PROPOSED CONVENIENCE STORE AND FAST FOOD OUTLET

1100 (LOT 101) ABERNETHY ROAD, HIGH WYCOMBE

DEVELOPMENT APPLICATION

13 MARCH 2018

PTS TOWN PLANNING

Project Team

Development Manager	Arise Developments
Project Manager	Property Development Solutions
Architect	Hodge Collard Preston
Town Planning	PTS Town Planning Pty Ltd
Traffic and Car Parking	Riley Consulting Pty Ltd
BAL Assessment	Bush Fire West Pty Ltd

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Introduction

This report has been prepared on behalf of Arise Developments (WA) Pty Ltd in support of a Development Assessment Panel (DAP) Application to develop Lot 101 (1100) Abernethy Road, High Wycombe.

Arise Developments (WA) Pty Ltd has entered into a contract of sale with the current owner of the site, being Rivergem Investments Pty Ltd.

The proposed development involves the construction of a Convenience Store and Fast Food Outlet. The Convenience Store includes the retail sale of petrol from 8 bowsers and 4 high flow diesel bowsers. The Fast Food Outlet includes a drive through coffee facility.

The proposed development provides vehicle access from Dundas Road and includes the provision of 22 (plus bowser) parking bays.

The site is zoned 'Service Station' under the City of Kalamunda Local Planning Scheme No. 3 and therefore the proposed uses and are completely consistent with the Service Station Zone and Objectives.

The proposed development is consistent with the intent for the site and the relevant development standards as set out under applicable statutory planning framework.

We are seeking the City of Kalamunda's support for the proposed development and the approval of the Metro East Joint Development Assessment Panel.

Planning Approvals Required

The applicant has elected to have the application determined by the Metro East Joint Development Assessment Panel as it has a development cost of $2.5 million.

Subject Site

Site Location and Property Description

The subject site is Lot 101 (1100) Abernethy Road, High Wycombe. Lot 101 is contained on Certificate of Title Volume 2515 Folio 111 and is 4,040m^2 in area. Lot 101 is owned by Rivergem Investments Pty Ltd. Arise Developments (WA) Pty Ltd has a Contract for Sale to purchase Lot 101.

Lot 101 is subject to a notification and a memorial. The notification refers to the area along Abernethy Road and Dundas Road identified as 'K' on Deposited Plan 29302 and identifies that the area (K) is unable to be served by gravity sewer. The memorial relates to noise exposure impacts associated with Perth Airport operations.

Refer to Appendix A – Certificate of Title, Notification and Memorial.

Site Improvements

The site has an existing building constructed along the southern boundary of the site with the balance of the lot being hardstand for vehicle parking and storage. Two vehicle access points are provided from Dundas Road.



Site Context

The site is surrounded by a mix of service commercial, light industry, residential and infrastructure uses.

To the west of the site, on the western side of Abernethy Road, is Perth Airport. To the north of the site are service commercial/light industrial uses. To the south of the site is a vacant lot with service commercial/light industrial uses further south and south-east. To the east is a vacant site and single residential dwellings.

Bush Fire Prone Area

Portion of the subject site is identified as a bush fire prone area. A BAL assessment has been carried out by Bush Fire West Pty Ltd, which has identified vegetation adjacent to the subject site as BAL 19. Accordingly a Bush Fire Management Plan (BMP) will be required to be prepared and approved by City of Kalamunda and DFES. It is appropriate that a condition of approval requires preparation and submission of a BMP prior to issue of a building licence, as contemplated by the City's information brochure 'Development in Bush Fire Prone Areas'.

Refer to Appendix B – BAL Assessment.

Contamination

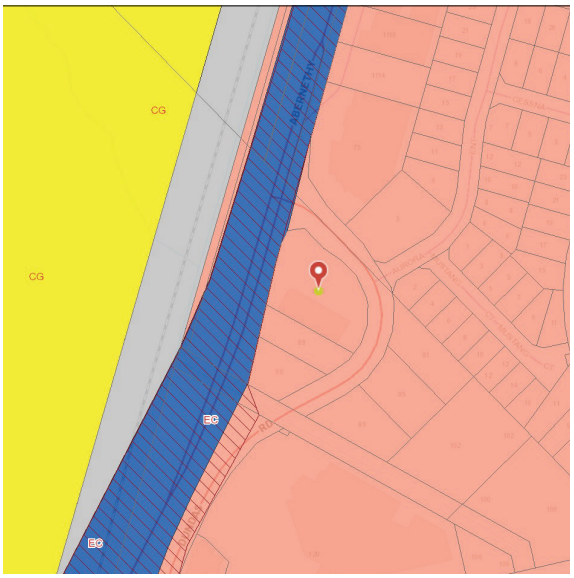
A search of the contaminated sites database does not identify the site as a contaminated site.

Planning Framework

Metropolitan Region Scheme (MRS)

The subject site is zoned 'Urban' under the Metropolitan Region Scheme (MRS).

Abernethy Road is Reserved 'Other Regional Road'. The Reservation does not extend into the site and vehicle access is not proposed to Abernethy Road.

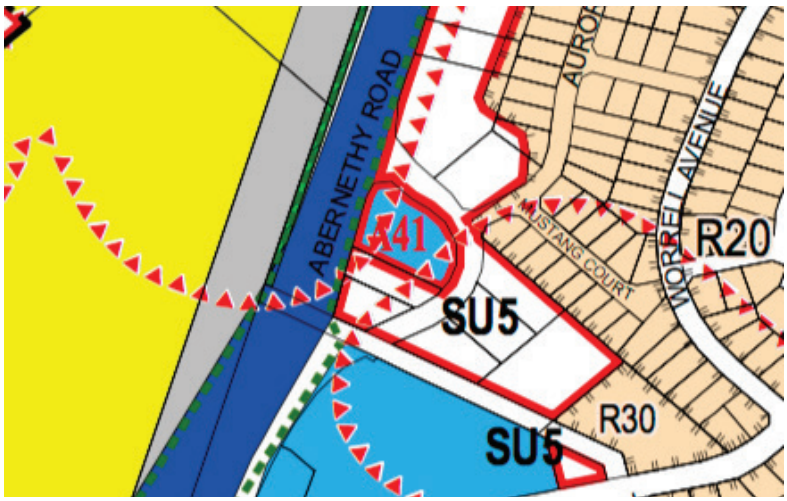


City of Kalamunda Local Planning Scheme No. 3

The subject site is zoned 'Service Station' under the City's Local Planning Scheme No. 3 (LPS3). The objectives of the zone are to:

- To provide for the requirements of the motoring public in respect to the running and servicing of vehicles.
- To provide for low key requirements ancillary to the needs of motorists.
- Encourage the location of such facilities in association with other non-residential uses.

The site is also subject to Additional Use No. 41, which provides 'Fast Food Outlet' and 'Convenience Store' as additional permitted uses on the site.



Local Planning Policies

The following Local Planning Policies are applicable to the consideration of the development application:

- P-DEV-41-Framework for Assessing Requests for Variation to the Number of Car Parking Bays.
- P-DEV-42-Signage on Private Property.

Proposed Development

The proposed development involves the following:

- Construction of a convenience store and fast food outlet building of 300m^2 located in the south western portion of the site;
- A drive through coffee facility located between the building and the southern boundary;
- Provision of a fuel canopy with 8 bowsers located to the north of the building;
- Provision of 4 high flow diesel bowers in the eastern portion of the site;
- Provision of 22 car parking bays and a service area;
- Access from two crossovers from Dundas Road. The northern crossover is limited to entry only and the eastern crossover is limited to exit only; and
- Landscaping along the street frontages.

The application does not seek approval for the site signage as this will be done under a separate process, however, two pylon signs are indicated, one on the corner of Abernethy Road and Dundas Road and one adjacent to the eastern crossover entrance.

The proposed building is one storey in height and includes a canopy from the convenience store to the northern bowsers. The building is constructed of concrete panels with a yellow colour to the northern facade and grey to the other elevations. The service yard is screened by aluminium screens.

The development plans are provided in Appendix C.

Planning Assessment

Land Use

The two proposed land uses for the site are appropriately defined as:

- Convenience store, which is a 'P' permitted use; and
- Fast food outlet, which is identified in the zoning table as a 'A' discretionary use, however, is included as an 'Additional' permitted use on the site.

The uses are entirely appropriate for the site given the zoning of Service Station and the additional uses of convenience store and fast food outlet that apply to the site. The uses are also consistent with the objectives of the Service Station zone.

Setbacks

Local Planning Scheme No. 3 (LPS3) provides a front setback of 6 metres, 3 metres to a minor street, 3 metres to the side and 4.5 metres to the rear.

The proposed canopy is setback more than 9 metres from Abernethy Road. The proposed building is generally setback more than 6 metres, however, the south-western corner of the building is located 5 metres from the boundary. The setback variation is considered acceptable as only a small portion of the building is within the setback, the setback variation is minor and the setback responds to the irregular boundary shape. The setback variation has no impact on the Abernethy Road streetscape or adjoining properties.

There are no buildings within 3 metres of Dundas Road and therefore complies. The building is separated from the southern boundary by 4.5 metres and therefore complies regardless of whether the boundary is considered the side or rear.

Site Coverage

The proposed building (300m^2) and canopy (320m^2) occupy 620m^2 square metres, which represents a site coverage of 15.3%. Therefore the site coverage is less than the maximum of 70%.

Plot Ratio

The building has an area of 300m^2, which equates to a plot ratio of 0.07:1, which is complies with the maximum of 0.6:1.

Landscape Strip to Street Frontages

LPS3 requires the provision of a 3 metre wide landscape strip to the street frontages. The development provides a significant level of landscaping with the street frontages provided with significantly more than 3 metres in width (up to 10 metres in places). The only area where the landscaping is not provided to the street frontage is the area on Abernethy Road adjacent to the building, which is provided for the drive through facility.

It is considered that this minor variation should be supported as the area represents only a small portion of the frontage and landscaping has been provided on the eastern side of the drive through, thereby maintaining the landscape objective. In addition, the amount of landscaping proposed on site is significant and will greatly add to the amenity of the area.

Car Parking

A Convenience Store requires 6 bays per 100m^2 for shop plus 1 bay per bowser with a Fast Food Outlet requiring 10 bays per 100m^2 NLA, with a minimum of 6 bays (excluding the drive through).

The convenience store is 270m^2 in area and provides 12 bowsers, therefore 28 bays are required. It is assumed that the 12 bowser bays are provided adjacent to the bowsers and therefore 16 stand alone bays are required.

The Fast Food Outlet has an area of 30m^2, therefore the minimum of 6 bays are required.

The total required car parking is 22 bays plus 12 bowser bays. The development provides 22 plus 12 bowser bays, which complies with the requirements. It is also noted that the drive through provides additional bays associated with that use.

Design

The proposed design is of concrete construction and entirely appropriate for a typical service station site. The yellow colour represents the branding of the proposed operator and will not impact the amenity of the area given the commercial/light industry nature of the land uses along Abernethy Road.

Loading/Unloading Bays

A loading/unloading area has been provided to the east of the building.

Service Yards & Refuse Storage

A loading/unloading area has been provided to the east of the building, which includes the bin store that is screened from view.

Drainage

Stormwater will be retained on site.

Signage

As previously indicated, this application is not applying for approval for the signage on the site. The signage will be subject to a separate approval process.

Traffic Assessment

Riley Consulting has prepared a Traffic Statement, which is contained on Appendix D.

Conclusion

The proposed development will provide a service as indicated by the site zoning and zone objectives *'To provide for the requirements of the motoring public in respect to the running and servicing of vehicles.'*

The proposed development responds to the site location with good vehicle access to the site from Dundas Road.

The proposed development is entirely consistent with the intent for the site as set out under applicable statutory planning framework and generally complies with the relevant development standards.

We are seeking the City of Kalamunda's support for the proposed development and the approval of the Metropolitan East Joint Development Assessment Panel.

Appendix B
BAL Assessment

Bushfire Attack Level Assessment Report

Prepared by a BPAD Accredited Practitioner

Fire Protection Association Australia Life Property Environment



AS 3959 BAL Assessment Report

This report has been prepared by an Accredited BPAD Practitioner using the Simplified Procedure (Method 1) as detailed in Section 2 of AS 3959 – 2009 (Incorporating Amendment Nos 1, 2 and 3). FPA Australia makes no warranties as to the accuracy of the information provided in the report. All enquiries related to the information and conclusions presented in this report must be made to the BPAD Accredited Practitioner.

Property Details and Description of Works

Address Details	**Unit no**	**Street no**	**Lot no**	**Street name / Plan Reference**	
		1100	101	Abernethy Road	
	Suburb			**State**	**Postcode**
	High Wycombe			WA	6057
Local government area	Shire of Kalamunda				
Main BCA class of the building	Class 6	**Use(s) of the building**		Convenience store and fuel filling station.	
Description of the building or works	Construction of new convenience store and fuel filling station.				

Report Details

Job Number	Report Version	Assessment Date	Report Date
180306	V1.0	14 March 2018	14 March 2018

BPAD Accredited Practitioner Details

Name
Jeremy Durston (BPAD36525)

Details
T/a Bushfire West
jeremy@bushfirewest.com.au
0403 328 835

I hereby declare that I am a BPAD accredited bushfire practitioner.
Accreditation No. BPAD36525
Signature
Date 14 MAR 2018

Authorised Practitioner Stamp

Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of issue of the report. If this report was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated report issued.

Site Assessment

The assessment of the development site was undertaken on 14 March 2018 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2009 Simplified Procedure (Method1).



Vegetation Classification

All vegetation within 100m of the proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

Area ID:	1	**Vegetation Classification or Exclusion Clause:**	Class C Shrubland
Description / Justification for Classification:			
Unmanaged road reserve containing shrubs to 2m in height and grass.			



Photo 1

Area ID:	2	**Vegetation Classification or Exclusion Clause:**	Class C Shrubland
Description / Justification for Classification:			
Unmanaged road reserve containing shrubs to 2m in height and grass.			



Photo 2

Area ID:	3	Vegetation Classification or Exclusion Clause:	Class G Grassland
Description / Justification for Classification:			
Road reserve section containing unmanaged grass.			



Photo 3

Area ID:	4	Vegetation Classification or Exclusion Clause:	Class G Grassland
Description / Justification for Classification:			
Area of unmanaged grass with isolated trees, canopy cover less than 10%.			



Photo 4

Area ID:	5	Vegetation Classification or Exclusion Clause:	Class B Woodland

Description / Justification for Classification:

Line of trees adjacent to rail line with canopy cover less than 30%, shrubs and grass.



Photo 5

Area ID:	6	Vegetation Classification or Exclusion Clause:	Class B Woodland

Description / Justification for Classification:

Drainage reserve containing trees with canopy cover less than 30%, shrubs and grass.



Photo 6

Area ID:	7	Vegetation Classification or Exclusion Clause:	Excludable - 2.2.3.2(f) Low Threat Vegetation
Description / Justification for Classification:			
Vacant lot managed for low threat with grass below 10cm in height.			



Photo 7

Relevant Fire Danger Index

The fire danger index for the proposed development has been determined in accordance with Table 2.1 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

Fire Danger Index			
FDI 40 ☐	FDI 50 ☐	FDI 80 ☒	FDI 100 ☐
Table 2.4.5	*Table 2.4.4*	*Table 2.4.3*	*Table 2.4.2*

Potential Bushfire Impacts

The potential bushfire impacts to the proposed development from each of the identified vegetation plots are identified below.

