.1	NA	4.8	38.3	0.12	0.21	0.28	48.2

MOVEMENT SUMMARY

∇ Site: [Dixon Rd & Day Rd - Stage 2 - Existing - PM]

♦♦ Network: N101 [Dixon Rd -Day Rd - Existing - PM]

Site Category: (None) Giveway / Yield (Two-Way)

		Performa Demand F				Deg. Satn	Average	Level of Service	95% Bad Queu		Prop. Queued	Effective Stop	Aver. A	Averag
טו	Total veh/h st: Dixon Rd (E)			Total veh/h	HV %	v/c	sec	Service	Vehicles Di veh		Queueu	Rate	Cycles S	
East:	Dixon	Rd (E)												
11	T1	1204	7.7	1204	7.7	0.334	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	1204	7.7	1204	7.7	0.334	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North	: Media	an (N)												
3	R2	137	7.7	137	7.7	0.371	12.6	LOS B	1.3	10.7	0.81	0.97	1.03	10.6
Appro	oach	137	7.7	137	7.7	0.371	12.6	LOS B	1.3	10.7	0.81	0.97	1.03	10.6
All Ve	hicles	1341	7.7	1341	7.7	0.371	1.3	NA	1.3	10.7	0.08	0.10	0.11	56.9

t20.134.mr.tn01a Page **11** of **15**



V Site: [Dixon Rd & Day Rd - Stage 1 - 2021 - AM]

Site Category: (None) Giveway / Yield (Two-Way)

				16-1-										
Move	ement	Perform												
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Ba Que		Prop. Queued	Effective Stop	Aver No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles [veh	Distance m		Rate	Cycles	Speed km/h
East:	Dixon	Rd (E)												
12	R2	32	7.7	32	7.7	0.050	7.2	LOSA	0.2	1.5	0.57	0.73	0.57	16.8
Appro	oach	32	7.7	32	7.7	0.050	7.2	NA	0.2	1.5	0.57	0.73	0.57	16.8
North	North: Day Rd (N)													
1	L2	11	7.7	11	7.7	0.011	8.1	LOSA	0.0	0.3	0.41	0.86	0.41	23.6
2	T1	65	7.7	65	7.7	0.163	14.3	LOS B	0.6	4.7	0.69	1.01	0.69	14.1
Appro	oach	76	7.7	76	7.7	0.163	13.4	LOS B	0.6	4.7	0.65	0.99	0.65	15.3
West	Dixon	Rd (W)												
4	L2	142	7.8	142	7.8	0.093	5.8	LOSA	0.4	3.2	0.10	0.52	0.10	50.3
5	T1	666	7.7	666	7.7	0.185	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	60.0
Appro	oach	808	7.7	808	7.7	0.185	1.0	LOSA	0.4	3.2	0.02	0.09	0.02	58.1
All Ve	hicles	916	7.7	916	7.7	0.185	2.3	NA	0.6	4.7	0.09	0.19	0.09	55.8

MOVEMENT SUMMARY

V Site: [Dixon Rd & Day Rd - Stage 2 - 2021 - AM]

♦♦ Network: N101 [Network - 2021 - AM]

♦♦ Network: N101 [Network -

2021 - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov	Turn	Demand I	Flows	Arrival	Flows	Deg.	Average	Level of	95% Bac	k of	Prop.	Effective	Aver. A	Averag
ID						Satn	Delay		Queue	е	Queued	Stop	No.	ě
		Total	HV	Total	HV				Vehicles Di	stance		Rate	Cycles S	peed
		veh/h	%	veh/h	%	v/c	sec		veh					km/h
East:	Dixon	Rd (E)												
11	T1	1240	7.7	1240	7.7	0.344	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	1240	7.7	1240	7.7	0.344	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North	: Media	an (N)												
3	R2	65	7.7	65	7.7	0.187	11.3	LOS B	0.6	4.6	0.78	0.91	0.81	11.4
Appro	oach	65	7.7	65	7.7	0.187	11.3	LOS B	0.6	4.6	0.78	0.91	0.81	11.4
All Ve	ehicles	1305	7.7	1305	7.7	0.344	0.6	NA	0.6	4.6	0.04	0.05	0.04	58.6

Page **12** of **15** t20.134.mr.tn01a

V Site: [Day Rd & Access 1 - 2021 - AM]

