Tyrecycle Erskine Park | Tyre recycling facility

STATEMENT OF ENVIRONMENTAL EFFECTS

Prepared for Tyrecycle Pty Ltd | 16 September 2020

Tyrecycle Erskine Park

TYRE RECYCLING FACILITY | STATEMENT OF ENVIRONMENTAL EFFECTS

Prepared for Tyrecycle Pty Ltd
16 September 2020

PR136

	Prepared by	Prepared by	Reviewed by
Name	Rachel Dodd	Luke Farrell	Neville Hattingh
Company	Element Environment	Element Environment	Element Environment
Position	Senior Environmental Consultant	Senior Environmental Consultant	Director
Project Role	Lead Author	Project Manager	Technical Reviewer
Signature	[redacted]		
Date	18 August 2020	18 August 2020	19 August 2020

DOCUMENT CONTROL

Revision	Date	Description	Prepared by	Reviewed by
0	19 August 2020	For Tyrecycle review	Element Environment	Tyrecycle Pty Ltd
1	16 September 2020	For submission to Council	Element Environment	Tyrecycle Pty Ltd

EXECUTIVE SUMMARY

Introduction

Tyrecycle Pty Ltd (Tyrecycle) is seeking approval to operate a tyre recycling facility (hereafter referred to as 'the project') within an existing leased warehouse at 1-21 Grady Crescent, Erskine Park ('the site').

This statement of environmental effects (SEE) has been prepared by Element Environment Pty Ltd (Element) on behalf of Tyrecycle in accordance with Part 4, Division 4.3 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The objective of this SEE is to assess the potential environmental and social impacts of the project and to support a development application (DA) to be lodged with Penrith City Council (Council).

Justification and need for the project

Tyrecycle is one of Australia's largest tyre recycling companies, currently processing approximately 23% of the estimated 51 million passenger tyres that reach their end-of-life in Australia each year (Equilibrium 2017).

Tyrecycle currently operates a tyre recycling facility at St Marys, which has development consent to process up to 50,000 tonnes per annum (tpa) of passenger and four wheel drive tyres into either two or six inch pieces (known as Tyre Derived Fuel (TDF)) through a shredding operation (Equilibrium 2017). Tyrecycle will be ceasing operations at the St Marys site at the end of 2020 and require relocation of the operation to an alternate location.

The site has been selected as it includes an existing warehouse building within industrial land use zoning, is close to major transport infrastructure, and has capacity to house new state of the art plant and equipment to process 29,000 tpa of tyres without the need to expand or upgrade the existing warehouse building.

The project will continue to meet the growing need for effective and environmentally sound re-use and recycling of tyres, both nationally and within NSW. Tyrecycle will continue to process tyres into TDF or TDP rather than sending tyres to landfill.

Site description

The site is within an existing leased warehouse and distribution complex in the Erskine Business Park at 1-21 Grady Crescent, Erskine Park (Lot 4, DP 1253870). The site is approximately 10.8 kilometres (km) southwest of Blacktown and approximately 5.6 km southeast of St Marys. The site is owned by Fitzpatrick Investments, whom are the landowners of Erskine Business Park. The site is located within an existing industrial estate adjacent to other industrial facilities such as warehousing and packaging businesses.

The Erskine Business Park forms part of the Western Sydney Employment Hub, as identified by the Department of Planning and Infrastructure and Environment (DPIE), due to the area's strategic importance within the Sydney metropolitan area.

The surrounding area is characterised by commercial and industrial premises, with the closest residential dwellings approximately 330 metres (m) north on Shaula Crescent.

Description of the project

The project seeks to operate 24 hours per day, seven days per week (if required), with primary operational activities including:

- receival and temporary storage of tyres;

- processing and shredding of tyres (up to 29,000 tpa); and
- dispatch of processed tyre derived fuel (TDF) and other tyre derived products (TDP).

The project would be contained within the northern section of the existing warehouse building (covering a total floor space of 9,620 m^2), which has capacity to house new plant and equipment without the need to expand or upgrade the existing warehouse building. The project will require minor alterations to electrical infrastructure at the site, however no significant earthworks or ground disturbance will be necessary other than minor surface disturbance required to install an additional electrical substation. New, state of the art, operational plant will be designed to fit within the existing warehouse footprint. A ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building (western side of the building).

By-products of the operational process including steel and fibre textile are sold as recyclable materials. There are no unwanted, or hazardous by-products from the shredding process. All tyres collected or received at the site are either processed into TDF/TDP, steel and textile or re-used as casings. There is no need for chemical processing or heating, with the processing of tyres via a mechanical process.

Statement of Environmental Effects.

The likely impacts of the project, including environmental impacts on both the natural and built environments, and social and economic impacts on the locality were considered within this SEE. The SEE has been prepared in accordance with Section 4.15(1)(b) of the EP&A Act, as well as Council requirements, outlined in Council's pre-lodgement meeting and advice notes.

Environmental risks were assessed prior to preparation of the SEE to identify the key potential environmental issues or impacts associated with the project. The key project related environmental aspects warranting detailed technical assessment included noise, air quality and traffic. For those environmental aspects that achieved a low risk rating in the preliminary environmental risk analysis, further specialist technical investigations were not considered necessary given the low risk they represented.

The key outcomes of the environmental impact assessment process are summarised below.

Air Quality

The air quality impact assessment considered the potential impacts of the project on nearby sensitive receivers.

It is predicted that all air emissions generated by the operation of the project would comply with the applicable assessment criteria at the closest sensitive receivers and therefore would not lead to any unacceptable level of environmental harm or impact in the surrounding area. The project would not result in air pollution that would significantly impact upon the amenity of residential land uses.

Nevertheless, the site would apply appropriate dust management measures to ensure it minimises the potential occurrence of excessive air emissions from the site.

Overall, the air quality assessment demonstrates that even using conservative assumptions, the project can operate without causing any significant air quality impact at sensitive receivers in the surrounding environment.

Noise

Noise modelling was used to predict potential off-site noise impacts in the surrounding area due to the operation of the project, and consideration of potential sleep disturbance, road traffic and construction noise.

With implementation of management and mitigation measures, the project would operate within acceptable noise criteria at the nearest receivers and no sleep disturbance, road traffic and construction noise impacts are likely to arise.

Traffic

Potential traffic and safety impacts associated with the project on local and main roads were assessed.

The project is endorsed in the context of parking and traffic as the traffic that would be generated is less than the approved traffic generated.

Sustainability

The project can be undertaken in an ecologically sustainable manner as it will not alter the disturbance footprint of the existing site, nor is it likely to result in any significant impacts on the natural environment or neighboring facilities and road users.

Sustainability initiatives, previously approved have now been incorporated into the design of the existing warehouse. They include a building management system to manage artificial light; rainwater harvesting reducing reliance on potable water; translucent roof sheeting maximising natural light availability; and existing landscaping. The desirable sustainability initiatives are aligned with Tyrecycle's commitment to carrying out their operations in an environmentally responsible manner, with the promotion of sustainability into daily operations.

Visual amenity

The site is zoned 'general industrial' and the use of the site as a tyre recycling facility within the existing warehouse building, is not in conflict with the objectives of the zone or with the form and scale of the existing building and local setting. Neighbouring landowners were consulted about the project, with no objections, concerns or comments raised.

There will be no major change to the existing building warehouse or land use. The project would therefore not result in substantial changes to the visual amenity of the site or location, or the views of surrounding neighbours.

The project would require night time operations, however existing and approved lighting systems at the warehouse would be sufficient and as such no upgrade to lighting is required for the site, thereby avoiding the potential for additional impacts to residential receivers to the north associated with light spill.

Despite partial views of the top of the existing warehouse from select residential receivers on Shaula Crescent, given that all operations would be confined within the building, the project operations would not be visible by residential land uses.

A ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building, with ventilation infrastructure protruding through the roof by approximately two metres. Despite this, the ventilation infrastructure would be installed on the lower side of the roof, with the pitch in the centre of the existing roof to account for a similar maximum height. The vents would also be positioned on the western side of the warehouse to be less prominent to sensitive land uses to the north of the site. Furthermore, the installation of the ventilation system is in fitting with an industrial land use and as such would not result in substantial changes to the visual amenity of the site or location, or the views of surrounding neighbours.

Site contamination

No recorded contaminated sites within proximity to the project were identified in the NSW Environment Protection Authority's contaminated land record and list of contaminated sites

search. The validation report (CES, 2007), conducted for the site prior to the construction of the existing warehouse, concluded that the greenfield land subject to the construction of the warehouse was suitable for commercial/industrial land-use.

The project will be contained within the existing warehouse building and no bulk earthworks are required other than minor surface disturbance required to install an additional electrical substation.

All transportation vehicles will be refuelled off-site, with forklifts and other mobile equipment periodically re-fuelled within a bunded area of the warehouse. Personnel will regularly check and maintain machinery to minimise the risk of oil leaks. The re-fuelling of mobile equipment at the site and storage of oil filters in bunded areas would also minimise the potential for leaks and spills to enter the Council stormwater system along Grady Crescent.

Stormwater management and water quality

Given there will be only minor surface disturbance required to install an additional electrical substation, and no other bulk earthworks required for the project, there will be no significant impacts to surface water quality associated with erosion and sedimentation, nor potential interaction with groundwater resources.

No major change is required to the construction of the warehouse building, and therefore the existing stormwater management system will be used for the project and no changes will be made.

Heritage

Based on a review of background heritage databases, the project will not impact upon items of Aboriginal or non-Aboriginal heritage significance.

The project will not disturb ground that has the potential to support any unidentified items of Aboriginal or European heritage value.

Biodiversity

The site is in a highly disturbed and modified industrial area. Remnant native vegetation has historically been cleared to facilitate construction of the warehouse and adjacent industrial land uses. Such industrial development has removed ecological values of the immediate vicinity and removed connectivity to areas of dense remnant native vegetation.

The site is highly modified and consists of asphalt driveways, concrete hardstand and the existing warehouse. Vegetation is limited to approved and landscaping on the eastern side of the warehouse, previously planted for landscaping and screening along Grady Crescent as part of the previous development consent.

The project will require the removal of one existing juvenile Spotted Gum (*Corymbia maculate*) tree in order to position an additional electrical substation/kiosk to upgrade electricity capacity to the site. The tree was previously planted during landscaping of the warehouse following construction and has no ecological significance. The removal of the planting would have no significant impact on biodiversity values.

Waste management

It is not expected that large volumes of waste would be generated during construction and operation of the project as no earthworks will be required.

Small quantities of waste generated during operations including office, domestic (e.g. food scraps) and packaging waste will be generated. These will be recycled where possible or disposed of at a licensed waste facility.

Recovered steel, used oil filters and car batteries will be stored on site for collection and further recycling by a licensed third party (off-site).

There would be no planned volumes of general solid, hazardous and liquid wastes generated from the operation of the plant. All waste generated at the site will be managed in accordance with the waste management hierarchy. Waste streams generated will be classified according to the *Waste Classification Guidelines* (EPA, 2014) and disposed of accordingly.

Hazards and risks

Potential risks to public safety and risks associated with emergencies were reviewed, which determined that the project will not pose a risk to the public or neighboring facilities provided management measures are implemented.

Additionally, risks from handling, transporting, storing and use of dangerous goods for the project were assessed in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) and it has been concluded a preliminary hazard analysis is not required.

Conclusion

Potential impacts from the project on air quality, noise, traffic and other environmental aspects were assessed. It was determined that with the implementation of environmental management and mitigation measures as outlined in this SEE, there is unlikely to be significant alteration to the supporting biophysical and social environments as a result of the project. The project would also result in positive economic outcomes for the Penrith local government area. Based upon the predicted environmental impacts of the project and the ability to manage these impacts to minimise harm to the environment, the project would not result in any significant adverse environmental impacts on adjoining properties or prejudice the future use of land in the locality.

Contents

Tables

Figures

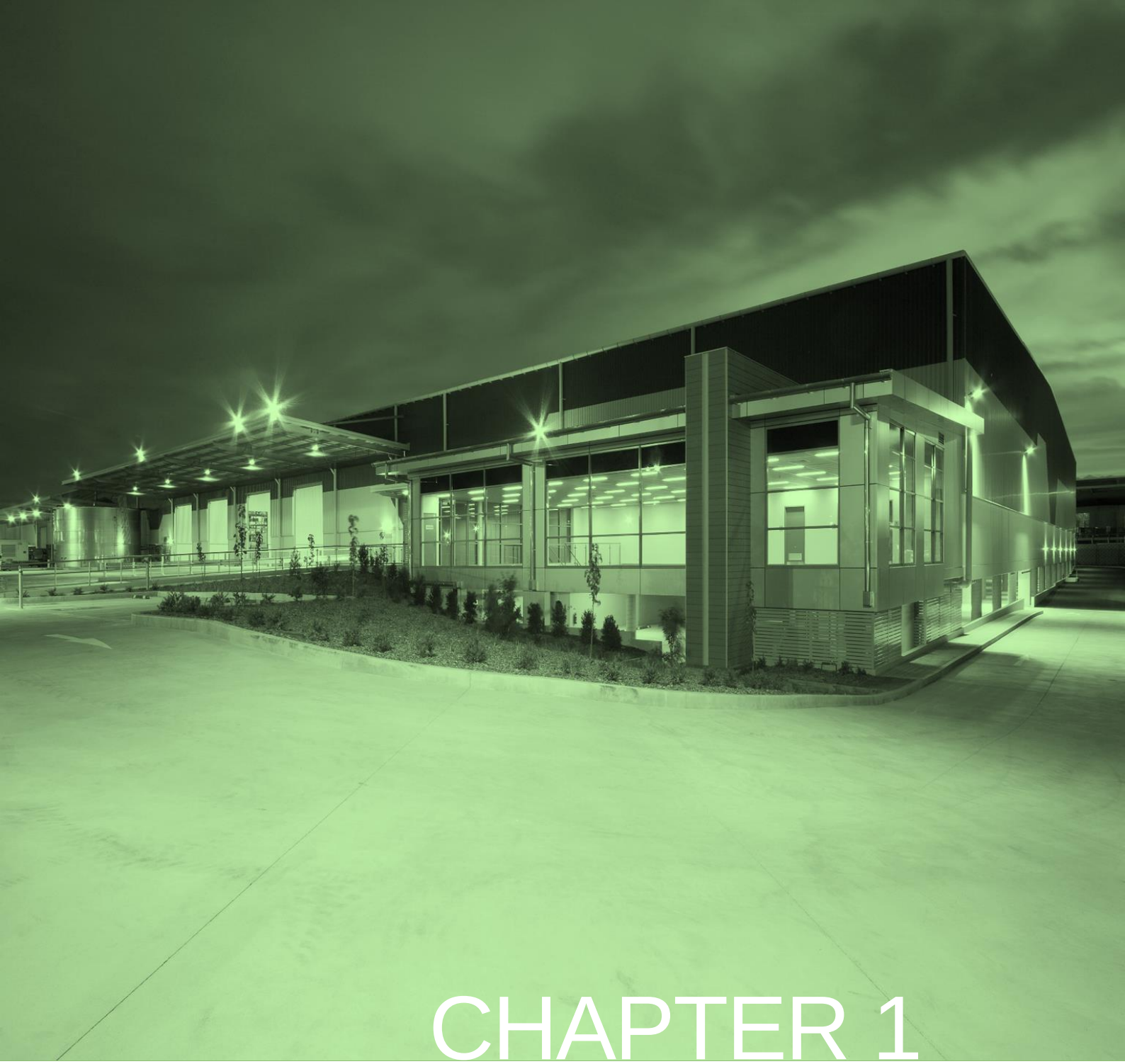
Appendices

ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Definition
ADG	Australian dangerous good
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AM	Ante meridiem: before noon
AS	Australian Standard
AQIA	Air quality impact assessment
BC Act	NSW *Biodiversity Conservation Act 2016*
BoM	Bureau of Meteorology
CIV	Capital investment value
CO	Carbon monoxide
CO_2	Carbon dioxide
CLM Act	NSW *Contaminated Land Management Act 1997*
cm	Centimetre
DA	Development Application
dBA	A-weighted decibels
DCP	Development Control Plan
DECCW	Department of Environment Climate Change and Water (now DPIE)
DPIE	Department of Planning, Industry and Environment
Element	Element Environment Pty Ltd
EPA	NSW Environment Protection Authority
EP&A Act	The *NSW Environmental Planning and Assessment Act 1979*
EP&A Reg	The NSW Environmental Planning and Assessment Regulation 2000
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental planning instrument
EPL	Environment protection licence
ESD	Ecologically sustainable development
ICNG	Interim Construction Noise Guideline (DECC 2009)
kL	Kilolitre
km	Kilometre
L	Litre
LEP	Local environmental plan
LGA	Local government area
LOTO	Lockout/tagout safety system

Abbreviation/Acronym	Definition
m	Metre
mm	Millimetre
ML	Megalitre
MNES	Matter of national environmental significance
M	Million
Mt	Million tonnes
NIA	Noise impact assessment
NO_2	Nitrogen dioxide
NML	Noise management level
NPI	Noise Policy for Industry
NPW Act	NSW *National Parks & Wildlife Act 1974*
NSW	New South Wales
NSW WAAR	NSW Waste Avoidance and Resource Recovery Strategy 2014-21
OEH	Office of Environment and Heritage (now DPIE)
O_2	Oxygen
PHA	Preliminary hazard analysis
PIRMP	Pollution and incident response management plan
$PM_{2.5}$	Particulate matter less than or equal to 2.5 micrometres in aerodynamic diameter
PM_{10}	Particulate matter less than or equal to 10 micrometres in aerodynamic diameter
PM	Post meridiem: after noon
PMST	Protected matters search tool
POEO Act	*NSW Protection of Environment Operations Act 1997*
PPE	Personal protective equipment
PVC	Polyvinyl chloride
RBL	Rating background level
REP	Regional environmental plan
RFS	NSW Rural Fire Service
RMS	NSW Roads and Maritime Services
RNP	NSW Road Noise Policy (EPA 2011)
SEPP	State environmental planning policy
SEPP WSEA	State Environmental Planning Policy (Western Sydney Employment Area) 2009
SO_2	Sulphur dioxide
SREP	Sydney Regional Environmental Plan No. 20

Abbreviation/Acronym	Definition
t	Tonne
TEC	Threatened ecological community
TfNSW	Transport for NSW
tpa	Tonnes per annum
TSP	Total suspended particulate
WARR Act	NSW *Waste Avoidance and Resource Recovery Act 2001*
Water Act	NSW *Water Act 1912*
WM Act	NSW *Water Management Act 2000*
WMP	Waste management plan
µm	Micrometres



CHAPTER 1
INTRODUCTION

1 INTRODUCTION

1.1 Background

Tyrecycle Pty Ltd (Tyrecycle) is one of Australia's largest tyre recycling companies, currently processing approximately 23% of the estimated 51 million passenger tyres that reach their end-of-life in Australia each year (Equilibrium 2017).

Tyrecycle currently operates a tyre recycling facility at St Marys, which has development consent to process up to 50,000 tonnes per annum (tpa) of passenger and four wheel drive tyres into either two or six inch pieces (known as Tyre Derived Fuel (TDF)) through a shredding operation (Equilibrium 2017).

Tyrecycle will be ceasing operations at the St Marys site at the end of 2020 and require relocation of the operation to an alternate location.

Tyrecycle is seeking approval to operate a tyre recycling facility (hereafter referred to as 'the project') within a leased warehouse and distribution complex at 1-21 Grady Crescent, Erskine Park (Lot 4, DP 1253870), hereafter referred to as 'the site'.

Tyrecycle is seeking development consent for the project under Part 4, Division 4.3 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Element Environment Pty Ltd (Element) has prepared this statement of environmental effects (SEE) on behalf of Tyrecycle to address:

- the pre-lodgement meeting notes provided by Penrith City Council (Council), following a pre-lodgement meeting on 14 July 2020;
- the provisions of Part 1, schedule 1 of the NSW Environmental Planning and Assessment Regulation 2000 (EP&A Reg); and
- the requirements of Part 4, Division 4.3 of the EP&A Act.

1.2 The proponent

Tyrecycle is the proponent for the project, with company and contact details provided in Table 1.1.

Tyrecycle was established in 1992 as a division of a major tyre manufacturer. Due to an unmet demand, it quickly expanded into a national tyre recycler for all types of tyres. It is now part of the highly regarded integrated resource recovery group, ResourceCo.

Table 1.1: Proponent details

Item	Detail
Project contact	Jim Fairweather – Chief Executive Officer
Postal address	30-56 Encore Avenue, Somerton VIC 3062
Company website	http://www.tyrecycle.com.au/
Corporate email address	jim.fairweather@tyrecycle.com.au
Contact no.	+61 3 8339 3518
ABN	84 085 545 053

1.3 Site location and existing environment

As outlined in **Section 1.1**, the site is within an existing leased warehouse and distribution complex in the Erskine Business Park at 1-21 Grady Crescent, Erskine Park (Lot 4, DP 1253870), 2759. The site is approximately 10.8 kilometres (km) southwest of Blacktown and approximately 5.6 km southeast of St Marys.

The site is owned by Fitzpatrick Investments, whom are the landowners of the Fitzpatrick Industrial Estate within Erskine Business Park.

The Erskine Business Park forms part of the Western Sydney Employment Hub, as identified by the Department of Planning and Infrastructure and Environment (DPIE), due to the area's strategic importance within the Sydney metropolitan area (FDS 2013). As illustrated in **Figure 1.1**, the Erskine Business Park provides a central location for employment generating activities in Western Sydney, whilst providing strong links with major transportation infrastructure (such as the M4 and M7 motorways) to facilitate the movement of goods regionally, nationally and internationally.

The site is situated within a 'general industrial' land use zone (**Section 3.2.3**). General industrial land uses surround the site, including, PMA, DHL, IVE Group, Flower Power facilities and Coates Hire operations.

As illustrated in **Figure 1.2**, residential properties are located to the north of the site, with the closest resident to the site located approximately 330 metres (m) north on Shaula Crescent.

The site is highly modified and consists of asphalt driveways, concrete hardstand and the existing warehouse. Vegetation is limited to the eastern side of the warehouse, and was previously planted for landscaping and screening along Grady Crescent as part of the previous development consent.

The local topography is gently undulating with elevation increasing to the southeast of the site.

The existing warehouse accommodates a floor area of 9,620 m^2 and is positioned between the PMA building to the south and the Coates Hire site to the north and is accessed via Grady Crescent.

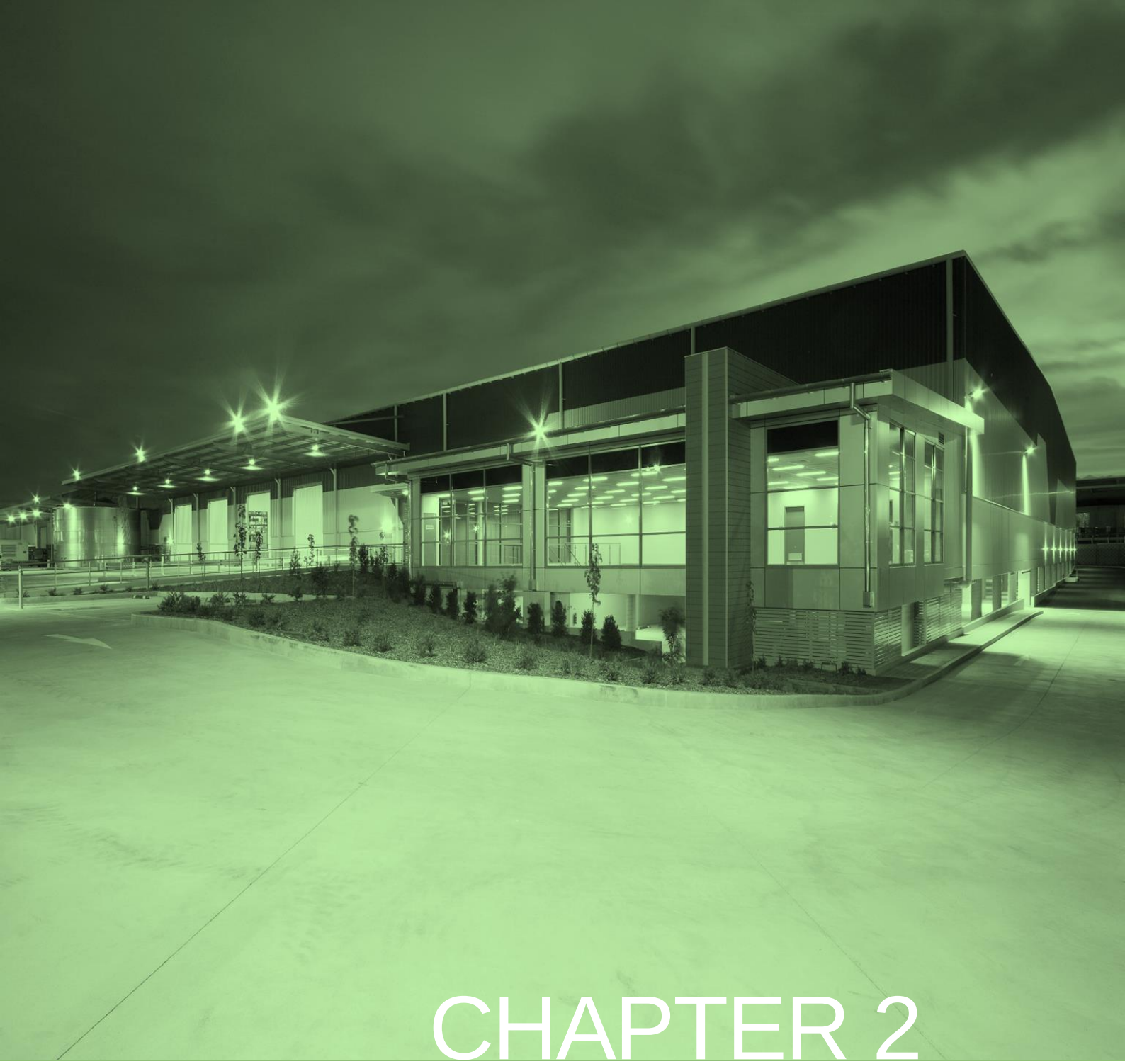
Refer to **Chapter 5** for a description of the site in context of respective environmental aspects.

Figure 1.1
Regional context

Tyre Recycling Facility
Development Application - Statement of Environmental Effects

Figure 1.2
Local context

Tyre Recycling Facility
Development Application - Statement of Environmental Effects



CHAPTER 2
PROJECT DESCRIPTION

2 PROJECT DESCRIPTION

2.1 Existing operations

Table 2.1 provides a summary of the existing infrastructure facilitating industrial land use of the site.

Table 2.1: Summary of existing infrastructure and land use

Operational aspect	Detail
Existing site infrastructure	Existing site infrastructure includes: ▪ Warehouse building (9,300 m^2). ▪ Administrative office (320 m^2). ▪ Car parking (basement level for 78 parking spaces, including two disabled spaces). ▪ Landscaping. ▪ Security fencing (palisade style fencing is located along the Grady Crescent frontage in accordance with the development control plan (DCP). All other boundary fencing consists of black polyvinyl chloride (PVC) coated chain wire mesh, consistent with all other developments on the Fitzpatrick Industrial Estate). ▪ Stormwater and drainage infrastructure. ▪ Awnings. ▪ Utility infrastructure. ▪ Fire protection system, including an early suppression fast response sprinkler system conforming with the requirements of the Building Code of Australia (BCA) and AS2188.1 (Automatic Fire Sprinkler Systems).
Existing warehouse building	The existing warehouse building (including an administrative office) includes a floor area of 9,620 m^2 and accommodates high bay storage racking in accordance with BCA requirements. The building is 12.2 m high and is supported by a steel structure and constructed with a concrete dado wall with metal cladding above. The roof of the building is constructed using zincalume metal cladding**. Appendix A** includes the existing warehouse building survey (survey drawing) and the existing warehouse architectural plans.
Vehicle access and parking	Vehicle access is provided by two driveways within the Grady Crescent frontage, enabling separated light and heavy vehicle access and movements within the property. The existing warehouse includes the provision of 78 car spaces via a basement car park.
Servicing	The site is well serviced in regard to existing public utility infrastructure (including water, power, and sewerage). The site is serviced via connections to the Sydney Water potable water and sewer system; NBN/Telstra's telecommunication network and Endeavour Energy's electricity network. Stormwater runoff is captured within the site's stormwater infrastructure, which flows to the Estate's approved stormwater system.
Hours of operation	The existing warehouse was constructed on a speculative basis and therefore hours of operation were to be determined via a separate development application once an operational industrial use was identified.
Development consent history	Development consent was granted by Council in 2013 for the construction of the warehouse and associated infrastructure (DA13/0193). A modification to DA13/0193 was subsequently granted for the site in 2013 and included various building design changes, including: ▪ Deletion of dedicated driveway to basement parking. ▪ Relocation of two accessible parking spaces and additional three visitor spaces adjacent to the 'at grade' office entry. ▪ Relocation of approved outdoor area to main office level (adjacent to recessed loading dock). ▪ Deletion of lift, re-located amenities and modified office layout. ▪ Deletion of fire egress stairs to western warehouse elevation. ▪ Proposed electrical substation.
Land ownership	Fitzpatrick Investments Pty Ltd
Zoning	IN1 – general industrial (refer to **Section 3.2.3** for further detail)

Operational aspect	Detail
Landscaping	The site is landscaped in accordance with the requirements set out in the development consent for the warehouse (DA13/0193). Landscaping exists at the main eastern frontage. It has been designed to help soften the impact of the warehouse to the Grady Crescent and is consistent with landscaping setbacks provided along the neighbouring PMA and DHL frontages to Grady Crescent. Landscaping also helps to screen the hardstand area from the road corridor (FDC 2013).

2.2 Proposed project

An operational plan of management (OPM) is provided in Appendix B, which also outlines the project activities and operational process.

The project seeks to operate in 24 hours per day, seven days per week (if required), with primary operational activities including:

- receival and temporary storage of tyres;
- processing and shredding of tyres (up to 29,000 tpa); and
- dispatch of processed TDF and other tyre derived products (TDP).

The project would be contained within the northern section of the existing warehouse building (covering a total floor space of 9,620 m^2), which has capacity to house new plant and equipment, without the need to expand or upgrade the existing warehouse building. The internal floor space of the existing office facility would be modified as part of the project to accommodate a meeting room and other desirable operational requirements. The project will require minor alterations to electrical infrastructure at the site, however no significant earthworks or ground disturbance will be necessary. New, state of the art, operational plant will be designed to fit within the existing warehouse footprint. A ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building (western side of the building).

Appendix C provides a detailed architectural plan outlining the floor plans of the office layout.

Mechanical processing plant and equipment within the warehouse building is likely to include a combination of the following:

- Weighbridge.
- Tyre receival and storage bay.
- Tyre feeder.
- Primary shredder – super chopper.
- Two secondary process – rasper.
- Primary granulator.
- Primary classifier – textile/fabric separation.
- Secondary granulation.
- Secondary classifier – textile/fibre separation.
- Aspirator – classification of granular product.
- Cracker mill.
- Sieve.
- Bulk bag stations.
- Steel cleaning plant.
- Two dust extraction and air filtration systems.
- Waste storage and collection areas.
- Conveyor.
- Forklift.
- Skidsteer loader.
- Front-end-loader.

Appendix D includes the existing architectural plan of the warehouse overlayed with a schematic of the new state of the art operational plant, which will be located within the existing warehouse building. Appendix D also shows the approximate location of waste bins for collection and access routes for staff and collection vehicles. Note that Appendix D provides an indication of approximate location only and is not drawn to scale.