Table 1: BAL Analysis

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Class C Shrubland	0°	14m	BAL – 19
2	Class C Shrubland	2°	30m	BAL – 12.5
3	Class G Grassland	1°	42m	BAL – 12.5
4	Class G Grassland	2°	74m	BAL – LOW
5	Class B Woodland	0°	55m	BAL – 12.5
6	Class B Woodland	0°	68m	BAL – 12.5
7	Excludable – Clause 2.2.3.2(f)	n/a	n/a	BAL – LOW

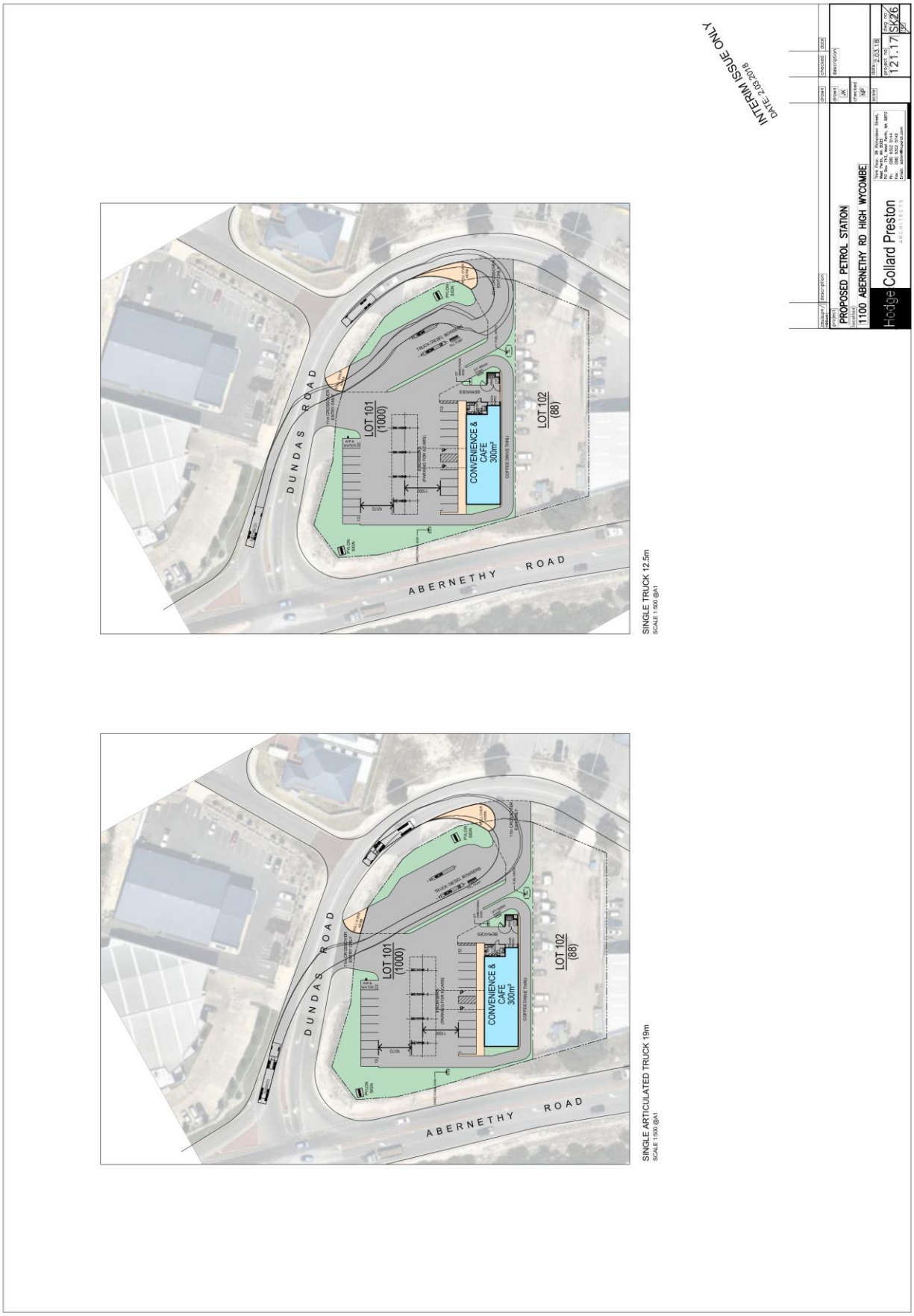
Determined Bushfire Attack Level (BAL)

The Determined Bushfire Attack Level (highest BAL) for the proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009 using the above analysis.

Determined Bushfire Attack Level	BAL – 19

Appendix 1: Plans and Drawings

Plans and drawings relied on to determine the bushfire attack level		
Drawing / Plan Description Proposed Petrol Station		
Job Number 121.17	**Drawing** SK26	**Date of Revision** 2/3/18


INTERIM ISSUE ONLY
DATE 2.03.2018
PROPOSED PETROL STATION
1100 ABERNETHY RD HIGH WYCOMBE
Hodge Collard Preston
ARCHITECTS
121.17 SK26
DUNDAS ROAD
ABERNETHY ROAD
LOT 101 (1000)
LOT 102 (88)
CONVENIENCE & CAFE 300m²
SINGLE TRUCK 12.5m
SCALE 1:500 @A1
SINGLE ARTICULATED TRUCK 19m
SCALE 1:500 @A1

Appendix C
Development Plans



C	ISSUED FOR PLANNING APPLICATION – SHADE TREE UPDATE	JC	NP	12.03.2018
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

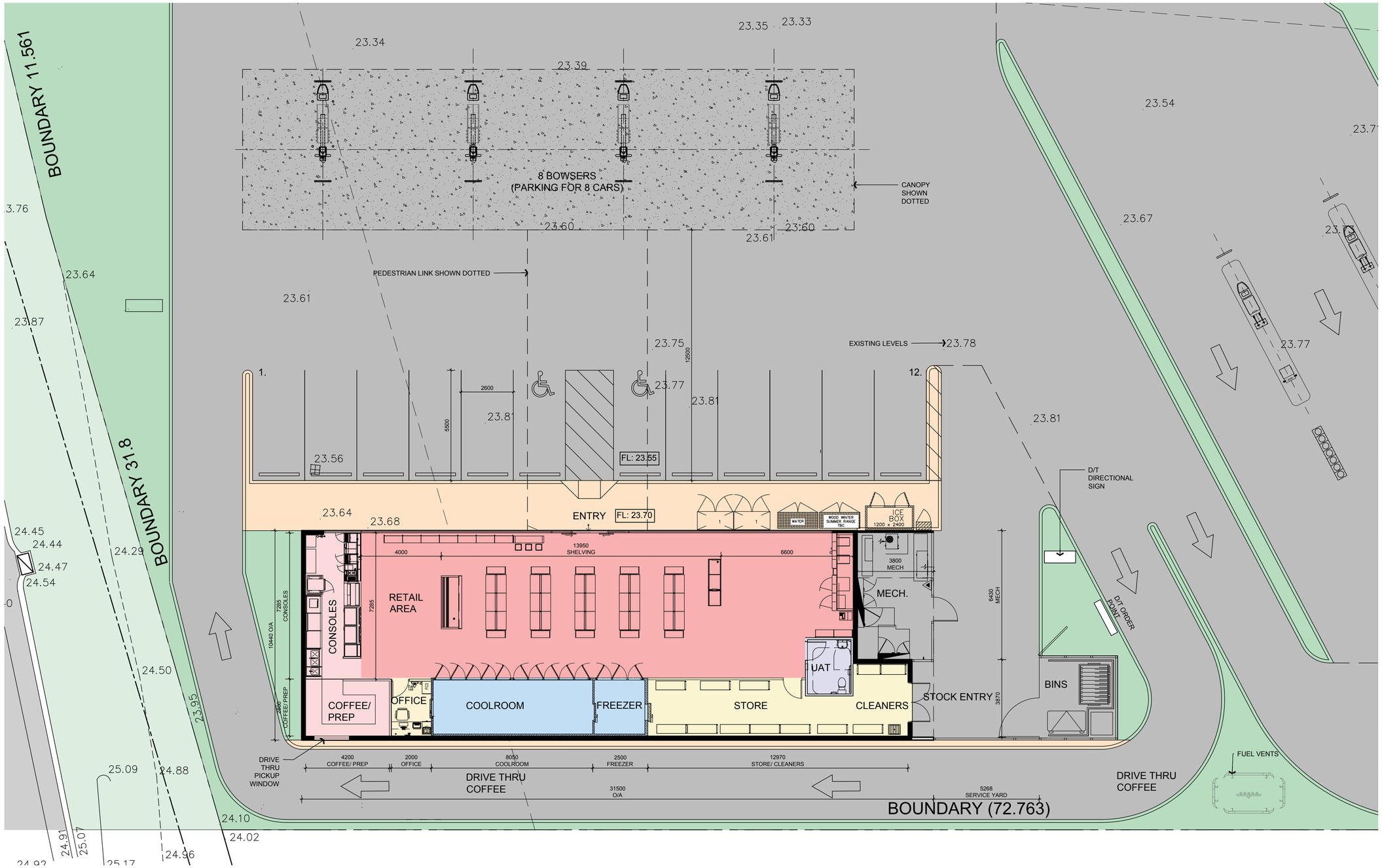
project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP
description: SITE PLAN

Arise Developments

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scale: 1:200 @A1/ 1:400 @A3
date: 9.03.18
project no: 121.17
dwg no: S01
rev: C



Arise Developments

B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
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revision/ issue	description	drawn	checked	date

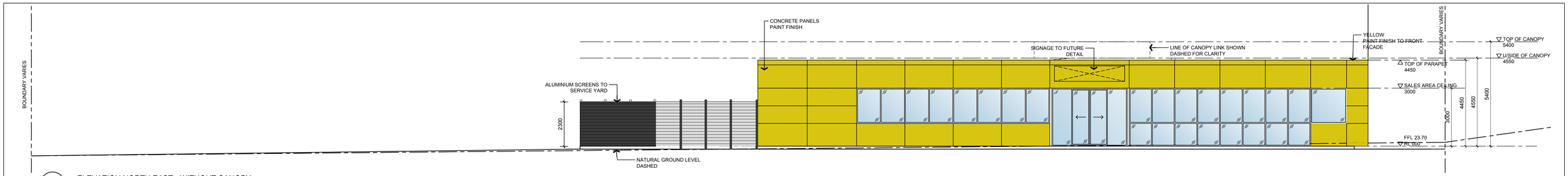
project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD, HIGH WYCOMBE

drawn: JK
checked: NP

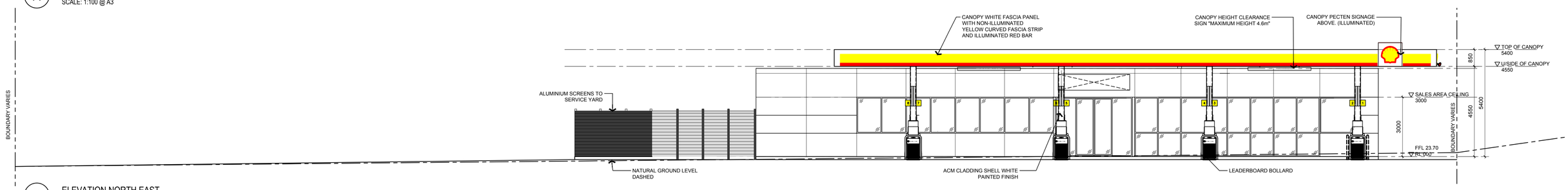
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project no: 121.17
dwg no: S02
rev: B

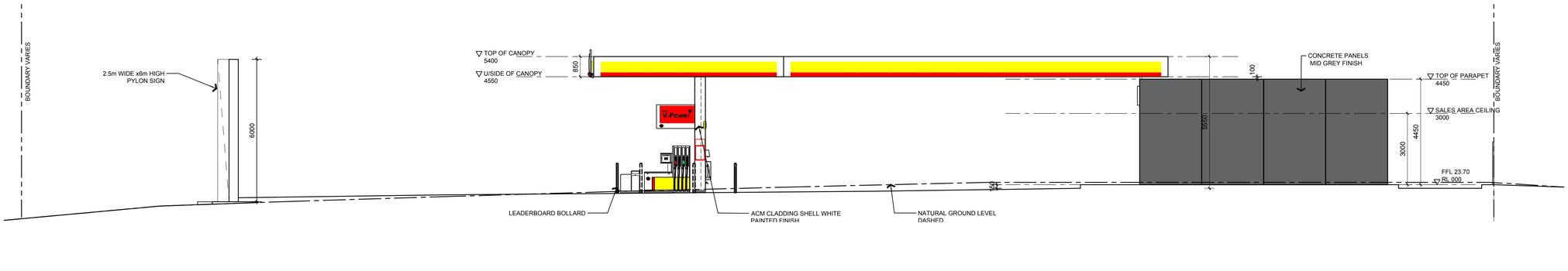
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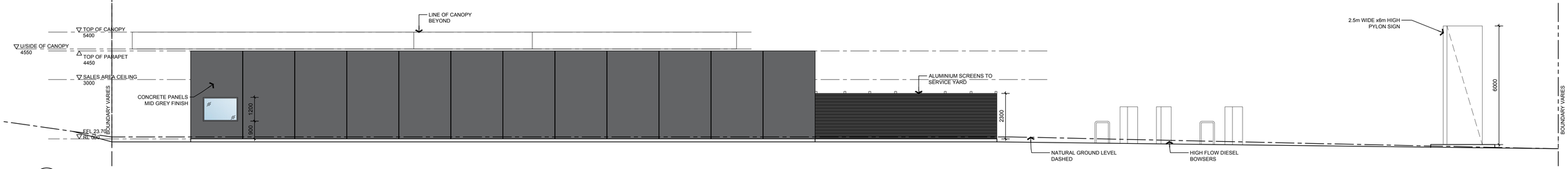
A ELEVATION NORTH EAST - WITHOUT CANOPY
SCALE: 1:100 @ A3



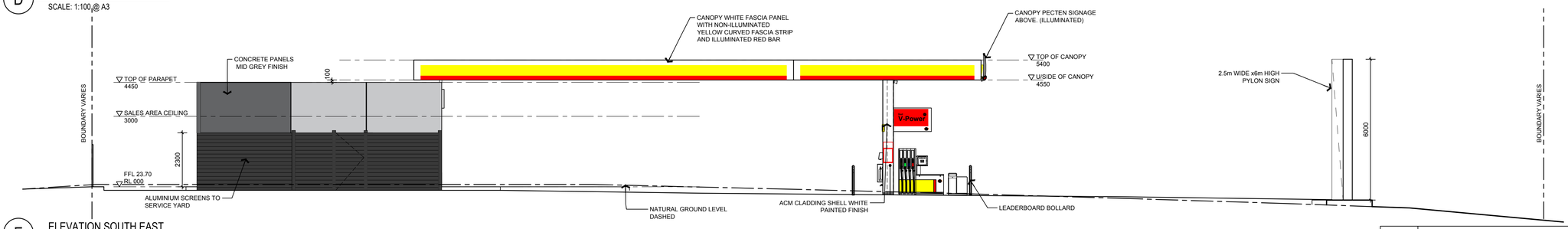
B ELEVATION NORTH EAST
SCALE: 1:100 @ A3