ф Network: N101 [Network - 2021 - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov	emen	t Perform	nance	- Vehi	cles									
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service		Back of eue	Prop. Queued	Effective Stop	Aver. / No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m		Rate	Cycles S	Speed km/h
South	h: Day	Rd (S)												
11	T1	193	7.7	193	7.7	0.121	0.2	LOSA	0.2	1.7	0.06	0.01	0.06	57.6
12	R2	12	100.0	12	100. 0	0.121	1.7	LOSA	0.2	1.7	0.06	0.01	0.06	41.4
Appro	oach	204	12.9	204	12.9	0.121	0.3	NA	0.2	1.7	0.06	0.01	0.06	57.3
North	n: Day l	Rd (N)												
4	L2	12	100.0	12	100. 0	0.068	5.8	LOSA	0.0	0.0	0.00	0.10	0.00	44.6
5	T1	102	7.7	102	7.7	0.068	0.0	LOSA	0.0	0.0	0.00	0.10	0.00	53.2
Appro	oach	114	17.1	114	17.1	0.068	1.1	NA	0.0	0.0	0.00	0.10	0.00	52.1
All Ve	ehicles	318	14.4	318	14.4	0.121	0.4	NA	0.2	1.7	0.04	0.04	0.04	55.4

MOVEMENT SUMMARY

▽ Site: [Day Rd & Access 2 - 2021 - AM]

♦♦ Network: N101 [Network - 2021 - AM]

Site Category: (None) Giveway / Yield (Two-Way)

Move	ement	Perform	ance -	Vehi	cles									
Mov ID	Turn	Demand I	Flows	Arrival		Deg. Satn	Average Delay	Level of Service		Back of eue	Prop. Queued	Effective Stop	Aver. No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m		Rate	Cycles S	Speed km/h
South	n: Day I	Rd (S)												
11	T1	164	7.7	164	7.7	0.085	0.0	LOSA	0.0	0.1	0.00	0.00	0.00	59.0
12	R2	1	0.0	1	0.0	0.085	0.9	LOSA	0.0	0.1	0.00	0.00	0.00	58.8
Appro	oach	165	7.7	165	7.7	0.085	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.0
East:	Acces	s 2 (E)												
1	L2	26	0.0	26	0.0	0.055	0.1	LOSA	0.2	1.4	0.15	0.08	0.15	17.8
3	R2	40	0.0	40	0.0	0.055	0.9	LOSA	0.2	1.4	0.15	0.08	0.15	17.8
Appro	oach	66	0.0	66	0.0	0.055	0.6	LOSA	0.2	1.4	0.15	0.08	0.15	17.8
North	: Day F	Rd (N)												
4	L2	53	0.0	53	0.0	0.052	2.6	LOSA	0.0	0.0	0.00	0.28	0.00	19.4
5	T1	49	7.7	49	7.7	0.052	0.0	LOSA	0.0	0.0	0.00	0.28	0.00	33.9
Appro	oach	102	3.7	102	3.7	0.052	1.3	NA	0.0	0.0	0.00	0.28	0.00	23.2
All Ve	ehicles	334	4.9	334	4.9	0.085	0.5	NA	0.2	1.4	0.03	0.10	0.03	35.9

Page **13** of **15** t20.134.mr.tn01a

V Site: [Dixon Rd & Day Rd - Stage 1 - 2021 - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov	ement	Perform	ance ·	- Vehi	cles									
Mov ID	Turn	Demand I	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service		Back of eue	Prop. Queued	Effective Stop	Aver. No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m		Rate	Cycles S	Speed km/h
East:	Dixon	Rd (E)												
12	R2	22	7.7	22	7.7	0.076	14.8	LOS B	0.3	2.0	0.80	0.91	0.80	9.6
Appro	oach	22	7.7	22	7.7	0.076	14.8	NA	0.3	2.0	0.80	0.91	0.80	9.6
North	: Day F	Rd (N)												
1	L2	35	7.7	35	7.7	0.052	10.2	LOS B	0.2	1.5	0.55	0.95	0.55	21.0
2	T1	137	7.7	137	7.7	0.882	62.9	LOSF	4.6	36.6	0.94	1.43	2.60	3.6
Appro	oach	172	7.7	172	7.7	0.882	52.2	LOSF	4.6	36.6	0.87	1.34	2.18	4.7
West	: Dixon	Rd (W)												
4	L2	122	7.8	122	7.8	0.079	5.8	LOSA	0.3	2.7	0.08	0.52	0.08	50.4
5	T1	1149	7.7	1149	7.7	0.319	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	1272	7.7	1272	7.7	0.319	0.6	LOSA	0.3	2.7	0.01	0.05	0.01	58.9
All Ve	ehicles	1465	7.7	1465	7.7	0.882	6.9	NA	4.6	36.6	0.12	0.21	0.27	48.7