The operational process includes the following:

- **Receival and storage of tyres**: Tyres are collected by the Tyrecycle truck fleet, weighed in over the weighbridge and then unloaded into dedicated storage areas in the warehouse, ready for processing. In the absence of a mechanical breakdown within the plant, it is anticipated that all feedstock collected will be processed within 24 hours of receipt.
- **Tyre feeder**: Tyres are fed into the tyre feeder utilising mobile plant. The main purpose of the tyre feeder is to buffer the tyres to ensure automatic and continuous feeding to the super chopper.
- **Primary shredder – super chopper:** The super chopper is fed by the tyre feeder. In the super chopper, the tyres are processed through a set of knives and reduced to a rubber chip of approximately 6 inches in size. The material from the super chopper is discharged through a disc screen that separates oversized material from material that is uniformly 6 inches in size. The oversized material is returned to the super chopper for further processing and the material that passes through the screen is the first product stream (six inch TDF).
- **Secondary shredding – raspers:** A reversible conveyer allows the six inch product from the super chopper to feed into two raspers. One of the raspers converts the six inch chips into 1.5 inch TDF, which is one of the final products. The second rasper is connected to the granulation line and material from the rasper is further reduced in size during the granulation process. During the rasping process, the steel reinforcement of the tyre is removed as a by-product for sale as recyclable steel.
- **Granulation:** The granulation line consists of a primary and secondary granulator, each with a classifier, and a central aspirator. The granulators further reduce the size of the granules, and in the process liberates the fabric/textile and additional steel.
- **Fabric/Textile separation:** The new state of the art operational plant, includes a fabric separator, allowing processing of a combination of passenger and truck tyres into rubber crumb in the one facility. After liberation by the granulators, the classifiers remove the fabric/textile and any remaining steel as a by-product for sale as an alternate energy source and recyclable steel. The rubber product then passes through the aspirator where it is further classified and either bagged as granular product (third final product with some 'work in progress' (WIP) for later processing in the cracker mill) or processed directly through the cracker mill.
- **Cracker mill:** The cracker mill is fed with the granular product from the aspirator or WIP bulk bags. The energy efficient cracker mill utilises two large rolls, rotating at different speeds. The granular rubber is forced through a small gap between the rolls, sheering the rubber, further reducing the size of the granules to 30 mesh[1] or 40 mesh crumbed rubber. The product from the cracker mill is passed over a screen with oversized material returned to the cracker mill for another pass through the mill. Material that meets the specification is conveyed to the bulk bagging area and placed into bulk bags as 30 or 40 mesh (final product).
- **Fabric separator**: The fabric separator, allows processing of passenger and truck tyres in the one facility. During the process, the steel and textile (fibre from passenger/four wheel drive tyres) are removed as by-products for sale as recyclable steel and textile.
- **Dispatch of processed tyres**: The TDF is loaded into shipping containers, ready for export. Bulk bags (on standard pallets) of granular material and crumbed rubber are stored in pallet racking for delivery to customers utilising B-doubles.

[1] Mesh is the unit used for sizing of the rubber crumb. 30 mesh is equivalent to 0.595 mm.

The TDF in either six inch or 1.5 inch form are used for energy recovery or -generation within export markets, primarily Korea and Japan. As well as TDF exported internationally for energy recovery or generation, a variety of TDP are also manufactured, including granules, which are commonly applied to sporting fields and playgrounds, and rubber crumb products (0.42-0.595 mm diameter), which are used in the manufacture of tile adhesives/cement and as additives in asphalt for road construction. There are other applications, however, the above are examples of higher volume applications.

By-products of the operational process including steel and fibre textile are sold as recyclable materials. There are no unwanted, or hazardous by-products from the shredding process. All tyres collected or received at the site are either processed into TDF/TDP, steel and textile or re-used as casings. There is no need for chemical processing or heating, with the processing of tyres via a mechanical process.

Table 2.2 provides further operational details of the project.

Table 2.2: Project operations

Operational aspect	Comment
Volume of material processed per annum	The project would process up to 29,000 tpa, recovering the following products: ▪ 30 Mesh – 9,397 tpa; ▪ 1.5 inch TDF – 12,620 tpa; ▪ Steel – 4,344 tpa; and ▪ Fibre/Textile – 2,639 tpa.
Size and area of warehouse required.	9,620 m^2 (9,300 m^2 warehouse and 320m^2 ancillary office). The existing site area is 15,503 m^2
Employment	The project will generally operate across three shifts as follows: ▪ Day shift (7 am to 3 pm) – 24 full time employees ▪ Afternoon shift (3 pm – 11 pm) – three full time employees. ▪ Night shift (11 pm to 7 am) – three full time employees. The operations would be supported by four full time management staff who will typically work from 8 am to 5 pm weekdays.
Hours of operation	24 hours per day, seven days a week.
Proposed operating hours per activity	▪ Trucks (collection): - Monday – Friday: > Day: 4 am to 6 pm. > Night: 5 pm to 1 am. - Saturday: 4 am to 6 pm (as required). ▪ Plant operation (shredding): Monday – Friday, 7 am start and Saturday, 7 am finish ▪ Plant operation (crumbing): 24 hours, seven days per week. ▪ Deliveries (containers): Monday – Friday 8 am to 5 pm and Saturday 8 am to 6 pm (as required)
Vehicle access and parking	Vehicle access is as per the existing arrangements specified in Table 2.1. The maximum number of car spaces required at any one time is 28 (comprising employees for the day shift, and management personnel). The parking requirements for the project can be accommodated by existing parking available at the site. Heavy vehicles would be parked in the loading dock of the site when not in use.
Utilities and servicing	The project would not require the construction of additional utility infrastructure (other than minor electrical upgrade) and would continue to be serviced by existing utilities. The following minor alterations/upgrades would be required: ▪ The project would require minor upgrade to electrical infrastructure, with the current 500 kilovolt ampere (kVA) transformer upgraded to 3,500 kVA. **Appendix E** includes the electrical infrastructure plan. ▪ The existing fire system at the warehouse was reviewed by a qualified fire engineer and considered project parameters (including materials to

Operational aspect	Comment
	be stored and height of stacking), with the existing fire system to remain compliant with AS 2118:1 during operation of the project. No upgrade to the existing fire systems are required for the project. ▪ A ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building (western side of the building), protruding through the roof by approximately two metres. Despite this, the pitch in the centre of the existing roof would account for a maximum height and as such, the vents would not significantly alter the current visual amenity of the warehouse.
Traffic generation and internal movements	The project would generate the following traffic during the morning and afternoon peak: ▪ Morning peak (5 am to 7 am) - seven outbound heavy vehicles trips and 30 light vehicle trips (25 inbound and 5 outbound). ▪ Afternoon peak (4 pm to 6 pm) - seven inbound heavy vehicles trips and 30 light vehicle trips (5 inbound and 25 outbound). The above traffic generation is considered a worst case scenario, however it is likely that heavy vehicles which depart the site in the morning peak would depart and return at staggered times of the day. Heavy vehicles associated with the project would vary in size, with the most common vehicle type being rigid trucks, and largest a B-Double truck. As heavy vehicles return to site with tyres, they would drive into the warehouse, offload the tyres into the designated area inside the warehouse, from which a front end loader would move the product within the warehouse to the tyre feeder feeding the processing equipment. Tyre retailers may also deliver tyres to the warehouse periodically throughout business hours (8 am to 5 pm). General deliveries to the site would also occur periodically throughout business hours as required. It is estimated that an average of 125 containers of tyre products would be delivered or collected by customers per month (average of six per day). Forklift and Bobcat (skid-steer loader) movements will occur inside the warehouse during operational hours. Forklifts used as part of the operation would unload incoming tyres, and load palletised crumbed and granule product into pallet racking for storage or onto outgoing B-Double trucks. It is estimated that approximately 50 pallets would be loaded and dispatched per day, equating to approximately two B-Double collections per day.
Lighting requirements	The project would utilise existing lighting at the warehouse during night operations. There is no requirement to upgrade existing lighting at the site.
Building code requirements	A Building Code of Australia/NCC Compliance Assessment report will be provided separately to Council.
Security requirements	▪ Security fencing: The existing security fencing for the site does not require upgrading for the project. ▪ On-site security system: The warehouse building is alarmed to prevent unauthorised access. ▪ Security lighting. ▪ Closed circuit television (CCTV). ▪ Security gates (gate to be left open during the day and shut overnight and on weekends).
Signage requirements	The following signage will be required for the site: ▪ Site safety sign: This will be free standing and dimensions approximately 3015 millimetres (mm) x 1500 mm. ▪ Tyrecycle branding sign: The sign will be located on the front of the building against the Terracotta wall at the office entry. The final dimensions and type of this sign will depend on available wall space and material. The sign will not impact traffic or distract in any unlawful way. ▪ Tyrecycle quality signage: This sign would be located on the building near the loading docks. The dimensions will be approximately 1220 mm x 2440 mm.
Amenities	The project would be serviced by existing amenities within the administration office. Such amenities would include toilet and hand washing facilities, kitchen and break room.

Operational aspect	Comment
	The internal floor space of the existing office facility would be modified as part of the project to accommodate a meeting room and other desirable operational requirements. Refer to **Appendix C** for an office layout plan.
Capital investment value (CIV)	Refer to **Appendix F**.
Commencement of operations	The project is anticipated to commence in December 2020 (subject to approval), with establishment of plant and equipment to take up to two months prior to the commencement of operations.
Landscaping	Existing landscaping from the warehouse includes a selected range of Australian native ground covers, shrubs and non-deciduous trees to the local areas. The existing landscape plan for the warehouse building was prepared by Viridian Designs and is included in **Appendix G**. The project would require minor upgrade to electrical infrastructure, with the current 500 kilovolt ampere (kVA) transformer upgraded to 3,500 kVA. This would result in an additional substation to be located within the site, requiring the removal of one juvenile Spotted Gum (*Corymbia maculate*).
Waste management	Refer to **section 5.4.7** and Appendix M.

2.3 Need and justification

Tyrecycle will be ceasing operations at their existing St Marys tyre recycling facility site at the end of 2020 and require relocation of the operation to the site.

This section outlines the need and justification of the project including:

- site suitability;
- meeting the growing need for effective and environmentally sound re-use and recycling of end-of-life tyres;
- meeting the objectives of the product stewardship scheme; and
- contributing to employment.

2.3.1 Suitability of the site

The site is considered suitable for a number of reasons, including (FDC 2017):

- the site is within the Erskine Business Park, which is intended to accommodate employment opportunities and economic development for the Penrith local government area (LGA);
- the site is well connected to major transport infrastructure including Erskine Park Road, Mamre Road, M4 motorway and the M7 motorway;
- the site is well located in the context of the local and regional community with regard to providing employment opportunities;
- the site is sufficiently buffered from the surrounding residential areas of Erskine Park and St Clair;
- a warehouse and industrial land use zoning been located on the site since development consent in 2013. The project will not result in any significant change in the way the existing site operates;
- the site and surrounding locality do not present any significant physical, ecological, technological, or social constraints on the project;
- the site is generally level and cleared of vegetation, within an existing warehouse building, thus significant surface disturbance is not required and associated heritage, water and biodiversity impacts will be avoided;
- the site is on land used for a permitted industrial purpose within a warehouse building and there is existing access to necessary electricity, communications, water and transport infrastructure;
- as detailed in **Section 3.2.3**, the site is appropriately zoned for the proposed industrial use.

- the site is not in an area recognised by Council as being subject to landslip, flooding, bushfire or any other particular hazard. The project is not likely to increase the likelihood of such hazards occurring; and
- no upgrades will be required to the local road network.

The following sustainability initiatives have been previously incorporated into the design of the existing warehouse (FDC 2017) and are desirable initiatives that align with Tyrecycle's commitment to carrying out their operations in an environmentally responsible manner, with the promotion of sustainability into daily operations:

- A building management system (BMS) has been installed to manage the use of artificial light, throughout the facility. The BMS ensures that lighting is only used when rooms are occupied. The BMS is able to be programmed to measure the availability of natural light within the warehouse and to operate artificial lighting as required.
- Rainwater harvesting occurs to help reduce reliance on potable water. Appropriate filtration systems and mains water backup has been installed in accordance with the relevant Australian Standards. The tank and testing equipment has been designed to ensure that test water is returned to the tank to avoid wastage. Additionally, AAA rated hydraulic fixtures are fitted to the building throughout to ensure that water is used efficiently.
- Translucent sheeting has been installed on the warehouse roof to maximise natural light availability. The building has also been designed to incorporate a ridge vent, which helps to maximise opportunities to naturally ventilate the building. Double glazed windows are installed to increase heating and cooling efficiencies.
- Existing landscaping from the warehouse includes a selected range of Australian native ground cover, shrubs and non-deciduous trees to the local areas, with an automatic drip line garden irrigation system. The system is fed with rainwater and includes a manual function to provide flexibility to reflect conditions.

2.3.2 End-of-life tyres

The project will continue to meet the growing need for effective and environmentally sound re-use and recycling of tyres, both nationally and within NSW. Tyrecycle will continue to process tyres into TDF or TDP rather than sending tyres to landfill, which may prevent the possibility of illegal disposal activities to occur (Equilibrium 2017).

Approximately 51 million tyres (passenger, truck and off the road) reached their end of life in Australia in 2013-14. Of these, only 5% were recovered locally (either through recycling, energy recovery or civil engineering), 32% were exported; approximately 16% went to licenced landfills, and 2% were stockpiled for future recovery (Hyder Consulting 2015).

Approximately 14% of end-of-life-tyres were categories as having "unknown" destination, and anecdotally approximately 31% of Australian tyres (predominately large, off the road tyres) are landfilled at mining sites (Hyder Consulting 2015).

Across the nation, NSW has the highest rate of tyres in use. Research conducted by Hyder Consulting (now Advisian) showed that in 2014-15 the number of tyres in use in NSW was in excess of 35 million (Hyder Consulting 2015).

2.3.3 Product stewardship

Tyrecycle is an accredited tyre collector and recycler working under the National Tyre Product Stewardship Scheme (TPSS) and is a member of the Australian Tyre Recyclers Association (ATRA).

The TPSS objectives are (DAWE 2020):

- to increase resource recovery and recycling;
- minimise the environmental, health, and safety impacts of all end-of-life tyres generated in Australia; and
- develop Australia's tyre recycling industry and markets for TDP.

ATRA's objectives are to assist its members to minimise damage to human health and the environment, both locally and globally through cost-effective and environmentally sound tyre recycling activities.

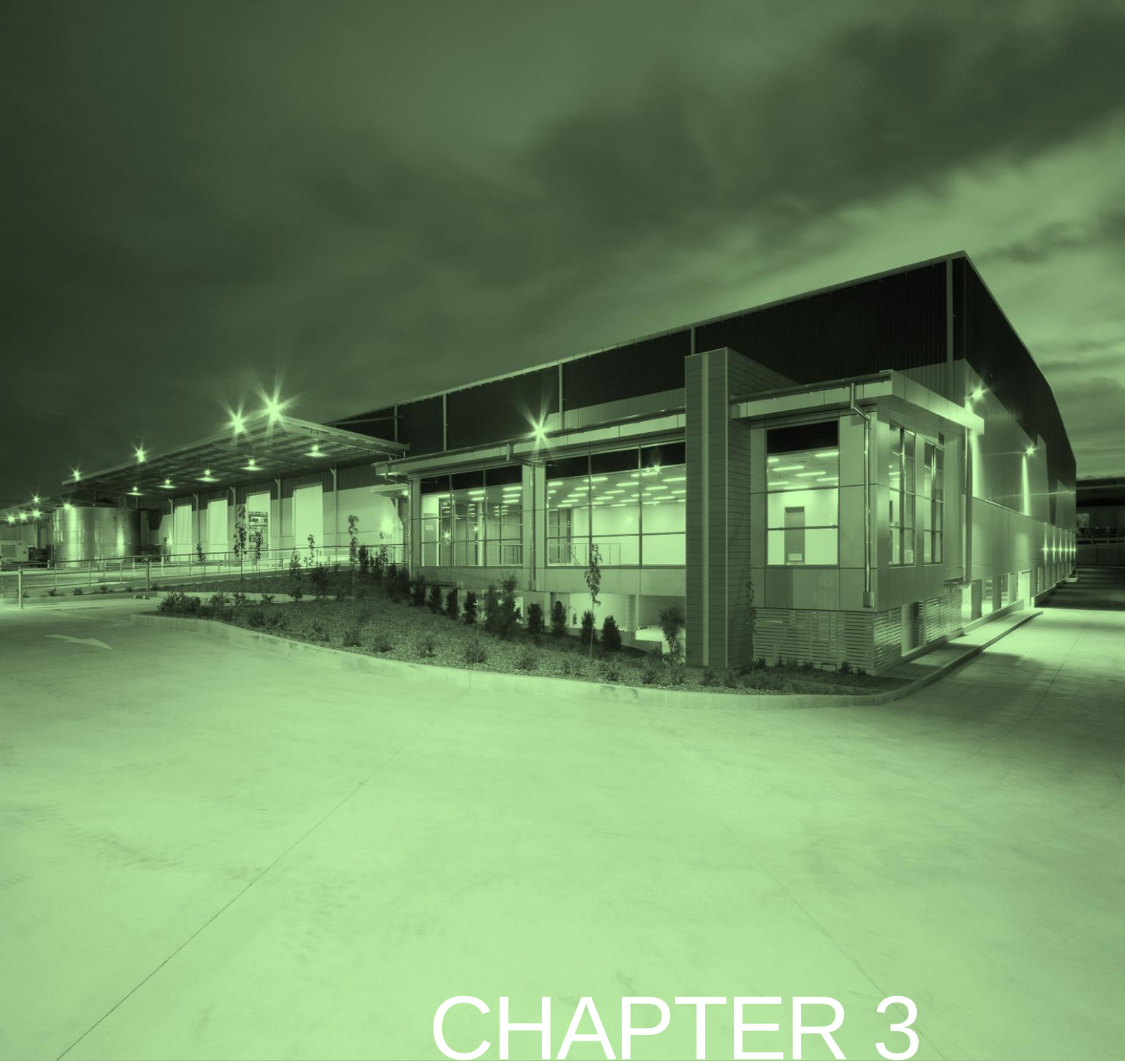
The project will meet the objectives of the TPSS by processing end of life tyres into new products for potential use in:

- road construction (as a constituent in asphalt roads);
- surface materials (such as artificial turf, sporting field and playground surfaces, and conveyor belts);
- alternative fuel for industries (including producers of energy and cement, and as a substitute for diesel in explosives); and
- civil engineering (such as embankments and lightweight fill).

2.3.4 Social and economic

The project will employ an estimated 30 full time employees across three shifts, supported by four management staff. The site will therefore continue to contribute to the ongoing growth and development of the Erskine Business Park, the greater Western Sydney Employment Hub, and create a positive socio-economic benefit to the locality. The site will also contribute to the creation of employment opportunities within the Penrith LGA. In creating local employment opportunities, the project would also support the objectives of the Greater Sydney Region Plan.

As outlined in **Section 3.3.3**, the project meets the objectives of the State Environmental Planning Policy (Western Sydney Employment Area) 2009 (SEPP WSEA) and will foster viable employment that is suitable for the needs and skills of the workforce, allowing Penrith to fulfil its role as a regional city in the Sydney Metropolitan region.



CHAPTER 3
PLANNING FRAMEWORK

3 PLANNING FRAMEWORK

This section identifies the relevant Commonwealth and State environment and planning legislation, applicable environmental planning instruments, and discusses the relevant planning approval process applicable to the project.

Of key importance is the evaluation of the environmental effects of the project in accordance with Section 4.15(1) of the EP&A Act, which is outlined in **Chapter 5** of this SEE.

3.1 Commonwealth legislation

A review of the Commonwealth legislation that is relevant to the project is provided in Table 3.1.

Table 3.1: Relevant commonwealth legislation

Planning provision	Comments
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Approval by the Commonwealth Minister for the Environment is required for any action that may have a significant impact on matters of national environmental significance (MNES) listed under the EPBC Act. If an activity is likely to have a significant impact on a MNES then it may be a controlled action and should be referred to the Commonwealth Minister for the Environment for consideration. The nine MNES are: ▪ World heritage properties; ▪ National heritage places; ▪ Wetlands of international importance (Ramsar wetlands); ▪ Nationally threatened species and ecological communities; ▪ Migratory species; ▪ Commonwealth marine areas; ▪ The Great Barrier Reef Marine Park; ▪ Nuclear actions (including uranium mining); and ▪ A water resource, in relation to coal seam gas development and large coal mining development. Following a review of the Protected Matters Search Tool, it is concluded that the project will not significantly impact on any MNES and thus the requirements of the EPBC Act are not relevant to the project. As such, referral of the project to the Commonwealth Department of Agriculture, Water and the Environment is not required.
Native Title Act 1993 (NT Act)	The NT Act recognises that Aboriginal people have rights and interests to land and waters which derive from their traditional laws and customs. Native title may be recognised in places where Indigenous people continue to follow their traditional laws and customs and have maintained a link with their traditional country. It can be negotiated through a Native Title Claim, an Indigenous Land Use Agreement or future act agreements. The National Native Title Register, Register of Native Title Claims, and Register of Indigenous Land Use Agreements were searched in July 2020 for reported native title claimants in the LGA. There were no results for declared native title in the LGA. No Native Title has been prescribed for the land on which the project is proposed and therefore no further approval is required under the NT Act.

3.2 NSW legislation

This section provides an overview of NSW legislation associated with the project.

Table 3.2 provides a summary of the planning pathway for the project, with additional detail in the subsequent sections.

Table 3.2: Planning pathway summary

Query	Comment	Section where query is addressed
Permissibility – Is the development permissible?	The site is positioned within a IN1 – **General Industrial** land use zone specified by the SEPP WSEA. The project is consistent with the definition of a waste management facility, which by virtue of State Environmental Planning Policy (infrastructure) 2007 (Infrastructure SEPP), is permitted with consent in the IN1 land use zone under the SEPP WSEA.	**Section 3.2.3**
Is the development integrated development?	Given that the requirement for an Environment Protection Licence (EPL) is a trigger for integrated development, the development application is **integrated development** under section 4.46 of the EP&A Act.	**Section 3.2.1**
Is the development designated development?	In accordance with schedule 3, clause 32 (1)(b) of the NSW Environmental Planning and Assessment Regulation 2000 (EP&A Reg), the project **would not trigger designated development** based on production or storage quantities. Although the project is within 500 m of a residential zone (as reference in clause 32 (1)(d), having regard to topography and local meteorological conditions, **the project is unlikely to significantly affect the amenity of the neighbourhood** by reason of noise, visual impacts, air pollution (including odour, smoke, flumes or dust), vermin or traffic. Refer to **Chapter 5** for consideration of these potential impacts on residential land uses within 500 m of the project.	**Section 3.2.2**
Is the development state significant development?	State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) defines development that is declared State significant development (SSD), provided it meets the relevant criteria set out in schedule 1. Clause 23 of Schedule 1 of the SRD SEPP is relevant to waste and resource management facilities and states if resource recovery or recycling facilities process more than 100,000 tonnes of waste per annum, the development is declared SSD and approval would be required under Division 4.7 of the EP&A Act. **The project does not fall within the definition or thresholds of a SSD** and therefore SRD SEPP is not applicable.	**Section 3.3.1**
Is the development regionally significant development?	Section 20 of SRD SEPP identifies regionally significant development as development specified in Schedule 7. The project would trigger clause 5 of schedule 7 of the SRD SEPP as the CIV would exceed the $5 million threshold for 'waste or resource management facilities'. As the project **would constitute regionally significant development**, in accordance with Section 4.5 of the EP&A Act, the Sydney Western City Planning Panel would assess and determine the development application.	**Section 3.3.1**
What level of assessment is required?	As Tyrecycle would avoid the triggers for state significant and designated development, the project is **permitted with consent and the development application would be made under Division 4.3 of the EP&A Act and accompanied by a SEE.**	**Section 3.2.4**
Who is the consent authority?	In accordance with clause 6 of the SEPP WSEA, **Council** is the consent authority for designated and/or integrated development, or other development permitted with consent. As the project would constitute regionally significant development, in accordance with Section 4.5 of the EP&A Act, the Sydney Western City Planning Panel would assess and determine the development application.	**Section 3.2.4**

3.2.1 NSW Environmental Planning and Assessment Act 1979

Objectives

The EP&A Act is administered by DPIE and local government authorities. It is the primary legislation governing environmental planning and assessment for NSW. The project's consistency with relevant objectives of the EP&A Act are described in Table 3.3.

Table 3.3: Objectives of the EP&A Act

Objective	Project comments
To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	The project will enable the continued use of a previously established warehouse complex and avoid greenfield development in potentially environmentally sensitive areas. The project will contribute to the NSW and National economy and provide ongoing employment opportunities for 30 personnel.
To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	The project is consistent with the principles of ecological sustainable development (ESD) as outlined in **Section 5.4.1**.
To promote the orderly and economic use and development of land,	The orderly and economic use of land is best served by development which is permissible under the relevant environmental planning instruments and generally in accordance with planning controls. The project comprises a permissible development which is consistent with the statutory control and strategic planning directions. The project is also geographically separated from incompatible land uses such as residential and environmental conservation zoning, so as to avoid potential amenity impacts. The project would be confined to a previously erected warehouse complex within an industrial estate, thereby minimising environmental and social impacts. Potential environmental risks associated with the project have been subject to thorough and rigorous specialist assessment, including subsequent refinement of project parameters to result in beneficial outcomes. As demonstrated in this SEE, all noise and air emissions generated by the project would comply with relevant assessment criteria at all times of operation. Traffic generated by the project would not result in detrimental impact to the surrounding and arterial road network. Appropriate mitigation measures and management strategies have been proposed to reduce any adverse residual environmental and social impacts.
To promote the delivery and maintenance of affordable housing,	Not applicable to the project.
To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	The site is highly modified and consists of asphalt driveways, concrete hardstands and the existing warehouse. Vegetation is limited to a few isolated trees and shrubs on the eastern side of the warehouse, planted for landscaping and screening along Grady Crescent. The project will require the removal of one existing juvenile Spotted Gum tree in order to position an additional electrical substation/kiosk to upgrade electricity capacity to the site. The tree was previously planted during landscaping of the

Objective	Project comments
	warehouse following construction and has no ecological significance. The removal of the planting would have no significant impact on biodiversity values given the vegetation comprises landscape vegetation with no potential habitat for threatened fauna species.
To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	The site is currently covered by impermeable concrete hardstand area with an existing warehouse building. The project will not disturb ground that has the potential to support any unidentified items of Aboriginal or European heritage value. As such, the project will not impact upon items of Aboriginal or non-Aboriginal heritage significance.
To promote good design and amenity of the built environment,	Specialist consultants have assessed potential noise, air quality and traffic impacts, as described in **Chapter 5**. The project has been designed in a manner which aims to avoid the potential for impacts in the first instance, and management measures are proposed to mitigate and manage residual impacts, where necessary.
To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	The project will not require the construction of new buildings/structures apart from minor electrical and air filtration alterations. All built structures for the project would comply with relevant building standards and be implemented to improve the health, well-being and safety of site personnel.
To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	Despite development consent to be granted by the Western City Planning Panel, Council, as local government authority, will assess and provide a recommendation for approval of the project. By virtue of integrated development and referral to other government agencies (such as the NSW Environment Protection Authority (EPA), Transport for NSW and DPIE), it is considered that both State and local government agencies would share responsibility for assessment and approval of the project.
To provide increased opportunity for community participation in environmental planning and assessment.	Following submission of the development application, Council would notify all government agencies, organisations, interest groups, stakeholders and community members with a potential interest in the project to review the SEE, seek clarification with Tyrecycle on the content of the SEE and provide written submissions if required.

In determining a development application, Council is to take into account those matters listed under Section 4.15(1) of the EP&A Act, as they are relevant to the project. A summary of the matters requiring consideration, and comments on how/where these matters have been addressed within this SEE is outlined in **Table 3.4**.

Table 3.4: Section 4.15(1) EP&A Act matters for consideration

Clause and requirement	Comment
4.15(1) Matters for consideration – general In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application: (a) the provisions of -	-

Clause and requirement	Comment
(i) any environmental planning instrument, and	All environmental planning instruments relevant to the project have been considered in **Section 3.3.**
(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and	N/A
(iii) any development control plan, and	Refer to **Section 3.3.3**.
(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and	N/A
(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),	Refer to **Section 3.2.2**.
(v) (Repealed)	-
that apply to the land to which the development application relates,	-
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	Refer to **Chapter 5**.
(c) the suitability of the site for the development,	Refer to **Section 2.3**.
(d) any submissions made in accordance with this Act or the regulations,	Tyrecycle will respond to any government agency or public submissions received during the exhibition of the development application that Council requests a response to.
(e) the public interest.	Clauses (d) and (e) of section 4.15(1) require that any public submissions made in accordance with the Act or the public interest be considered in the development assessment process. Tyrecycle will respond to any public submissions received during the exhibition of the development application that Council requests a response to.

Integrated development

Part 4 (Development Assessment), Division 5 (Special procedure for integrated development), Section 91 of the EP&A Act states that *integrated development is development (not being State significant development or complying development) that, in order for it to be carried out, requires development consent and one or more of the following approvals*:

- *Fisheries Management Act 1994;*
- *Heritage Act 1977;*
- *Mine Subsidence Compensation Act 1961;*
- *Mining Act 1992;*
- *National Parks and Wildlife Act 1974;*
- *Petroleum (Onshore) Act 1991;*
- *Protection of the Environment Operations Act 1997;*
- *Roads Act 1993;*
- *Rural Fires Act 1997; and*
- *Water Management Act 2000.*

Section 48 of the *Protection of the Environment Operations Act 1997* (POEO Act) outlines that an EPL (separate approval) is required for any scheduled activities to be undertaken at a premise at which Schedule 1 of the Act indicates that a licence is required.

Schedule 1, clause 34 of the POEO Act provides a description of a scheduled activity specific to 'resource recovery', in which if the development processes is in excess of 5,000 tonnes of waste tyres per annum, an EPL is required.

Schedule 1, clause 41 of the POEO Act provides a description of a scheduled activity specific to 'waste processing (non-thermal treatment), in which non-thermal treatment of waste tyres means the receiving of waste tyres from off site and their processing otherwise that by thermal treatment, then an EPL is required.

Schedule 1, clause 42 of the POEO Act provides a description of a scheduled activity specific to 'waste storage', in which more than 5 tonnes of waste tyres or 500 waste tyres is stored on the premises at any time, an EPL is required.

As the project would process up to 29,000 tpa of tyres and may store greater than 500 tyres on premises at any one time, an EPL would be required with regard to schedule 1, clause 34, 41 and 42 of the POEO Act.

Given that the requirement for an EPL is a trigger for integrated development, the development application is **integrated development** under section 4.46 of the EP&A Act.

Before granting development consent, under section 4.47 of the EP&A Act, Council must refer the development application to the integrated development authority (i.e. EPA) and incorporate the public authority's general terms of approval. It must not approve the development application if the integrated authority recommends refusal. If the advice is not received in 21 days after the integrated authority has received the application or requested additional information, the consent authority can determine the development application.

An application for an EPL was submitted via eConnect EPA on 9 September 2020 (reference code POEOA1721).

3.2.2 Environmental Planning and Assessment Regulation 2000

Part 6 of the EP&A Reg provides greater detail than provided in the EP&A Act about the processing of development applications under Part 4 of the EP&A Act.

Designated development

Section 4.10 of the EP&A Act identifies 'designated development' as a type of development that is declared to be designated by an environmental planning instrument or Schedule 3 of the EP&A Reg.

In accordance with schedule 3, clause 32 of the EP&A Reg, where a tyre recycling facility would process in excess of 30,000 tonnes of waste per year or would be located within 500 m of residential land uses it would trigger designated development. The project would not trigger a waste management facility based on production of 29,000 tonnes of tyres per annum. Tyrecycle will monitor tonnage limits and outgoing product using the weighbridge and reporting requirements, ensuring tonnage thresholds are not exceeded. The project will be positioned within 500 m of residential dwellings. Despite this, in accordance with schedule 3, clause 32 (d) (vi) where this occurs the consent authority must be of the opinion that, having regard to topography and local meteorological conditions, the development is likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic. As demonstrated in **Chapter 5** of this SEE, all noise and air emissions generated by the project would comply with relevant assessment criteria at the closest

residential receivers to the north of the project, at all times of operation. Traffic generated by the project would not result in detrimental impact to the surrounding and arterial road network, and traffic routes utilised by the project would avoid local roadways surrounded by residential land uses.