C ELEVATION NORTH WEST
SCALE: 1:100 @ A3



D ELEVATION SOUTH WEST
SCALE: 1:100 @ A3



E ELEVATION SOUTH EAST
SCALE: 1:100 @ A3

Arise Developments

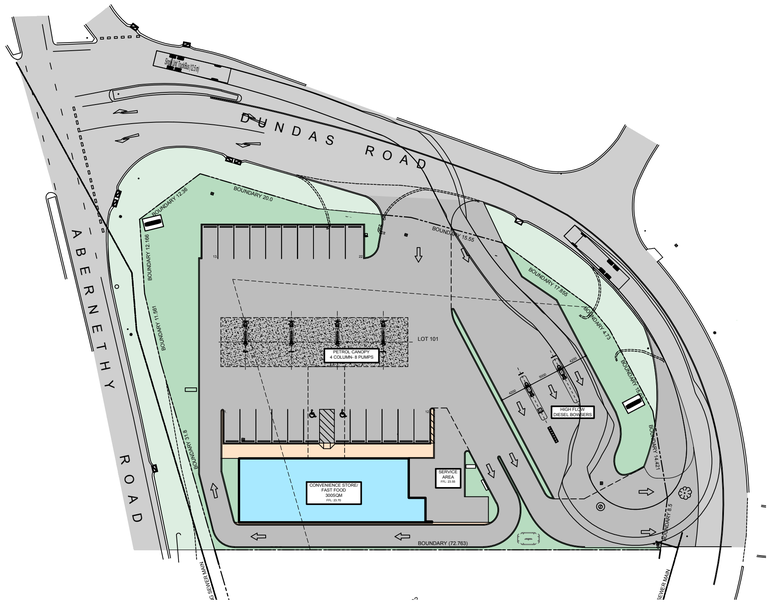
revision/ issue	description	drawn	checked	date
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018

project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD HIGH WYCOMBE

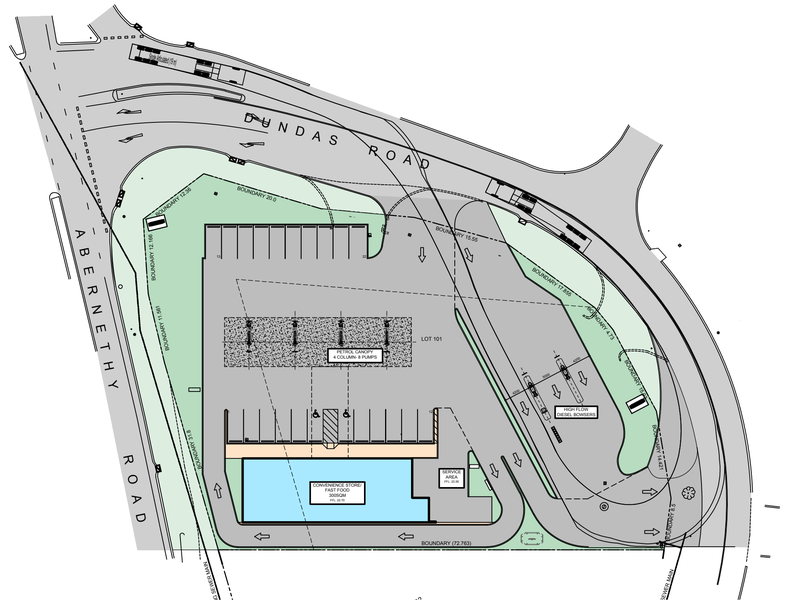
drawn: JK
checked: NP
description: ELEVATIONS

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scale: 1:100 @A1/ 1:200 @A3
date: 8.03.2018
project no: 121.17
dwg no: S03
rev: A



1 TRUCK TRACKING 12.5m RIGID



2 TRUCK TRACKING 19m SEMI

Arise Developments

B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP
description: TRUCK TRACKING DIAGRAMS
scale: 1:500 @A1
date: 09.03.18
project no: 121.17
dwg no: S04
rev: B

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AREAS

SITE AREA = 4040 m^2

PROPOSED LANDSCAPING ON SITE = 670m^2

VERGE LANDSCAPING = 770m^2

SHADE TREES = 6 no.

PLANT SPECIES

LOW SHRUB

GREVILLEA PREISSII (STAR JASMINE)

MIN. SIZE: 150mm

2 PLANTS PER SQM WITH 75MM MULCH COVER



SHADE TREE

VERGE LANDSCAPING

..\JobNo 07 Received\Arise Logo.png

revision/ issue	description	drawn	checked	date
D	ISSUED FOR PLANNING APPLICATION – NOTATION UPDATE	JC	NP	12.03.2018
C	ISSUED FOR PLANNING APPLICATION – SHADE TREE UPDATE	JC	NP	12.03.2018
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018

project: **PROPOSED PETROL STATION**

location: **1100 ABERNETHY RD HIGH WYCOMBE**

drawn: JK | checked: NP | description: **LANDSCAPING PLAN**

scale: 1:200 @A1 | date: 09.03.18 | project no: 121.17 | dwg no: S05 | rev: D

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Appendix D
Traffic Assessment

ARISE DEVELOPMENTS

1100 ABERNETHY ROAD, HIGH WYCOMBE

PROPOSED CONVENIENCE STORE (FUEL) AND DRIVE-THROUGH FAST FOOD (COFFEE) OUTLET

TRAFFIC STATEMENT

MARCH 2018

Riley Consulting (WA) Pty Ltd

PO BOX Z5578

Perth WA 6831

0413 607 779 Mobile

Issued on	8 March 2018	Amendments	Date
Version	Draft		
Reference	934		

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1. EXECUTIVE SUMMARY

1.1. Riley Consulting has been commissioned by Arise Developments to consider the traffic and transport impacts of developing convenience store with fuel and drive-through fast food (coffee) outlet at 1100 Abernethy Road, High Wycombe. The key findings of the traffic review are:

1.1.1. An industrial shed generating about 100 vehicle movements per day presently occupies the site.

1.1.2. The proposed development of a convenience store (fuel) will attract a significant level of traffic already passing the site. However, existing similar facilities to the south may lower the level of attraction set out in this report.

1.1.3. The proposed development is forecast to generate 1,848 vehicle movements per day, of which approximately 1,017 movements could be considered new to the local road network, based on recognised sources for the pass-by attraction. During the peak periods, the proposed development is forecast to increase local traffic demands by up to 89 additional movements.

1.1.4. The level of traffic generated by the proposed development is considered to have no material impact under the WAPC *Transport Assessment Guidelines for Developments*.

1.1.5. Analysis of the Abernethy Road / Dundas Road intersection indicates that the existing Level of Service C for Dundas Road will reduce to Level of Service D in the morning peak hour. Level of Service D is an acceptable Level of Service.

1.1.6. The Sidra design life assessment of the Abernethy Road / Dundas Road intersection indicates that Level of Service F can be expected to occur in about 5 years. It is understood that planning for a roundabout at this intersection is underway.

1.1.7. The development is deemed to comply with the City of Kalamunda's TPS 3 parking requirements.

2. CHECKLIST

Item	Comments/Proposals
Proposed development	
proposed land uses	Convenience store (fuel), drive-though fast food (coffee) outlet
existing land uses	Industrial use
context with surrounds	Airport industrial precinct.
Vehicular access and parking	
access arrangements	Direct to Dundas Road
public, private, disabled parking set down / pick up	Disabled parking to be provided
Service vehicles	
access arrangements	On site
rubbish collection and emergency vehicle access	On site
Hours of operation (non-residential only)	24 hours a day, 7 days per week.
Traffic volumes	
daily or peak traffic volumes	Forecast generation of 1,848vpd No material impact under WAPC guidelines
type of vehicles (eg cars, trucks)	Predominantly cars and as-of right HGV's
Traffic management on frontage streets	Not required
Public transport access	
nearest bus stops/train stations	N/A
pedestrian/cycle links to bus stops/train station	N/A
Pedestrian access/facilities	
existing pedestrian facilities within the development (if any)	N/A
proposed pedestrian facilities within development	N/A
existing pedestrian facilities on surrounding roads	Marginal
proposals to improve pedestrian access	N/A
Cycle access/facilities	
existing cycle facilities within the development (if any)	N/A
proposed cycle facilities within development	N/A
existing cycle facilities on surrounding roads	N/A
proposals to improve cycle access	N/A
Site specific issues	None identified
Safety issues	None identified

3. THE LOCAL ROAD NETWORK

3.1. The subject site at 1100 Abernethy Road is located on the southeastern corner of Dundas Road and Abernethy Road in High Wycombe.

3.2. Figure 1 shows the location of the subject site and Figure 2 shows an aerial image of the site.

3.3. Roads of importance are discussed below.

Abernethy Road

3.4. Abernethy Road is classified as district distributor A road in the Main Roads *Functional Road Hierarchy*. It is constructed with a wide single carriageway with one lane in each direction south of Kalamunda Road. It has a posted speed limit of 70kph.

3.5. Traffic data sourced from the Main Roads web site shows 17,071 vehicles per day (vpd) south of Kalamunda Road of which 26% are heavy good vehicles. South of Dundas Road the MRWA data shows 19,447 vpd of which 24% are HGV's. The data is attached at Appendix A.

3.6. Appendix B shows the Levels of Service by road type based on the daily traffic demand. It can be seen that Abernethy Road is currently operating with Level of Service E. The capacity of Abernethy Road would be defined as the flow at Level of Service F, or 22,900vpd. It can be seen that the warrants to upgrade Abernethy Road to a four lane divided road are met.

3.7. A traffic count of the Abernethy Road / Dundas Road intersection has been undertaken by Austraffic and the data summarised in Table 1. The turning counts are attached at Appendix A.

Table 1 Abernethy Road Peak Hour Traffic Demands

Direction	North	South
AM Peak (7am-8am)	402	881
PM Peak (5pm-6pm)	741	436

Demand north of Dundas Road



Figure 1 Subject Site Location



Figure 2 Aerial Imagery (Site area indicative)

Dundas Road

3.8. Dundas Road is classified as district distributor B road in the Main Roads *Functional Road Hierarchy*. It is constructed with a single carriageway having one lane in each direction. Dundas Road yields to Abernethy Road.

3.9. Traffic data is not available for Dundas Road, but based on the peak hour count at its intersection with Abernethy Road it is calculated to carry about 5,400vpd. Heavy goods vehicles are in the order of 10%. Dundas Road is not included on the MRWA RAV network.

3.10. Crash data on the MRWA web site indicates 17 crashes have occurred in the past five years at its intersection with Abernethy Road. The data, attached at Appendix A, indicates 11 rear end crashes and 6 right turn crashes. There has been 1 casualty.

3.11. A roundabout has been identified to control the intersection of Abernethy Road / Dundas Road and will be constructed by the City of Kalamunda at some future time. Based on the limited requirement for pedestrians to cross these roads a roundabout is a suitable method of control.

3.12. Reference to Appendix B indicates Dundas Road is currently operating with Level of Service C. The capacity of Dundas Road would be defined as the flow at Level of Service F, or 22,900vpd.

3.13. Table 2 provides a summary of the peak hour traffic flows on Dundas Road.

Table 2 Dundas Road Peak Hour Traffic Demands

Direction	West	East
AM Peak (7am-8am)	275	124
PM Peak (5pm-6pm)	139	296

Demand east of Abernethy Road

4. PROPOSED DEVELOPMENT

4.1. The subject site is currently occupied by large industrial shed. The use is an earthmoving sales, service and repair centre. The shed has a floor area of approximately 1,000m^2.

4.2. It is proposed to redevelop the site to provide a convenience store of 270m^2 GFA with 8 standard flow refuelling points, 4 high flow diesel refuelling points and a drive through fast food (coffee) outlet of 30m^2.

4.3. Figure 3 shows the development concept plan.

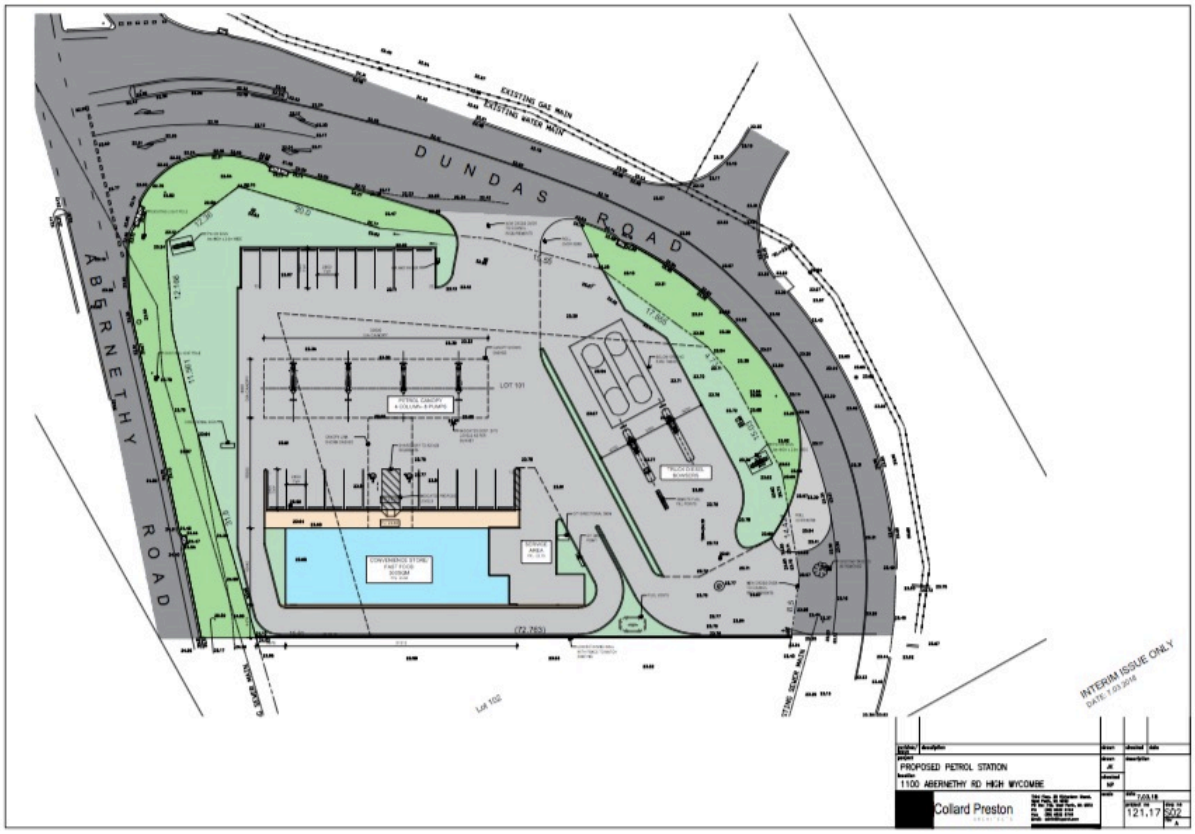


Figure 3 Indicative Site Concept Plan (refer to DA for detail)

5. DAILY TRAFFIC VOLUMES AND VEHICLE TYPES

5.1. As discussed, the site is presently used by an earthmoving sales, service and repair centre. There are no recognised traffic generation sources for this specific land use. However, the RTA *Guide to Traffic Generating Developments* suggests the use of 10 trips per 100m^2 of floor area for commercial activity.

5.2. With a total floor area of about 1,000m^2 the existing land use would be expected to generate about 100 vehicle movements per day.

Convenience Store (fuel)

5.3. There are two trip generation sources that provide trip rates for convenience stores with fuel. The RTA *Guide to Traffic Generating Developments* (NSW) provides trip rates based on the gross area of the site. The trip rate source applies the same trip generation regardless of the number of pumps. It is considered that this method is unreliable.

5.4. The ITE Trip Generation manual (USA) suggests an AM peak hour trip rate of 12.07 trips per filling position, a PM peak hour trip rate of 13.86 trips and a daily rate of 168.56 trips.

5.5. Surveys undertaken by Riley Consulting[1] of convenience stores with fuel in the northern suburbs of Perth identified a typical evening trip rate of 12 trips per filling position. The results of the surveys fit well with the ITE Trip Generation source.

5.6. The proposed development plan shows four bowsers providing 8 filling positions. Reference to the ITE trip rate suggests the site would generate 97 trips in the morning peak and 111 trips in the evening peak hour. The daily generation would be 1,348 trips.

5.7. The ITE trip generation source also advises that a convenience store with fuel can be expected to attract at least 45% of its traffic generation from traffic already passing the site (referred to as pass-by trips).

Heavy Goods Vehicle Refuelling

5.8. Two bowsers for high flow diesel are also proposed to service Heavy Goods Vehicles (HGV's) in the locality (four refuelling positions). There are no sources to determine the level of attraction to a truck refuelling point, but it is reasonable to assume that the attraction would be proportional to a general fuel outlet.