MOVEMENT SUMMARY

V Site: [Dixon Rd & Day Rd - Stage 2 - 2021 - PM]

♦♦ Network: N101 [Network - 2021 - PM]

фф Network: N101 [Network -

2021 - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Move	ement	Performa	ance ·	- Vehi	cles									
Mov ID	Turn	Demand F	lows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Bad Queu		Prop. Queued	Effective Stop	Aver. A No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles Di veh	istance m		Rate	Cycles S	Speed km/h
East:	Dixon	Rd (E)												
11	T1	1204	7.7	1204	7.7	0.334	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	1204	7.7	1204	7.7	0.334	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North	: Media	an (N)												
3	R2	137	7.7	137	7.7	0.371	12.6	LOS B	1.3	10.7	0.81	0.97	1.03	10.6
Appro	oach	137	7.7	137	7.7	0.371	12.6	LOS B	1.3	10.7	0.81	0.97	1.03	10.6
All Ve	ehicles	1341	7.7	1341	7.7	0.371	1.3	NA	1.3	10.7	0.08	0.10	0.11	56.9

Page **14** of **15** t20.134.mr.tn01a



▽ Site: [Day Rd & Access 1 - 2021 - PM]

♦♦ Network: N101 [Network - 2021 - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Mov	ement	t Perform	nance	- Vehic	cles									
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% B Que		Prop. Queued	Effective Stop	Aver. / No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m		Rate	Cycles S	Speed km/h
South	n: Day	Rd (S)												
11	T1	183	7.7	183	7.7	0.115	0.3	LOSA	0.2	1.8	0.08	0.01	0.08	56.7
12	R2	9	100.0	9	100. 0	0.115	3.1	LOSA	0.2	1.8	0.08	0.01	0.08	39.4
Appro	oach	193	12.2	193	12.2	0.115	0.5	NA	0.2	1.8	0.08	0.01	0.08	56.4
North	: Day I	Rd (N)												
4	L2	9	100.0	9	100. 0	0.120	6.1	LOSA	0.0	0.0	0.00	0.05	0.00	47.1
5	T1	208	7.7	208	7.7	0.120	0.0	LOSA	0.0	0.0	0.00	0.05	0.00	56.9
Appro	oach	218	11.7	218	11.7	0.120	0.5	NA	0.0	0.0	0.00	0.05	0.00	56.3
All Ve	ehicles	411	12.0	411	12.0	0.120	0.4	NA	0.2	1.8	0.04	0.03	0.04	56.4

MOVEMENT SUMMARY

▼ Site: [Day Rd & Access 2 - 2021 - PM]

♦♦ Network: N101 [Network - 2021 - PM]

Site Category: (None) Giveway / Yield (Two-Way)

Move	ement	Perform	ance ·	- Vehi	cles									
Mov ID	Turn	Demand	Flows	Arrival		Deg. Satn	Average Delay	Level of Service		Back of eue	Prop. Queued	Effective Stop	Aver. / No.	Averag e
		Total veh/h		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m		Rate	Cycles S	Speed km/h
South	ı: Day l	Rd (S)												
11	T1	141	7.7	141	7.7	0.073	0.0	LOSA	0.0	0.1	0.01	0.00	0.01	58.7
12	R2	1	0.0	1	0.0	0.073	1.3	LOSA	0.0	0.1	0.01	0.00	0.01	58.6
Appro	ach	142	7.6	142	7.6	0.073	0.0	NA	0.0	0.1	0.01	0.00	0.01	58.7
East:	Acces	s 2 (E)												
1	L2	28	0.0	28	0.0	0.073	0.5	LOSA	0.3	1.9	0.29	0.18	0.29	16.3
3	R2	52	0.0	52	0.0	0.073	1.3	LOSA	0.3	1.9	0.29	0.18	0.29	16.3
Appro	ach	80	0.0	80	0.0	0.073	1.0	LOSA	0.3	1.9	0.29	0.18	0.29	16.3
North	: Day F	Rd (N)												
4	L2	65	0.0	65	0.0	0.106	2.6	LOSA	0.0	0.0	0.00	0.17	0.00	20.3
5	T1	143	7.7	143	7.7	0.106	0.0	LOSA	0.0	0.0	0.00	0.17	0.00	40.2
Appro	ach	208	5.3	208	5.3	0.106	0.8	NA	0.0	0.0	0.00	0.17	0.00	28.7
All Ve	hicles	431	5.1	431	5.1	0.106	0.6	NA	0.3	1.9	0.06	0.12	0.06	34.0

Page **15** of **15** t20.134.mr.tn01a