With the above considered, it is determined that the project would not result in significant impact to the amenity of residential land uses within 500 m of the site, and as such, the **project does not trigger designated development** associated with a waste management facility.

Clause 9(2)(j) of schedule 3 of the EP&A Regs relates to rubber industries or works that manufacture, retread or recycle more than 5,000 tonnes per year of rubber products or rubber tyres, which classify as designated development. Clause 9(1) implies that the clause is applicable to chemical industries or works for the commercial production of, or research into, chemical substances. In terms of rubber works, the project does not involve the commercial production, nor research into any chemical substances. The project is in fitting with a waste management or resource recovery activity and no products generated by the resource recovery are utilised in the production of chemical substances. As such, it is considered that **Clause 9 of Schedule 3 is not applicable.** Furthermore, clause 9(3)(b) of schedule 3 states that clause 9 does not apply to development specifically referred to elsewhere in schedule 3. As the project conforms to a waste management facility, referred to in clause 32 of schedule 3, clause 9 is not applicable to the project.

Clause 93 fire safety and other considerations of the EP&A Reg applies to a development application for the erection of a temporary structure and/or change of building use for an existing building where the applicant does not seek the rebuilding, alteration, enlargement or extension of a building. Clause 93 is not applicable to the project as there will not be any major upgrade, demolition or changes to the existing warehouse building (other than minor alterations described in **Table 2.2)** at the site and will not require the construction of new buildings or facilities.

Nevertheless, the project has considered Clause 93 of the EP&A Reg and the existing fire safety system (sprinkler system) has been reviewed by a qualified fire engineer to ensure the project will continue to comply with AS2118.1 – 2017. The existing fire safety system would not require upgrading to accommodate the project.

Section 5.4.8 identifies the possible hazards and risks for a tyre recycling facility, that may be applicable to the project and that may result in a fire emergency.

3.2.3 Zoning and permissibility

Zoning

In accordance with the SEPP WSEA, the site is on land zoned IN1 - General Industrial (Sheet LZN 001), and is within ‘Precinct 7’ (Erskine Park Employment Lands).

Clause 8 of the SEPP WSEA, specifies in the event of an inconsistency between the SEPP and a LEP that applies to the land, the SEPP prevails to the extent of the inconsistency. Therefore, the land use zoning and associated land use permissibility provisions of the Penrith LEP are not applicable.

The objectives of the IN1 zone are:

- to facilitate a wide range of employment-generating development including industrial, manufacturing, warehousing, storage and research uses and ancillary office space;
- to encourage employment opportunities along motorway corridors, including the M7 and M4;
- to minimise any adverse effect of industry on other land uses;
- to facilitate road network links to the M7 and M4 Motorways;

- to encourage a high standard of development that does not prejudice the sustainability of other enterprises or the environment; and
- to provide for small-scale local services such as commercial, retail and community facilities (including child care facilities) that service or support the needs of employment-generating uses in the zone.

The project has been formulated in a manner which upholds the objectives of the IN1 zone.

Permissibility

As outlined above, the site is zoned IN1 under the provisions of the SEPP WSEA. Development permitted with consent within the IN1 zone includes:

Building identification signs; Business identification signs; Depots; Environmental facilities; Environmental protection works; Food and drink premises; Freight transport facilities; Garden centres; Hardware and building supplies; Industrial retail outlets; Industrial training facilities; **Industries (other than offensive or hazardous industries)**; Neighbourhood shops; Places of public worship; Recreation areas; Recreation facilities (indoor); Roads; Service stations; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres.

The Penrith LEP defines 'industries' as follows:

***(a) general industry**, (b), heavy industry, (c) light industry, but does not include (d) rural industry, or (e) extractive industry, or (f) mining.*

General industry means a building or place (other than a heavy industry or light industry) that is used to carry out an industrial activity.

While an 'industrial activity' is defined within the Penrith LEP as follows:

*Industrial activity means the manufacturing, **production**, assembling, altering, formulating, repairing, renovating, ornamenting, finishing, cleaning, washing, dismantling, transforming, **processing, recycling**, adapting or servicing of, or the research and development of, any goods, substances, food, products or articles **for commercial purposes, and includes any storage or transportation associated with any such activity***

The site is located within the Penrith LGA and the project is consistent with the definition of a 'waste or resource management facility' under the Penrith LEP and Standard Instrument – Principal LEP. Waste and resource management facilities are not specifically listed. However, development for the purposes of 'industries' is permissible with development consent under the provisions of the SEPP WSEA.

While a waste or resource management facility does not generally fall within the definition of an industry, the Infrastructure SEPP provides an avenue for permissibility. Clause 1 advises that if there is an inconsistency between the Infrastructure SEPP and any other environmental planning instrument, whether made before or after the commencement of the Infrastructure SEPP, the Infrastructure SEPP prevails to the extent of the inconsistency.

Clause 121 of division 23 of the Infrastructure SEPP advises the following:

1. *Development for the purpose of **waste or resource management facilities**, other than development referred to in subclause (2), may be carried out by any persons with consent on land in a **prescribed zone**.*
2. *Development for the purpose of a waste or resource transfer station may be carried out by any person with consent on –*

    a. *Land in **a prescribed zone**, or*
    b. *Land in any of the following gland use zones or equivalent land use zones –*

i. B5 Business Development
ii. B6 Enterprise Corridor
iii. IN2 Light Industrial
iv. IN4 Working waterfront, or

c. Land on which development for any of the following purposes is permitted with consent under any environmental planning instrument –

*i. **Industry**,*
ii. Business premises or retail premises
iii. Freight transport facilities

3. Development for the purpose of the recycling of construction and demolition material, or the disposal of virgin excavated natural material (within the meaning of Schedule 1 to the POEO Act 1997) or clean fill, may be carried out by any person with consent on land on which development for the purpose of industries, extractive industries or mining may be carried out with consent under any environmental planning instrument.

Under the Infrastructure SEPP, zone IN1 General Industrial is a "prescribed zone" in accordance with clause 120. The site is therefore a prescribed zone. Furthermore, as outlined above "industry" is permitted with consent within the IN1 general industrial zone under the provisions of the SEPP WSEA. On this basis, relying on the Infrastructure SEPP and the SEPP WSEA, the project is permissible with consent.

3.2.4 Planning pathway

As Tyrecycle would avoid the triggers for SSD and designated development, the project is permitted with consent and the development application (DA) would be made under Division 4.3 of the EP&A Act.

In accordance with Schedule 1 of the EP&A Reg, all DAs must be accompanied by a SEE and submitted to Council. Hence, this SEE considers the environmental impacts of the project, and the steps that would be taken to protect the environment or lessen the expected harm to the environment. Both the SEPP WSEA and Penrith Development Control Plan 2014 have been thoroughly considered within **Section 3.3**.

3.2.5 Other NSW legislation

In addition to the requirements under Division 4.3 the EP&A Act, Table 3.5 summarises the key pieces of NSW legislation, potentially relevant to the project.

Table 3.5: Summary of NSW legislation

Legislation	Overview
NSW Protection of the Environment Operations Act 1997 (POEO Act)	The POEO Act aims to protect, restore and enhance the quality of the environment in the context of ecologically sustainable development and to reduce risks to human health and prevent degradation of the environment. Section 48 of the POEO Act outlines that an EPL is required for any scheduled activities to be undertaken at a premise at which Schedule 1 of the Act indicates that a licence is required. As outlined in **Section 3.2.1**(Integrated development), the project will require an EPL. An application for an EPL was submitted via eConnect EPA on 9 September 2020 (reference code POEOA1721).
Protection of the Environment Operations (Waste) Regulation 2014 (POEO Waste Reg)	The POEO Waste Reg aims to reduce the risks associated with waste activities in NSW to human health and the environment. The key area of application to the project is the "proximity principle", which aims to reduce unnecessary transportation of waste and ensure local communities take a greater responsibility for the waste they generate.

Legislation	Overview
	The POEO Waste Reg makes it an offence to transport waste generated in NSW by motor vehicles for disposal more than 150 km from the place of generation (unless the nearest lawful disposal facilities are over 150 km from the place of generation). Clause 76 requires companies that transport or receive waste tyres in excess of 200 kg or 20 tyres to use WasteLocate to report the movement of these tyres within NSW. Tyrecycle is subject to this requirement. Tyrecycle will be transporting more than two tonnes of tyres or 200 kg of all other types of category 2 trackable waste in any load to another state or territory from NSW or into NSW from another state or territory. Tyrecycle therefore hold a waste transport licence and will continue to operate under this licence (EPL 11668). All waste transported will be in full compliance with the POEO Waste Reg.
NSW National Parks and Wildlife Act 1974 (NPW Act)	The NPW Act contains provisions for the protection and management of national parks, historic sites, nature reserves and Aboriginal heritage. The NPW Act provides statutory protection for Aboriginal objects by making it illegal to move, damage, deface or destroy a relic without written permission from the DPIE. The project will be on existing disturbed land, within an existing warehouse building and will not have impacts to national park reserves, historic sites, nature reserves and Aboriginal heritage values afforded protection under the NPW Act.
*NSW Biodiversity Conservation Act 20*16 (BC Act)	The BC Act provides protection for threatened plants and animals native to NSW excluding fish and marine vegetation) and integrates the conservation of threatened species into development control processes under the EP&A Act. The project will be on existing disturbed land, within an existing warehouse building and will not have impacts to threatened species, populations and communities listed under the BC Act.
NSW Roads Act 1993	Section 138 of the *Roads Act 1993* requires consent to be obtained prior to disturbing or undertaking work in, on or over a public road. No upgrades will be required to the local road network to accommodate the project and therefore a separate consent is not required under the Roads Act.
NSW Contaminated Land Management Act 1997 (CLM Act)	The CLM Act establishes a process for investigating, and where required remediating contaminated lands, that pose a risk to human health and the environment. A search of the EPA's Contaminated Land Record and List of Contaminated Sites notified to the EPA was undertaken in July 2020 for the Penrith LGA. No recorded contaminated sites within proximity to the project were identified in the search. As outlined in the validation report (CES 2007), which can be supplied to Council on request, conducted for the site prior to the construction of the existing warehouse, the report validated the greenfield land subject to the construction of the warehouse was suitable for commercial/industrial land-use. Other than an unforeseen localised hydraulic oil leak from vehicles or machinery associated with the project, the operation is unlikely to result in contaminating activities. The proposed project will be contained within the existing warehouse building and no earthworks are required.
NSW Waste Avoidance and Resource Recovery Act 2007 (WARR Act)	The purpose of the WARR Act is to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecological sustainable development. This Act provides for the making of policies and strategies to achieve these ends. The WARRA promotes a hierarchy of avoidance of unnecessary resource consumption; resource recovery (including reuse, reprocessing, recycling and energy recovery), and disposal (as a last resort). The project promotes a hierarchy of avoidance of unnecessary resource consumption and facilitates resource recovery (including reuse, reprocessing, recycling and energy recovery of tyres). Resource recovery benefits the economy and environment by reducing the need for new materials and subsequent additional waste generation to landfill.

3.3 Environmental planning instruments

Environmental planning instruments (EPIs) such as State environmental planning policies (SEPPs), regional environmental plans (REPs) and local environmental plans (LEPs) are legal documents that regulate land use and establish requirements for development consent in NSW.

3.3.1 State environmental planning polices

The SEPPs considered in relation to the project are summarised in Table 3.6.

Table 3.6: SEPPs relevant to the project

SEPP	Overview
SEPP (State and Regional Development) 2011	Section 8 of SRD SEPP identifies certain classes of development declared to be SSD provided it meets the relevant criteria set out in schedule 1. Clause 23 of schedule 1 of the SRD SEPP is relevant to waste and resource management facilities and states if resource recovery or recycling facilities process more than 100,000 tonnes of waste per annum, the development is declared SSD and approval would be required under Division 4.7 of the EP&A Act. As Tyrecycle propose to process up to 29,000 tpa of tyres, the project is not SSD. Section 20 of SRD SEPP identifies regionally significant development as development specified in Schedule 7. The project would trigger clause 5 of schedule 7 of the SRD SEPP as the CIV would exceed the $5 million threshold for 'waste or resource management facilities'. As the project would constitute regionally significant development, in accordance with Section 4.5 of the EP&A Act, the Sydney Western City Planning Panel would assess and determine the development application.
SEPP Western Sydney Employment Area 2009	The site is subject to the SEPP WSEA and is located within 'Precinct 7' (Erskine Park Employment Lands). The SEPP WSEA aims to protect and enhance the land to which the policy applies (the WSEA) for employment purposes. The particular aims of this policy are as follows: (a) to promote economic development and the creation of employment of land in the WSEA; (b) to provide for the co-ordinated planning and development of land in the WSEA; (c) to rezone land for employment, environmental conservation or recreation purposes, (d) to improve certainty and regulatory efficiency by providing a consistent planning regime for future development and infrastructure provisions in the WSEA; (e) to ensure that development occurs in a logical, environmentally sensitive and cost-effective manner and only after a development control plan (including specific development controls) has been prepared for land concerned; and (f) to conserve and rehabilitate areas that have a high biodiversity or heritage or cultural value, in particular areas of remnant vegetation. The project has been designed in a manner which will uphold the aims of SEPP WSEA. Refer to **Table 3.7** for more detail on specific clauses of the SEPP WSEA and how they relate to the project.
SEPP No. 33 – Hazardous and Offensive Development	SEPP No. 33 requires the consent authority to consider whether a proposal is a potentially hazardous industry or a potentially offensive industry. Whether SEPP 33 applies to the project has been determined by applying the screening process specified in *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines* (NSW Department of Planning, 2011).

SEPP	Overview
	As further outlined in **Section 5.4.8**, **t**he project is not classified as hazardous or offensive industry under SEPP 33. As such, the preparation of a preliminary hazard analysis (PHA) report is not required.
SEPP No. 55 – Remediation of Land	SEPP No. 55 aims to provide a state-wide planning approach to the remediation of contaminated land and to reduce the risk of harm to human health and the environment by consideration of contaminated land as part of the planning process. Under SEPP No. 55 a consent authority must not consent to the carrying out of development on land unless it has considered potential contamination issues. A search of the EPA's Contaminated Land Record and List of Contaminated Sites notified to the EPA was undertaken in July 2020 for the Penrith LGA. No recorded contaminated sites within proximity to the project were identified in the search. As outlined in the validation report (CES 2007), which can be supplied to Council on request, conducted for the site prior to the construction of the existing warehouse, the report validated the greenfield land subject to the construction of the warehouse was suitable for commercial/industrial land-use. Other than an unforeseen localised hydraulic oil leak from vehicles or machinery associated with the project, the operation is unlikely to result in contaminating activities. The project will be contained within the existing warehouse building and no earthworks are required. There is no known contamination on the site and no duty to report identified contamination to the EPA under Section 60(3) of the CLM Act. If previously unidentified contaminated land is identified during operation of the project, the requirements of SEPP 55 will be complied with.
SEPP (Infrastructure) 2007	The Infrastructure SEPP provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. This SEPP facilitates the development of State infrastructure, including telecommunication facilities, sewerage works and storm water management, and specified when development consent is (and is not required) for such development when carried out in certain zones. Refer to **Section 3.2.3** for applicability of the Infrastructure SEPP and the permissibility of the project. Clause 104, in conjunction with Schedule 3 of the Infrastructure SEPP identifies waste or resource management facilities of any size or capacity as being traffic generating activity. Therefore, the provisions of the Infrastructure SEPP require the consent authority to give written notice of the development application to Transport for NSW (TfNSW), and consider any response or submission provided by TfNSW within 21 days of the notification. As highlighted in **Section 5.3**, traffic generated by the project would not result in detrimental impact to the surrounding and arterial road network, and traffic routes utilised by the project would avoid local roadways surrounded by residential land uses.
Draft Environment SEPP	The NSW government has been working towards developing a new State Environmental Planning Policy (SEPP) for the protection and management of our natural environment. These areas are important to communities in delivering opportunities for physical health, economic security and cultural identity. This consolidated SEPP proposes to simplify the planning rules for a number of water catchments, waterways, urban bushland, and Willandra Lakes World Heritage Property. These environmental policies will be accessible in one location, and updated to reflect changes that have occurred since the creation of the original policies. The draft mapping related to the proposed SEPP was interrogated and Draft SEPP environmental functions (including catchments, waterways, bushland and protected areas) were not identified within the site. The SEPP aims to consolidate various SEPPs including the Sydney Regional Environmental Plan No. 20 – Hawkesbury Nepean River. The project is not in conflict with the relevant provisions of the SREP 20. The project has been assessed in **Chapter 5** of this SEE as not having any substantial environmental or social impacts on the site or the local area.

Table 3.7 includes various clauses from the SEPP WSEA that are relevant to the project and provides a discussion on how each clause is upheld, with a reference to where they have been addressed within this SEE.

Table 3.7: Consideration of key SEPP WSEA clauses

SEPP Clause	Comment
Part 2 Permitted or prohibited development	
11 Zone objectives and land use table	Refer to **Section 3.2.3**.
Part 5 Principal development Standards:	
20 Ecologically sustainable development Consent authority to be satisfied with measures which are designed to minimise: (a) consumption of potable water; and (b) greenhouse gas emissions	The project will be located within an existing warehouse building. The warehouse development involved the installation of rainwater tanks to harvest rainwater for use in irrigation and toilet flushing. Opportunities for reducing power consumption were also considered during the warehouse development (FDC 2013). Refer to **Section 5.4.1** for further detail on ecological sustainable development (ESD) considerations for the project.
21 Height of buildings The consent authority must not grant consent to development on land to which this Policy applies unless it is satisfied that: (a) building heights will not adversely impact on the amenity of adjacent residential areas, and (b) site topography has been taken into consideration.	The height of the existing warehouse building is 12.2 m. As outlined in **Section 2.2**, a ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building, with ventilation infrastructure protruding through the roof by approximately two metres. Despite this, the infrastructure would be installed on the lower side of the roof and the maximum pitch in the centre of the existing roof would account for a similar maximum height. It is considered that the additional air filtration infrastructure would not result in substantial changes to the visual amenity of the site or location, or the views of surrounding residential land uses to the north.
22 Rainwater harvesting – The consent authority must not grant consent to development on land to which this policy applies unless it is satisfied that adequate arrangements will be made to connect the roof areas of buildings to such rainwater harvesting scheme (if any) as may be approved by the Secretary.	As outlined in **Section 2.3.1**, rainwater harvesting occurs to help reduce reliance on potable water. Appropriate filtration systems and mains water backup has been installed in accordance with the relevant Australian Standards. The tank and testing equipment has been designed to ensure that test water is returned to the tank to avoid wastage. Additionally, AAA rated hydraulic fixtures are fitted to the building throughout to ensure that water is used efficiently.
23 Development adjoining residential land Applicable if site within 250m of a residentially zoned area. (a) wherever appropriate, proposed buildings are compatible with the height, scale, siting and character of existing residential buildings in the vicinity, and (b) goods, plant, equipment and other material resulting from the development are to be stored within a building or will be suitably screened from view from residential buildings and associated land, and (c) the elevation of any building facing, or significantly exposed to view from, land on which dwelling house is situated has been designed to present an attractive appearance, and	The project will be located more than 250 m from the closest residential receivers along Shaula Crescent, Erskine Park. Although these provisions do not apply, the project is compliant with these aspects.

SEPP Clause	Comment
(d) noise generation from fixed sources or motor vehicles associated with the development will be effectively insulated or otherwise minimised, and (e) the development will not otherwise cause nuisance to residents, by way of hours of operation, traffic movement, parking, headlight glare, security lighting or the like, and (f) the development will provide adequate off-street parking, relative to the demand for parking likely to be generated, and (g) the site of the proposed development will be suitably landscaped, particularly between any building and the street alignment.	
25 Public utility infrastructure Consent Authority to consider the availability of public utility infrastructure including; water, power, gas and sewerage.	The project is within an existing warehouse building, which is well serviced in regard to existing public utility infrastructure. All services are readily available.
26 Development on or in vicinity of proposed transport infrastructure routes	Lenore Drive is mapped as a transport infrastructure route. As the project is in the vicinity of Lenore Drive and will utilise this roadway to access the site, the provisions of clause 26 apply and the consent authority must refer the development application to DPIE and take into account any comments received.
29 Industrial release area – satisfactory arrangements for the provision of regional transport infrastructure and services	The project is positioned within land mapped as an industrial release area. As such, in accordance with clause 29, the consent authority must also refer the development application to DPIE. As the project would occupy an existing warehouse, all relevant transport infrastructure and services have previously been installed and the project will not impact these aspects. Tyrecycle would comply with any specific development contributions which may be required.
Part 6 Miscellaneous provisions:	
31 Design principles – In determining a development application that relates to land to which this policy applies, the consent authority must take into consideration whether or not – (a) the development is of a high-quality design, and (b) a variety of materials and external finishes for the external facades are incorporated, and (c) high quality landscaping is provided, and (d) the scale and character of the development is compatible with other employment-generating development in the precinct concerned.	The project is within an existing warehouse developed to a high-quality design, with previous landscape vegetation planted and now well established (DA13/0193). The tyre recycling facility is fitting with the surrounding general industrial zone and is compatible with other employment-generating development in the precinct.
32 Preservation of trees and vegetation Consent authority to consider retention of trees and vegetation where possible.	As outlined in **Section 2.2,** the project would require minor upgrade to electrical infrastructure, with the current 500 kilovolt ampere (kVA) transformer upgraded to 3,500 kVA. This would result in an additional substation to be located within the site, requiring the removal of one existing juvenile Spotted Gum tree. The tree was previously planted during landscaping of the warehouse following construction. The juvenile tree has no significant ecological value and is a discrete planting adjacent to the main entrance driveway. The position of the substation was selected in order to minimise impact to existing landscape vegetation and ensure the infrastructure is not located on trafficable areas of

SEPP Clause	Comment
	the site. The site is space constrained making additional landscaping opportunities limited.

3.3.2 Regional environmental plans and other strategies

Sydney Regional Environmental Plan No. 20

The aim of the Sydney Regional Environmental Plan No. 20 - Hawkesbury Nepean River (SREP 20) is to protect the environment of the Hawkesbury Nepean River system by ensuring that the impacts of future land uses are considered in a regional context.

Under the SREP 20 Council is required to consider the impacts of the project on water and scenic quality, aquaculture, recreation and tourism.

The specific planning polices and recommended strategies, which are detailed within the SREP 20 include:

- Total catchment management policy;
- Environmentally sensitive areas policy;
- Water quality policy;
- Cultural heritage policy;
- Flora and fauna policy;
- Riverine scenic quality policy;
- Agriculture/aquaculture and fishing policy;
- Rural residential development policy;
- Urban development policy;
- Recreation and tourism policy; and
- Metropolitan strategy policy.

The project has been assessed against the requirements of the SREP 20. There are no requirements within the SREP 20 and listed policies that provide restrictions to the project.

The project has been assessed in **Chapter 5** of this SEE as not having any substantial environmental or social impacts on the site or the local area. Therefore, the project is not in conflict with the relevant provisions of SREP 20.

NSW Waste Avoidance and Resource Recovery Strategy 2014-21

The NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (NSW WAAR) provides targets for the reduction in waste to 2021. The objectives and targets of the strategy are to:

- avoid and reduce waste generation;
- increase recycling;
- divert more waste from landfill;
- manage problem wastes better;
- reduce littering; and
- reduce illegal dumping.

The NSW WAAR includes targets to increase recycling of municipal solid waste, and commercial and industrial waste to 70% by 2021-22. The project will contribute to the goal of meeting this target, and in its very nature is considered consistent with the WAAR strategy.

The Greater Sydney Region Plan

The Greater Sydney Commission (GSC) released *Greater Sydney Region Plan: A Metropolis of Three Cities* (the plan) in March 2018, which set a 40 year vision (to 2056) for greater Sydney in

the context of social, economic and environmental matters and to establish a 20 year plan to manage growth and change.

The plan is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places. The site is in the 'Western Parkland City'. The population of this area is projected to increase from 740,000 people to 1.5 million people over the next 40 years.

The plan integrates land use, transport and infrastructure planning between the three tiers of government and across State agencies. The NSW Government has set goals for Sydney, including being a city of housing choice with homes that meet Sydney's needs and lifestyles, and that it will be a sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources.

Each goal has several priority areas which provide a focus for the actions needed to meet the goals for Sydney. This includes growing the Western Parkland City by accelerating urban renewal and providing homes closer to jobs.

The plan also identifies the importance of protecting the natural environment and biodiversity. It notes that the impacts of development on the environment need to be managed to meet the goals for growing Sydney.

The plan identifies the Western Sydney Employment Area as a valuable resource providing land for economic activities and employment for the region as a whole.

The project would support Strategy 23.1 of the plan by creating local employment opportunities, and enabling the site to be retained and used for industrial purposes permissible under the existing land use zoning.

Cooling the City Strategy – Penrith City Council 2015

The Cooling the City Strategy aims to identify strategies to cool the city of Penrith and region in a way that improves liveability and prioritises protection from heat for people and communities. The strategy is directed towards addressing the urban heat island effect caused when heat is absorbed by hard surfaces in urban areas.

The project is located within a general industrial zone within an existing warehouse and would not require construction of new buildings or structures (other than minor alterations to the existing building). Trees and landscaping were previously planted and are located on the northern and eastern perimeter of the premises and include a selected range of Australian native ground covers, shrubs and non-deciduous trees. Tree planting and landscaping has been shown to be one of the most effective ways to cool build up of urban areas.

Sustainability initiatives were previously incorporated into the design of the existing warehouse (refer to **Section 2.3.1**) and align with Tyrecycle's commitment to carrying out their operations in an environmentally responsible manner, with the promotion of sustainability into daily operations.

3.3.3 Local environmental and development control plans

Penrith Local Environmental Plan 2010

The Penrith LEP aims to make local environmental planning provisions for land in Penrith in accordance with the relevant standard environmental planning instrument under Section 3.20 of the EP&A Act. The Penrith LEP is subject to the provisions of any SEPP that prevails over the LEP as provided by section 3.28 of the EP&A Act. On this basis, the land use zoning and associated land use permissibility provisions of the Penrith LEP are not applicable, and the SEPP WSEA applies.

The relevant objectives of the Penrith LEP are as follows:

(a) to provide the mechanism and planning framework for the management, orderly and economic development, and conservation of land in Penrith,

(b) to promote development that is consistent with the Council's vision for Penrith, namely, one of a sustainable and prosperous region with harmony of urban and rural qualities and with a strong commitment to healthy and safe communities and environmental protection and enhancement,

(c) to accommodate and support Penrith's future population growth by providing a diversity of housing types, in areas well located with regard to services, facilities and transport, that meet the current and emerging needs of Penrith's communities and safeguard residential amenity,

(d) to foster viable employment, transport, education, agricultural production and future investment opportunities and recreational activities that are suitable for the needs and skills of residents, the workforce and visitors, allowing Penrith to fulfil its role as a regional city in the Sydney Metropolitan Region,

(e) to reinforce Penrith's urban growth limits by allowing rural living opportunities where they will promote the intrinsic rural values and functions of Penrith's rural lands and the social well-being of its rural communities,

(f) to protect and enhance the environmental values and heritage of Penrith, including places of historical, aesthetic, architectural, natural, cultural, visual and Aboriginal significance,

(g) to minimise the risk to the community in areas subject to environmental hazards, particularly flooding and bushfire, by managing development in sensitive areas,

(h) to ensure that development incorporates the principles of sustainable development through the delivery of balanced social, economic and environmental outcomes, and that development is designed in a way that assists in reducing and adapting to the likely impacts of climate change.

The project is not in conflict with the objectives of the Penrith LEP.

Table 3.8 Table 3.8: Penrith LEP relevant clauses to the projectoutlines the clauses of the Penrith LEP which are considered to have relevance to the project.

Table 3.8: Penrith LEP relevant clauses to the project

LEP clause	Comment
Clause 7.4 sustainable development	In deciding whether to grant development consent for the project, the consent authority must have regard to the principles of sustainable development. Refer to **Section 5.4.1**.
Clause 7.6 salinity	The objective of this clause is to protect natural hydrological systems by minimising soil disturbance and ensuring appropriate land use management; and to avoid the adverse effects of rising salinity on land, including damage to infrastructure and buildings. Bulk earthworks or land disturbance will not occur as part of the project and therefore adverse effects of rising salinity will be avoided
Cause 7.7 servicing	The objective of this clause is to ensure that development of land reflects the availability of services. The project is within an existing warehouse building, which is well serviced in regard to existing public utility infrastructure. All services are

LEP clause	Comment
	readily available and will continue to be used as part of the project.

Penrith Development Control Plan 2014

Development control plans (DCPs) are documents that supplement the provision of LEPs with more detailed planning and design guidelines.

The Penrith Development Control Plan 2014 (Penrith DCP) has been prepared to support all EPIs applying to the Penrith LGA, including the Penrith LEP and the SEPP WSEA. If there is any inconsistency between the DCP and the relevant EPI, the provision of the relevant EPI (i.e. SEPP WSEA) will prevail. Hence, as outlined in **Section 3.2.3**, the project is subject to the provisions of the SEPP WSEA. Nevertheless, the objectives of the Penrith DCP have been considered below.

The objectives of the Penrith DCP 2014 are to:

- provide guidance to people wishing to carry out development within the Penrith LGA;
- promote development which is consistent with Council's vision for the City of Penrith, namely, one of a sustainable and prosperous region with a harmony of urban and rural qualities with a strong commitment to environmental protection and enhancement;
- to ensure development incorporates the principles of sustainable development through the delivery of balanced social, economic and environmental outcomes;
- to encourage development which 'lifts the bar' in terms of delivery sustainable and healthy communities in the long term;
- to foster development that responds appropriately to the natural and built environment, in particular, vegetation, biodiversity corridors, significant waterways, riparian land, significant buildings and gardens, and scenic landscapes and views;
- to provide for an urban environment that is active, attractive and safe for residents and visitors; and
- to ensure the quality of development in the city of Penrith is of a high standard.

The project is not in conflict with the objectives of the Penrith DCP.

The Penrith DCP comprises several core parts which establish the fundamental development controls applicable within the Erskine Business Park (E6). The provisions that are relevant include the controls associated with E6 Erskine Business Park and DA submission requirements. The DA submission requirements have been confirmed by Council's pre-lodgement notes (**Chapter 4**). Table 3.9 and Table 3.10 describes each of these relevant requirements and provides information in relation to the project.