5.9. Reference to the traffic data provided by MRWA for Abernethy Road indicates 24% of vehicles are HGV's. However, some 8% of these vehicles are restricted access vehicles, which are not permitted to use Dundas Road. Thus it can be expected that the high-flow diesel refuelling points will attract (24%-8%) 16% of the traffic demand expected at a standard fuel refuelling point.

5.10. The expected daily attraction to the high-flow diesel refuelling points would be (168.56 x 16%) 29 movements per fill point. Thus with 4 refuelling points, 108 HGV movements per day would be expected.

5.11. During the traditional peak periods the same attraction rates would be expected. Therefore the morning attraction can be expected to be (12.07 x 16% x 4 positions = 7.7) 8 HGV movements. During the evening peak the attraction will be (13.86 x 146 x 4 = 8.8) 9 HGV movements. Again a 45% pass-by attraction can be expected.

5.12. HGV movements will be as-of-right vehicles only, which are limited to 19 metres in length.

[1] Undertaken in about 2005

Drive-through Fast Food (Coffee) Outlet

5.13. Reference to the ITE Trip Generation suggests that drive through (fast food) coffee shops can be expected to have a peak attraction of 183 trips per 100m^2 floor area. The outlet is shown to occupy a floor area of 30m^2 and can be expected to generate 55 peak hour movements.

5.14. Surveys of Muzz Buzz in the northern suburbs of Perth have recorded an average of 45 customers per hour at the Joondalup and Malaga outlets. The Muzz Buzz on Great Eastern Highway was recorded to attract 39 customers during the peak hour. Given the location of the proposed drive-through outlet on lower traffic flow streets away from a retail/commercial precinct, the trip generation shown by the ITE source appears realistic. Further there will be reciprocal use to the convenience store.

5.15. The surveys of Muzz Buzz indicate the morning peak attracts some 14% of the daily traffic demand. During the evening peak period 5% of the daily demand was recorded. However, it is most likely that the drive-through outlet will close mid afternoon. It is calculated that the drive-through outlet would generate (55/14%) 392 movements per day. If the outlet is open during the evening peak period, it would be expected to generate 21 vehicle movements.

5.16. The RTA *Guide to Traffic Generating Developments* suggests drive-through facilities will attract 50% of trade from vehicles already passing the site.

5.17. Table 3 shows the anticipated changes to traffic based on the proposed redevelopment of the subject site.

Table 3 Forecast Traffic Movements

Use	**AM**	**PM**	**Daily**
Convenience store (fuel)	97	111	1,348
High-flow diesel refuelling	8	9	108
Coffee Drive-through	55	21	392
Sub-total	***160***	***141***	***1,848***
Service station pass-by 45%	-43	-50	-607
Truck refuelling pass-by 45%	-3	-4	-49
Drive through coffee pass-by 50%	-25	-9	-176
Traffic Increase	**+89 trips**	**+78 trips**	**+1,016 Trips**

Distribution

5.18. Traffic generated by the proposed development will be drawn from the surrounding commercial areas and district traffic passing the site. However, there is an existing fuel outlet to the south at Grogan Road that will capture northbound traffic movements. The proposed refuelling facilities will therefore be expected to primarily attract vehicles heading south on Abernethy Road that are most likely to continue south to reach the industrial areas and the airport.

6. TRAFFIC IMPACTS

6.1. Reference to the WAPC Transport Assessment Guidelines for Developments states that:

> *"As a general guide, an increase in traffic of less than 10% of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10% may. All sections of road with an increase greater than 10% 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% of capacity. Therefore any section of road where traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis. An intersection may be considered materially affected if flows on any leg increase by more than 10% or any individual movement by more than 20%"*.

6.2. Table 4 considers the traffic impact of the development based on the generated daily traffic demands. Table 4 does not include reductions for pass-by traffic and provides a robust assessment of the maximum traffic impact.

Table 4 Daily Traffic Impacts

Approach	Flow	Capacity*	Development	% Capacity
Abernethy Road N	17,071	22,900	+793	+3.5%
Dundas Road	5,900	22,900	+263	1.1%
Abernethy Road south	19,447	22,900	+792	+3.5%

*Capacity is based on reaching Level of Service F.

6.3. Table 4 indicates the proposed development can be expected to increase traffic on Abernethy Road by up to 3.5% of its capacity. The forecast traffic flow changes are less than 10% of capacity and based on the WAPC *Transport*

Assessment Guidelines for Developments, the proposed development would be deemed to have no material impact.

Long-term Impacts

6.4. Traffic growth in the locality is predominated by industrial development in the airport precinct. Until such time that Abernethy Road is widened, traffic growth will be restrained due to the practical road capacity already being met. By 2031 with 2% growth per annum, the daily demand on Abernethy Road will exceed the threshold of Level of Service F.

6.5. Given that the majority of traffic attracted to the proposed development will be passing by the site, it is only the operation of the Abernethy Road / Dundas Road intersection that will be affected. The impact to the intersection will occur during the peak periods.

Peak Hour Traffic Impacts

6.6. The forecast traffic generation of the proposed development has been added to the existing traffic movements recorded at the Abernethy Road / Dundas Road intersection. The level of pass-by attraction is accounted for in the analysis.

6.7. Sidra analysis is used to assess the impact of the proposed development. The Sidra analysis is summarised in Table 5 below.

6.8. The Sidra outputs are attached at Appendix C.

Table 5 Abernethy Road / Dundas Road Peak Hour Sidra Analysis

Approach	V/C	Delay	LoS	V/C	Delay	LoS
AM Peak Hour						
	Existing			With Development		
Abernethy Road S	0.212	1.9s	A	0.207	2.4s	A
Dundas Road	0.758	32.4	C	0.908	44.7s	D
Abernethy Road N	0.502	0.5	A	0.489	0.8s	A
PM Peak Hour						
	Existing			With Development		
Abernethy Road S	0.412	1.8s	A	0.405	1.9s	A
Dundas Road	0.580	26.3	B	0.721	28.2s	B
Abernethy Road N	0.209	1.5s	A	0.197	2s	A

6.9. The Sidra analysis indicates that the intersection will operate with acceptable Levels of Service with the proposed development.

6.10. Whilst good Levels of Service are shown for the overall performance of the intersection, the critical right turn movement from Dundas Road to Abernethy Road north is shown to experience an increase in delay of 8 seconds in the morning and 10 seconds in the evening peak. The Level of Service for this movement is D in both peaks. The Level of Service is considered acceptable.

Long-term Intersection Analysis

6.11. The intersection of Abernethy Road / Dundas Road has been assessed using the Sidra design life tool to apply even growth to all approaches over the 10 year planning horizon.

6.12. The design life tool indicates that if growth occurs at 2% per annum, the Dundas Road approach to Abernethy Road will experience an increase in delay with the intersection shown to fail to operate in an acceptable manner in about 5 years.

6.13. It is understood that the City of Kalamunda are in the process of designing a roundabout for this intersection, which will address the forecast traffic delays.

7. VEHICLE ACCESS

7.1. Access to the existing site is provided at two locations. The proposed development will close the eastern access adjacent to Aurora Entrance and relocate to the southern boundary.

7.2. Two eleven metre cross-overs are proposed for the site and will be provided with roll-over kerbs where required to allow large vehicle access.

7.3. The northern access will utilise the existing cross-over widened to suit vehicle requirements. The location of this cross over meets the requirements of AS2890.1 in regard to its separation to Aurora Entrance.

7.4. The eastern crossover will be relocated to the southern site boundary and the cross-over constructed to suit vehicle movements.

7.5. Both cross overs are appropriately located and acceptable visibility is achieved.

7.6. Dundas Road presently carries a peak demand of 435 vehicles (refer Table 3) and the proposed development access will generate up to 40 vehicles leaving the site (AM peak refer Table 4). Reference to Austroads table 4.1 (attached at Appendix D) suggests that the level of traffic flow will result in uninterrupted flow conditions. Under such conditions Austroads advises that no further

assessment is warranted. Level of Service A can be expected at the access points.

7.7. Swept paths for a 19 metre articulated HGV and a 12.5 metre rigid HGV are attached at Appendix E.

8. TRAFFIC MANAGEMENT OF FRONTAGE STREETS

8.1. No traffic management of frontage streets is considered to be required.

9. PARKING

9.1. The City of Kalamunda's Town Planning Scheme (TPS) sets out the following parking requirements

- Convenience Store 6 bays per 100m^2 NLA + 1 bay per bowser.
- Fast food 10 bays per 100m^2 (min 6 bays)

9.2. It is noted that the fast food outlet is a drive-through facility only and the need to provide customer parking is questionable.

9.3. The parking for the subject site will be:

- Convenience Store 250m^2 16 bays
- 12 refuelling positions 12 bays
- Fast food drive-through 6 bays

9.4. In total, 34 parking bays could be deemed to be required under the City's TPS.

9.5. The site plan shows that 22 dedicated parking bays are provided on the site and 12 bays are provided at the bowsers. Additional stacking for 11 vehicles at the coffee drive-through is also provided.

9.6. In total the site provides 34 parking bays in accordance with the City of Kalamunda's TPS 3.

9.7. Ample parking is provided for the proposed development.

10. PARKING MANAGEMENT

10.1. Parking in accordance with local government requirements is provided.

11. PROVISION FOR SERVICE VEHICLES

11.1. The largest vehicle to enter the site will be a 19 metre articulated petrol tanker. The swept path of the tanker is shown in Appendix E.

11.2. Delivery vehicles to the convenience store are expected to be transit van type vehicles potentially arriving on a daily basis. These vehicles have turning capabilities similar to a large car.

11.3. Refuse vehicles will also enter the site and may utilise a 12 metre rigid vehicle. Ample space is provided for these vehicles to access the bin area.

12. HOURS OF OPERATION

12.1. The proposed convenience store can be expected to operate 24 hours a day for 7 days per week.

12.2. The drive-through fast food (coffee) outlet would be expected to operate between 6am and 4pm on Monday to Friday. Longer operating hours may occur if there is local demand.

13. PUBLIC TRANSPORT ACCESS

13.1. Bus route 298 travels along Dundas Road to Abernethy Road between Elizabeth Quay and Maida Vale. The bus route is not shown to provide a regular service.

13.2. In the longer term when Forrestfield railway station opens, additional bus services may be provided in the area.

13.3. The proposed development is a convenience store with fuel and is a vehicle-based development. Public transport access would not be considered to be a requirement.

14. PEDESTRIAN ACCESS

14.1. There are no footpaths provided to Abernethy Road. A footpath is provided to the eastern side of Dundas Road linking Aurora Entrance to the local IGA shopping centre located between Dundas Road and Wittenoom Road.

14.2. The development may attract local pedestrians to the convenience store from the adjacent residential area. A pedestrian kerb ramp is currently provided to the east side of Dundas Road leading pedestrians to an existing cross-over to the site. The proposed development will remove this cross-over making a safer crossing point for pedestrians.

15. CYCLE ACCESS

15.1. There are no cycle lanes provided in the vicinity. Future widening of Abernethy Road would be expected to provide cycle lane, although the use of off-street lanes would be a safer outcome given the percentage of large vehicles on the local road network.

15.2. The proposed development would not be expected to generate bicycle movements. Ample parking is provided and as staff can be expected to work shifts, they are more likely to drive.

15.3. Cyclists passing the subject site may use the convenience store, but the level of attraction would not warrant the provision of dedicated cycle facilities.

16. SAFETY ISSUES

16.1. The traffic assessment has not identified any road safety issues as a result of the proposed development.

APPENDIX A TRAFFIC DATA

Abernethy Rd

SITE 7982

South of Kalamunda Rd

Traffic Volume | Hourly | Speed | Monday to Friday | Download



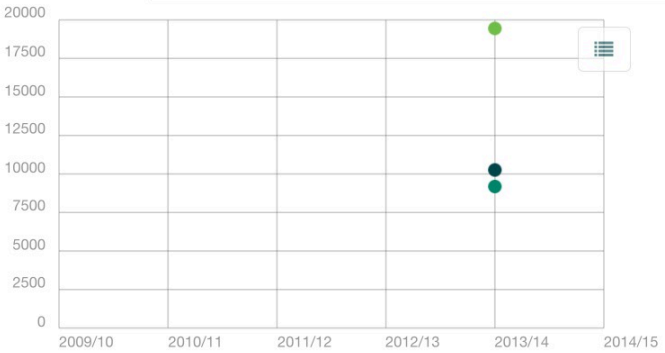
	Vehicles	
	Total	Heavy
2014/15		
2013/14	17071	26%
2012/13	17836	24%
2011/12		
2010/11		
2009/10		

Abernethy Rd

SITE 8239

South of Dundas Rd

Traffic Volume | Hourly | Speed | Monday to Friday | Download



	Vehicles	
	Total	Heavy
2014/15		
2013/14	19447	24%
2012/13		
2011/12		
2010/11		
2009/10		

austraffic

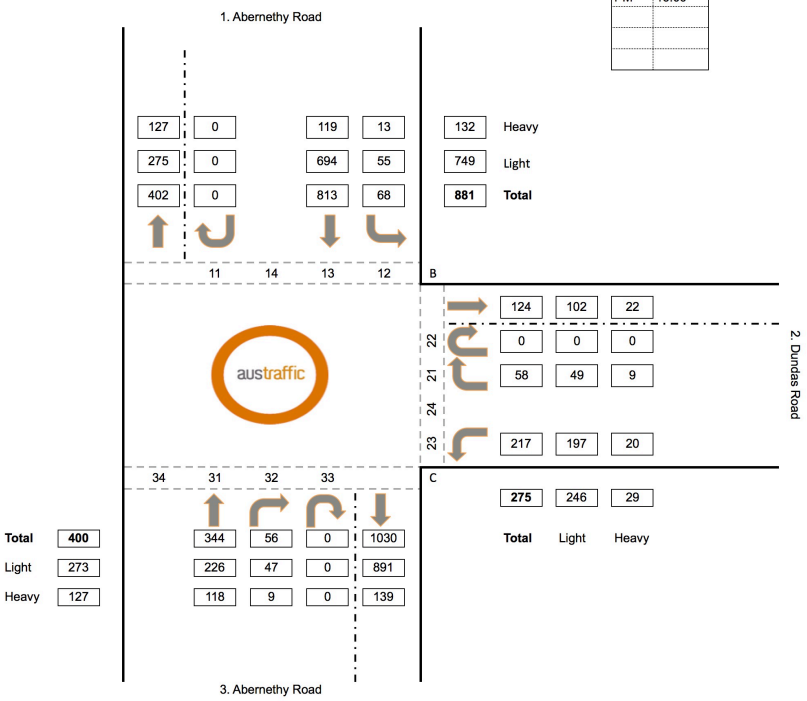
Select Report

Time span: 1 hour
Time period: AM
Time start: 07:00

Client : Riley Consulting
Job : Abernethy/Dundas Counts
Day/Date : Tuesday 16 May 2017
Survey Location : Abernethy Rd & Dundas Rd
Weather : Fine

1hr Peak start

AM	07:15
PM	16:00



austraffic

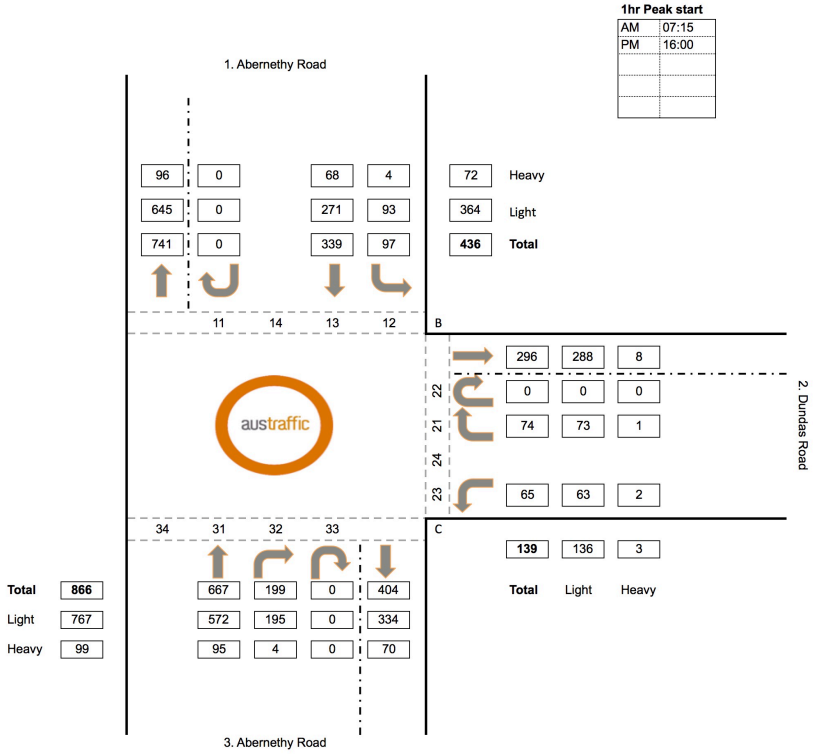
Select Report

Time span: 1 hour
Time period: PM
Time start: 17:00

Client : Riley Consulting
Job : Abernethy/Dundas Counts
Day/Date : Tuesday 16 May 2017
Survey Location : Abernethy Rd & Dundas Rd
Weather : Fine

1hr Peak start

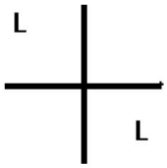
AM	07:15
PM	16:00



Intersection Crash Ranking
Interactive Report

home | intersection query | ranking query | definitions | help

* denotes a result higher than expected. Some categories may overlap, eg: some crashes may have occurred both at night and in the wet.



L = Local Road
S = State Road

State Frequency Rank No. 1163 **State Cost Rank No. 1564** **Intersection No. 130767**

Summary of Intersection Crashes			
Street 1	ABERNETHY RD	**Authority Name**	KALAMUNDA
Street 2	DUNDAS RD	**Region**	METROPOLITAN
Street 3		**Cost**	$606,551
Street 4		**Total Crashes**	17
Intersection Classification	Local Road Only		

Crash Details

Rear End	Side Swipe	Right Angle	Right Thru	Wet	Night	Ped	Cycle	Truck	Motorcycle	Casualty
11	0	5	1	5*	1	0	0	4*	1	1

APPENDIX B DAILY LEVELS OF SERVICE

LOS	Single Carriageway[1]	2-Lane Boulevard[2]	Dual Carriageway (4-Lanes)[3]	Dual Carriageway (4-lane Clearway)[3]
A	2,400vpd	2,600vpd	24,000vpd	27,000vpd
B	4,800vpd	5,300vpd	28,000vpd	31,500vpd
C	7,900vpd	8,700vpd	32,000vpd	36,000vpd
D	13,500vpd	15,000vpd	36,000vpd	40,500vpd
E	22,900vpd	25,200vpd[4]	40,000vpd	45,000vpd
F	>22,900vpd	>25,200vpd[4]	>40,000vpd	>45,000vpd

[1] Based on Table 3.9 Austroads - Guide to Traffic Engineering Practice Part 2

[2] Based on single carriageway +10% (supported by Table 3.1 Austroads - Guide to Traffic Engineering Practice Part 3) – Boulevard or division by medians.

[3] Based on RRR Table 3.5 - mid-block service flow rates (SF.) for urban arterial roads with interrupted flow. Using 60/40 peak split.

[4] Note James Street Guildford passes 28,000vpd.

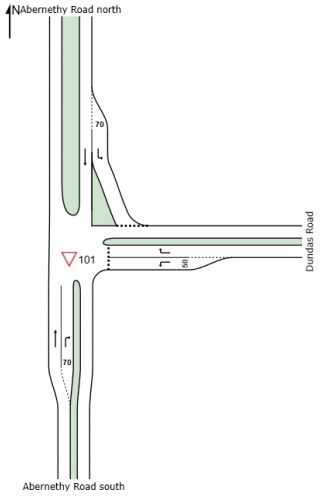
The actual capacity of any road is greater than shown in the above table. However, a Level of Service D is used as the capacity to provide acceptable operating conditions.

APPENDIX C SIDRA ANALYSIS

SITE LAYOUT

▽ Site: 101 [Abernethy PM1]

Abernethy Road / Dundas Road
PM Peak with development
Giveway / Yield (Two-Way)



AM PEAK

MOVEMENT SUMMARY

▽ Site: 101 [Abernethy AM]

Abernethy Road / Dundas Road
Existing AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Abernethy Road south											
2	T1	362	24.0	0.212	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	59	10.0	0.128	13.1	LOS A	0.5	3.5	0.76	0.90	47.8
Approach		421	22.0	0.212	1.9	NA	0.5	3.5	0.11	0.13	57.9
East: Dundas Roade											
4	L2	228	10.0	0.758	29.0	LOS C	4.3	32.4	0.93	1.25	39.7
6	R2	59	10.0	0.512	45.5	LOS D	1.6	12.4	0.94	1.05	33.7
Approach		287	10.0	0.758	32.4	LOS C	4.3	32.4	0.93	1.21	38.3
North: Abernethy Road north											
7	L2	72	10.0	0.048	5.9	LOS A	0.2	1.5	0.15	0.51	53.4
8	T1	856	24.0	0.502	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		927	22.9	0.502	0.5	LOS A	0.2	1.5	0.01	0.04	59.3
All Vehicles		1636	20.4	0.758	6.5	NA	4.3	32.4	0.20	0.27	53.8

MOVEMENT SUMMARY

▽ Site: 101 [Abernethy AM1]

Abernethy Road / Dundas Road
AM Peak with development
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Abernethy Road south											
2	T1	353	24.0	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	80	10.0	0.165	12.8	LOS A	0.6	4.6	0.75	0.90	48.0
Approach		433	21.4	0.207	2.4	NA	0.6	4.6	0.14	0.17	57.3
East: Dundas Road											
4	L2	291	10.0	0.908	42.4	LOS C	8.2	62.3	0.97	1.64	34.7
6	R2	75	10.0	0.655	53.5	LOS D	2.3	17.3	0.96	1.10	31.3
Approach		365	10.0	0.908	44.7	LOS D	8.2	62.3	0.97	1.53	33.9
North: Abernethy Road north											
7	L2	120	10.0	0.083	6.0	LOS A	0.3	2.6	0.18	0.52	53.3
8	T1	834	24.0	0.489	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		954	22.2	0.489	0.8	LOS A	0.3	2.6	0.02	0.07	58.9
All Vehicles		1752	19.5	0.908	10.4	NA	8.2	62.3	0.25	0.40	50.8

PM PEAK

MOVEMENT SUMMARY

Site: 101 [Abernethy PM]

Abernethy Road / Dundas Road
Existing PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Abernethy Road south											
2	T1	702	24.0	0.412	0.1	LOS A	0.0	0.0	0.00	0.00	59.9
3	R2	209	10.0	0.184	7.4	LOS A	0.8	6.4	0.49	0.69	51.6
Approach		912	20.8	0.412	1.8	NA	0.8	6.4	0.11	0.16	57.7
East: Dundas Road											
4	L2	68	10.0	0.083	7.8	LOS A	0.3	2.2	0.44	0.68	51.6
6	R2	78	10.0	0.580	42.6	LOS D	2.0	15.2	0.94	1.07	34.6
Approach		146	10.0	0.580	26.3	LOS B	2.0	15.2	0.71	0.89	40.9
North: Abernethy Road north											
7	L2	102	10.0	0.080	6.5	LOS A	0.3	2.5	0.32	0.56	52.8
8	T1	357	24.0	0.209	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		459	20.9	0.209	1.5	LOS A	0.3	2.5	0.07	0.12	58.2
All Vehicles		1517	19.8	0.580	4.0	NA	2.0	15.2	0.16	0.22	55.7

MOVEMENT SUMMARY

Site: 101 [Abernethy PM1]

Abernethy Road / Dundas Road
PM Peak with development
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Abernethy Road south											
2	T1	691	24.0	0.405	0.1	LOS A	0.0	0.0	0.00	0.00	59.9
3	R2	229	10.0	0.196	7.3	LOS A	0.9	7.0	0.48	0.68	51.6
Approach		920	20.5	0.405	1.9	NA	0.9	7.0	0.12	0.17	57.6
East: Dundas Road											
4	L2	109	10.0	0.130	7.7	LOS A	0.5	3.6	0.44	0.69	51.6
6	R2	96	10.0	0.721	51.5	LOS D	2.8	21.3	0.96	1.15	31.9
Approach		205	10.0	0.721	28.2	LOS B	2.8	21.3	0.68	0.90	40.1
North: Abernethy Road north											
7	L2	148	10.0	0.119	6.6	LOS A	0.5	3.8	0.34	0.58	52.7
8	T1	336	24.0	0.197	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		484	19.7	0.197	2.0	LOS A	0.5	3.8	0.11	0.18	57.5
All Vehicles		1609	18.9	0.721	5.3	NA	2.8	21.3	0.19	0.26	54.5

APPENDIX D AUSTROADS TABLE 4.1

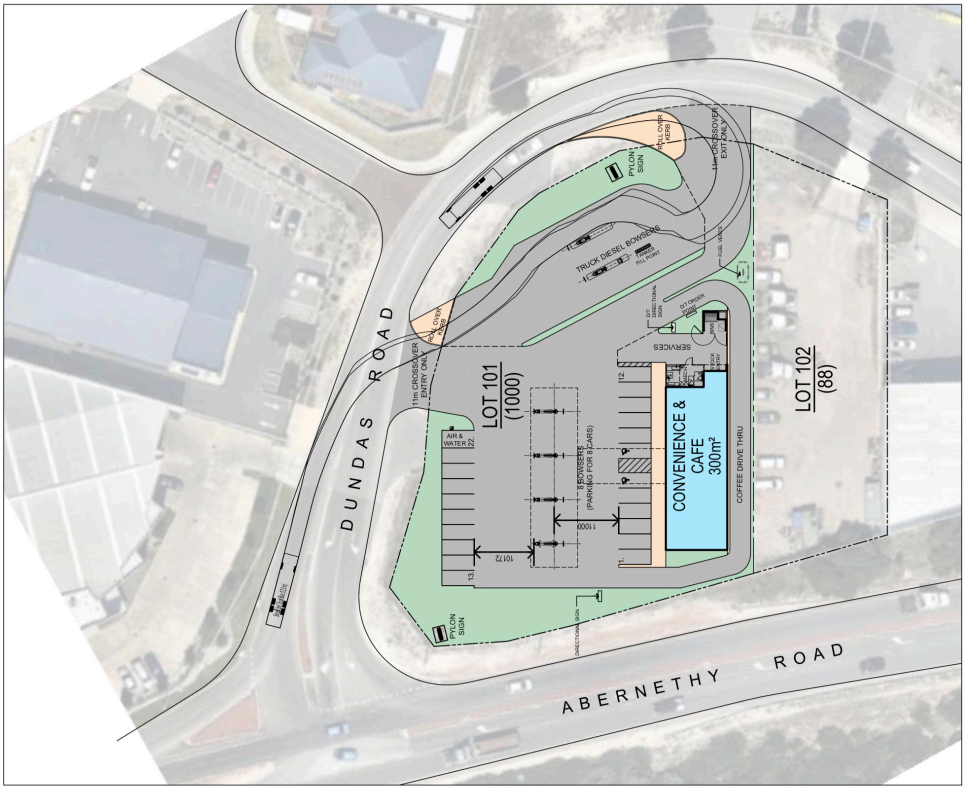
Table 4.1 — Intersection Capacity - Uninterrupted Flow Conditions

Major Road Type[1]	Major Road Flow (vph)[2]	Minor Road Flow (vph)[3]
Two-lane	400	250
	500	200
	650	100
Four-lane	1000	100
	1500	50
	2000	25

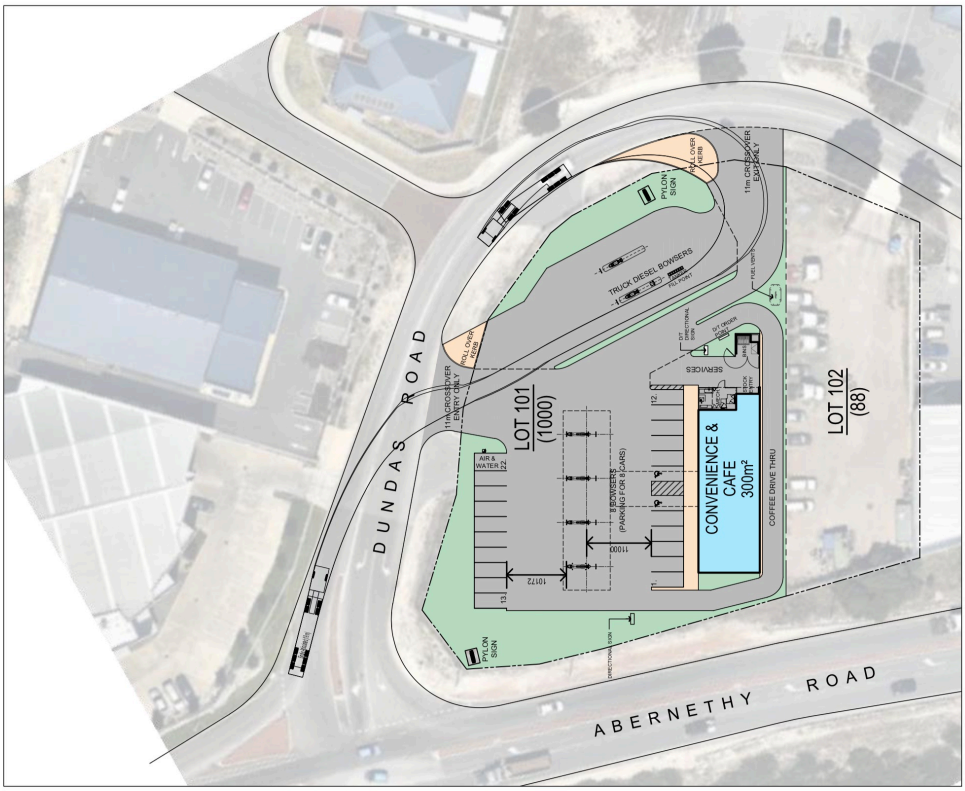
Notes:

1. Major road is through road (i.e. has priority).
2. Major road design volumes include through and turning movements.
3. Minor road design volumes include through and turning volumes.