Table 3.9: Penrith DCP relevant clauses to the project (E6 Erskine Business Park)

DCP clause	Comment
E6 Erskine Business Park	
6.3 Site development and urban design	Part 6.3 considers site development and urban design aspects relating to the development of the site. The DCP provides development controls to achieve the objectives detailed above. The project will be located within an existing warehouse and each of the following controls were previously addressed and satisfied in the design and construction of the warehouse complex: ▪ height; ▪ site coverage; ▪ setbacks; ▪ urban design; ▪ signage and estate entrance walls; ▪ lighting;

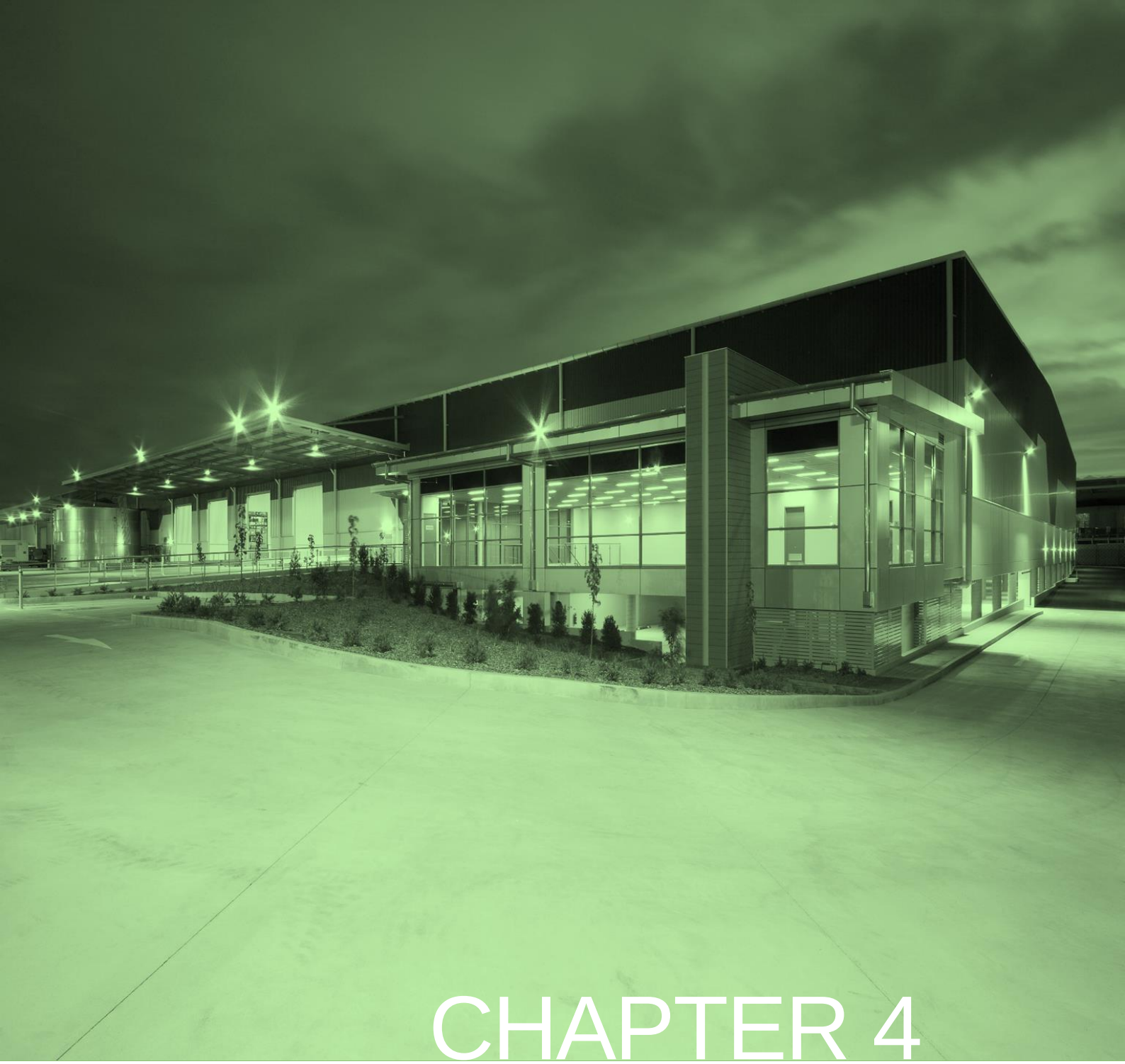
DCP clause	Comment
	▪ fencing; ▪ services; and ▪ transmission line easement. As the project would not require the erection of new buildings or major structures, and would be housed within the existing warehouse complex, the above development controls previously applied to the construction of the warehouse remain applicable to the project. The height of the existing warehouse building is 12.2 m. As outlined in **Section 2.2**, a ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building, with ventilation infrastructure protruding through the roof by approximately two metres. Despite this, the provisions of SEPP WSEA prevail over the DCP and as such the provisions of clause 21 of the SEPP WSEA would apply in terms of building height (refer to **Table 3.7**). Signage details and the proposed upgrade to the air filtration system for the project are outlined in Table 2.2.
6.3.6 Lighting	The objectives of this clause are to provide adequate security lighting for business establishments, whilst ensuring there is no adverse impact upon the use and enjoyment of adjoining premises and surrounding areas, particularly residential areas; and to provide suitable lighting along the road network to enhance landscaping. No alterations to existing lighting at the warehouse would be required for the project.
6.4 Environmental quality 6.4.1: Noise pollution	Given the location of the project, very few impacts are anticipated with regard to noise. Noise impacts are discussed further in **Section 5.1**.
6.4.2 Air pollution	Air impacts are discussed further in S**ection 5.2**.
6.4.3 Storage, transportation and/or processing of chemical substances	This part ensures that the use, storage or transportation of any chemical substances do not have any detrimental impact on the environmental quality of the surrounding area. The DCP requires the consideration of SEPP 33. Refer to **Section 5.4.8** for consideration of SEPP 33 and other storage and handling of dangerous goods and hazardous substances.
6.4.5 Trading/Operating hours of premises	The hours of operation for premises involved in any type of employment generating activity shall be dealt with on a merits basis. Council appreciates that because of the nature of certain activities shift work may be essential to the viability of the project. In considering applications Council shall have regard to the likely impact of the trading hours of a particular activity on the amenity of adjoining residential and rural areas. Hours of operation for the project will be 24 hours per day, seven days a week. It is considered that given positioning within an established industrial estate, within proximity to other industrial land uses with approved 24 hour operations, the proposed operating hours of the project would be in fitting with Erskine Business Park and as demonstrated via technical air, noise and traffic

DCP clause	Comment
	assessments would not result in potential amenity impacts for nearby residential land uses.
6.5 Drainage	The provision of a drainage system is necessary to ensure that urban development is adequately serviced, occurs in an orderly manner and that best practice is applied to stormwater management solution. Stormwater considerations are discussed further in **Section 5.4.4**.
6.6 Transport network	Part 6.6 considers the transport and car parking requirements for development within the Erskine Business Park. Traffic impacts are discussed further in **Section 5.3**. Manoeuvrability of heavy vehicles on the site and car parking requirements were previously assessed as part of the original warehouse development approval and no changes are proposed to these elements. The maximum truck size associated with the project has been previously assessed and is able to safely manoeuvre through the site.
6.7 Biodiversity	This part is not relevant to the project. The project is located within an existing warehouse building with no impacts on biodiversity.
6.8 Landscaping	The project would require the removal of one existing juvenile Spotted Gum tree in order to position an additional electrical substation/kiosk to upgrade electricity capacity to the site. The trees were previously planted during landscaping of the warehouse following construction. The juvenile trees have no significant ecological value and are discrete plantings adjacent to the main entrance driveway. The site is space constrained making additional landscaping opportunities limited.
6.9 Landscape areas	As per clause 6.8 above.

Table 3.10: Submission requirements confirmed by Council's pre-lodgement notes

Documentation	SEE reference
Survey drawing	Appendix A (existing warehouse survey drawing)
Floor plans, elevation and sections	**Appendix C** (architectural plan of office layout)
Statement of environmental effects	This report
Air Quality Assessment	**Section 5.2** and Appendix J
Traffic and parking statement	**Section 5.3** and Appendix K
Schedule of external materials and finishes (if any alterations are proposed)	The warehouse structure would not require alteration and as such external materials and finishes would not be altered.
Signage details	Refer to Table 2.2 for signage details.
Acoustic report or statement	**Section 5.1** and Appendix I.
Site plan	Appendix C includes office layout plan; Appendix A includes existing warehouse survey drawing and Appendix D includes a schematic of plant.
Fire safety schedule/fire risk management plan	The existing fire system at the warehouse was reviewed by a qualified fire engineer and considered project parameters (including materials to be stored and height of stacking), with the existing fire system to remain compliant with AS 2118:1 during operation of the project. No upgrade to the existing fire systems are required for the project.

Documentation	SEE reference
Construction and operational waste management plan (WMP)	Appendix M includes Council's WMP form and **section 5.4.7**
Contamination assessment	Refer to **Section 5.4.3**
Building Code of Australia/NCC compliance assessment report	The existing BCA/NCC compliance assessment report requires amending to change the classification of the warehouse under the BCA. The BCA compliance assessment report would be provided to Council separately to this SEE.
Operational plan of management/plan of operations (use and activities)	Appendix B
Landscape plan (if amended)	The existing landscape plan is provided in **Appendix G**. The removal of one juvenile Spotted Gum tree will not involve major alteration to the existing landscaped areas at the site and is space constrained making new landscaping opportunities limited. As such, an additional landscape plan is not warranted.



CHAPTER 4
CONSULTATION

4 CONSULTATION

On 14 July 2020, Tyrecycle and Element met with Council planning officers at a pre-lodgement DA meeting (via video conference) for the project. Pre-lodgement meeting advice notes were provided by the Council on 10 August 2020. **Appendix H** includes the pre-lodgement notes/advice and Table 4.1 summarises these requirements and where they have been addressed within this SEE report.

Tyrecycle will lease the warehouse complex from Fitzpatrick Investments Pty Ltd, who are also the landowner of the lot. With the exception of the warehouse complex to the west of the site, Fitzpatrick own all adjacent lots to the site and as such it is considered that all potentially affected landowners along Grady Crescent have been adequately consulted for the project, with no objections, concerns or comments raised.

Following submission of the DA, Council would notify all government agencies, organisations, interest groups, stakeholders and community members with a potential interest in the project to review the SEE, seek clarification with Tyrecycle on the content of the SEE and provide written submissions if required.

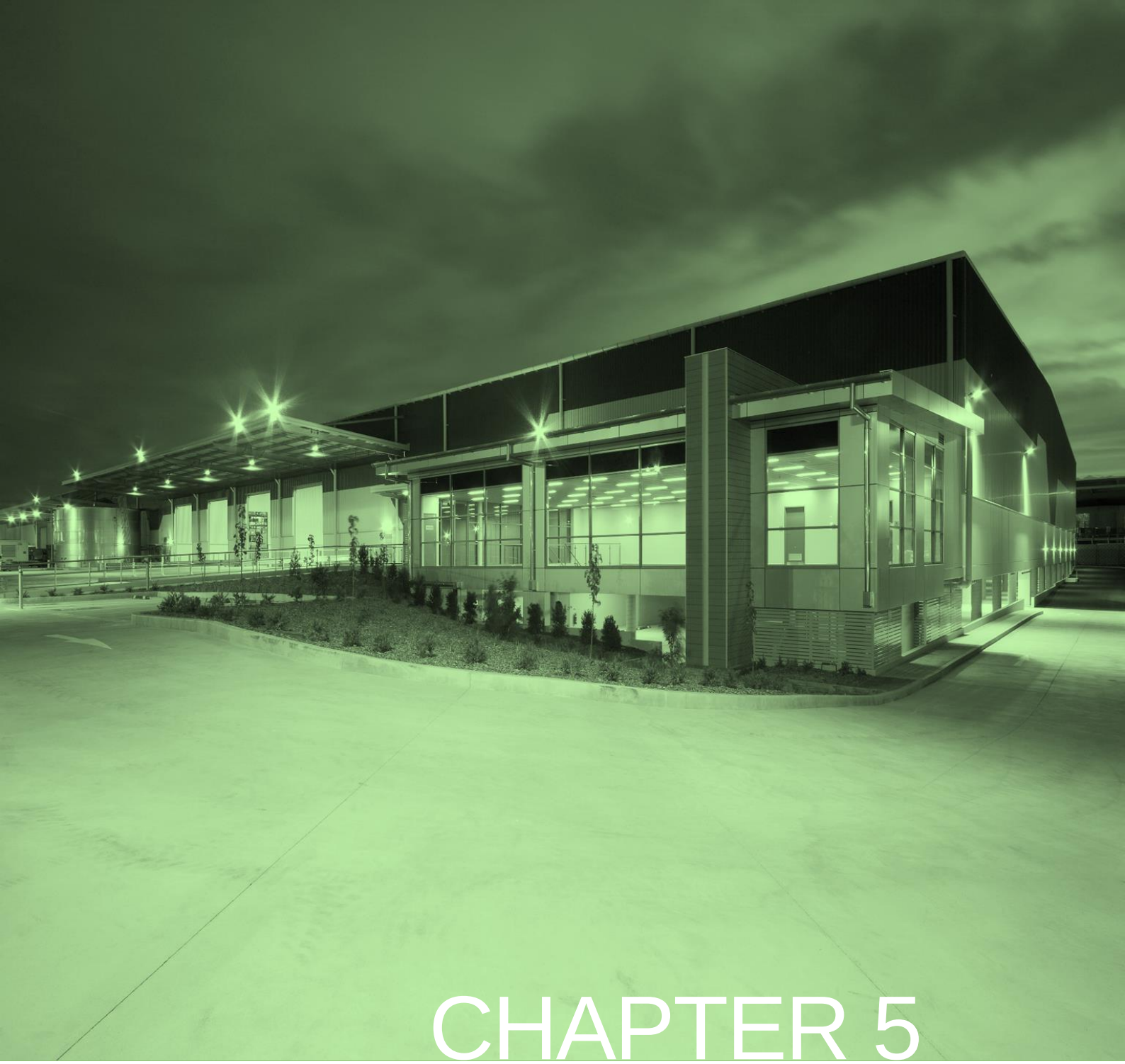
Tyrecycle will prepare a response to submissions report, if required, to address any written submissions, prior to determination of the DA.

Table 4.1: Pre-lodgement notes specific requirements

Reference no. (as per pre-lodgement notes)	Requirements of pre-lodgement notes	SEE reference
N/A	Explanation and identification that the project is integrated development identification	**Section 3.2.1**
N/A	Explanation and identification that the project is not designated development	**Section 3.2.2**
N/A	Relevant environmental planning instruments, policies and guideline documents including: 1. Sydney regional environmental plan No. 20 – Hawkesbury Nepean River (No. 2 -1997) 2. State Environmental Planning Policy (Western Sydney Employment Area) 2009 3. State Environmental Planning Policy No. 55 – Remediation of Land 4. State Environmental Planning Policy (Infrastructure) 2007 5. Penrith Development Control Plan 2014 6. Penrith City Council – Cooling the City Strategy 7. Stormwater drainage specification for building developments policy 8. Water sensitive urban design policy and technical guidelines	1. **Section 3.3.2** 2. **Section 3.3.1** 3. **Section 3.3.1** 4. **Section 3.3.1** 5. **Section 3.3.3** 6. **Section 3.3.2** 7. The existing stormwater drainage infrastructure will be used for the project and no changes will be made (**Section 5.4.4)**. 8. The existing water saving systems will be utilised for the project (**section 5.4.4**). There are no aspects to the project which would warrant consideration of water sensitive urban design.
N/A	Draft Environmental planning instruments including: 1. Draft SEPP Remediation of Lands 2. Draft SEPP Environment 3. Draft Penrith LEP 2010	1. SEPP No. 55 remediation of lands has been considered and concludes the project does not have any pre-existing contaminated land issues (refer to **Section 3.3.1** and **Section 5.4.3**). 2. **Section 3.3.1** 3. **Section 3.3.3**
1	Planning Matters	a. **Section 3.2.3** b. **Section 3.2.1**

Reference no. (as per pre-lodgement notes)	Requirements of pre-lodgement notes	SEE reference
	a. Permissibility b. Designated development c. General i. Extent of activities and operations at the site; component hours of operation, detail on warehouse augmentation to facilitate the activities and uses proposed. ii. Plans and reports to be provided which detail and fully explain all aspects of the proposal including all plant machinery to be installed. All storage areas and storage capacity are to be noted. iii. Staff areas and amenities to be indicated and any outdoor lighting is to be noted on plans. iv. A Building Code of Australia/NCC Compliance Assessment report may be required. v. A cost estimate which identifies the CIV for the proposal is to be provided. vi. Potential negative impacts of the proposed 24-hour operations, lighting, air quality and noise on nearby sensitive receivers (including the residential area to the north) is to be addressed by the submission of specialist reports. vii. Details of signage are to be provided. All existing signage structures proposed to be utilised must be lawful. viii. Any future DA is to detail the other uses on the subject site and is to demonstrate that the two uses can function practically and safely. ix. It is recommended that the applicant liaise with the NSW fire brigade/RFS as to any fire safety requires the proposal may require from a fire fighting perspective. Details are to be provided as to any recommendations made. A fire risk management plan may be required. d. POEO Act – EPL requirements e. SEPP WSEA must be addressed including: specific clauses, aims of policy, objectives of the IN1 zone. f. SEPP No. 33 Hazardous and offensive development should be considered g. Penrith DCP – Part E6 Erskine Business Park should be considered	c. General planning matters have been addressed throughout this SEE and a summary provided in **Section 2.2**. d. **Section 3.2.1** e. **Section 3.3.1** f. **Section 3.3.1** g. **Section 3.3.3**
2	Environmental Management Matters a. designated and integrated development explanation, particularly in relation to the close proximity of the site, to nearby sensitive residential receivers and possible amenity impacts. b. NSW EPA Licence – reference to the NSW EPA for comment. c. Noise impact assessment d. Air quality impact assessment e. SEPP No. 33 Applying SEPP 33 f. Contamination SEPP No. 55 – Remediation of Land g. Waste Management Plan	a. **Section 3.2.1** and 5.4.2 b. **Section 3.2.**1 c. **Section 5.1** d. **Section 5.2** e. **Section 5.4.8** f. **Section 3.3.1** g. **Section 5.4.7** and **Appendix M** h. **Section 5.4** and **Appendix B**

Reference no. (as per pre-lodgement notes)	Requirements of pre-lodgement notes	SEE reference
	h. General Environmental Health Impacts	
3	Engineering matters – stormwater for the site must be in accordance with Council's requirement's	**Section 5.4.4**
4	Traffic matters	**Section 5.3**
5	Building matters	The existing warehouse building complies with Part D3 of the BCA and NCC, and AS 1428. 1-2009.
6	Waste matters	Waste Management Plan refer to **Appendix M** and **Section 5.4.7**



CHAPTER 5

STATEMENT OF ENVIRONMENTAL EFFECTS

5 STATEMENT OF ENVIRONMENTAL EFFECTS

Section 4.15 (1)(b) of the EP&A Act requires the consent authority to consider the following when considering approval of a DA:

The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality.

This chapter considers the likely impacts of the project, including environmental impacts on both the natural and built environments, and social and economic impacts on the locality, in accordance with Section 4.15(1)(b) of the EP&A Act, as well as Council requirements (**Table 4.1**).

Environmental risks were assessed prior to preparation of the SEE to identify the key potential environmental issues or impacts associated with the project.

Rankings have been allocated to each environmental factor based on the likelihood of occurrence and the perceived consequence of effects if left unmanaged. It did not consider the potential outcomes of specialist technical assessments and the application of mitigation measures to manage the environmental factor.

The key project related environmental aspects warranting detailed technical assessment include noise, air quality and traffic, and have been identified through:

- the existing environmental context of the site and the surrounding locality;
- consultation with stakeholders;
- preliminary environmental risk analysis outcomes;
- technical specialist assessments;
- pre-development application meeting notes from Council; and
- the legislative framework that underpins the project.

The key environmental risks associated with the project are described in **Section 5.1** to **5.3**, with the technical assessment reports appended to this SEE.

For those environmental aspects that achieved a low risk rating in the preliminary environmental risk analysis, further specialist technical investigations were not considered necessary given the low risk they represent. These low risk environmental aspects are summarised in **Section 5.4**.

5.1 Noise

This section summarises the noise impact assessment (NIA) report, which is in Appendix I. It describes the noise assessment criteria which applies to the project, potential noise emission sources, modelling method and results, potential impacts and mitigation measures where impacts are unavoidable.

5.1.1 Overview of assessment methods

Potential noise impacts associated with the operation of the project on sensitive receivers were assessed in accordance with the following:

- Interim Construction Noise Guidelines (2009) (ICNG).
- Noise Policy for Industry, EPA NSW (2017) (NPI).
- Road Noise Policy, DECCW NSW (2011) (RNP).

Operational noise emissions from the project were predicted at sensitive receivers using the ‘Environmental Noise Model’ noise prediction software (refer to Section 5.1 of Appendix I for detailed operational noise modelling methods). The predictions were compared to the noise

criteria in the ICNG, NPI and RNP. Impacts will occur if the predicted noise levels exceed relevant criteria at any sensitive receivers.

Vibration impacts were not assessed given the separation distance between proposed activities and sensitive receivers.

Meteorology

Certain meteorological conditions may increase noise levels by focusing soundwave propagation paths at a single point. The refraction of sound waves occurs during temperature inversions (where temperature increases with height above ground level) and can vary from hour to hour during the night period. Other adverse meteorological conditions, such as prevailing winds are also required to be considered where relevant for an industrial activity.

The NPI stipulates default parameters to account for noise enhancing weather conditions and these parameters were considered in the NIA. It has been determined that despite the project involving operations during the night period, the project is not subject to temperature inversions, which occur during the night. A review of meteorological data indicates the presence of prevailing wind conditions during the night period. In order to consider worst case impacts, temperature inversions and prevailing winds have been incorporated into the noise modelling.

5.1.2 Assessment criteria

The noise modelling results were compared to the project specific noise criteria, which were established using the NPI. The NPI stipulates that intrusiveness and amenity criteria must be determined for daytime (7 am – 6 pm), evening (6 pm – 10 pm) and night time (10 pm – 7 am), as relevant, and apply at the most affected point on or in the receiver property boundary.

The project noise trigger level is the lowest value of the project intrusiveness noise level and project amenity noise level.

Table 5.1 summarises the intrusiveness and amenity criteria for the project, and the project noise trigger levels.

Table 5.1: Project noise trigger levels

Receiver	Time of day[1]	Criteria (dBA)		
		Intrusiveness ($L_{Aeq, 15min}$)	Amenity ($L_{Aeq, period}$)	Project Noise Trigger Level ($L_{Aeq, 15min}$)
Residential receivers	Day	42	58	42
	Evening	45	48	45
	Night	46	43	43
Industrial receivers	When in use	-	70	70

It should be noted that measured background noise levels were higher during the evening and night periods than the day time. It is possible that this may be attributed to noise from major roadways such as the M4 and M7 enhanced under meteorological conditions during the night period. As such, the project noise trigger level for the day time is lower than the evening and night.

Construction noise criteria

The ICNG recommends noise management levels (NMLs) to reduce the likelihood of noise impacts from construction. The NML is determined by adding 10 dB (standard hours) or 5 dB (out of hours) to the Rating Background Level (RBL) for each assessment period.

The ICNG recommended standard hours are:

- 7 am to 6 pm Monday to Friday;
- 8 am to 1 pm Saturday; and
- No work on Sunday or public holidays.

Outside these hours, the NMLs are:

- Residential – 45 dB $L_{Aeq\ (15\ min)}$;
- Commercial – 70 dB $L_{Aeq\ (15\ min)}$; and
- Industrial – 75 dB $L_{Aeq\ (15\ min)}$.

Sleep disturbance criteria

Noise sources of short duration and high level may cause sleep disturbance at night.

The NPI recommends that, where the night time noise levels at residential receivers exceed 52 dBA or the RBL plus 15 dBA, whichever is the greater, then a more detailed assessment of potential sleep disturbance impacts is warranted.

As the RBL value plus 15 dBA will be greater than 52 dBA for all sensitive receivers, the maximum noise trigger level (sleep disturbance screening level) established by the NIA is set at 56 dBA.

Road traffic noise criteria

The RNP contains criteria for assessment of noise from vehicles on public roads. The applicable criteria for the project local roads are in **Table 5.2**.

Table 5.2: Road traffic noise criteria

Road category	Type of project/land use	Assessment criteria - dBA	
		Day (7 am – 10 pm)	Night (10 pm – 7 am)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use development	$L_{Aeq\ (1\ hour)}$ 55 (external)	$L_{Aeq\ (1hour)}$

The RNP states the relative increase criteria to manage the permissible increase in road traffic noise from a land use development as follows:

'For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.

5.1.3 Potential impacts

Operational noise and vibration sources

The operational noise assessment for the project has considered a potential worst-case scenario, based on the potential maximum likely number of plant and equipment operating simultaneously at the site.

The identified nose levels of each significant noise source included in the NIA are presented in **Table 5.3** along with the equipment modelled to be operating concurrently at the site.

Table 5.3: Equipment sound power levels included in modelling

Equipment	Sound power levels (dBA)
Granulator	107
Shredder	103
Conveyor	96
Forklift	80
Skidsteer loader	94
Front-end-loader	103
Cyclone fan	101
Trucks unloading inside	104
Truck movement inside	98
Loading truck outside	90
Truck movement outside	104

The worst-case modelled scenario assumed the above plant and equipment all operating simultaneously during the night period, with prevailing winds and temperature inversions in effect.

The most significant sources of operational noise associated with the project operate within the building, with some truck and forklift movements on the hardstand in front of the building. It has been assumed in modelling that the roller doors at the front of the building remain open during operations.

There are no significant operational sources of vibration identified for the project and a detailed vibration assessment has not been considered necessary as there are no site sources capable of generating sustained vibration impacts at receivers.

Assessment of operational noise impacts

Table 5.4 presents the predicted noise modelling results at the assessed sensitive receiver locations for the single worst-case scenario.

Table 5.4: Predicted operational noise impacts for sensitive receivers

Receiver	Predicted level (dBA)	Criteria (dBA)
R1	30	43
R2	42	43
R3	35	43
IN1	46	70
IN2	33	70
IN3	62	70
IN4	59	70
IN5	62	70

The results indicate the predicted nose levels would comply with the applicable criteria at the assessed receiver locations.

The predicted maximum noise levels for the project are also presented as an isopleth diagram in **Figure 5.1** and Appendix I. The isopleths align well with the observed key noise sources on the site. The isopleths illustrate the effects of the conservatively assumed inversion and wind towards

residential receivers, indicating a maximum noise level of approximately 42 dB(A) in the residential areas to the north.

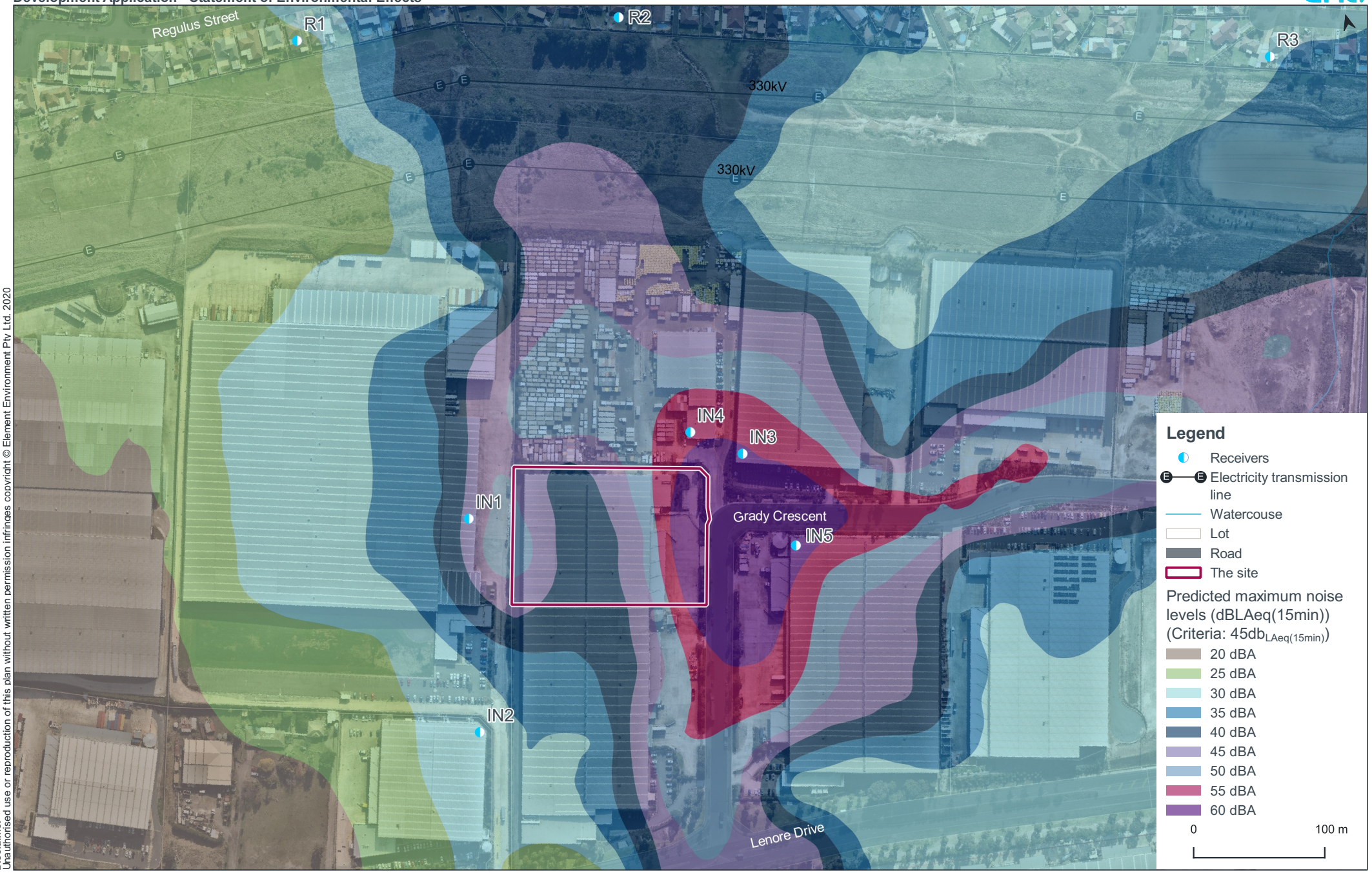
It should be noted that the project noise trigger level during the day is 42 dB(A) at the residential receivers. The predicted maximum noise level at R2 is 42 dB(A) during night operations, with modelling based on day time noise generation, with temperature inversions and prevailing winds toward the receivers. During day time operations, there would not be temperature inversions and as such, the actual day time maximum noise levels would be lower than 42 dB(A) and also comply with day time project noise trigger levels.

Figure 5.1

Predicted maximum noise levels ($dB_{LAeq(15min)}$)

Tyre Recycling Facility

Development Application - Statement of Environmental Effects



Construction noise

The proposed construction activity for the project (associated with delivery and installation of plant and equipment) would occur during standard construction hours. The significant sources of construction noise may include trucks, cranes and hand tools.

Given that the proposed plant and equipment modelled would generate similar noise levels and would comply with the project noise trigger levels, which are more stringent noise criteria associated with operation of the project, the noise arising from construction activities would be below operational noise levels for the project, and would comply with ICNG requirements. Overall, the modelling indicates no significant risk of construction noise impacts arising.

Sleep disturbance

Maximum noise events may occur for example if equipment is dropped, items slammed such as a truck tailgate or release of air from pneumatic brake systems. The maximum sound power for such events are typically around 120-125 dB(A) or approximately 4-9 dB(A) higher than the total modelled sound power. Thus, the L_{AFmax} at any residential receiver would be approximately 4-9 dB(A) higher than the predicted worst-case noise levels which are up to 42 dB(A) at the most impacted residential receiver. The estimated L_{AFmax} at the most impact residential receiver is 51 dB(A), which is below maximum noise trigger level of 56 dB(A). As such, it is considered the project would not result in potential sleep disturbance for residential receivers to the north.

Road traffic noise

The traffic impact assessment for the project (refer to **Section 5.3**) indicates that the total trips for the project in the morning peak hour is estimated as 38 (28 inbound, 10 outbound), with seven inbound trips in the afternoon peak hour.

The estimated number of trips previously required for construction of the approved warehouse complex was calculated at 48 trips during peak hour. As a result, the project would see a reduction in number of trips than were previously assessed and approved for the site.

As the estimated number of vehicles would likely reduce from the previously assessed development, the project would not result in any additional noise generation from road traffic, already assessed. It is noted that the traffic generation would need to increase by approximately 60% above the existing situation to result a 2 db increase. As Lenore Drive is a classified roadway, it is expected that the peak hour traffic volume on this road are significantly greater that the estimated vehicle trips for the project during peak hour, and as such would not see any tangible change to the existing noise generation from road traffic.

Furthermore, the traffic movements from the project would not pass any land uses considered sensitive to traffic noise and further detailed assessment is not warranted.

5.1.4 Management measures and conclusion

Mitigation measures

The design features of the project are suitable, and no additional operational controls or mitigation measures need to be applied to best manage noise impacts from the project.

Nevertheless, the suggested noise mitigation and management measures to ensure noise levels are minimised where possible, include:

- keep roller doors closed where possible;
- truck engines to be switched off when not in use for extended periods; and
- complaints should be logged and investigated.

Conclusion

Noise modelling was used to predict potential off-site noise impacts in the surrounding area due to the operation of the project, and consideration of potential sleep disturbance, road traffic and construction noise was made.

The modelling in the NIA assumed a potential worst-case scenario, with a maximum likely number of operational plant and equipment operating simultaneously at the site under inversion conditions with a light wind towards receivers. The assumptions used in the operational noise modelling are generally conservative and in general the predicted levels are likely to somewhat overestimate the potential impact that may arise.

The results indicate that noise levels would be within the applicable criteria at the nearest receivers, and that no sleep disturbance, road traffic and construction noise impacts are likely to arise.

Overall, the assessment confirms that the project would operate within acceptable noise criteria at the nearest receivers.

5.2 Air quality

This chapter summarises the air quality impact assessment (AQIA) report, which is in Appendix J. It describes the air quality assessment criteria which applies to the project, potential air emission sources, modelling method and results, potential impacts and mitigation measures where impacts are unavoidable.

5.2.1 Overview of assessment methods

Potential air quality impacts on sensitive receivers associated with the project were assessed in accordance with EPA's (2017) *Approved methods for the modelling and assessment of air pollutants in New South Wales* (approved methods).

The objective of the AQIA was to identify and assess the potential for adverse operational air quality impacts which may result from the project.

The following atmospheric pollutants are likely to be generated by the project:

- deposited dust;
- total suspended particulate (TSP) matter, which is nominally taken to be less than 30 micrometres (µm) in diameter and refers to all suspended particles in the air;
- PM_{10}, which is a subset of TSP and have a diameter of 10 µm or less;
- $PM_{2.5}$, which is a subset of TSP and have a diameter of 2.5 µm or less;
- pollutants generated through the combustion of fuel in vehicle engines (oxides of nitrogen and sulfur (NO_2 and SO_2), PM_{10} and $PM_{2.5}$).

Emissions from diesel powered equipment generally include carbon monoxide (CO), nitrogen dioxide (NO_2) and other pollutants, such as sulphur dioxide (SO_2). The amount of emissions of CO, NO_2 and SO_2 generated from diesel powered equipment for the project is considered to be too low to generate any significant off-site pollutant concentrations and have not been assessed further in the AQIA.

Odour may also arise from the materials processed at the site. However, as the storage and processing of the material would all occur within the warehouse enclosure, the potential for any off-site odour impacts are not considered significant enough to result in any off-site impacts and have not been assessed further in AQIA.

Dispersion of air pollutants was modelled using the 'CALPUFF Modelling System', which combines estimated emission rates, neighbouring emission sources, proposed mitigation measures and local meteorology to predict incremental and cumulative air quality impacts.

5.2.2 Assessment criteria

Particulate emissions from the project were estimated by applying emissions factors developed by the United States EPA to the potential dust generating activities. The emissions factors (dust generated by project activities) were used in the dispersion modelling to predict incremental emissions (emissions from the project only) and cumulative emissions (emissions from the project combined with ambient dust levels, which will comprise emissions from other operations in the area) at the receivers.

The project specific air quality criteria in Table 5.5 **5.5** were established in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2017).

Table 5.5: NSW EPA air quality impact assessment criteria

Particulate matter	Averaging time	Criterion
TSP	Annual	90 micrograms per cubic metre (µg/m³)
PM_{10}	24-hour	50 µg/m³
	Annual	25 µg/m³
$PM_{2.5}$	24-hour	25 µg/m³
	Annual	8 µg/m³
Deposited dust	Annual	Maximum incremental (project only) increase of 2 g/m²/month Maximum total (project and other sources) of 4 g/m²/month

5.2.3 Summary of ambient air quality

Annual average PM_{10} and $PM_{2.5}$ values from the St Marys and Prospect monitoring station data from 2015 to 2020 were used to represent the background levels for the project.

In the absence of available data, estimates of the annual average background TSP and deposited dust concentrations can be determined from a relationship between PM_{10}, TSP and deposited dust concentrations and the measured PM_{10} levels. The annual average TSP concentration and dust deposition levels at the site were conservatively estimated using the relationship and assumed that a PM_{10} concentration of 30 µg/m³ will have an equivalent TSP concentration of 90 µg/m³ and dust deposition level of 4 g/m²/month.

It is noted that there is no readily available data for $PM_{2.5}$ background levels at the St Marys monitor during 2015, however there is data available for the 2016 to 2019 calendar years. In order to estimate background $PM_{2.5}$ concentrations for the project, it was assumed that the average of the $PM_{2.5}$ / PM_{10} ratio of the annual average values recorded for 2016 to 2019 are equivalent to the ratio experienced in 2015.

The estimated background air quality levels used in the modelling were:

- annual average TSP concentrations – 53.9 µg/m³;
- annual average deposited dust levels – 2.4 g/m²/month;
- 24-hour average $PM_{2.5}$ concentrations – 22.6 µg/m³;
- 24-hour average PM_{10} concentrations – variable;
- annual average $PM_{2.5}$ concentrations – 6.4 µg/m³; and
- annual average PM_{10} concentrations – 15.0 µg/m³.

5.2.4 Potential impacts

The main sources of air pollutants in the area surrounding the project would include emissions from surrounding industrial operations, the Cleanaway Erskine Park Landfill and from other anthropogenic activities such as wood heaters and motor vehicle exhaust.

Project activities such as handling and processing of tyres and derived products could generate dust emissions. Additionally, project related vehicle movements could generate air emissions from the exhaust and wheel generated dust when travelling on roads.

Results from the incremental assessment are in **Table 5.6** and results from the cumulative assessment are in **Table 5.7**.

Dust emissions from the project are predicted to be below criteria.

Table 5.6: 24-hour and annual average particulate dispersion modelling results for sensitive receivers – incremental impact

Receiver ID	$PM_{2.5}$ (µg/m^3)		PM_{10} (µg/m^3)		TSP (µg/m^3)	DD (g/m^3/mth)
	24hr average	Annual average	24hr average	Annual average	Annual average	Annual average
	Criteria					
	-	-	-	-	-	2
R1	1.3	0.2	2.8	0.5	0.6	<0.1
R2	1.5	0.3	3.5	0.8	1.0	<0.1
R3	0.5	0.1	1.1	0.2	0.3	<0.1

Table 5.7: Annual average particulate dispersion modelling results for sensitive receivers – cumulative impact

Receiver ID	$PM_{2.5}$ (µg/m^3)	PM_{10} (µg/m^3)	TSP (µg/m^3)	DD (g/m^3/mth)
	Annual average criteria			
	8	25	90	4
R1	6.6	15.5	54.5	2.4
R2	6.7	15.8	54.9	2.4
R3	6.5	15.2	54.2	2.4

The cumulative annual average PM_{10} concentrations generated by the project are illustrated in **Figure 5.2**, and show that PM_{10} concentrations quickly disperse resulting in concentrations well below the criterion at the nearest sensitive receivers.

Assessment of cumulative $PM_{2.5}$ and PM_{10} impacts

The EPA requires a more thorough assessment when the criteria is likely to be exceeded due to background levels, where the measured background level on a given day is added contemporaneously to the predicted incremental level using the same day's weather. This method has limits in predicting short term impacts, so impacts are described as 'systemic', or over five or more days.

The Level 1 contemporaneous assessment approach of *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2017), which involves adding the maximum background levels to the maximum predicted levels from the project, would show levels above the criterion whether or not the project was operating.

In such situations, a Level 2 contemporaneous assessment approach is applied, where the measured background levels are added to the daily corresponding predicted dust level from the project. The ambient $PM_{2.5}$ and PM_{10} concentrations corresponding with the daily concentrations from the year of modelling (2015) were applied to represent the prevailing background levels at receivers around the project.

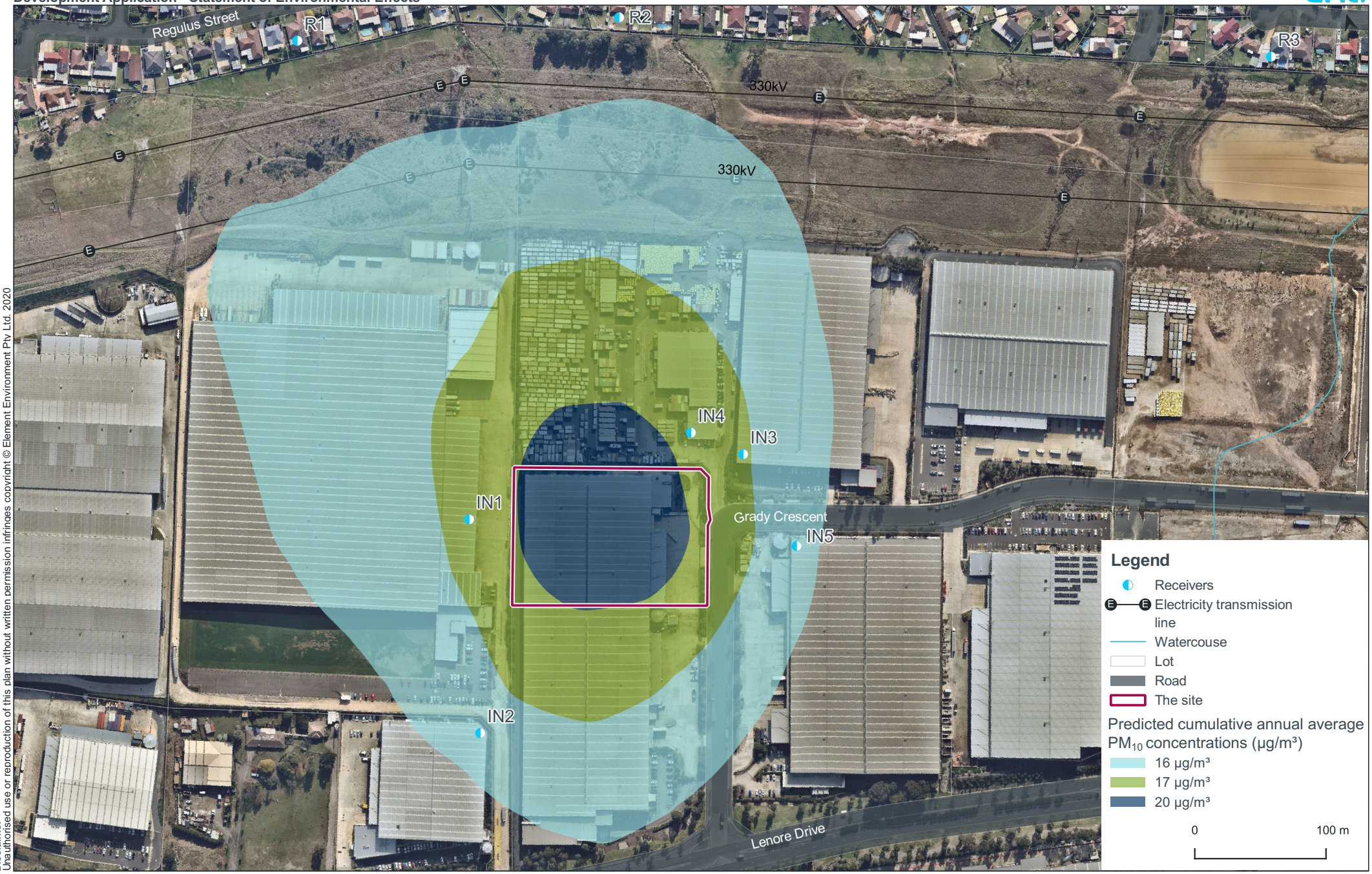
The results showed that the project will not increase the number of days above the 24-hour average criteria for $PM_{2.5}$ and PM_{10} at any sensitive receiver.

Figure 5.2

Predicted cumulative annual average PM_{10} concentrations (µg/m³)

Tyre Recycling Facility

Development Application - Statement of Environmental Effects



5.2.5 Management measures and conclusion

Mitigation measures

The proposed operations of the project have the potential to generate dust emissions. To ensure that activities associated with the project have a minimal effect on the surrounding environment, it is recommended that all reasonable and practicable dust mitigation measures are utilised.

Suggested reasonable and practicable dust mitigation measures for the project are listed in **Table 5.8**.

Table 5.8: Potential operational dust mitigation measures

Source	Mitigation measures
General	Engines of on-site vehicles and plant to be switched off when not in use.
	Vehicles and plant are to be fitted with pollution reduction devices where practicable.
	Vehicles are to be maintained and serviced according to manufacturer's specifications.
	Visual monitoring of activities is to be undertaken to identify dust generation.
	Cyclones (air filtration system) to be maintained and operated in accordance with manufacturer's specification.
Material handling	Reduce drop heights from loading and handling equipment where practical.
Hauling activities	Spills on trafficked areas to be cleaned immediately.
	Driveways and hardstand areas to be swept/cleaned regularly as required etc.
	Vehicle traffic is to be restricted to designated routes.
	Co-ordinate the delivery schedule to avoid a queue of the incoming or outgoing trucks for extended periods of time.
	Speed limits are to be enforced.
	Vehicle loads are to be covered/secured when travelling off-site to prevent spillage.
	Regularly inspect roads and maintain surfaces to remove potholes or depressions.

Conclusion

It is predicted that all the assessed air pollutants generated by the operation of the project would comply with the applicable assessment criteria at the assessed sensitive receivers and therefore would not lead to any unacceptable level of environmental harm or impact in the surrounding area. The project would not result in air pollution that would significantly impact upon the amenity of residential land uses.

Nevertheless, the site would apply appropriate dust management measures to ensure it minimises the potential occurrence of excessive air emissions from the site.

Overall, the air quality assessment demonstrates that even using conservative assumptions, the project can operate without causing any significant air quality impact at sensitive receivers in the surrounding environment.

5.3 Traffic and access

Potential traffic and safety impacts associated with the project on local and main roads were assessed. The traffic impact assessment (TIA) report is in Appendix K, which is summarised in this section.

5.3.1 Existing environment

Roads

The road network servicing the site includes the following State and local roads:

- **M4 Motorway** comprises a six lane divided carriageway which has an east-west alignment along the northern side of the Erskine Park and St Clair areas and connects between the Great Western Highway at Strathfield and the Blue Mountains at Emu Plains.
- **M7 Motorway** comprises a four lane divided carriageway, which has a north-south alignment along the eastern side of the Erskine Park area and connects between the M2 at Baulkham Hills and the M5 at Prestons.
- The **Great Western Highway** is a State Road, which connects between the Sydney central business district to west of the Blue Mountains. In the vicinity of Erskine Park, the Highway is aligned parallel to the M4 Motorway and operates as an alternative route to the motorway. For much of its length, the Highway carries three lanes in each direction, and provides connectivity to the local road network.
- **Mamre Road** is a State Road connecting between the Great Western Highway at St Marys and Elizabeth Park at Cecil Hill.
- **Erskine Park Road** is a State Road which provides a secondary connection between Mamre Road and the M4 Motorway.
- **Lenore Drive** is a State Road and forms the primary access to Erskine Business Park. Lenore Drive connects with Old Wallgrove Road at Eastern Creek, which connects with Wallgrove Road and the M7 Motorway. The carriageway carries two lanes in each direction and is divided by a central median accommodating auxiliary right turn lane at a number of intersections.
- **Grady Crescent** is a local access road which connects with the Lenore Drive. The carriageway has a width of 13 m and carries a single lane in each direction.

All roads are approved 25-26 m long B-double routes.

The majority of the heavy vehicles associated with the project will approach the site via the M4 Motorway, then turn into Mamre Road or Erskine Park Road, turn into Lenore Drive and then turn left into Grady Crescent. When leaving the site, heavy vehicles will exit the site via Grady Crescent, turn left onto Lenore Drive and then turn onto the M7 Motorway. There will be no heavy vehicles movements along local roads, which have the potential to impact residential receivers. Therefore, the project will not result in significant impacts to the amenity of residential land uses or impact upon traffic network conditions.

Traffic

The existing traffic generation rates as per Section 3.10.2 of the *RMS Guide to Traffic Generating Developments 2002* (RMS Guideline*)* and the approved TIA report prepared by Parking and Traffic Consultants Pty Ltd on February 2013 (which accompanied the DA for the warehouse) includes 48 trips during the morning peak.

Manoeuvrability of heavy vehicles on the site and car parking requirements were previously assessed as part of the original warehouse DA and no changes are proposed to these elements. The maximum truck size associated with the project has been previously assessed and is able to safely manoeuvre through the site.

Public transport

The only public transport available within the 800 m catchment of the site is the route 835 bus, which is located along Lenore Drive. The bus route operates on weekdays providing a connection between Penrith and Prairiewood.

Parking

The warehouse has provisions for 78 car parking spaces at basement level (including two disabled spaces).

5.3.2 Assessment

Traffic generation

It is assumed a maximum of 13 outbound truck trips will occur during 5 am to 7 am. This equates to approximately seven outbound truck trips during the one hour peak period. In regard to light vehicle trips, management staff do not coincide with the majority of the day shift staff arriving during the morning peak hour, and therefore only the working staff trips are considered for calculating the morning peak hour traffic volumes. The total morning peak hour traffic volumes and light vehicles are estimated in **Table 5.9**.

Approximately 13 trucks trip (inbound movement) will occur during 4 pm to 6 pm. To calculate the one hour peak volume for trucks, a similar assumption to the morning peak hour has been applied. In regard to the staff trips, it is evident that the management staff trips do not coincide with the project's evening peak hour, and therefore evening peak hour traffic volumes will comprise only truck movements. The total afternoon peak hour traffic volumes for trucks and light vehicles are estimated in **Table 5.9**.

Table 5.9: Traffic generation for the project (morning and afternoon peak hour)

Peak hour	Vehicle type	Approximate volume
Morning	Truck trips	7 (0 inbound, 7 outbound)
	Light vehicle trips	31 (28 inbound, 3 outbound)
Afternoon	Truck trips	7 (7 inbound, 0 outbound)

Based on the calculations shown in **Table 5.9**, the total trips for the project in the morning peak hour is estimated as 38 (28 inbound, 10 outbound), with seven inbound trips in the afternoon peak hour.

In order to determine the traffic impact of the project, the net trip generation needs to be determined. This figure is calculated by subtracting the potential existing traffic generation from the future traffic generation. The net trip generation is summarised in Table 5.10.

Table 5.10: Net trip generation

Peak period	Future trip generation	Existing trip generation	Net trip generation
Weekday morning	38	48	-10
Weekday afternoon	7	-	-

It is evident from **Table 5.10** that the overall trips for the morning peak hour are expected to be reduced by 10. This equates to approximately one trip removed every six minutes, and it is therefore expected that the nearby intersection performance may improve marginally during the weekday morning peak hour.

In regards to the existing approved afternoon peak hour trips, the RMS Guideline does not provide any traffic generation rates, however, it is evident that the net trip generation for the morning peak hour is reduced, it is therefore more likely that the net trip generation for the afternoon peak hour will also be reduced. Additionally, as the existing warehouse and project are similar types of development, it is less likely that the future traffic generation will deviate from the existing approved generation, and therefore, the project will not result in a negative impact on the existing road network.

Parking

The warehouse has provision for 78 car parking spaces at basement level (including two disabled spaces). As outlined in Error! Reference source not found., there will be approximately 28 staff (including four management staff) working during the day shift and three staff working during both the afternoon and night shift. Assuming all staff drive, the maximum car parking space required for staff will be 32 at any one time.

Therefore, the existing 78 car parking spaces far exceeds the parking requirement for the project requirement and the parking demand is met and will not result in any on-street parking demand, or additional car parking requirements.

The car park for the existing warehouse was designed according to User Class 1A (AS 2890.1) for staff and visitors. The User Class for the project will remain the same, and the existing car park is to be retained. As such, no further assessment is required.

Vehicle access and servicing provisions

The existing warehouse site has road frontage to Grady Crescent with two access driveways for traffic movements. One driveway is 15.4 m wide and is used as a truck access, while the other driveway is 6.35 m wide and is used for car access.

The assessment of the existing driveways was previously undertaken in accordance to AS 2890.1 and AS 2890.2, and has been approved during the previous DA for the warehouse. The servicing area for the existing warehouse was designed in accordance with AS 2890.2 and was approved to accommodate vehicles up to a 25 m B-Double.

No changes are proposed to the existing access and existing servicing arrangements and therefore further assessment is not required.

5.3.3 Management measures and conclusion

The TIA made the following conclusions:

- No changes are proposed to the existing building footprint and parking arrangements;
- In terms of public transport, the site is accessible by bus providing transport links to the greater Sydney area;
- With reference to the most recent RMS survey data and first principles assessment, a review of the potential traffic generation of the site has revealed that the net trips for the morning peak hour is reduced. For the afternoon peak hour, as the existing warehouse and proposed tyre recycling facility are similar types of development, it is anticipated that the future trips will not have any negative impact to the existing road network. Since the future trips do not deviate from the previously approved trips, traffic modelling is not required. It is also understood that the trucks mainly travel via arterial roads before entering and after exiting the site, and therefore, the truck movements will not have significant impact on local roads or residential receivers;
- In context of parking, the assessment has been undertaken based on the requirements of the DCP, RMS Guide, first principles and similar land uses within the Erskine Park Employment Area. The assessment shows that the parking provision of 78 car spaces is slightly lower than the DCP requirement, whilst, the provision exceeds the minimum RMS requirement, and assessments based on first principles and other similar developments. Therefore, the existing car parking spaces will satisfy the demand associated with project; and
- The existing access and car park were initially designed according to AS 2890.1:2004, AS 2890.3:2015 and AS 2890.6.2009 and has been approved during the previous DA for the existing warehouse. The User Class for the project remains the same and no changes are

proposed to the existing access and car parking arrangements. Therefore, no further assessment is required to the existing car / truck parking arrangements.

In light of the above, the project is endorsed in the context of parking and traffic, with minimal impact on traffic generation.

The following management measures are recommended to reduce impacts:

- A Loading Dock Management Plan is recommended to ensure that only three trucks are parked in the loading bay and the other three truck spaces are vacant during the times when B-Doubles access the site.
- Although the vehicle access, circulation, aisle width and car space dimensions comply with AS 2890.1 and 2890.2, however, two convex safety mirrors are recommended in the basement level car park between car spaces 12 and 13, and 15 and 16 to avoid conflict between entering and existing vehicles.

5.4 Other environmental considerations

5.4.1 Sustainability

The provision of adequate, reliable and affordable resources is essential to meeting the needs of people in both developed and developing countries. A balance is required between the promotion and coordination of the orderly and economic use and development of land, the proper management and development of our resources and the protection of the environment and effective integration of economic, social and environmental considerations as defined by the requirements of ESD.

ESD describes the principles used to undertake development to maintain and improve the total quality of life, in a way that maintains ecological processes to support current and future generations.

ESD requires a combination of sound planning and an effective and environmentally sensitive approach to design, operations and management of a project. The principles of ESD are defined in schedule 2 of the EP&A Reg:

"The reasons justifying the carrying out of the development or activity in the manner proposed, having regard to biophysical, economic and social considerations, including the following principles of ecologically sustainable development:

a) The precautionary principle,
b) Inter- generational equity,
c) Conservation and biological and ecological integrity,
d) Improved valuation, pricing and incentive mechanisms"

Facilitating ESD by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment is one of the key objectives of the EP&A Act.

This section outlines how the project aligns with ESD principles.

The precautionary principle

The precautionary principle reinforces the need to take risk and uncertainty into account, particularly when potential threats of irreversible damage to the environment may be unknown or little understood. In the application of the precautionary principle, the project is a well-established operation. Tyrecycle have numerous similar operations around Australia and the potential environmental impacts associated with the activity are well understood, and have been effectively

managed in a manner, which results in little to negligible environmental impact. This has helped inform decision-making when considering how potential environmental impacts for this project may be eliminated or mitigated to an acceptable level.

This understanding gained from observing and monitoring similar operations has led to the identification of the key issues relating to the project, which pose the greatest risk to the environment. Independent technical assessments for air, traffic and noise were then undertaken to fully understand the key issues associated with the project and to identify necessary environmental controls and management measures to avoid, minimise or at least mitigate these issues.

The approvals process meets the requirements of the precautionary principle and this SEE provides a process for identifying and assessing the potential impacts and environmental consequences of the project

Intergenerational equity

Social equity is defined by intergenerational equity, which is centred on the concept that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

One of the primary objectives of the project is to facilitate operations that maintain continuity and beneficial reuse of waste material (i.e. tyres) in an environmentally and socially responsible manner.

This SEE has addressed the principles of social equity through:

- engagement of suitably qualified and experienced technical specialists to ensure that the environmental assessment phase of the project has been independently undertaken and is transparent; and
- management strategies and mitigation measures to minimise any potential adverse impact upon the local environment and nearby communities.

Conservation of biological diversity and ecological integrity

As the site supports limited features of ecological value, the project has considered and focused on:

- ensuring that, where possible, existing native landscape vegetation on the property is not impacted; and
- ensuring the risk to water quality is minimised as much as is reasonable and feasible.

Impacts to terrestrial biodiversity will be avoided as the project will be located within an existing warehouse building.

Improved valuation and pricing of environmental resource

The principle of improved valuation, pricing and incentive mechanisms deems that environmental factors should be included in the valuation of assets and services, and that those who generate the pollution and waste should bear the cost of containment, avoidance or abatement.

Tyrecycle acknowledges and accepts the financial costs associated with all the measures required for the project to avoid, minimise, mitigate and manage potential environmental and social impacts.

5.4.2 Visual amenity

Existing environment

General industrial and commercial businesses surround the site in all directions and operate primarily from large warehouses. They include businesses such as: PMA, DHL, IVE Group, Flower Power facilities and Coates Hire operations.

The existing warehouse is positioned between the PMA building directly to the south, within the same building and the Coates Hire site to the northeast and are all accessed via Grady Crescent.

Views of the site from the interior of these neighbouring industrial premises, motorists and or pedestrians is restricted by perimeter fencing, limited windows and landscape vegetation planted along the property boundary. To the east of the site, the adjacent commercial premises of DHL have direct view of the site, particularly at the site access on Grady Crescent.

To the northeast, west, and south of the site businesses have a degree of visibility of the site through existing road verge landscaping along the north-eastern and western perimeter of the site, but again, this view is restricted.

The site is partially visible from the nearest residential premises located on Shaula Crescent (330 m north of the site), however the views from these residential receivers are confined to the top of the warehouse building.

Trucks accessing the site at the entrance and trucks unloading tyres into the warehouse, will be visible from Grady Crescent. All other activities will occur within the enclosed warehouse and not visible to the public. The unloading of tyres into the warehouse will result in temporary and minor visual impacts, however, these activities are in fitting with the zoned land use.

Potential impacts

The site is in an area zoned ‘general industrial’ (**section 3.2.3**) and the use of the site as a waste management and resource recovery facility, is not in conflict with the objectives of the zone or with the form and scale of the existing warehouse and local setting.

There will be no major change to the existing building warehouse (apart from minor upgrade of electrical infrastructure). The project is therefore highly unlikely to result in substantial changes to the visual amenity of the site or location, or the views of surrounding neighbours.

As outlined in **Section 2.2**, a ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building, with ventilation infrastructure protruding through the roof by approximately two metres. Despite this, the ventilation infrastructure would be installed on the lower side of the roof, with the pitch in the centre of the existing roof to account for a similar maximum height. The vents would also be positioned on the western side of the warehouse to be less prominent to sensitive land uses to the north of the site. Furthermore, the installation of the ventilation system is in fitting with an industrial land use and as such would not result in substantial changes to the visual amenity of the site or location, or the views of surrounding neighbours.

The project would require night time operations, however existing and approved lighting systems at the warehouse would be sufficient and as such no upgrade to lighting is required for the site, thereby avoiding the potential for additional impacts to residential receivers to the north associated with light spill.

Despite partial views of the top of the warehouse from select residential receivers on Shaula Crescent, given that all operations would be confined within the building, the project operations would not be visible by residential land uses.

Although visual impacts are highly unlikely to cause an adverse or negative impact, adequate consultation has been undertaken and neighbouring properties notified of the project (**Chapter 4**).

5.4.3 Site contamination

Exposure to unexpected contaminated soil and/or materials could pose a health risk to site personnel and impact the wider area if the contaminant migrates. Contamination entering waterways can pose a threat to aquatic ecology, water quality and the wider community. It is an offence under the POEO Act to cause contamination or spread contaminated material.

As outlined in Table 3.6, a search of the EPA's Contaminated Land Record and List of Contaminated Sites notified to the EPA was undertaken in July 2020 for the Penrith LGA. No recorded contaminated sites within proximity to the project were identified in the search.

A validation report was previously conducted for the site prior to the construction of the existing warehouse (CES 2007) and will be supplied to Council separate to this SEE. The validation report concluded that the greenfield land subject to the construction of the warehouse was suitable for commercial/industrial land-use.

Other than an unforeseen localised hydraulic oil leak from vehicles or machinery associated with the project, or storage of oil filters and car batteries, the project will not result in contaminating activities. The project will be contained within the existing warehouse building and no earthworks are required. Furthermore, the impermeable concrete floor of the warehouse will ensure that no soil or groundwater contamination would occur from oil leaks or fuel spills.

All transportation vehicles will be refuelled off-site, with forklifts and other mobile equipment periodically re-fuelled within a bunded area of the warehouse. Vehicles are operated on fully maintained leases and as such mechanical repairs will be conducted off-site. Personnel, however, will regularly check and maintain machinery to minimise the risk of oil leaks. The re-fuelling of mobile equipment at the site and storage of oil filters in bunded areas would also minimise the potential for leaks and spills to enter the Council stormwater system along Grady Crescent.

If contaminated material (such as absorbent material for leaks and spills) is generated during operation of the project, relevant statutory requirements, including waste classification, will be complied with, and the material managed and disposed of appropriately.

5.4.4 Stormwater management and water quality

The site is not within the vicinity of any natural drainage lines, creeks or rivers. The site is not within a "flood planning area" (identified by the NSW planning special viewer flood planning map).

The installation of an additional electrical substation would require minor ground disturbance associated with trenching of cables and construction of a retaining wall within the embankment to position the substation outside of trafficable areas of the site. This ground disturbance would be positioned within proximity to the site's stormwater management infrastructure and has the potential to result in sediment laden runoff to enter the stormwater management system. In order to minimise the potential for sedimentation to occur to the Council managed stormwater network, all ground disturbance would be adequately managed with the implementation of sediment controls consistent with *Managing Urban Stormwater: Soils and Construction* (Volume 1, Landcom 2004).

Given there will be no bulk earthworks as part of the project, there will be no potential interaction with groundwater resources.

A stormwater management plan was prepared as part of the construction and development of the existing warehouse (Appendix L). The plans were prepared in accordance with the relevant development control requirements of Council.

As detailed in the existing warehouse's stormwater design, surface water runoff from the site, is currently drained into a network of underground pipes and surface grated inlet pits, which is discharged to the Estate's stormwater system.

In order to use the deemed to comply solution, set out in Council's water sensitive urban design policy and technical guide, Tyrecycle will continue to utilise the water treatment measures that exist at the site including rainwater harvesting explained in **Section 2.3.1.**

No major change is required to the construction of the warehouse building, and therefore the existing stormwater management system will be used for the project and no changes will be made.

The additional electrical substation would be positioned adjacent to a swale drain at the north eastern corner of the site. The substation would be designed and constructed in a manner which does not impede stormwater flow, and maintains the integrity and functionality of the stormwater system previously constructed for the warehouse.

With the above considered, there are no aspects to the project which would warrant further consideration of the Penrith DCP, Council's stormwater drainage specification for building developments policy, and Council's water sensitive urban design policy and technical guide.

5.4.5 Heritage

Existing environment

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* published by the former NSW Department of Environment, Climate Change and Water (DECCW) in 2010 assists individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects, and to determine whether they should apply for consent in the form of an Aboriginal Heritage Impact Permit (AHIP).

The code of practice requires proponents to complete a due diligence process in order to determine whether their activities are likely to impact on an Aboriginal item or object. Part of this process involves assessing the area for known Aboriginal sites, previous disturbance (i.e. rail corridor construction, vegetation clearance, utility construction etc.) and features of the landscape in which the site is located that may indicate previous Aboriginal activity, and a potential to uncover unidentified Aboriginal items.

Previous documentary and archaeological research indicates that archaeological evidence is likely to be found with certain landforms, largely as a result of the resources that were associated with these landforms, or their suitability for long-term and/or repeated occupation. Such landforms include areas:

- Within 200 m of waters.
- Within a sand dune system.
- On a ridge top, ridge line or headland.
- Within 200 m below or above a cliff face.
- Within 20 m of or in a cave, rock shelter, or a cave mouth.