APPENDIX E SWEPT PATHS



SINGLE TRUCK 12.5m
SCALE 1:500 @A1



SINGLE ARTICULATED TRUCK 19m
SCALE 1:500 @A1

FEATURE AND CONTOUR SURVEY

H1100 ABERNETY RD (CRN DUNDAS RD),
HIGH WYCOMBE, WA 6057

ABERNETHY RD

DUNDAS RD

AURORA ENT

Lot 101
DP 29302
4040 m²

Lot 102

INDUSTRIAL BUILDING
CONCRETE & IRON
RL FL=23.85 APPROX

EXISTING GAS MAIN
EXISTING WATER MAIN
EXISTING SEWER MAIN
EXISTING SEWER MAIN

OGNENIS SURVEYING
AMBERSHORE PTY LTD
A.C.N.069 993 808
PO Box 473
Bullsbrook WA 6084
Mobile 0408 946662
george@ogsurvey.com.au

TBM nail in bitumen
(in the driveway)
AHD RL = 23.23
based on sew.pit AA2791
RL=23.20 AHD
(e-plan Wat.Corp.)

no connection made to boundaries
original dimensions written on plan
not closing of figure 0.03m
Repeg recommended

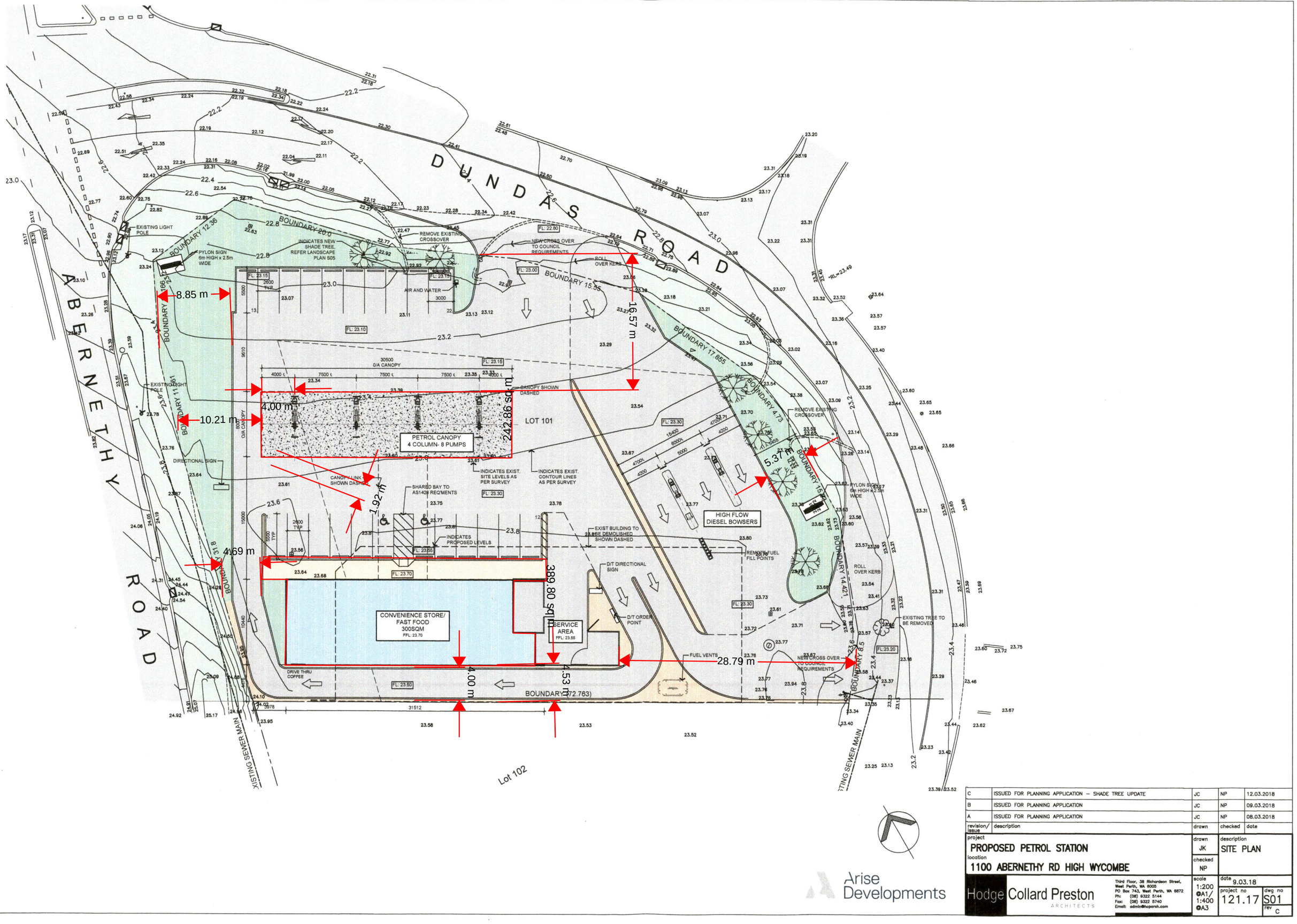
due to dumping activities, it was not
possible to check if there are more
drain pits (soackwells)

Notes for Contractor:

Dial before you dig to be consulted
for location of services in road verge
Position and depth of water & sewer
to be confirmed on site, datum to be
checked

underground cables in vicinity!!!

02.03.2018

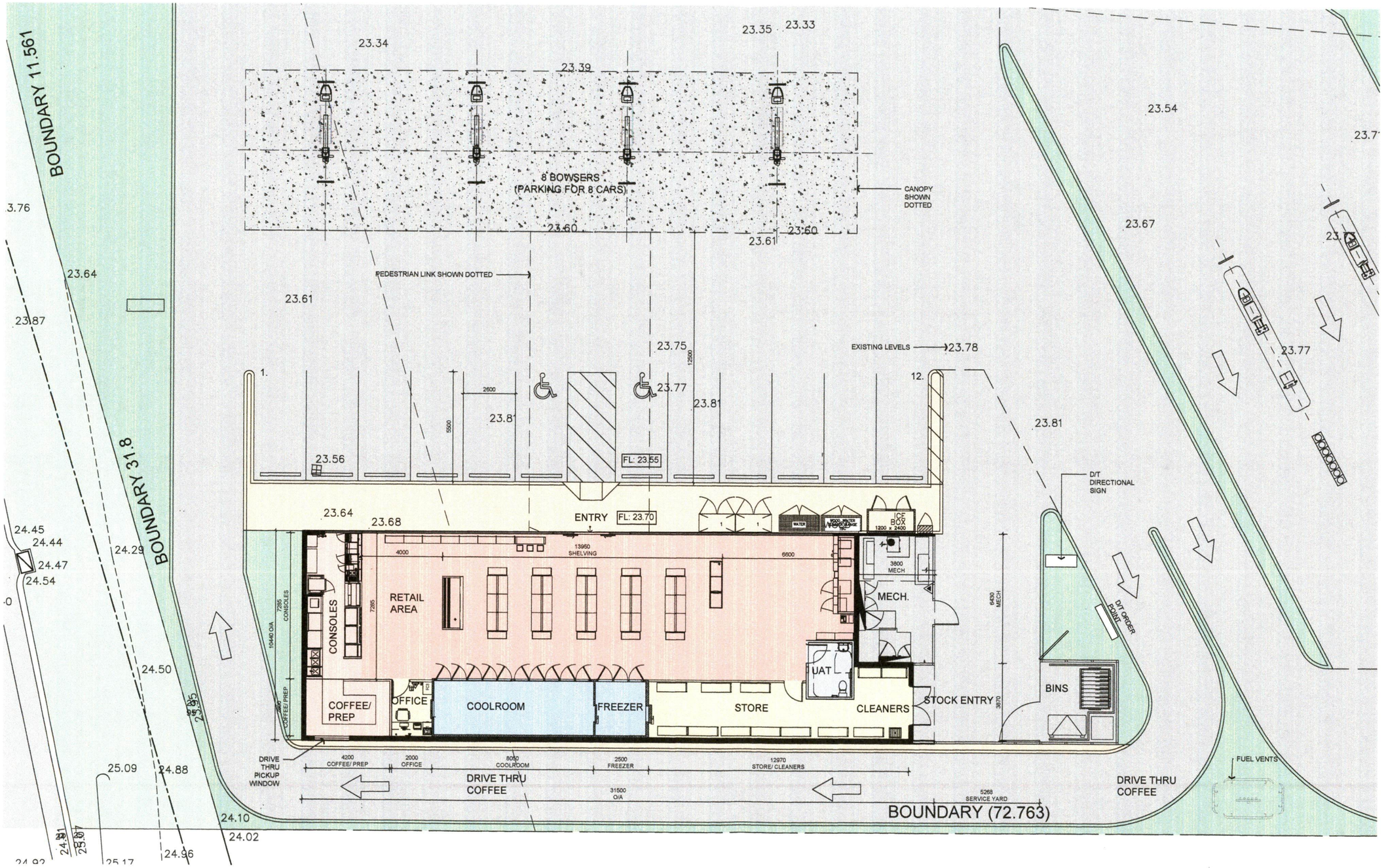


C	ISSUED FOR PLANNING APPLICATION – SHADE TREE UPDATE	JC	NP	12.03.2018
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

project: PROPOSED PETROL STATION
location: 1100 ABERNETHY RD HIGH WYCOMBE
drawn: JK
checked: NP
description: SITE PLAN
scale: 1:200 @A1/ 1:400 @A3
date: 9.03.18
project no: 121.17
dwg no: S01
rev: C

Arise Developments

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Email: admin@hcparch.com



Arise Developments

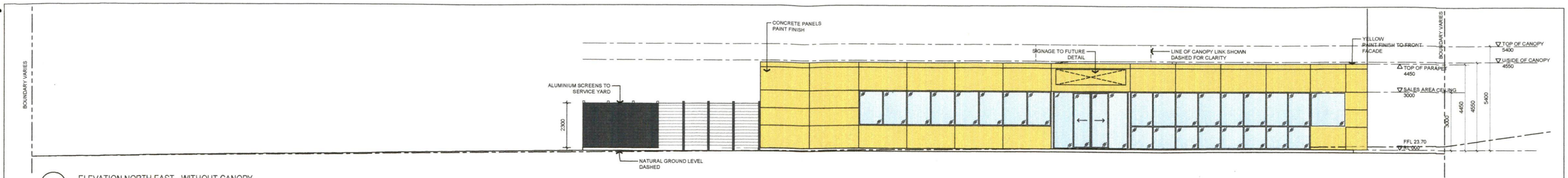
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

project: PROPOSED PETROL STATION
location: 1100 ABERNETHY RD, HIGH WYCOMBE

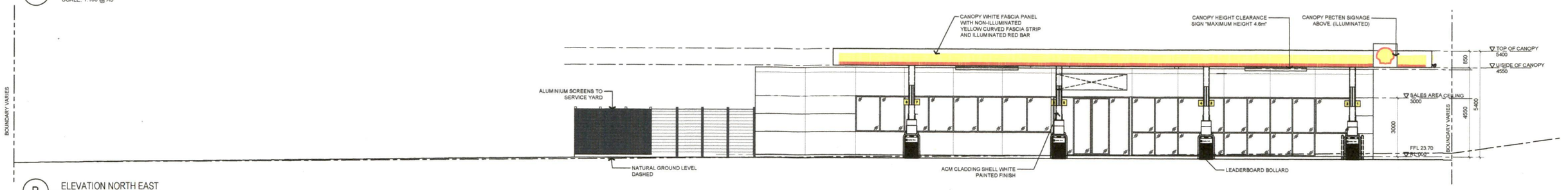
drawn: JK
checked: NP
description: PROPOSED FLOOR PLAN

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PO Box 743, West Perth, WA 6872
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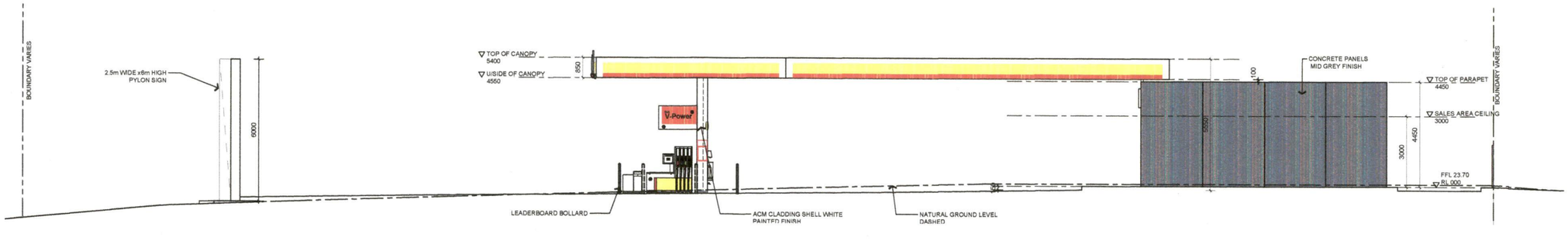
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date: 09/03/2018
project no: 1211.17
dwg no: S02
rev: B



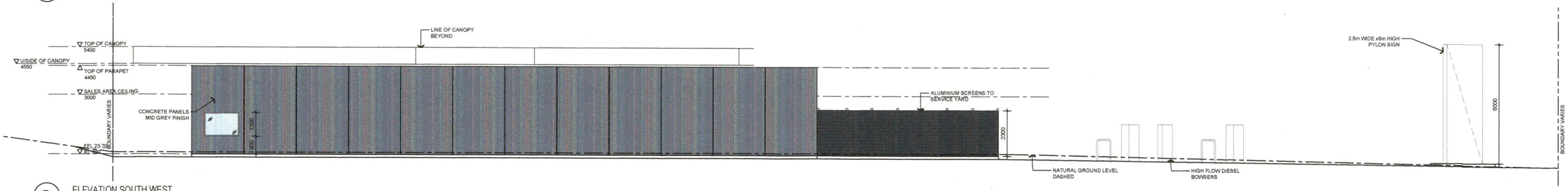
A ELEVATION NORTH EAST - WITHOUT CANOPY
SCALE: 1:100 @ A3



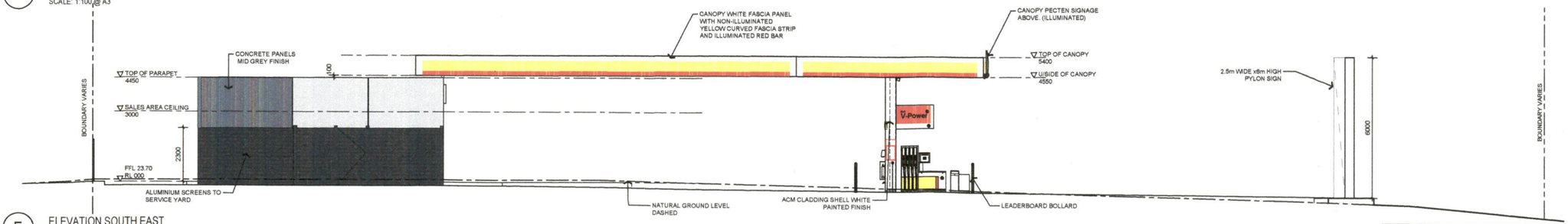
B ELEVATION NORTH EAST
SCALE: 1:100 @ A3