The project is not located within in a landform which may indicate historical Aboriginal occupation and potential for unidentified Aboriginal objects.

A search of the Aboriginal Heritage Information Management System (AHIMS) identified the presence of 28 registered Aboriginal objects within 200 m of the site. These sites were identified

as part of the Erskine Park Employment Area Archaeological Subsurface Testing Program (Navin Officer 2007). As identified in this study, the project was historically located in an area with very low to low archaeological potential. All registered Aboriginal objects within the industrial precinct were subsequently salvaged and/or destroyed via an AHIP, and the previous construction of the industrial precinct, inclusive of levelling and other bulk earthworks, has removed all archaeological potential of the locality.

A search of the National Heritage List, Australian Heritage Database, NSW State Heritage Register, State Heritage Inventory, Government Agencies Section 170 Heritage and Conservation Registers, SEPP WSEA and Penrith was undertaken in July 2020 and did not identify the presence of any registered non-Aboriginal heritage items within proximity to the project.

Potential impacts

The site is currently covered by impermeable concrete hardstand area with an existing warehouse building.

The project will not disturb ground that has the potential to support any unidentified items of Aboriginal or non-Aboriginal heritage value.

The project will not impact upon items of Aboriginal or non-Aboriginal heritage significance and no additional assessment is required.

5.4.6 Biodiversity

Existing environment

Threatened Ecological Communities (TEC) and threatened flora and fauna species may be listed under the BC Act and/or the EPBC Act. A desktop study using the NSW BioNet Atlas database and EPBC Protected Matters Search Tool was undertaken to identify all threatened species that have been recorded within proximity to the site.

A vegetation community of Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion has been identified approximately one kilometre east of the project along the riparian corridor of Ropes Creek. This vegetation community belongs to Cumberland Plain Woodland (critically endangered under the BC Act) and Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (critically endangered under the EPBC Act).

A review of the NSW BioNet Atlas indicated several previous sightings of the threatened flora species Juniper-leaved Grevillea (*Grevillea juniperina*) were previously recorded prior to development of the industrial precinct. The species is listed as vulnerable under the BC Act. No additional recorded threatened flora or fauna species were identified within proximity to the project.

As indicated by the EPBC protected matters search, there are six TECs which have been recorded within 10 km of the project. However, with the exception of Shale-Gravel Transition Forest, these communities have not been recorded within the vicinity of the site. A total of 42 EPBC Act threatened species and 15 migratory species are known to, or have the potential to occur in the area.

Potential impact

The site is highly modified and consists of asphalt driveways, concrete hardstand and the existing warehouse. Vegetation is limited to a few isolated trees and shrubs on the eastern side of the warehouse, planted for landscaping and screening along Grady Crescent.

The project will require the removal of one existing juvenile Spotted Gum tree in order to position an additional electrical substation/kiosk to upgrade electricity capacity to the site. The tree was previously planted during landscaping of the warehouse following construction and has no ecological significance. The removal of the planting would have no significant impact on biodiversity values given the vegetation comprises landscape vegetation with no potential habitat for threatened fauna species.

5.4.7 Waste management

Waste streams would be generated by the project and will require responsible management in accordance with the objectives of the WARR Act, POEO Act and the NSW WARR Strategy.

Failure to collect, separate and store waste, or transport and dispose of waste appropriately, can result in adverse impacts on the receiving environment.

This section outlines Tyrecycle's existing company waste management practices and provides a waste management plan (WMP) for the project. The Council WMP form (section 3 – waste from ongoing use of premises and section 4 – on-going management of premises) has been addressed in this section. The Council WMP form is in **Appendix M**.

Existing environment

The main waste streams generated by Tyrecycle's existing St Marys operations include general solid wastes and minimal hazardous wastes.

Wastes generated are separated, collected in designated waste disposal bins, reused where possible, or disposed of at an appropriately licensed waste facility.

Existing waste management practices

Tyrecycle conducts its business in accordance with the NSW waste hierarchy, which underpins the objectives of the WARR Act, and follows the principles of waste management through the process of: avoidance; resource recovery; and environmentally sound disposal throughout its core operations, including the handling and processing of tyres.

These principles will be used during the operation of the project by:

- purchasing recycled products where appropriate;
- developing and implementing waste management procedures to minimise the generation of waste and where unavoidable, re-use waste on-site;
- recycling as many wastes as practically possible through appropriate handling, separation, storage and collection; and
- where waste cannot be re-used or recycled, transportation and disposal of waste off-site at an appropriately licensed facility.

The NSW WAAR has the following goals:

- avoiding and reducing the generation of waste;
- increasing recycling;
- diverting more waste from landfill;
- better management of problem wastes; and
- reducing litter and illegal dumping.

The NSW WAAR recognises the importance of the waste hierarchy to guide effective resource management. As detailed above, Tyrecycle will adopt the principles of the waste management hierarchy during its operations.

Waste management plan

Table 5.11 details Council's WMP form (section 4) requirements.

Table 5.11: Council's WMP form Section 4 requirements and project details

Council's WMP form Section 4 requirement	Detail
Detail on how Tyrecycle intend to manage waste on site:	All waste generated at the site will be managed by Tyrecycle's lease conditions and in accordance with the waste management hierarchy, outlined above. Waste streams generated will be classified according to the *Waste Classification Guidelines* (EPA, 2014) and disposed of accordingly.
Describe on-site storage and treatment facilities	On-site storage of waste is outlined in Table 5.12.
Plans showing the location of waste storage and collection areas, and access routes for staff and collection vehicles.	Refer to Appendix D

The project will generate various sources of general solid waste (non-putrescible) and hazardous waste, as defined in the *Waste Classification Guidelines* (EPA, 2014).

Table 5.12 lists the types of waste that may be generated by on-going use of the premises and the expected volume as requested within Council's WMP form (section 3).

Table 5.12: Operational waste inventory

Waste category	Type of waste to be generated	Expected/ approximate volume (per week)	Proposed on-site storage and treatment facilities	Final destination
General solid waste (non-putrescible)	General office waste and food waste (generated by employees at the site)	6.25 kg/week (25 kg/month)	General solid waste will be stored on-site in general waste bins. There will be small centrally located waste bins located in various locations across the office and the warehouse. The waste bins are emptied into a central waste bin, which is covered, ready for collection by a licensed waste contractor.	Collected for disposal to landfill via a licensed waste contractor on an ad-hoc basis.
	Office waste (paper, plastic, cardboard,	15m^3/week	Waste for recycling will be stored on-site in	Collected for recycling via a licensed waste contractor on an ad-hoc basis.

Waste category	Type of waste to be generated	Expected/ approximate volume (per week)	Proposed on-site storage and treatment facilities	Final destination
	aluminium cans)		recycling bins. There will be small centrally located recycling bins located in various locations across the office and the warehouse. The recycling bins are emptied into a central recycling bin, which is covered, ready for collection.	
	Wooden pallets	1m^3/ week	Collected into designated waste recycling area.	Collected for recycling via a licensed waste contractor on an ad-hoc basis.
	Ground sweepings	25 kg/week (100 kg/month)	Skip bin	Collected for disposal to landfill via a licensed waste contractor on an ad-hoc basis.
	Steel and textile (fibre) derived from tyres for sale as recyclable steel and textile.	Steel: 79 tonnes/week Textile: 98 tonnes per week	Compacted and dispatched via shipping containers	Collected by a licensed waste contractor for recycling and sale. Any spillage can be fed back into the process thereby recovering the waste.
	Used oil filters (drained motor oil containers that do not contain free liquids)	1,250 filters/week (5,000 filters/ month)	Used oil filters will be stored in bunded storage areas, installed in accordance with relevant Australian Standards. Any spills which occur at the site will be contained and managed in accordance with emergency response procedures. Absorbent material used in spill	Collected for recycling via a licensed waste contractor on an ad-hoc basis as required to maintain minimal stock on site.

Waste category	Type of waste to be generated	Expected/ approximate volume (per week)	Proposed on-site storage and treatment facilities	Final destination
Hazardous waste	Used automotive batteries (lead-acid batteries)	150 batteries/week (600 batteries per month)[2] equates to 2,100 kg per week.	Hazardous waste will be stored in accordance with relevant standards and regulations, until collected for recycling by a licensed contractor. Car batteries would be stored on pallets and wrapped ready for collection by the contractor.	Collected for recycling via a licensed waste contractor on an ad-hoc basis as required to maintain minimal stock on site.

Assessment of potential impacts

It is not expected that large volumes of waste would be generated during the operation of the project. General solid wastes are likely to be limited to minor amounts of office and general operational waste. Employees working at the site will generate the equivalent of domestic waste such as food scraps, waste paper and other incidental waste associated with running a small office. This waste will be collected in separated recycling bins pending recycling or disposal.

Used oil filters (drained motor oil filters that do not contain free liquids) are classified as general solid (non-putrescible) waste and will be collected for recycling by a licenced waste contractor.

Tyre shred that has fallen from the shredder (approximately 50 kg/week) will be recycled and re-introduced into the production process thereby recovering the waste.

There would be limited volumes of hazardous wastes generated from automotive/car batteries. Used car batteries will be stored on site ready for collection by a licensed waste contractor for recycling off-site.

It is expected that approximately five tonnes of waste are disposed of per month through a waste service provider and disposed of to landfill.

The nature and volume of waste generated during the operation of the project would be relatively minor. However, there is potential for adverse impacts on the local environment if waste is not managed appropriately.

If managed inappropriately, waste would have the potential to result in adverse impacts upon:

- visual amenity and aesthetic quality of the surrounding area;
- health and safety of local residents, workers and visitors;
- landfill space, through potentially reusable and/or recyclable materials contributing to landfill waste;
- native fauna through ingestion of fugitive waste materials e.g. plastic bags; and

[2] One automobile battery on average weighs approximately 14 kg). 600 car batteries (per month), equates to approximately 8,400 kg per month (or 8.4 tonne/month).

- hazardous waste, in particular fuels or oils, leaching into local drainage lines and watercourses, leading to subsequent water quality degradation.

Management measures and conclusion

The following mitigation and management measures are recommended to ensure responsible management of waste material generated by the project:

- waste management practices would be managed as set out in the WARR Act by adopting the principles of the waste management hierarchy during the project's operations;
- regular programmed maintenance of the shredder system to ensure efficient operation, which keeps losses to a minimum and involves reviewing capture systems around the shredder to maximise recovery of material;
- all waste generated as a result of the project would be managed in accordance with the Waste Classification Guidelines (EPA, 2014) and relevant regulatory requirements. This will include (i) its classification prior to leaving the site and (ii) recording (via an appropriate waste tracking system) its legal off-site transportation for re-use, recycling or disposal.
- any waste generated would be stored in a suitable container, with a lid (where appropriate), and transported from the site to an appropriately licensed facility. A sufficient number of suitable receptacles for general waste, hazardous waste and recyclable materials would be provided for waste disposal at the site, including sufficient bins to allow separation of wastes for recycling;
- all wastes will be securely stored to ensure that any pollutants are prevented from escaping;
- any fuel, lubricant or hydraulic fluid spillages would be collected using absorbent material and the contaminated material disposed of immediately at a licensed waste facility;
- all hazardous or contaminated wastes on site (if identified) will be removed and disposed in accordance with the state and national regulations and guidelines and best practice for the removal of these materials. Hazardous materials will only be removed by suitably qualified, licensed and experienced contractors.
- documents and records of the transport and fates of all materials removed from the project site would be kept as proof of correct disposal and for environmental auditing purposes.
- waste streams will be sorted to maximise the reuse/recycling potential and minimise disposal costs;
- materials would be re-used or recycled wherever possible. Details relating to the recycling of materials at appropriately licensed recycling facilities would be provided;
- waste would be covered stored and removed in a timely manner so as not to attract native animals or vermin; and
- all waste material handling, transport and disposal will be in accordance with the requirements of the POEO Act (1997), WARR Act and relevant UP, EPA or WorkCover Guidelines.

5.4.8 Hazards and risks

This section provides details on the potential hazards and risks associated with the project, including potential risks to public safety and potential risks associated with emergency events, along with strategies and management measures which, when implemented, would reduce these hazards and risks to acceptable levels.

Additionally, the section provides an assessment of the handling, transport, storage and use of dangerous goods at the project, and the implications of these dangerous goods with respect to State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33).

The application of SEPP 33 to the project has been determined in accordance with *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines* (NSW Department of Planning, 2011).

Existing environment

The project is not located in an area that is prone to natural hazards/disasters e.g. flooding or bushfires.

Public safety management

Public safety risks may arise from un-authorised access of members of the public.

All visitors to the site are required to report to the site administration office and register prior to gaining entry to the active areas of the site.

Additional site security requirements are outlined in Table 2.2.

Fire management

The existing fire system at the warehouse is compliant with AS 2118:1.

A Fire Safety Study was undertaken for the Tyrecycle's St Marys Facility by Equilibrium (2017), which identified identical fire hazards and risks to a tyre recycling facility, including:

- fire as a result of the storage of whole tyres, rubber crumb and TDF within the warehouse building (medium risk);
- spills and leaks as a result of handling and storage of batteries and use oil filters (low risk);
- fire as a result of improper storage of combustible and flammable materials and goods (low risk); and
- fire as a result of faulty electrical plant and equipment (medium risk).

These risks would also be applicable to the project.

For the low risk hazards identified, the management and mitigation measures identified in this section regarding hazardous substance and dangerous goods management would be implemented to mitigate the associated risk.

The Fire Safety Study focused on identifying the possible hazards associated with a tyre recycling facility that may result in a fire emergency. The range of hazards considered covered all operational aspects of a tyre recycling facility that presented a risk in regard to ignition of flammable and combustible materials, and potential consequences particularly in regard to the human health, local environment and site operations.

Table 5.13 identifies the possible hazards that may result in a fire emergency, which were identified by Equilibrium for the St Marys tyre recycling facility, and would also be applicable to the project.

Hazardous substance and dangerous goods management

The hazardous substances and dangerous goods required for the project include hydrocarbons, such as fuels (diesel), oils and greases.

Diesel

Diesel is classified as a combustible liquid by AS 1940:2004 *The Storage and Handling of Flammable and Combustible Liquids* (AS 1940:2004) (Class C1) for the purpose of storage and handling, but is not classified as a dangerous good by the criteria of the Australian Dangerous Goods (ADG) Code (National Transport Commission, 2014, Edition 7.3).

The project would require the use of diesel, with a self-bunded diesel storage tank with a capacity of between 500 and 1,000 litres to be located in a bunded area of the warehouse building. All heavy vehicles would be fuelled off-site, with select plant (such as forklifts and bobcats) to be re-fuelled on-site as required. The plant would be parked in the bunded area while re-fuelling, and any spills which occur in the collection areas would be adequately contained, managed in

accordance with emergency response procedures, and classified and disposed of in accordance with relevant waste legislation.

Given the diesel storage tank is bunded and stored away from other flammable materials, the storage and use of diesel is not considered potentially hazardous in terms of SEPP 33.

Oils and greases

Oil is classified as a combustible liquid (Class C2) by AS 1940:2004.

Tyrecycle would need to store small quantities of hydrocarbons, typically oils and greases for maintaining plant and equipment. These will be stored in bunded storage areas, installed in accordance with relevant Australian Standards.

Additionally, oil filters and empty oil drums would also be collected and stored at the site prior to transfer to a licenced recycling facility.

In accordance with the above, the storage and use of these materials is not considered potentially hazardous in terms of SEPP 33.

Car batteries

Car batteries are classified as Class 8 dangerous goods by the ADG Code.

Tyrecycle would need to store car batteries at the site prior to collection by a licenced recycling contractor. Batteries would be stored on pallets and wrapped ready for collection by the contractor.

As car batteries do not have an assigned packaging group, there is no threshold associated with the storage of car batteries, and as such this activity is not considered potentially hazardous in terms of SEPP 33.

Liquid Purified Gas

Liquid purified gas (LPG) are classified as Class 2, division 2.1 dangerous goods by the ADG Code.

Tyrecycle would store up to four 19 kg LPG cylinders on site for use on forklifts, basic maintenance and welding. The LPG cylinders to be stored on site include one argon, one carbon dioxide (CO_2), one oxygen(O_2) and one dissolved acetylene.

As there will be less than a total of 10 tonnes of LPG stored above ground, this activity is not considered potentially hazardous in terms of SEPP 33.

Assessment of potential impacts

The key hazards identified for the project are detailed below.

Soil and water contamination

In the event of a spill of the fuels used on-site, via human error, or failure or rupture of the storage vessel, potential impacts may include localised contamination of water, as well as impacts on health and safety.

If released to the environment uncontrolled, hydrocarbons may be damaging to soils and aquatic ecosystems, and fires can occur if these materials are ignited.

Potentially hazardous products such as fuels, oils, lubricants and grease required during the operation would be contained within appropriately bunded areas in accordance with relevant Australian Standards, codes and regulations, as outlined previously.

Refuelling and maintenance activities would be restricted to hardstand bunded areas within the site, on flat slope and away from stormwater drains. As such, the risk of soil, surface water and groundwater contamination during the project arising from spills is anticipated to be low. Plant and equipment would also be maintained to minimise the potential for leakages, while appropriately sized and stocked spill response kits would be provided within strategic areas of the site, and within mobile vehicles.

Fire and explosion

If there was to be a fire as a result of the ignition of flammable material, it could result in injury or destruction of property.

Fire is unlikely to spread to fragmented vegetation within the high voltage powerline easement to the north of the site (categorised as vegetation buffer and vegetation category 2 bushfire prone land) as it is shielded by neighbouring property (Coates Hire). In very strong wind conditions there may be potential for fire to spread through ember attack to the vegetation buffer, which could result in a potentially uncontained grass fire event.

The existing fire system at the warehouse was reviewed by a qualified fire engineer and considered project parameters (including materials to be stored and height of stacking), with the existing fire system to remain compliant with AS 2118:1 during operation of the project. No upgrade to the existing fire systems are required for the project.

Table 5.13 identifies potential fire hazards associated with the project.

Table 5.13: Fire hazard identification and analysis

Identified fire hazard (facility or event)	Potential cause	Potential results/consequences	Prevention/detection protection measures
Whole tyres	▪ Electrical/wiring. ▪ Electrical boards faults. ▪ Lighting faults. ▪ Unsafe storage. ▪ Hot works conducted nearby flammable materials. ▪ Arson. ▪ Smoking.	▪ Fire spreading to tyres and TDF/TDP. ▪ Toxic combustion products released to air and fire water. ▪ Spread of fire to other parts of the facilities (buildings and tyres). ▪ Building structures on fire potentially collapsing. ▪ Human health affected from smoke inhalation.	▪ Storage compliance with Guidelines for Bulk Storage of Rubber Tyres (RFS, 2014) and EPL. ▪ On-site fire suppression and warning systems. ▪ Fire emergency management planning. ▪ Site security systems. ▪ Equipment maintenance programs. ▪ Maintenance of electrical equipment. ▪ Enclosed warehouse operation reduces risk of arson. ▪ Provision for fire-water containment system. ▪ Hot-works procedure. ▪ Stock management plan. ▪ Smoking bans enforced with designated safe smoking areas.
Rubber crumb	▪ Electrical/wiring. ▪ Electrical boards faults. ▪ Lighting faults. ▪ Unsafe storage. ▪ Hot works conducted nearby flammable materials. ▪ Arson. ▪ Smoking.	▪ Fire spreading to tyres and tyre by-products. ▪ Toxic combustion products released to air and fire water. ▪ Spread of fire to other parts of the facilities (buildings and tyres). ▪ Building structures on fire potentially collapsing. ▪ Human health affected from smoke inhalation.	
TDF	▪ Faulty equipment used nearby or inside	▪ Fire involving TDF. ▪ Fire spreading to tyres and tyre by-products.	

Identified fire hazard (facility or event)	Potential cause	Potential results/consequences	Prevention/detection protection measures
	containers (e.g. forklifts). ▪ Hot works conducted nearby material. ▪ Arson. ▪ Smoking.	▪ Toxic combustion products released to air and fire water. ▪ Spread of fire to other parts of the facilities (buildings and tyres). ▪ Building structures on fire potentially collapsing. ▪ Human health affected from smoke inhalation	
Heat generated from the shredding plant	▪ Failure of the water-spray system in the shredders igniting due to excessive heat.	▪ Fire spreading to tyres and tyre by-products. ▪ Toxic combustion products released to air and fire water. ▪ Spread of fire to other parts of the facilities (buildings and tyres). ▪ Building structures on fire potentially collapsing. ▪ Human heal affected from smoke inhalation	▪ The water spray system is temperature controlled and failure of the system would alarm and stop the shredder. In addition, there is spark detection system and water sprays fitted in the Rasper and ducting. Upon detection of a spark, water is sprayed in localised area to extinguish.
Grass fire or bushfire threatening facilities	▪ Lightning. ▪ Arson. ▪ Uncontrolled or accidental fire.	▪ Potential to threatened buildings and combustible material stored on site. ▪ Toxic combustion products released to air and fire water ▪ Human health affected from smoke inhalation.	▪ Property and boundary maintenance ▪ Clearance zone along the boundary ▪ NSW RFS Fires Near Me App. ▪ Extreme weather alerts are included in toolbox talks. ▪ Education of workforce. ▪ Text alerts. ▪ Evacuation drills and procedures practices. ▪ On-site security to prevent unauthorised access.
Gas cylinders	▪ Unconstrained and uncontrolled use of gas cylinders. ▪ Inappropriate use and storage of cylinders. ▪ Cylinder leaks. ▪ Gas cylinder usage with faulty equipment (e.g. forklift) ▪ Smoking	▪ Gas leak combined with an ignition source creating a fire with potential to spread to buildings and combustible tyre materials. ▪ Human heal affected from gas inhalation.	▪ Operators trained in the handling and storage management of gas cylinders. ▪ Gas cylinders are contained at all times. ▪ Minimise volume of gas cylinders kept on site and order as needed. ▪ Smoking bans enforced with designated safe smoking areas.
Timber pallets/general	▪ Faulty equipment used nearby or inside	▪ Isolated fire at most, unlikely to be able to spread to	▪ Limit excess pallets on site (ordered every two months).

Identified fire hazard (facility or event)	Potential cause	Potential results/consequences	Prevention/detection protection measures
storage of combustibles	containers (e.g. Forklifts) ▪ Hot works conducted nearby material. ▪ Arson. ▪ Smoking.	other parts of the facility.	▪ Minimise accumulation of unnecessary combustibles. ▪ Regular safety audits.
Car batteries	▪ Batteries are stored inside the warehouse on pallets, in demarcated areas along the south wall of the warehouse. ▪ Batteries pose a risk of explosion if exposed to excessive heat and ignition source.	▪ Acid used in car batteries is very corrosive and can cause severe harm if in contact with workers. ▪ Potential consequence from explosion would create substantial risks to human health (nearby workers). ▪ A battery explosion could potentially initiate fire with any nearby combustible material.	▪ Car batteries stored in a cool, well ventilated area indoors away from incompatible chemicals. ▪ Storage area protected from potential physical damage to batteries from equipment and works conducted at site. ▪ Bunded pallets used for storage to capture any acid leakage. ▪ Areas are signed and demarcated. ▪ Spill kit is made available.
Used oil filters	▪ Faulty equipment used nearby or inside containers (e.g. forklifts). ▪ Hot works conducted nearby material. ▪ Arson. ▪ Smoking.	▪ Potential to act as a fire accelerant in the event of a fire, serving to increase fire intensity and heat generation and spread to tyres stored nearby. ▪ Toxic emissions. ▪ Human health affected from smoke and emissions.	▪ Contained in leak proof containers. ▪ Storage is inside, within signed and demarcated areas. ▪ Storage is away from incompatible materials. ▪ Spill kit available. ▪ Assess options to remove oil filters away from tyre storage.
Flammable goods	▪ Electrical/wiring. ▪ Electrical boards faults. ▪ Lighting faults. ▪ Unsafe storage. ▪ Hot works conducted nearby flammable materials. ▪ Arson. ▪ Smoking.	▪ Incorrect storage or use of hazardous goods leading to dangerous mix of chemicals. ▪ Toxic emissions. ▪ Human health affected from smoke and emissions. ▪ Flammable goods storage is sufficiently contained and not likely to spread further.	▪ Personnel trained in the handling and use of chemicals. ▪ Flammable liquid cabinet. ▪ Storage away from tyres. ▪ Chemical bunding. ▪ Clear and correct chemical labelling, handling and PPE. ▪ Current safety data sheets and chemical register. ▪ Hazardous substance and dangerous goods risk assessments. ▪ Chemical spill kits are in place. ▪ On-site security to prevent unauthorised access.
Office fire	▪ Electrical/wiring. ▪ Electrical boards faults.	▪ Faulty equipment causing a fire in the office space.	▪ Routine test tagging of electrical equipment.

Identified fire hazard (facility or event)	Potential cause	Potential results/consequences	Prevention/detection protection measures
	▪ Lighting faults. ▪ Overheating of computer equipment. ▪ Arson. ▪ Smoking.	▪ Fire spreading to other parts of the administration block. ▪ Building damage as a result of fire and fire suppression systems. ▪ Human health affected by smoke inhalation.	▪ Qualified electrical contractors. ▪ Routine office inspections and audits. ▪ Daily pre-start checks. ▪ On-site security to prevent unauthorised access.

Using the risk assessment matrix outlined in Equilibrium's report (Appendix N), the likelihood and consequence of each identified fire hazard, relevant to the project, has been evaluated in Table 5.14.

Table 5.14: Fire hazard likelihood and consequence analysis

Initial hazard and likelihood and consequence analysis				Residual likelihood and consequence		
Identified fire hazard (facility or event)	**Likelihood**	**Consequence**	**Risk Rating**	**Likelihood**	**Consequence**	**Risk Rating**
Whole tyres	B	4	High	A	4	Medium
Rubber crumb	B	4	High	A	4	Medium
TDF	B	4	High	A	4	Medium
Heat generated from the shredding plant	C	1	Low	A	1	Low
Grass fire or bushfire threatening facilities	A	3	Low	A	3	Low
Gas cylinders	C	2	Medium	A	2	Low
Timber pallets/general storage of combustibles	C	1	Low	A	1	Low
Car battery storage	B	4	High	A	4	Medium
Used oil filters	B	4	High	A	4	Medium
Flammable goods	C	2	Medium	A	2	Low
Office and computer room fire	C	2	High	A	2	Low

Risk to workers

As with any industrial facility, daily operations have inherent risk to workers and contractors. Such activities have the potential to result in injury or fatality if workers are ill informed of the hazards involved, or risks associated with equipment and plant are not managed. Examples of activities which could result in injury or fatality include crush injuries by moving plant and equipment, motor accidents or crush by heavy vehicles, or exposure to hazardous materials.

Tyrecycle has a workplace health and safety policy, as required by the NSW *Work Health and Safety Act 2011* (WHS Act), whereby workers must conform to. All workers, contractors and visitors are inducted on safety protocols and procedures before entering active parts of the site. All personnel working on the site are trained in safety procedures (such as LOTO[3]) and required to wear personal protective equipment (PPE) such as high visibility clothing, safety glasses, steel toe cap enclosed footwear and other task specific PPE such as gloves, hearing protection etc. Regular communication of safety requirements and initiatives is also undertaken on a regular basis.

Provided the implementation of workplace health and safety protocols during operation of the project, as required by the WHS Act and other relevant regulations or standards, the potential for injuries or fatalities to workers, contractors or visitors to the site would be minimised.

Designated first aid and emergency rescue facilities and equipment would be available at the site. Appropriately trained personnel will be on site throughout the life of the project and operation of the plant to provide first aid and respond to site emergencies.

Any injuries incurred at the site would be reported and investigated in consultation with SafeWork NSW and other relevant authorities as required and as outlined in Tyrecycle's incident management procedure. Any recommendations or findings of investigation reports would be implemented by Tyrecycle where feasible and practical.

Application of SEPP 33

SEPP 33 requires the consent authority to consider whether a development proposal is a potentially hazardous industry or a potentially offensive industry.

The project would require the storage and use of hazardous materials.

In context to SEPP 33, DPIE has published a guideline on the application of the SEPP to developments. The guideline is entitled *'Hazardous and Offensive Development Application Guidelines: Applying SEPP 33'* (NSW Department of Planning, January 2011).

The guideline states that this SEE needs to determine if the project will constitute a 'potentially hazardous industry'. If the project is a potentially hazardous industry, then the SEPP applies and the guideline states that a preliminary hazard analysis (PHA) should be undertaken as part of the SEE.

A 'hazardous industry' under SEPP 33 is one which, when all locational, technical, operational and organisational safeguards are employed, continues to pose a significant risk. A proposal cannot be considered a hazardous industry unless it is first identified as potentially hazardous industry and subjected to the assessment requirements of SEPP 33.

Potentially hazardous industry

A PHA is required if the screening process described in Applying SEPP 33 indicates the proposal is potentially hazardous.

The screening process involves comparing the type and quantity of hazardous materials or dangerous goods to be used and stored on-site to the distance to public area thresholds in Applying SEPP 33.

[3] LOTO Lockout/Tagout, or Control of Hazardous Energy (29 CFR 1910.147), is an safety procedure implemented to protect maintenance and service workers in the performance of their duties. It specifically addresses hazards that could inure employees from the unexpected energization or start up o machines or equipment, or when stored energy could be released, while servicing or maintain equipment. Employees are protected by LOTO to shut down the machine and ensure that it cannot activate while they are working on it.

As outlined above, the use and storage of minimal quantities of hazardous materials or dangerous goods would be required for the project. All hazardous materials or dangerous goods would be transported, handled, stored and managed in accordance with relevant regulations and industry standards and would not exceed the thresholds of Applying SEPP 33. As such, the project does not constitute a potentially hazardous industry, and the assessment requirements of the SEPP, including the requirement for a PHA, do not need to be included in this SEE.

Potentially offensive industry

Potentially offensive industry is where in the absence of safeguards and controls, the project could 'emit a polluting discharge that could cause a significant level of offence'. Examples of this may include depositional dust, or operational noise impacts on adjacent residents or land uses.

Applying SEPP 33 states that a proposal is potentially offensive if it requires pollution licensing from the EPA. The granting of the licence by the EPA for the existing operations is sufficient to demonstrate that emissions can be effectively managed and, therefore, the proposal is unlikely to be offensive. The project constitutes a 'scheduled activity' under the POEO Act and an EPL is required for operation of the project.

The project would emit pollutants which in the absence of safeguards could cause offense. However, management measures have been incorporated into relevant models, which have demonstrated that emissions would not exceed relevant criteria. Therefore, the project does not qualify as offensive development under SEPP 33.

Management and mitigation measures

Hazardous substances and dangerous goods management

The management objectives of hazardous substance storage and handling is to avoid contamination of soil and water, and to minimise risks to health and safety.