C ELEVATION NORTH WEST
SCALE: 1:100 @ A3



D ELEVATION SOUTH WEST
SCALE: 1:100 @ A3



E ELEVATION SOUTH EAST
SCALE: 1:100 @ A3

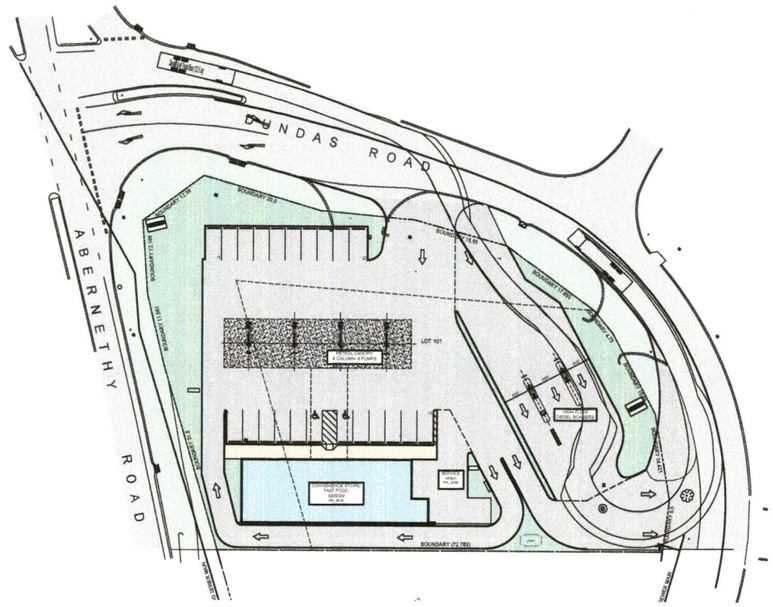
Arise Developments

A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

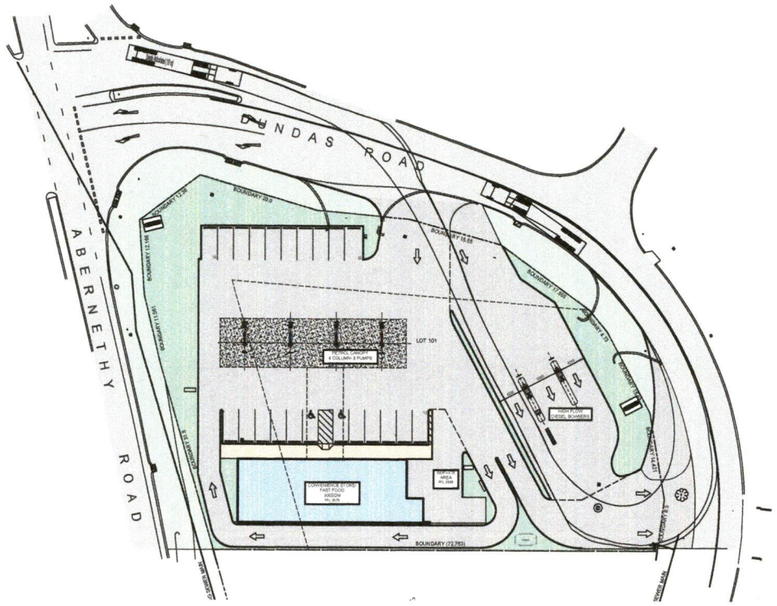
project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP
description: ELEVATIONS
scale: 1:100 @A1/ 1:200 @A3
date: 8.03.2018
project no: 121.17
dwg no: S03
rev: A

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Email: admin@hcparch.com



1 TRUCK TRACKING 12.5m RIGID



2 TRUCK TRACKING 19m SEMI

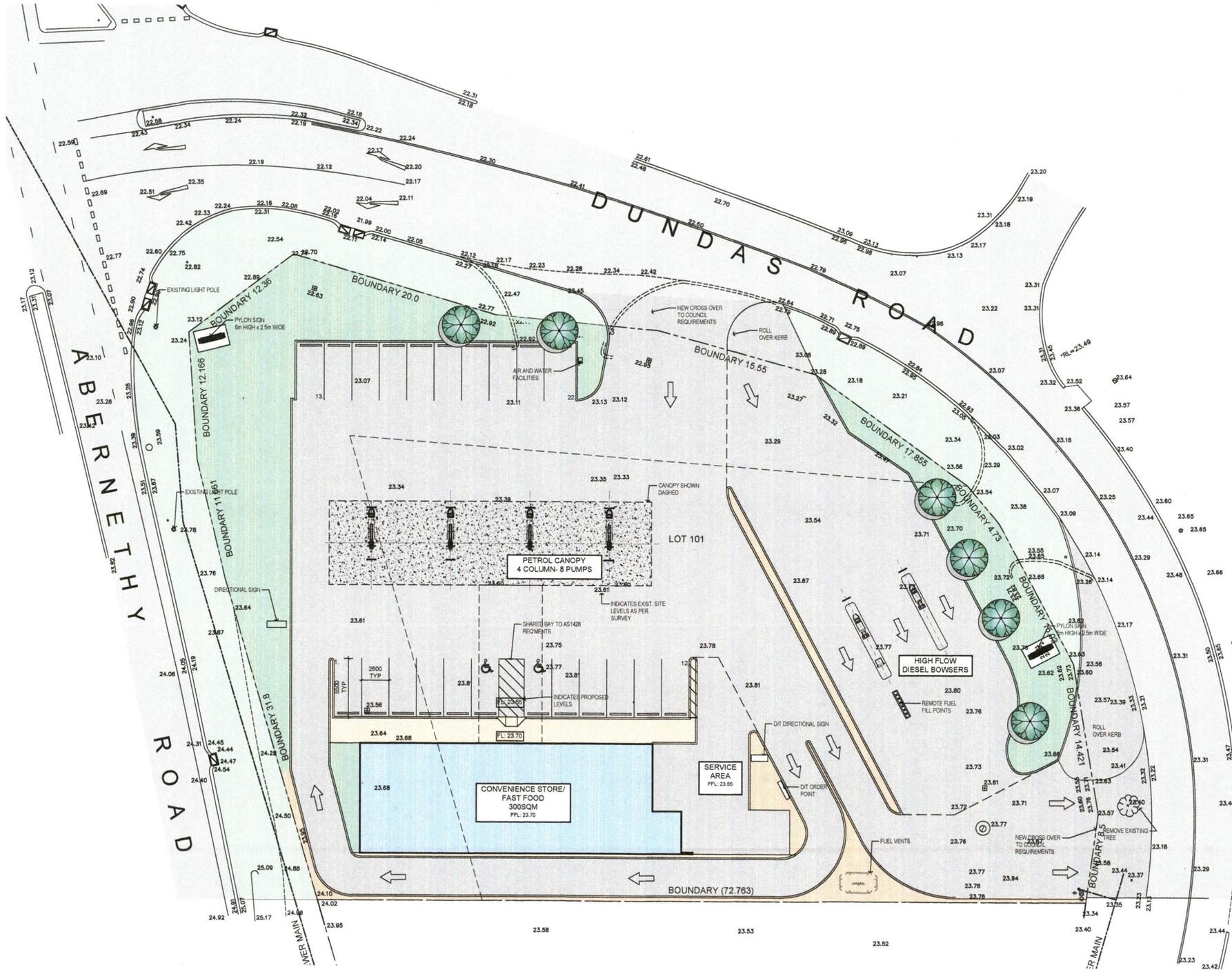
Arise Developments

B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP
description: TRUCK TRACKING DIAGRAMS
scale: 1:500 @A1
date: 09.03.18
project no: 121.17
dwg no: S04
rev: B

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Email: admin@hcparch.com



AREAS

SITE AREA = 4040 m^2

PROPOSED LANDSCAPING ON SITE = 670m^2

VERGE LANDSCAPING = 770m^2

SHADE TREES = 6 no.

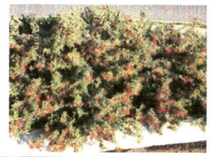
PLANT SPECIES

LOW SHRUB

GREVILLEA PREISSII (STAR JASMINE)

MIN. SIZE: 150mm

2 PLANTS PER SQM WITH 75MM MULCH COVER



SHADE TREE

VERGE LANDSCAPING

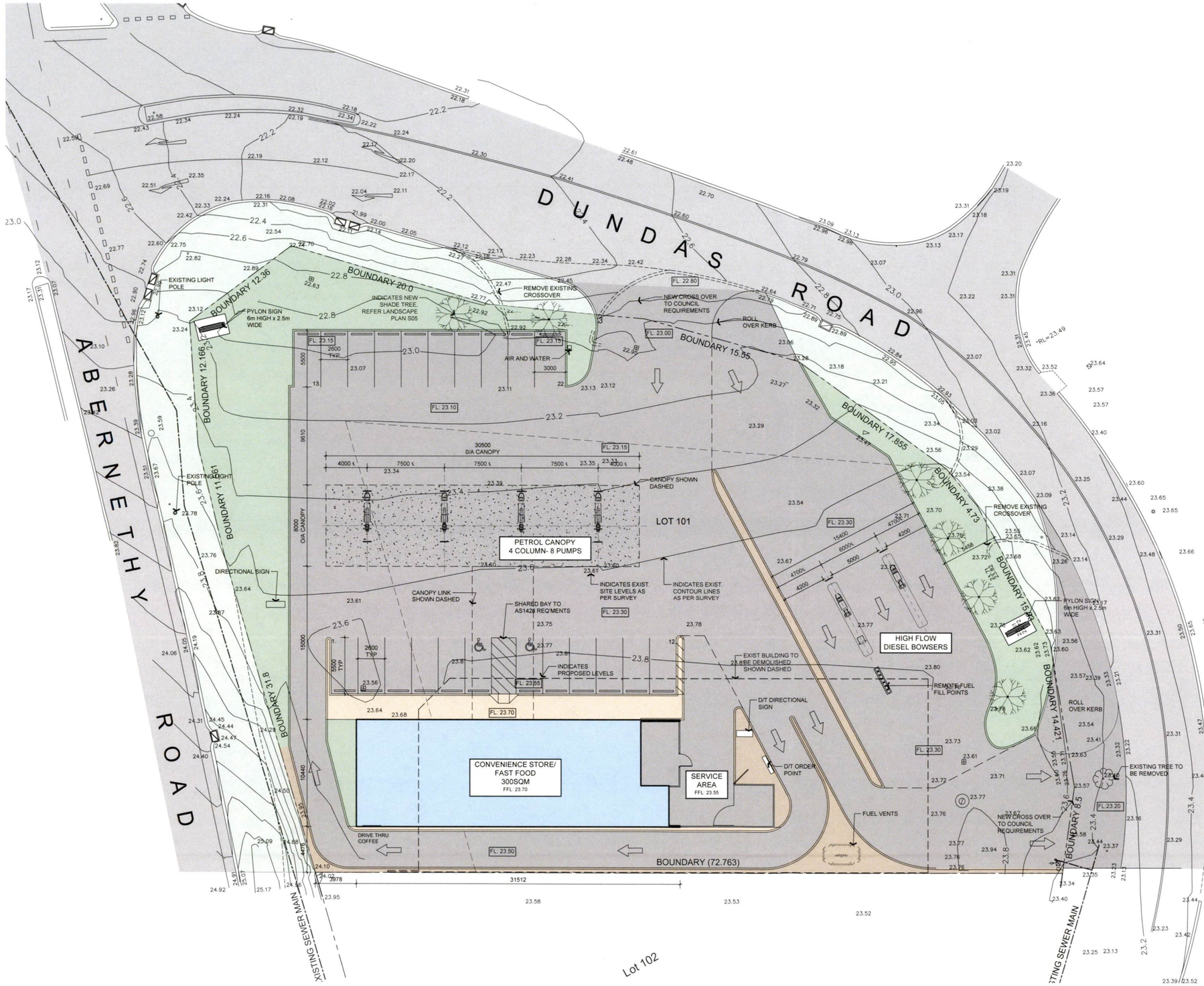
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revision/ issue	description	drawn	checked	date
D	ISSUED FOR PLANNING APPLICATION – NOTATION UPDATE	JC	NP	12.03.2018
C	ISSUED FOR PLANNING APPLICATION – SHADE TREE UPDATE	JC	NP	12.03.2018
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018

project: **PROPOSED PETROL STATION**
location: **1100 ABERNETHY RD HIGH WYCOMBE**

drawn: JK
checked: NP
description: **LANDSCAPING PLAN**
scale: 1:200 @A1
date: 09.03.18
project no: 121.17
dwg no: S05
rev: D

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C	ISSUED FOR PLANNING APPLICATION – SHADE TREE UPDATE	JC	NP	12.03.2018
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

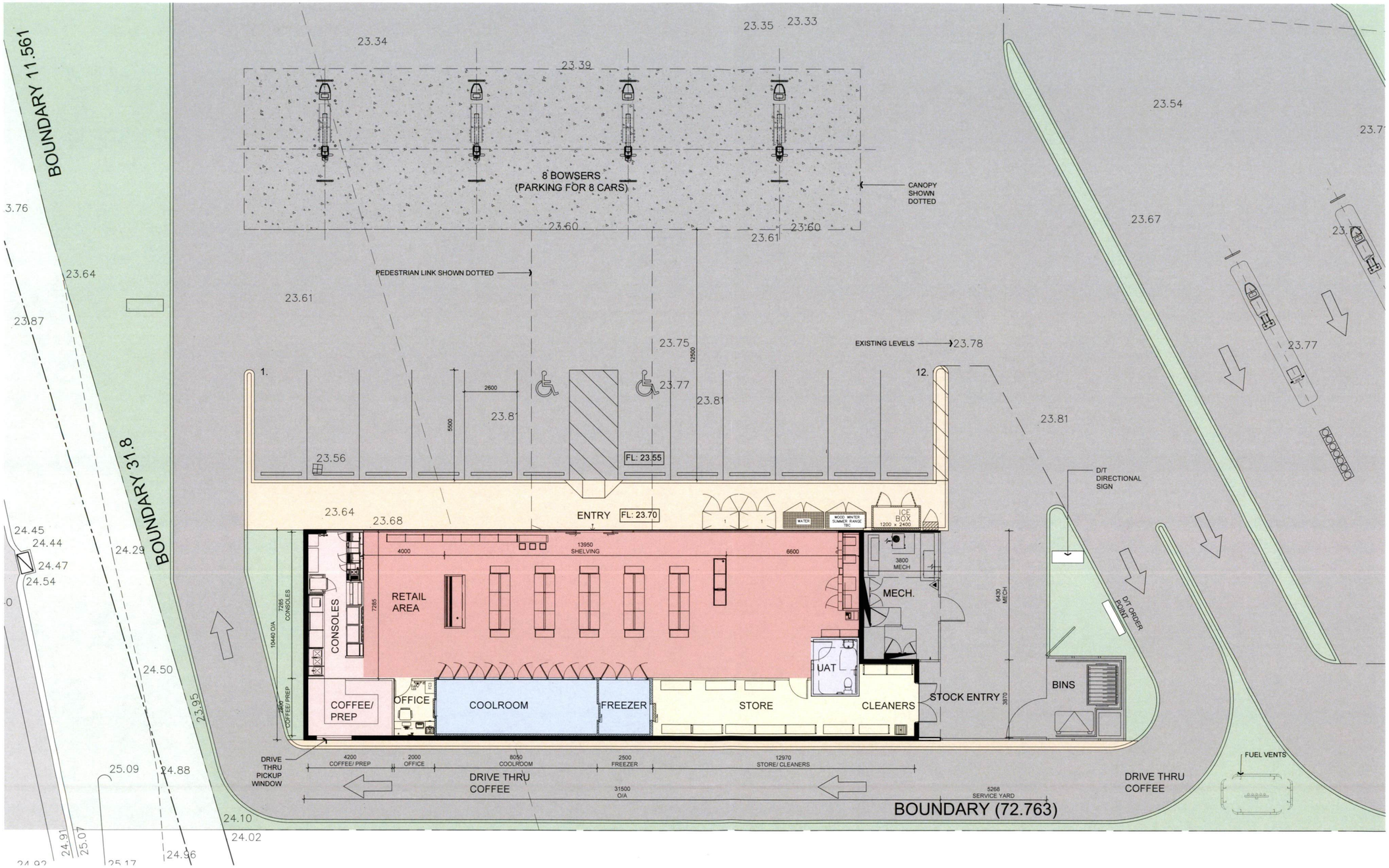
project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP
description: SITE PLAN

Arise Developments

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scale: 1:200 @A1/ 1:400 @A3
date: 9.03.18
project no: 121.17
dwg no: S01
rev: C



Arise Developments

B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018
revision/ issue	description	drawn	checked	date