A Pollution and Incident Response Management Plan (PIRMP) would be developed by Tyrecycle for the project to manage any potential chemical or hydrocarbon spills. The PIRMP would include the following management and mitigation measures:

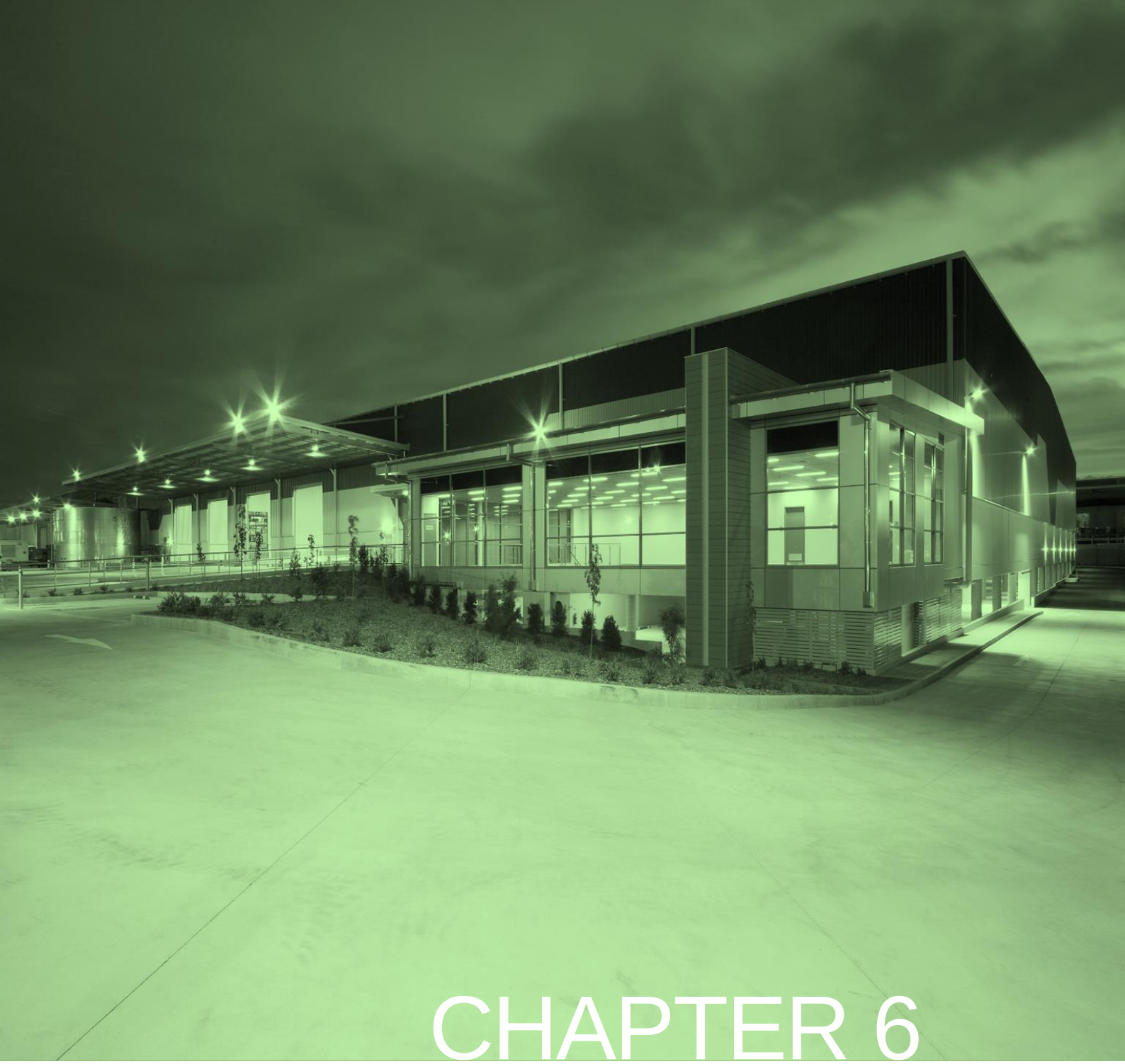
- All personnel would complete awareness training that includes hazardous substance management, emergency response and the use of spill kits.
- Appropriately sized and stocked spill response kits would be provided within strategic areas of the building, and within mobile vehicles used to transport hazardous materials to and from the site.
- Spill response kits would be maintained, clearly identified and readily accessible on site for use in case of accidental spillages. Key staff would be skilled in their location as well as usage, application and disposal of contaminated material;
- All potential chemical pollutants (e.g. fuels, oils, lubricants, paints, etc.) would be stored in appropriate containers in bunded areas within mobile vehicles, or designated storage areas to minimise the risk of spillages and mobilisation of any pollutants into stormwater drains.
- Equipment would not be used if there are any signs of fuel, oil or hydraulic leaks. Leaks would be repaired immediately, or the equipment will be removed from site and replaced with a leak-free item.
- Any contaminated material resulting from spills would be collected, classified in accordance with Waste Classification Guidelines, and disposed of at a licensed waste management facility.

Fire safety management

The following mitigation and management measures are recommended to minimise the potential for fire risks associated with the project:

- fire systems would be regularly maintained and tested in accordance with AS2118.1;

- storage and stacking of tyres, and tyre derived fuel, to be stored in accordance with the *NSW Guidelines for bulk storage of rubber tyres*
- the stacking of tyres and rubber crumb products would be limited to 3.8 m and 4.6 m respectively in height to ensure the existing fire systems at the warehouse remain compliant with AS2118 (refer to Appendix O).
- make provision so on-site containment of fire-water has the capacity to hold the projected volumes of fire-water in the event of a fire emergency; and
- site emergency procedures are maintained to ensure systems and people are prepared for emergency events that may involve fire.



CHAPTER 6
CONCLUSION

6 CONCLUSION

Tyrecycle is seeking approval to operate a tyre recycling facility within an existing leased warehouse at 1-21 Grady Crescent, Erskine Park with primary operational activities including:

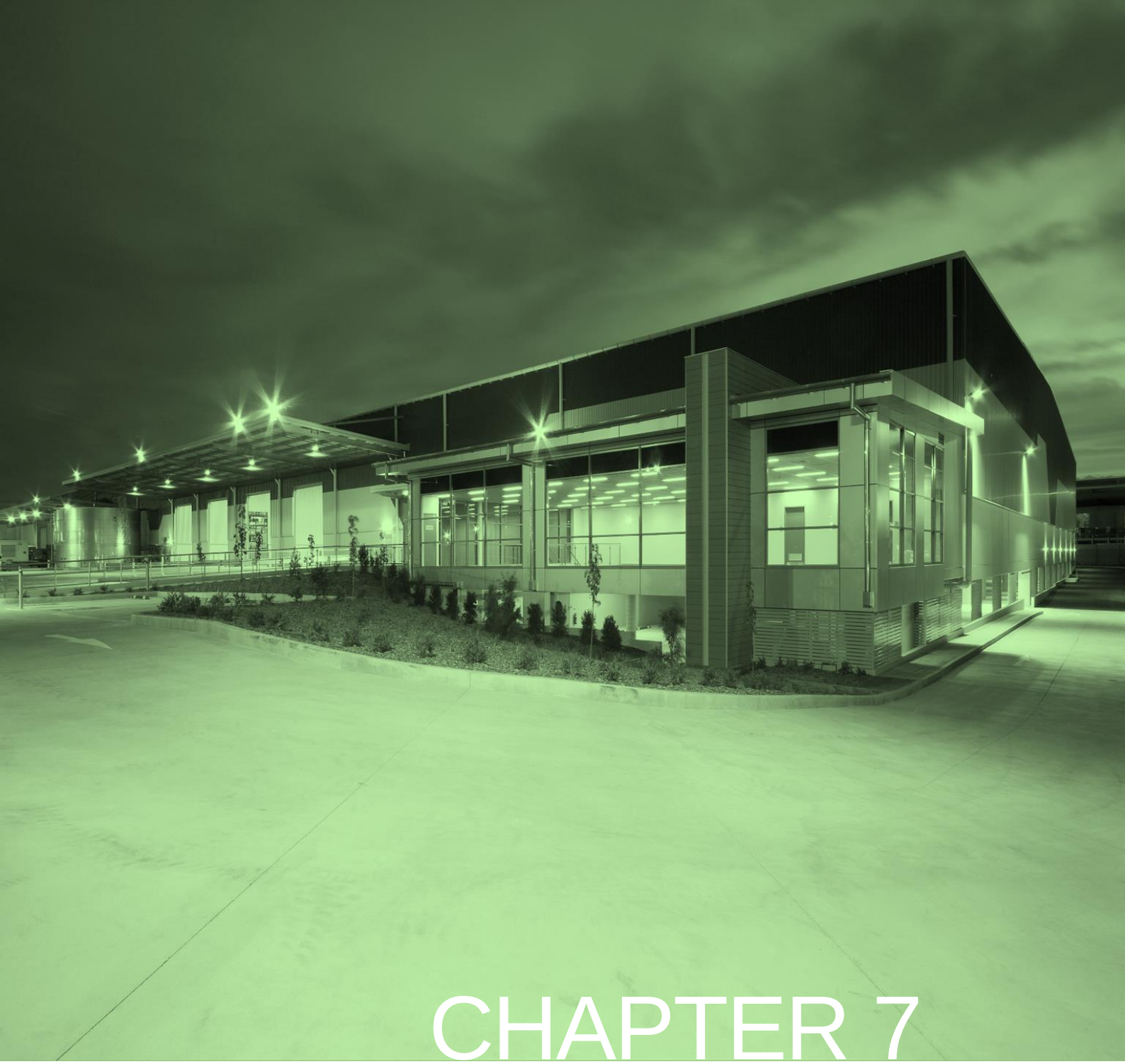
- receival and temporary storage of tyres;
- process and shredding of tyres (up to 29,000 tpa); and
- dispatch of processed TDF and TDP.

Element has prepared this SEE to accompany a DA for the project, and has prepared in accordance with the EP&A Act and in consultation with Council.

Potential impacts from the project on air quality, noise, traffic and other environmental aspects were assessed. It was determined that with the implementation of environmental management and mitigation measures as outlined in this SEE, there would not be significant alteration to the supporting biophysical and social environments as a result of the project. The project would result in positive economic benefits for the Penrith LGA.

The project is justified on economic, social and environmental grounds, as demonstrated with its consistency with the objects of the EP&A Act, SEPP WSEA and ESD.

Based upon the predicted environmental impacts of the project and the ability to manage these impacts to minimise harm to the environment, the project is unlikely to create any significant adverse environmental impacts on adjoining properties or prejudice the future use of land in the locality. It is therefore recommended that Council approve the application.



CHAPTER 7
REFERENCES

7 REFERENCES

(CES 2007) *Validation report Lenore Lane Erskine Park, Consulting Earth Scientists*, 2007

(DAWE 20120) *Australian Government Department of Agriculture, Water and the Environment , Product stewardship for end-of-life tyres*, website accessed July 2020 < https://www.environment.gov.au/protection/waste-resource-recovery/tyres>

(Equilibrium 2017) *Environmental Impact Statement – Increase in recycling activities at Tyrecycle St Marys facility*, Equilibrium, 2017

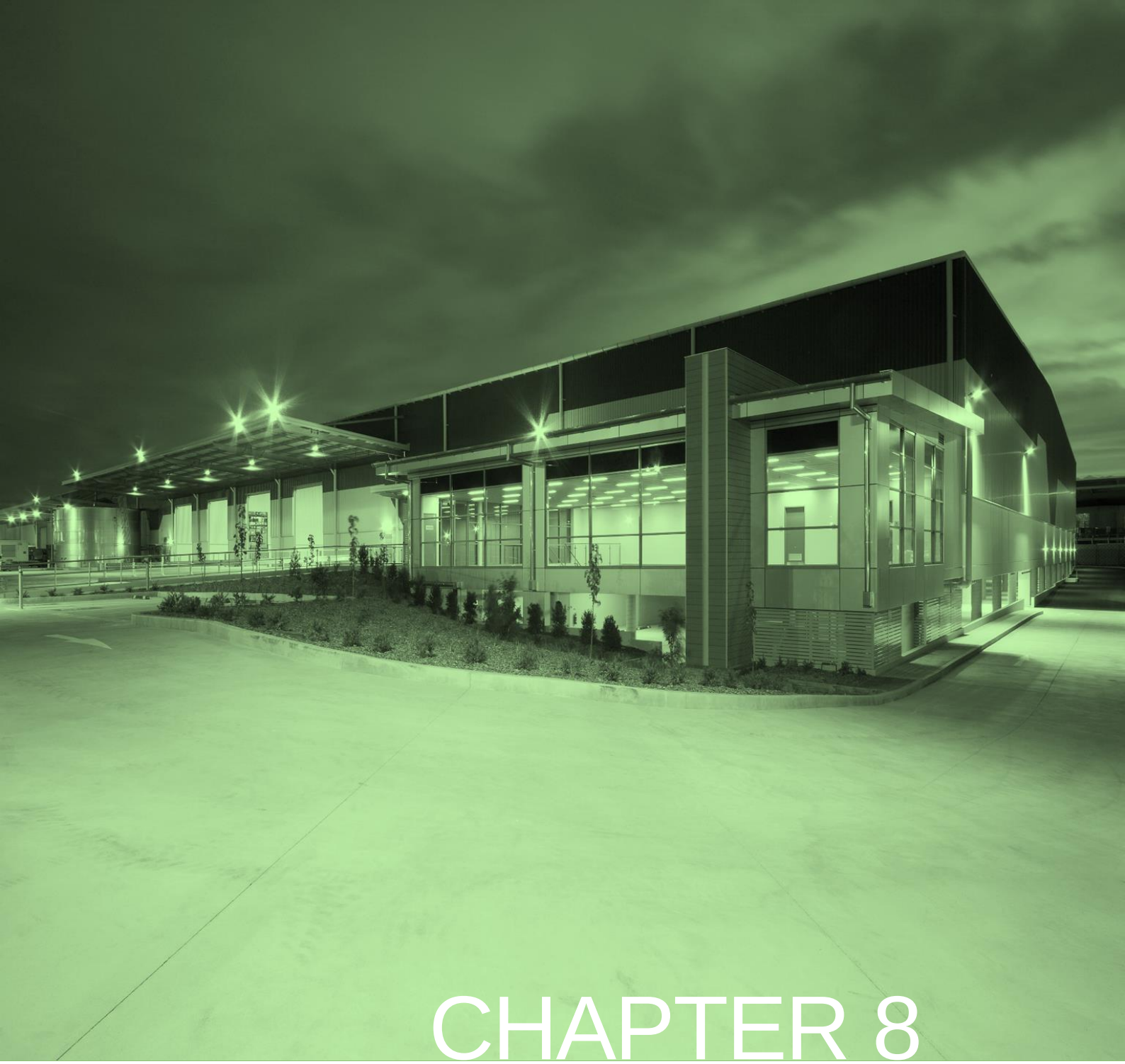
(FDC 2013) *Statement of Environmental Effects – Grady Crescent, Erskine Business Park*, FDC Construction and Fitout Pty Ltd, 2013

(Hyder Consulting 2015) *Stocks and Fate of End of Life Tyres – 2013-14 Study*, Hyder Consulting Pty Ltd, 2015

(National Transport Commission 2014) *Australian Dangerous Goods (ADG) Code*, National Transport Commission, Edition 7.3, 2014

(Navin Officer 2007) *Erskine Park Employment Area Archaeological Subsurface Testing Program*, Navin Officer, 2007

(NSW Department of Planning, 2011) *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines,* 2011



CHAPTER 8

APPENDIX LIST

8 APPENDIX LIST

Appendix A – Existing warehouse building survey and existing warehouse Architectural plans.

Appendix B – Operational Plan of Management (OPM)

Appendix C – Architectural plan (office layout)

Appendix D –Schematic of plant location and waste details

Appendix E – Electrical infrastructure plan

Appendix F – CIV statement

Appendix G – Existing landscape plan

Appendix H – Council's pre-lodgement notes

Appendix I – Noise Impact Assessment

Appendix J – Air Quality Impact Assessment

Appendix K – Traffic Impact Assessment

Appendix L – Existing stormwater management plan (civil survey)

Appendix M – Council's Waste Management Plan form

Appendix N – Equilibrium's risk assessment matrix

Appendix O – Fire compliance review

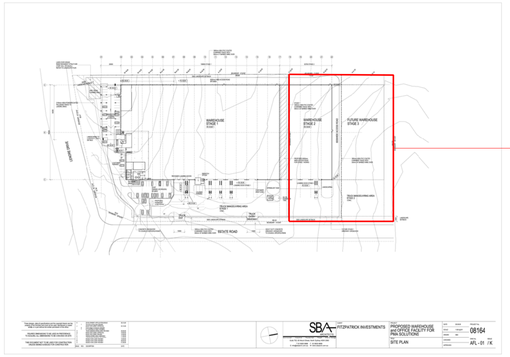
APPENDIX A

EXISTING WAREHOUSE BUILDING SURVEY AND EXISTING WAREHOUSE ARCHITECTURAL PLANS

DEVELOPMENT APPLICATION

PROPOSED NEW WAREHOUSE and OFFICE FACILITY

DRAWING REGISTER:

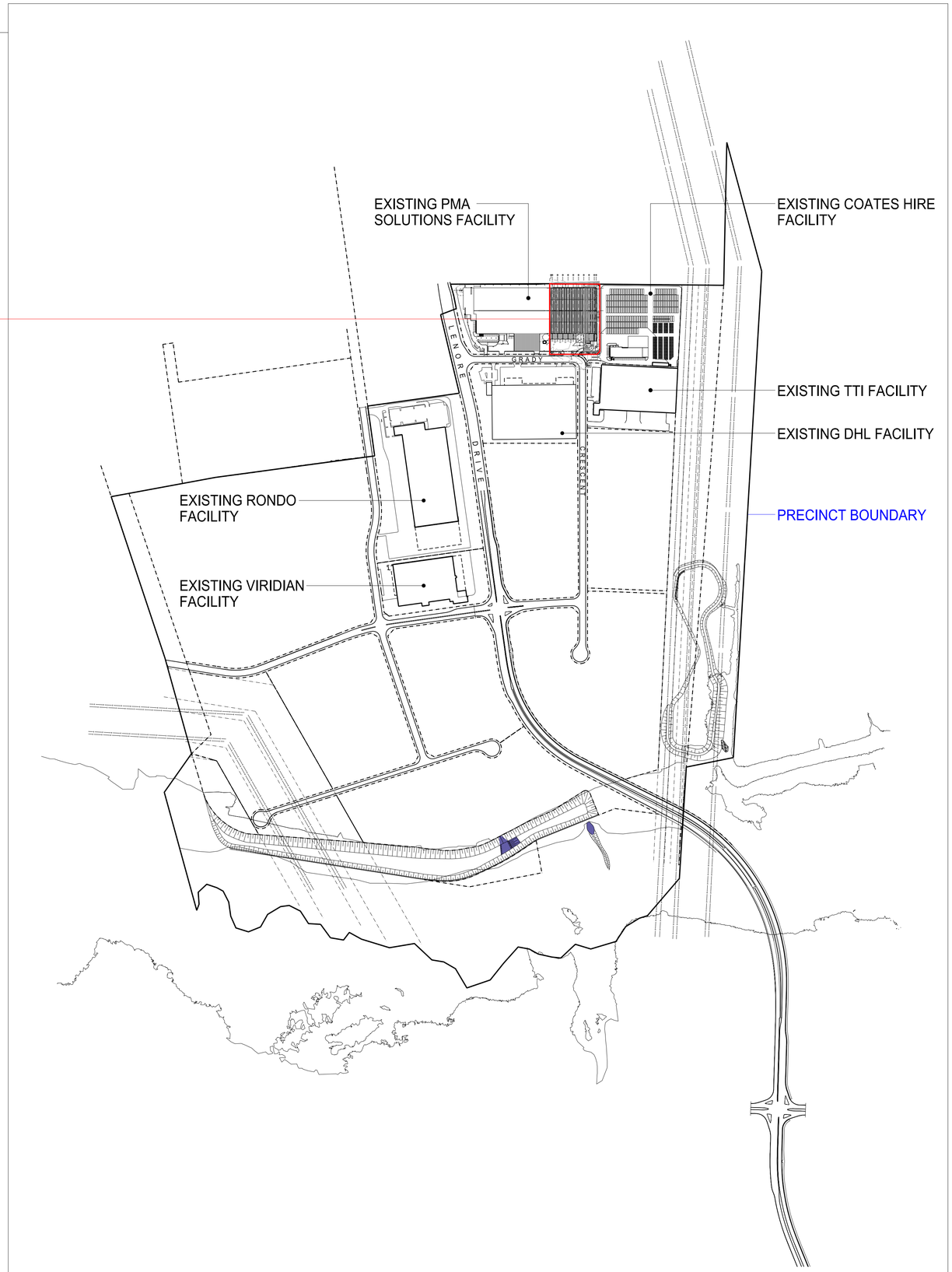


SITE LOCATION, ADJACENT TO EXISTING PMA SOLUTIONS FACILITY.

SITE LOCATED ON PREVIOUS **DA 08/1039** APPROVED STAGED DEVELOPMENT, EXTENSION TO EXISTING PMA SOLUTIONS FACILITY.

SITE FOR PROPOSED NEW WAREHOUSE and OFFICE FACILITY.

01 - ARIEL PHOTOGRAPH 1:5000



02 - LOCATION PLAN 1:5000

NORTH

ISSUE	REV:	DESCRIPTION	DATE
	F	ISSUE FOR DEVELOPMENT APPLICATION	21.02.2013
	E	ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
	D	ISSUE FOR CLIENT REVIEW & COORDINATION	16.01.2013
	C	ISSUE FOR CLIENT REVIEW & COORDINATION	09.01.2013
	B	ISSUE FOR CLIENT REVIEW & COORDINATION	06.01.2013
	A	ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

CLIENT

Fitzpatrick Investments

PROJECT

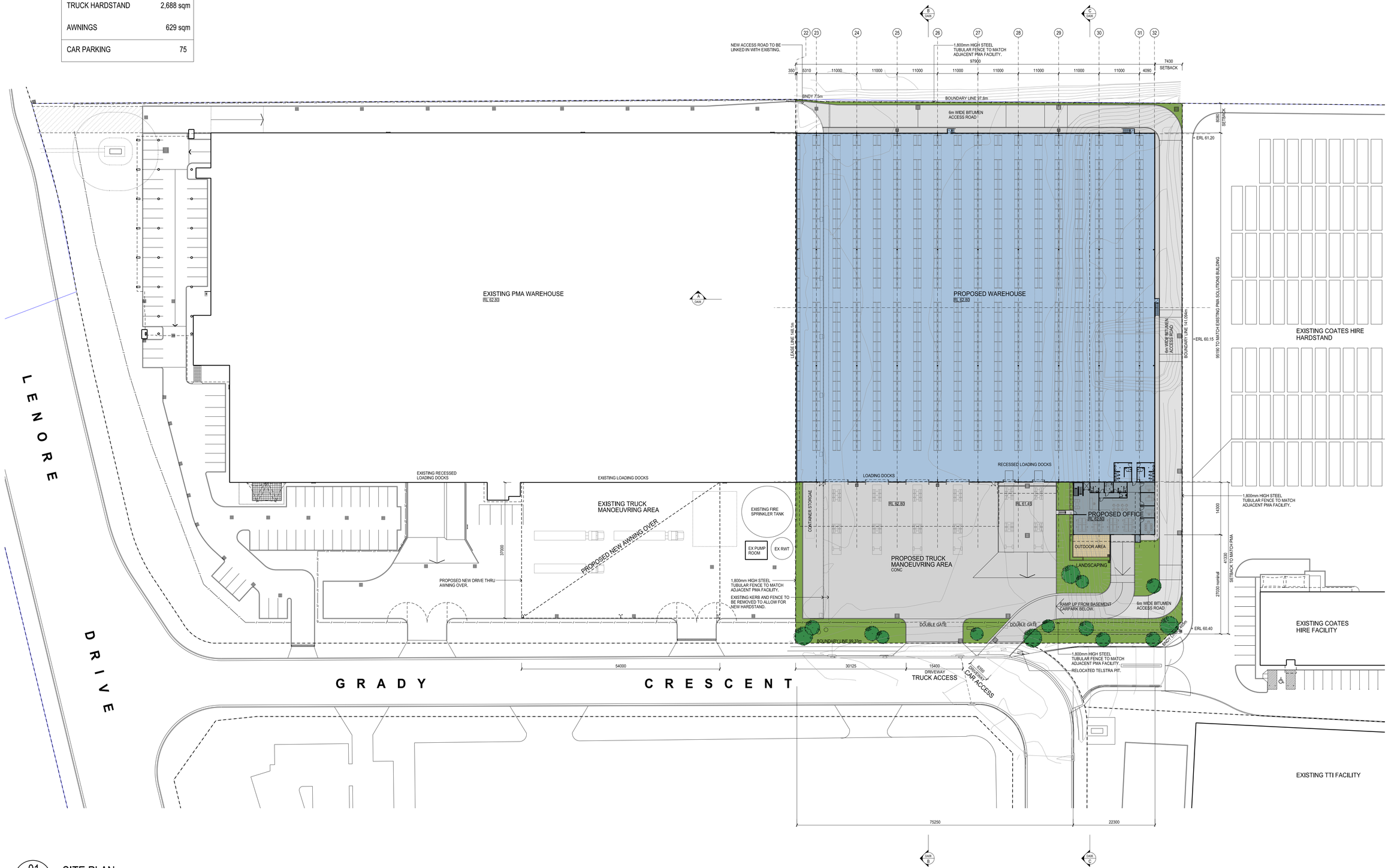
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE

PROPOSED SITE ANALYSIS PLAN

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:5000 @ A1		
DRAWN	RH	DWG No.	DA - 01 / F
CHECKED	GB	ISSUE	
APPROVED			

DEVELOPMENT AREA SCHEDULE	
SITE AREA	15,503 sqm
WAREHOUSE	9,300 sqm
OFFICE	320 sqm
OUTDOOR AREA & LUNCH ROOM	163 sqm
BASEMENT CAR PARK	1,893 sqm
TOTAL BUILDING AREA	**11,676 sqm**
TRUCK HARDSTAND	2,688 sqm
AWNINGS	629 sqm
CAR PARKING	75



01 - SITE PLAN 1:500

ISSUE	REV.	DESCRIPTION	DATE
	H	ISSUE FOR DEVELOPMENT APPLICATION	21.02.2013
	G	ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
	F	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	29.01.2013
	E	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
	D	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	17.01.2013
	C	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
	B	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
	A	ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Commercial | Industrial | Residential | Retail | Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SITE PLAN

DATE	23.11.2012
SCALE	1:500 @ A1
DRAWN	RH
CHECKED	GB
APPROVED	
PROJECT No.	12203
DWG No.	DA - 02
ISSUE	H

22 23 24 25 B DA06 26 27 28 29 C DA06 30 31 32

6m ACCESS ROAD BELOW

EJ

TYPICAL TRANSLUCENT ROOF SHEETING

2.5° FALL N/DR

EXISTING PMA WAREHOUSE ROOF

A DA06

PROPOSED WAREHOUSE ROOF

CONTINUOUS RIDGE VENTILATOR

EJ

TYPICAL TRANSLUCENT ROOF SHEETING

2.5° FALL N/DR

6m ACCESS ROAD BELOW

A DA06

EXISTING COATES HIRE HARDSTAND

PREFINISHED METAL EAVES GUTTER AND DOWNPIPES, COLOUR TO MATCH ROOF SHEETING.

PROPOSED NEW AWNING

3° FALL N/DR

EXISTING FIRE SPRINKLER TANK

EX PUMP ROOM

EX RWT

12m DEEP DOCK AWNING

3° FALL N/DR

3° FALL N/DR

3m DEEP AWNING

PROPOSED OFFICE ROOF

2.5° FALL N/DR

FEATURE BLADE.

PREFINISHED METAL EAVES GUTTER AND DOWNPIPES, COLOUR TO MATCH ROOF SHEETING.

1.2m HIGH DOWNTURN TO FRONT EGDE OF AWNING FOR EXTRA WEATHER PROTECTION.

TRUCK HARDSTAND BELOW

LANDSCAPING BELOW

B DA06

C DA06

01 - ROOF PLAN 1:250

NORTH

ISSUE	REV.	DESCRIPTION	DATE
	F	ISSUE FOR DEVELOPMENT APPLICATION	31.02.2013
	E	ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
	D	ISSUE FOR CLIENT REVIEW & COORDINATION	21.01.2013
	C	ISSUE FOR CLIENT REVIEW & COORDINATION	16.01.2013
	B	ISSUE FOR CLIENT REVIEW & COORDINATION	09.01.2013
	A	ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

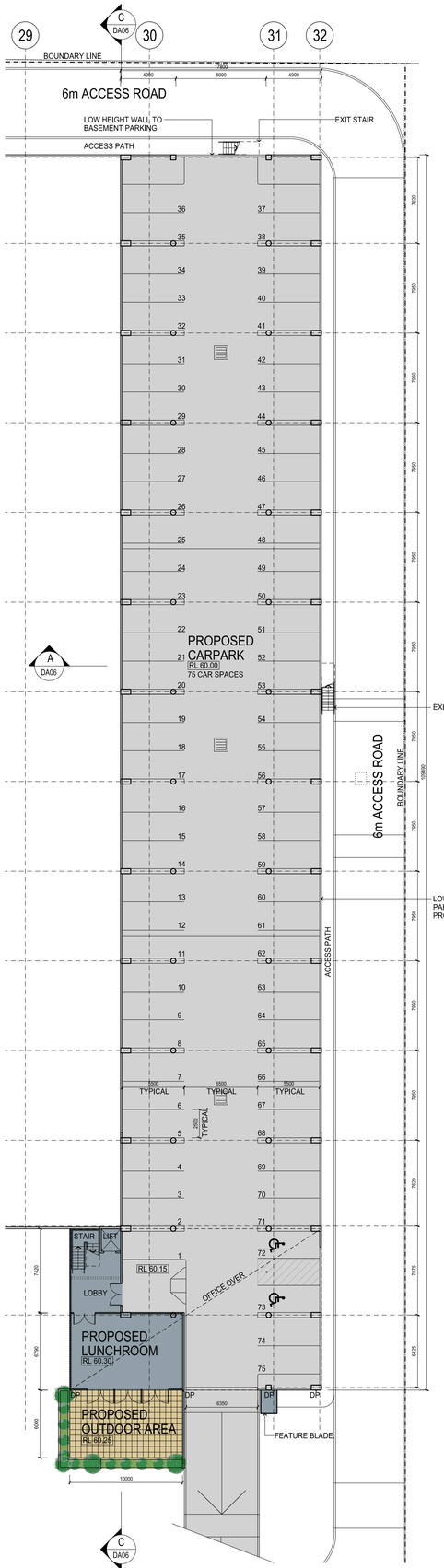
CLIENT

Fitzpatrick Investments

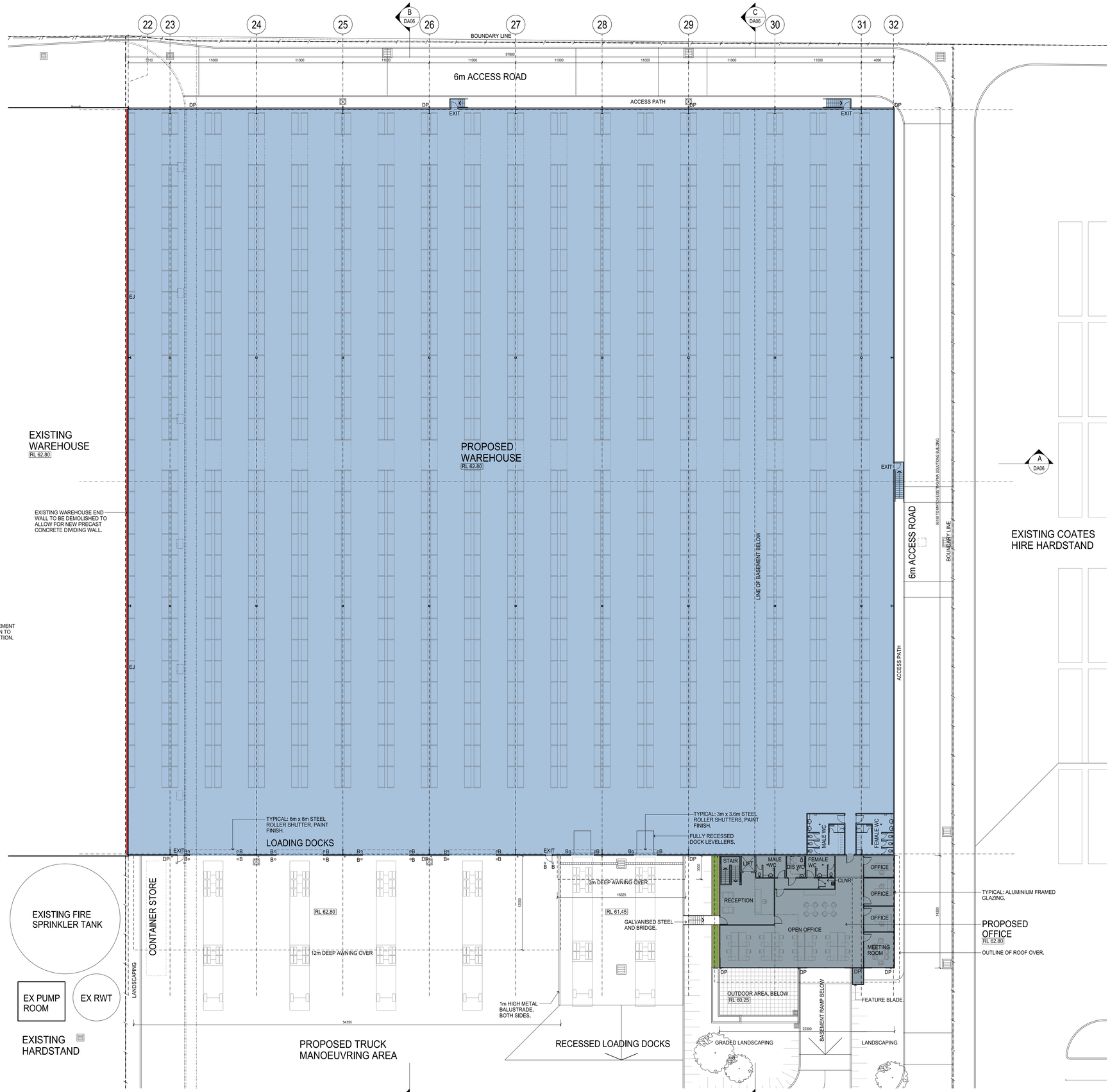
PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED ROOF PLAN