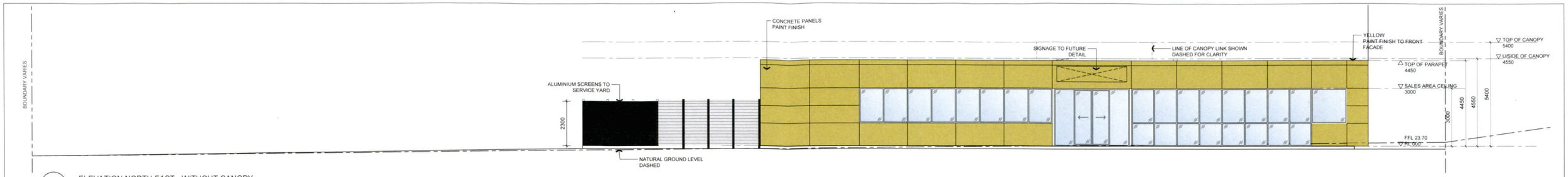
project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD, HIGH WYCOMBE

drawn: JK
checked: NP

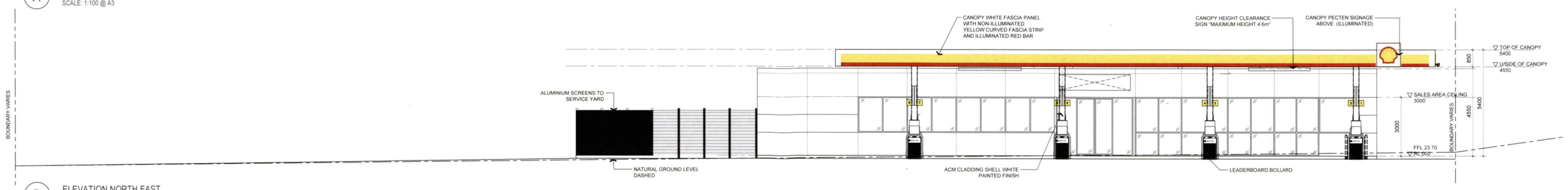
description: PROPOSED FLOOR PLAN

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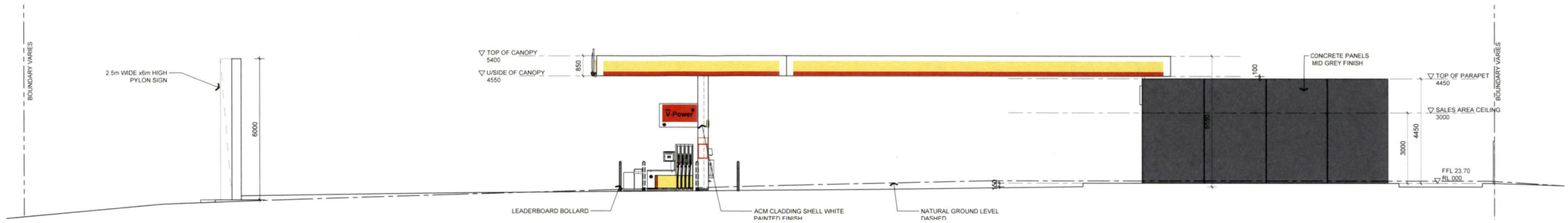
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date: 09/03/2018
project no: 121.17
dwg no: S02
rev: B



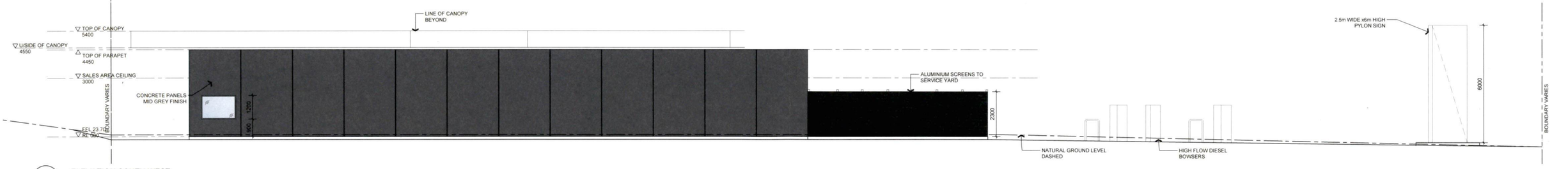
A ELEVATION NORTH EAST - WITHOUT CANOPY
SCALE: 1:100 @ A3



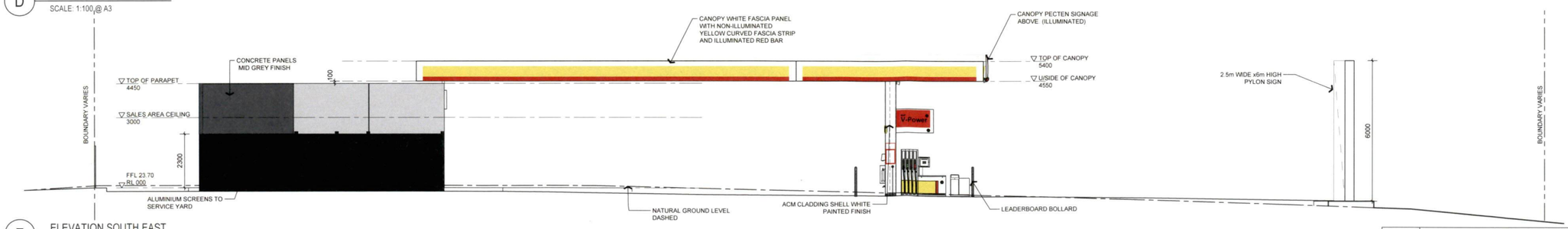
B ELEVATION NORTH EAST
SCALE: 1:100 @ A3



C ELEVATION NORTH WEST
SCALE: 1:100 @ A3



D ELEVATION SOUTH WEST
SCALE: 1:100 @ A3



E ELEVATION SOUTH EAST
SCALE: 1:100 @ A3

revision/ issue	description	drawn	checked	date
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018

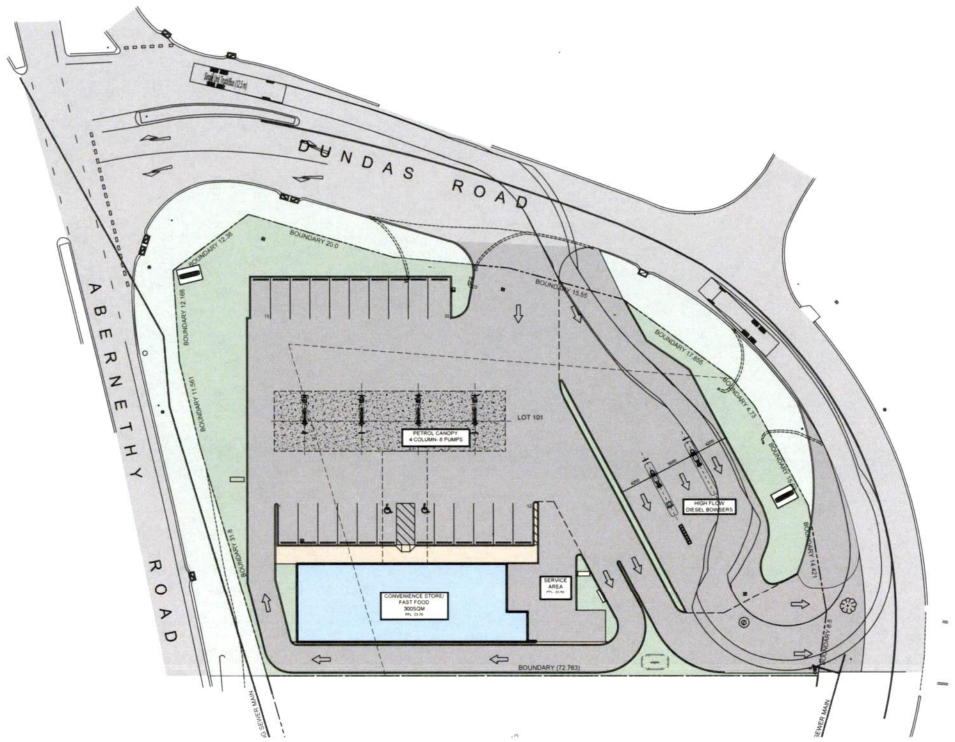
project
PROPOSED PETROL STATION
location
1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP
description: ELEVATIONS

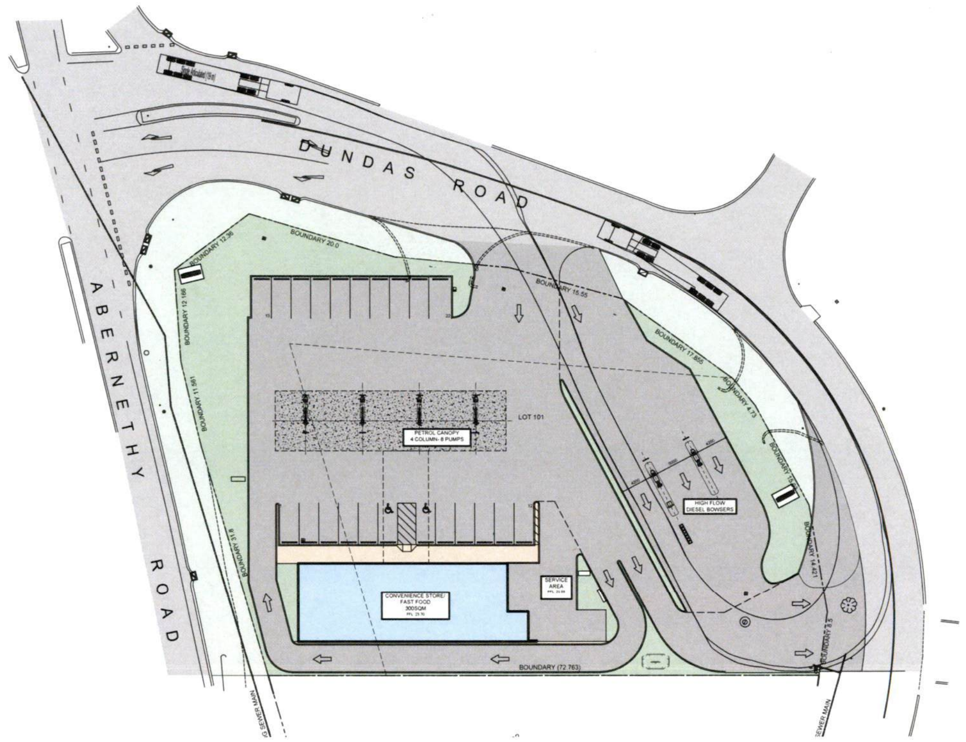
Arise Developments

Hodge Collard Preston ARCHITECTS
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PO Box 743, West Perth, WA 6872
Ph: (08) 9322 5144
Fax: (08) 9322 5740
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scale: 1:100 @A1/ 1:200 @A3
date: 8.03.2018
project no: 121.17
dwg no: S03
rev: A



1 TRUCK TRACKING 12.5m RIGID



2 TRUCK TRACKING 19m SEMI

Arise Developments

revision/ issue	description	drawn	checked	date
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018

project
PROPOSED PETROL STATION

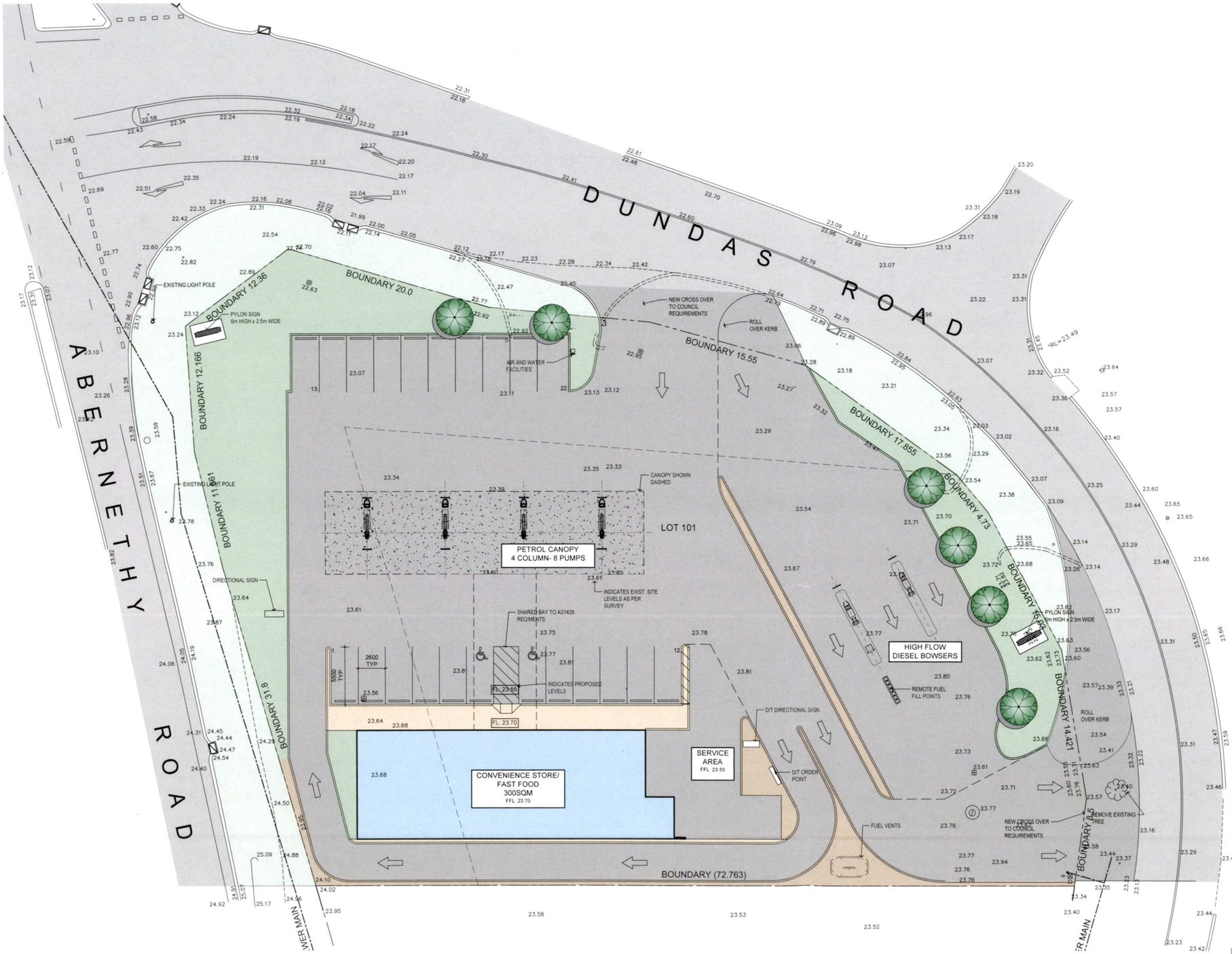
location
1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP

description: **TRUCK TRACKING DIAGRAMS**

Hodge Collard Preston
ARCHITECTS
Third Floor, 38 Richardson Street,
West Perth, WA 6005
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Ph: (08) 9322 5144
Fax: (08) 9322 5740
Email: admin@hcparch.com

scale: 1:500 @A1
date: 09.03.18
project no: 121.17
dwg no: S04
rev: B



AREAS

SITE AREA = 4040 m^2

PROPOSED LANDSCAPING ON SITE = 670m^2

VERGE LANDSCAPING = 770m^2

SHADE TREES = 6 no.

PLANT SPECIES

LOW SHRUB

GREVILLEA PREISSII (STAR JASMINE)

MIN. SIZE: 150mm

2 PLANTS PER SQM WITH 75MM MULCH COVER



SHADE TREE

VERGE LANDSCAPING

revision/ issue	description	drawn	checked	date
D	ISSUED FOR PLANNING APPLICATION – NOTATION UPDATE	JC	NP	12.03.2018
C	ISSUED FOR PLANNING APPLICATION – SHADE TREE UPDATE	JC	NP	12.03.2018
B	ISSUED FOR PLANNING APPLICATION	JC	NP	09.03.2018
A	ISSUED FOR PLANNING APPLICATION	JC	NP	08.03.2018

project: PROPOSED PETROL STATION
location: 1100 ABERNETHY RD HIGH WYCOMBE

drawn: JK
checked: NP
description: LANDSCAPING PLAN
scale: 1:200 @A1
date: 09.03.18
project no: 121.17
dwg no: S05
rev: D

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