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	DA - 03 / F
CHECKED	GB	ISSUE	
APPROVED			



01 BASEMENT PLAN 1:250



02 GROUND PLAN 1:250

NORTH

ISSUE	REV:	DESCRIPTION	DATE
	E	ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
	D	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
	C	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
	B	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
	A	ISSUE FOR CLIENT REVIEW	19.12.2012

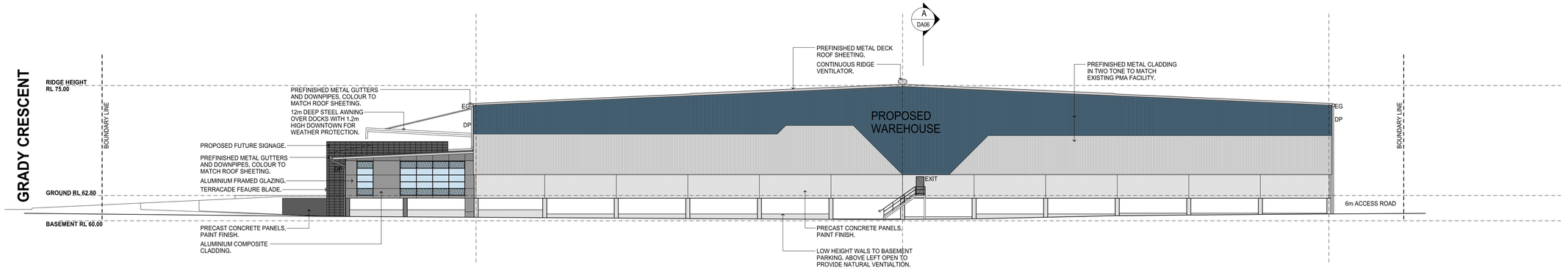
ARCHITECT
SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

CLIENT
Fitzpatrick Investments

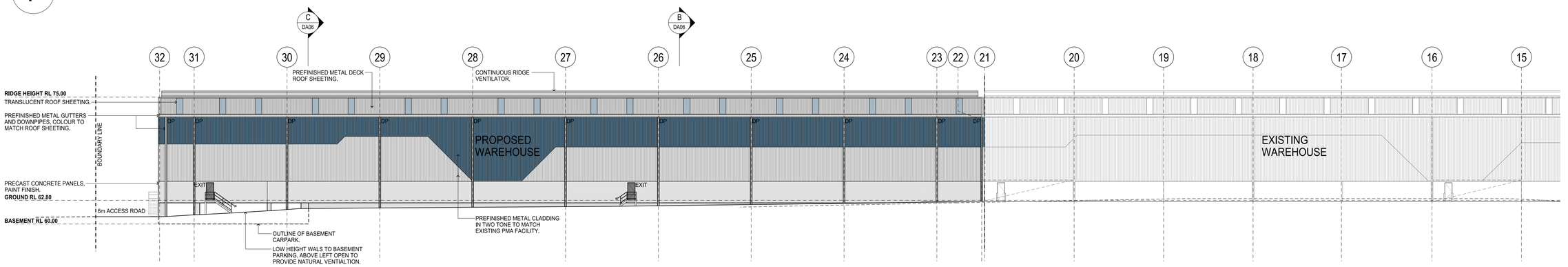
PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED BASEMENT and GROUND FLOOR PLANS

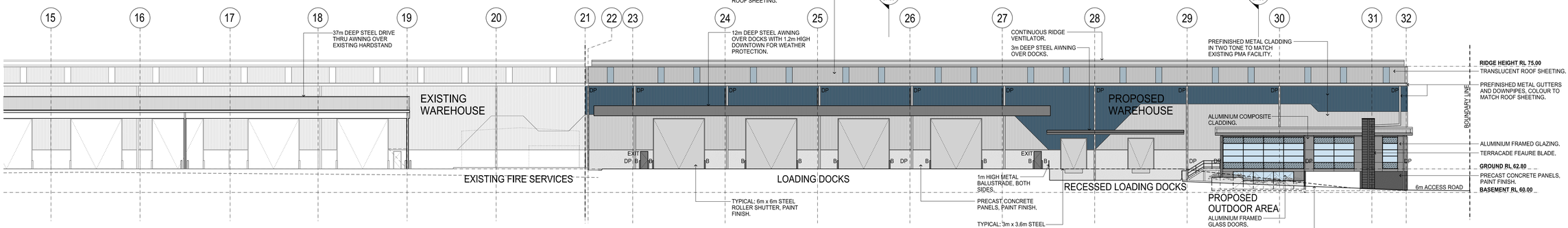
DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	DA - 04
CHECKED	GB	ISSUE	/ E
APPROVED			



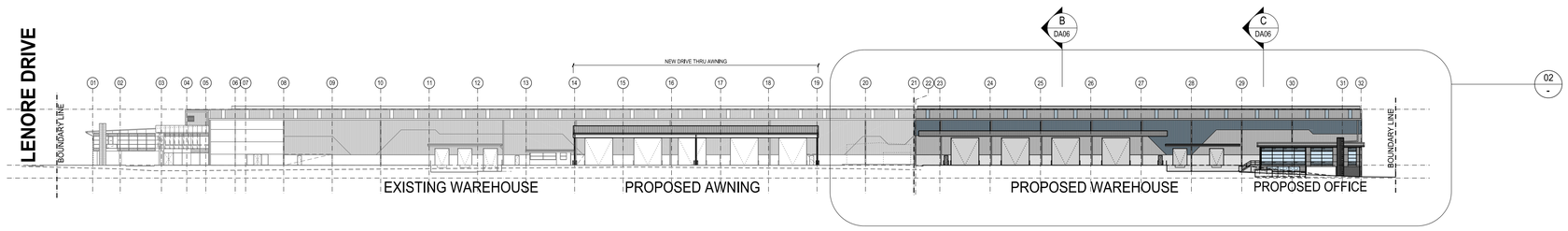
04 - NORTH ELEVATION 1:250



03 - PART WEST ELEVATION 1:250



02 - PART EAST ELEVATION 1:250



01 - OVERALL EAST ELEVATION 1:500

NORTH

ISSUE	REV.	DESCRIPTION	DATE
F		ISSUE FOR DEVELOPMENT APPLICATION	21.02.2013
E		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

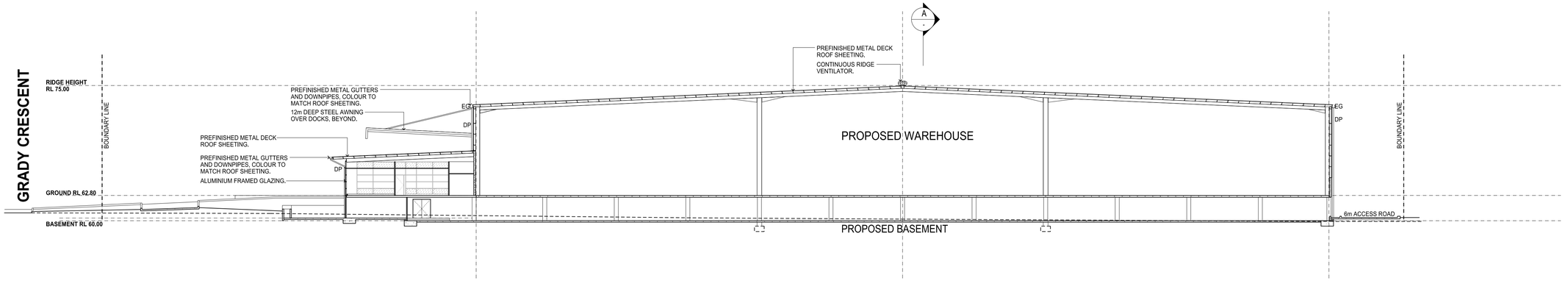
CLIENT

Fitzpatrick Investments

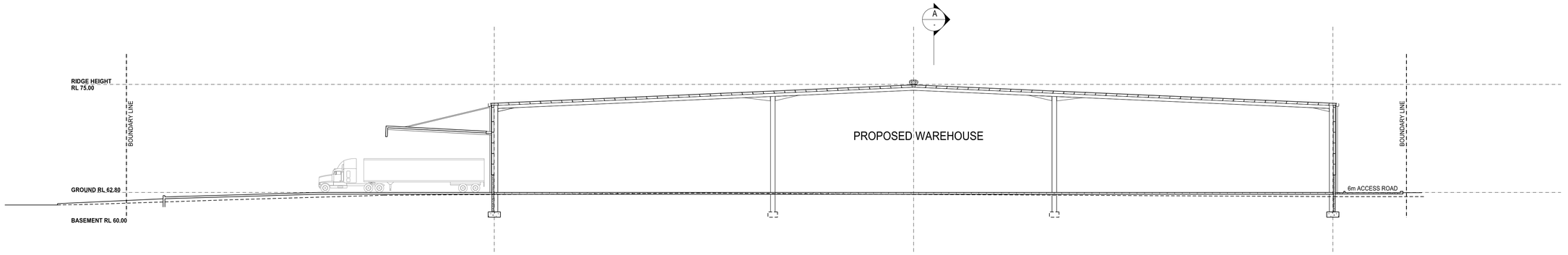
PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED ELEVATIONS

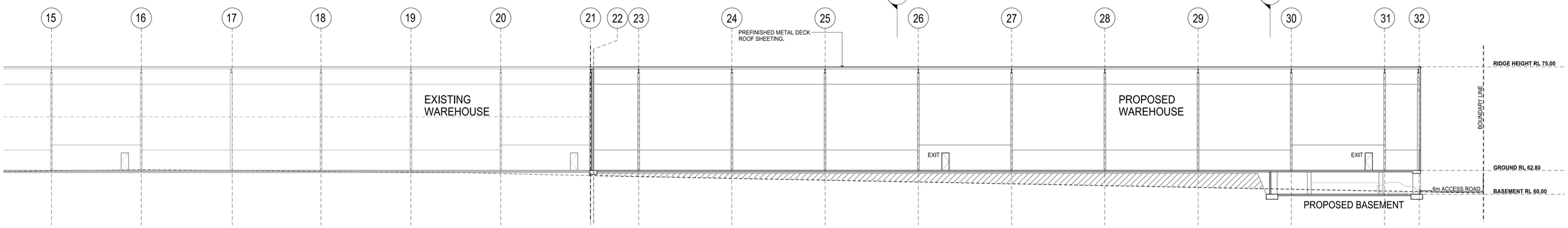
DATE	23.11.2012
SCALE	1:250 @ A1
DRAWN	RH
CHECKED	GB
APPROVED	
PROJECT No.	12203
DWG No.	DA - 05
ISSUE	/ F



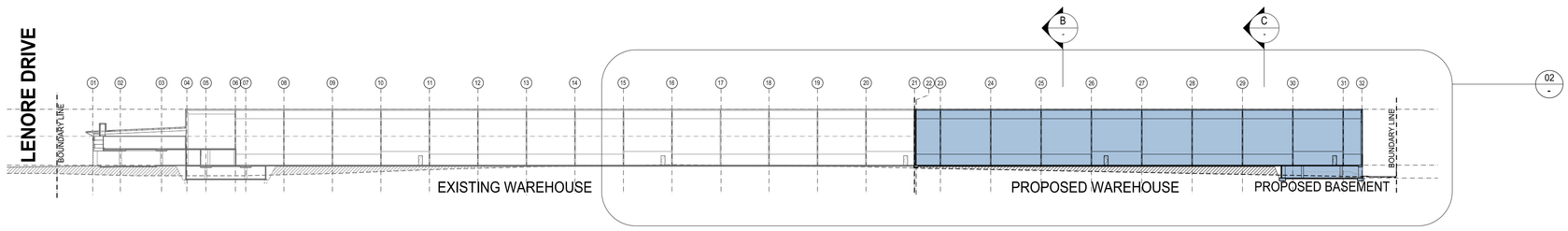
04 - SECTION C:C 1:250



03 - SECTION B:B 1:250



02 - PART SECTION A:A 1:250



01 - OVERALL SECTION A:A 1:500

NORTH

ISSUE	REV.	DESCRIPTION	DATE
	D	ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
	C	ISSUE FOR CLIENT REVIEW & COORDINATION	21.01.2013
	B	ISSUE FOR CLIENT REVIEW & COORDINATION	16.01.2013
	A	ISSUE FOR CLIENT REVIEW & COORDINATION	09.01.2013

ARCHITECT
SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SECTIONS

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	DA - 06 / D
CHECKED	GB	ISSUE	
APPROVED			

Fitzpatrick Investments

SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T: 02 9922 9688 F: 02 9929 8789
E: info@sbarch.com.au W: www.sbarch.com.au

ISSUE	REV.	DESCRIPTION	DATE
	A	ISSUE FOR CLIENT REVIEW	30.11.2012

CLIENT

P M A - P R O P O S E D A W N I N G

G R A D Y C R E S C E N T E R S K I N E P A R K

NORTH

DRAWING TITLE

PERSPECTIVE

DATE	SCALE	JOB NO.	DRAWING NO.	
29.11.2012	-	08164	SK 02	A

SP Site Setout Pty Ltd
Construction Surveying
ACN 084 902 661 ABN 69 084 902 661

Unit 36, 9 Hoyle Avenue
Castle Hill NSW 2154
Mobile: 0411 315 379
Administration: 02 9659 3316
Fax: 02 9659 3318
Email: stephen@spsite.com.au

8th April 2014 Reference: 423-Final

FDC Construction & Fitout
22-24 Junction Street
Forest Lodge NSW 2037

SURVEY REPORT

Property:- Pt Lot 2 DP 1152072
Location:- GRADY CRESCENT ERSKINE PARK
L.G.A.:- PENRITH
Survey:- ASBUILT POSITION AND LEVELS OF NEW WAREHOUSE/OFFICE EXTENSION

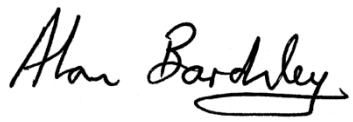
The abovementioned building has been surveyed in relation to the relative construction documentation overall site plan - drawing number 12203 GA-102 Issue D as prepared by SBA Architects Suite 702, 83 Mount Street, North Sydney, NSW 2060.

Constructed within the boundaries is a new concrete panel and metal clad warehouse extension with an associated glass and metal clad office with a metal roof.

The position relative to the existing boundaries has been surveyed and is shown on the attached sketch. I have surveyed the floor levels and highest visible structure being the warehouse roof ridge. These are:

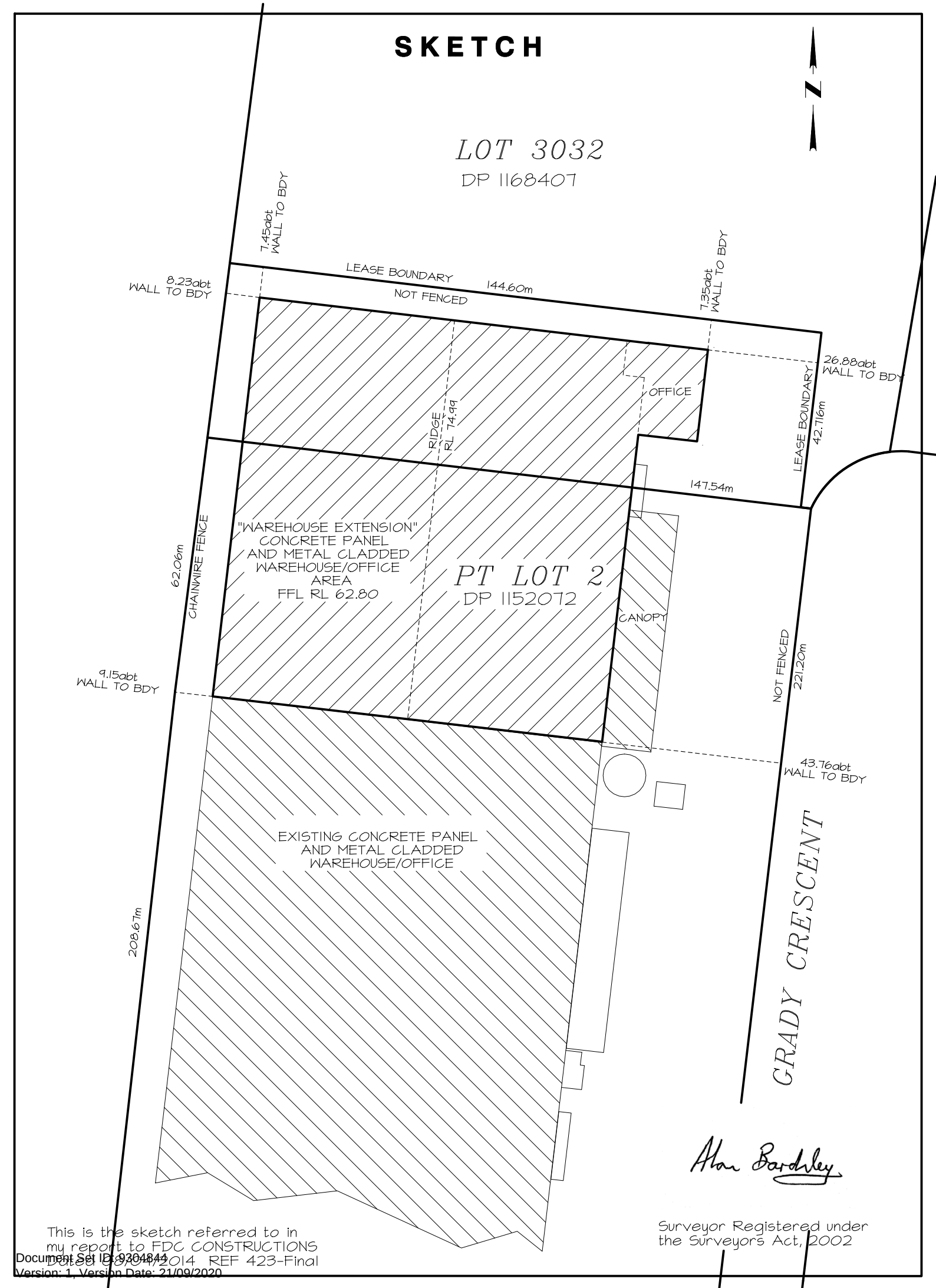
- Warehouse FFL: RL 62.80 (AHD)
- Office FFL: RL 62.80 (AHD)
- Warehouse Ridge: RL 74.99 (AHD)

Yours sincerely
SP SITE SETOUT PTY LTD



ALAN BARDSLEY
Surveyor Registered under
the Surveying Act 2002

SKETCH



This is the sketch referred to in my report to FDC CONSTRUCTIONS Dated 13/04/2014 REF 423-Final

Surveyor Registered under the Surveyors Act, 2002

APPENDIX B

OPERATIONAL PLAN OF MANAGEMENT

Tyrecycle Erskine Park | Tyre recycling facility

OPERATIONAL PLAN OF MANAGEMENT

Prepared for Tyrecycle Pty Ltd | 16 September 2020

Tyrecycle Erskine Park

TYRE RECYCLING FACILITY | OPERATIONAL PLAN OF MANAGEMENT

Prepared for Tyrecycle Pty Ltd
16 September 2020

[Element Project Number PR136

	Prepared by	Reviewed by
Name	Rachel Dodd	Luke Farrell
Company	Element Environment	Element Environment
Position	Senior Environmental Consultant	Senior Environmental Consultant
Project Role	Lead Author	Project Manager
Signature	[redacted]	
Date	16 September 2020	16 September 2020

DOCUMENT CONTROL

Revision	Date	Description	Prepared by	Reviewed by
0	31 August 2020	For Tyrecycle review	Element Environment	Tyrecycle Pty Ltd
1	16 September 2020	For submission to Council (within the Appendix of the SEE)	Element Environment	Tyrecycle Pty Ltd

Contents

Tables

1 INTRODUCTION

This operational plan of management (OPM) has been prepared on behalf of Tyrecycle Pty Ltd (Tyrecycle) to support the development application (DA) for a proposed tyre recycling facility at 1-21 Grady Crescent, Erskine Park.

1.1 Purpose of operational plan of management

This OPM is a dynamic document which can be updated to respond to changing procedures and practices.

This OPM will be complied with by all operators on the site and should be read in conjunction with the Statement of Environmental Effects (SEE) and subsequent development consent issued for the site.

The objectives of the OMP are to:

- assist Council to understand all activities at the site to the fullest extent possible;
- demonstrate the project commitment to the ongoing amenity of staff, and adjoining and nearby properties;
- set out the specific operational process for the facility and activities on site;
- detail times each activity is undertaken (in terms of 24 hour operations), including staff movements, deliveries, plant and machinery, vehicle movements and other specific project operations;
- outline key mitigation measures and safeguards outlined within the SEE; and
- set out specific actions and procedures including how to remedy community complaints.

1.2 The site

The site is within an existing leased warehouse and distribution complex in the Erskine Business Park at 1-21 Grady Crescent, Erskine Park (Lot 4, DP 1253870). The site is approximately 10.8 kilometres (km) southwest of Blacktown and approximately 5.6 km southeast of St Marys. The project and site is further described within the SEE.

2 OPERATION

2.1 Proposed project

Tyrecycle is seeking approval to operate a tyre recycling facility (the 'project'), with primary operational activities including:

- receival and temporary storage of tyres;
- processing and shredding of tyres (up to 29,000 tonnes per annum); and
- dispatch of processed tyre derived fuel (TDF) and other tyre derived products (TDP).

2.2 Activities and operational process

The project would be contained within the northern section of the existing warehouse building (covering a total floor space of 9,620 m^2), which has capacity to house new plant and equipment, without the need to expand or upgrade the existing warehouse building. The project will require minor alterations to electrical and fire safety infrastructure at the site, however no significant earthworks or ground disturbance will be necessary. New, state of the art, operational plant will be designed to fit within the existing warehouse footprint. A ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building (western side of the building).

Appendix C of the SEE provides a detailed architectural plan outlining the floor plans of the office layout.

Mechanical processing plant and equipment within the warehouse building is likely to include a combination of the following:

- Weighbridge.
- Tyre receival and storage bay.
- Tyre feeder.
- Primary shredder – super chopper.
- Two secondary process – rasper.
- Primary granulator.
- Primary classifier – textile/fabric separation.
- Secondary granulation.
- Secondary classifier – textile/fibre separation.
- Aspirator – classification of granular product.
- Cracker mill.
- Sieve.
- Bulk bag stations.
- Steel cleaning plant.
- Two dust extraction and air filtration systems.
- Waste storage and collection areas.
- Conveyor.
- Forklift.
- Skidsteer loader.
- Front-end-loader.

Appendix D of the SEE includes the existing architectural plan of the warehouse overlayed with a schematic (approximate location only not drawn to scale) of the new state of the art operational plant, which will be located within the existing warehouse building. **Appendix D** of the SEE also shows the approximate location of waste bins for collection.

The operational process is outlined in Table 2.1.

Table 2.1: Operational process

Operational process	Operational detail
Receival and storage of tyres	Tyres are collected by the Tyrecycle truck fleet, weighed in over the weighbridge and then unloaded into dedicated storage areas in the warehouse, ready for processing. In the absence of a mechanical breakdown within the plant, it is anticipated that all feedstock collected will be processed within 24 hours of receipt.
Tyre feeding	Tyres are fed into the tyre feeder utilising mobile plant. The main purpose of the tyre feeder is to buffer the tyres to ensure automatic and continuous feeding to the super chopper.
Primary shredder – super chopper	The super chopper is fed by the tyre feeder. In the super chopper, the tyres are processed through a set of knives and reduced to a rubber chip of approximately 6 inches in size. The material from the super chopper is discharged through a disc screen that separates oversized material from material that is uniformly 6 inches in size. The oversized material is returned to the super chopper for further processing and the material that passes through the screen is the first product stream (6 inch TDF).
Secondary shredding – raspers	A reversible conveyer allows the 6 inch product from the super chopper to feed into two raspers. One of the raspers converts the 6 inch chips into 1.5 inch TDF, which is one of the final products. The second rasper is connected to the granulation line and material from the rasper is further reduced in size during the granulation process. During the rasping process, the steel reinforcement of the tyre is removed as a by-product for sale as recyclable steel.
Granulation	The granulation line consists of a primary and secondary granulator, each with a classifier, and a central aspirator. The granulators further reduce the size of the granules, and in the process liberates the fabric/textile and additional steel.
Fabric/textile separation	The new state of the art operational plant, includes a fabric separator, allowing processing of a combination of passenger and truck tyres into rubber crumb in the one facility. After liberation by the granulators, the classifiers remove the fabric/textile and any remaining steel as a by-product for sale as an alternate energy source and recyclable steel. The rubber product then passes through the aspirator where it is further classified and either bagged as granular product (third final product with some 'work in progress' for later processing in the cracker mill) or processed directly through the cracker mill.
Cracker mill	The cracker mill is fed with the granular product from the aspirator or WIP bulk bags. The energy efficient cracker mill utilises two large rolls, rotating at different speeds. The granular rubber is forced through a small gap between the rolls, sheering the rubber, further reducing the size of the granules to 30 mesh[1] or 40 mesh crumbed rubber. The product from the cracker mill is passed over a screen with oversized material

[1] Mesh is the unit uses for sizing of the rubber crumb. 30 mesh is equivalent to 0.595 mm.

Operational process	Operational detail
	returned to the cracker mill for another pass through the mill. Material that meets the specification is conveyed to the bulk bagging area and placed into bulk bags as 30 or 40 mesh (final product).
Fabric separator	The fabric separator, allows processing of passenger and truck tyres in the one facility. During the process, the steel and textile (fibre from passenger/4WD tyres) are removed as by-products for sale as recyclable steel and textile.
Dispatch of processed tyres	The TDF is loaded into shipping containers, ready for export. Bulk bags (on standard pallets) of granular material and crumbed rubber is stored in pallet racking and delivered to customers utilising B-doubles.

2.3 Further detail on project operations

Table 2.2 provides further operational details of the project.

Table 2.2 Project operations

Operational aspect	Comment
Volume of material processed per annum	The project would process up to 29,000 tpa, recovering the following products: ▪ 30 Mesh – 9,397 tpa; ▪ 1.5 inch TDF – 12,620 tpa; ▪ Steel – 4,344 tpa; and ▪ Fibre/Textile – 2,639 tpa.
Size and area of warehouse required.	9,620m^2 (9,300 m^2 warehouse and 320m^2 ancillary office).
Employment	The project will generally operate across three shifts as follows: ▪ Day shift (7 am to 3 pm) – 24 full time employees ▪ Afternoon shift (3 pm – 11 pm) – three full time employees. ▪ Night shift (11 pm to 7 am) – three full time employees. The operations would be supported by four full time management staff who will typically work from 8 am to 5 pm weekdays.
Hours of operation	24 hours per day, seven days a week.
Proposed operating hours per activity	▪ Trucks (collection): - Monday – Friday: > Day: 4 am to 6 pm. > Night: 5 pm to 1 am. - Saturday: 4 am to 6 pm (as required). ▪ Plant operation (shredding): Monday – Friday, 7 am start and Saturday, 7 am finish ▪ Plant operation (crumbing): 24 hours, seven days per week. ▪ Deliveries (containers): Monday – Friday 8 am to 5 pm and Saturday 8 am to 6 pm (as required)
Vehicle access and parking	Vehicle access is as per the existing arrangements specified in Error! Reference source not found.. The maximum number of car spaces required at any one time is 28 (comprising employees for the day shift, and management personnel). The parking requirements for the project can be accommodated by existing parking available at the site. Heavy vehicles would be parked in the loading dock of the site when not in use.
Utilities and servicing	The project would not require the construction of additional utility infrastructure (other than minor electrical upgrade) and would continue to be serviced by existing utilities.

Operational aspect	Comment
	The following minor alterations/upgrades would be required: ▪ The project would require minor upgrade to electrical infrastructure, with the current 500 kilovolt ampere (kVA) transformer upgraded to 3,500 kVA. **Appendix E** of the SEE includes the electrical infrastructure plan. ▪ The existing fire system at the warehouse was reviewed by a qualified fire engineer and considered project parameters (including materials to be stored and height of stacking), with the existing fire system to remain compliant with AS 2118:1 during operation of the project. No upgrade to the existing fire systems are required for the project. ▪ A ventilation (air filtration) system for the plant would be installed and require two small openings to be constructed within the roof of the existing warehouse building (western side of the building), protruding through the roof by approximately two metres. Despite this, the pitch on the existing roof would account for a similar distance and as such, the vents would not significantly alter the current visual amenity of the warehouse.
Traffic generation and internal movements	The project would generate the following traffic during the morning and afternoon peak: ▪ Morning peak (5 am to 7 am) - seven outbound heavy vehicles trips and 30 light vehicle trips (25 inbound and 5 outbound). ▪ Afternoon peak (4 pm to 6 pm) - seven inbound heavy vehicles trips and 30 light vehicle trips (5 inbound and 25 outbound). The above traffic generation is considered a worst case scenario, however it is likely that heavy vehicles which depart the site in the morning peak would depart and return at staggered times of the day. Heavy vehicles associated with the project would vary in size, with the most common vehicle type being rigid trucks, and largest a B-Double truck. As heavy vehicles return to site with tyres, they would drive into the warehouse, offload the tyres into the designated area inside the warehouse, from which a front end loader would move the product within the warehouse to the tyre feeder feeding the processing equipment. Tyre retailers may also deliver tyres to the warehouse periodically throughout business hours (8 am to 5 pm). General deliveries to the site would also occur periodically throughout business hours as required. It is estimated that an average of 125 containers of tyre products would be delivered or collected by customers per month (average of six per day). Forklift and Bobcat (skid-steer loader) movements will occur inside the warehouse during operational hours. Forklifts used as part of the operation would unload incoming tyres, and load palletised crumbed and granule product into pallet racking for storage or onto outgoing B-Double trucks. It is estimated that approximately 50 pallets would be loaded and dispatched per day, equating to approximately two B-Double collections per day.
Lighting requirements	The project would utilise existing lighting at the warehouse during night operations. There is no requirement to upgrade existing lighting at the site.
Building code requirements	A Building Code of Australia/NCC Compliance Assessment report will be provided separately to Council.
Security requirements	▪ Security fencing: The existing security fencing for the site does not require upgrading for the project. ▪ On-site security system: The warehouse building is alarmed to prevent unauthorised access. ▪ Security lighting. ▪ CCTV. ▪ Security gates (gate to be left open during the day and shut overnight and on weekends).
Signage requirements	The following signage will be required for the site: ▪ Site safety sign: This will be free standing and dimensions approximately 3015 millimetres (mm) x 1500 mm. ▪ Tyrecycle branding sign: The sign will be located on the front of the building against the Terracotta wall at the office entry. The final dimensions and type of this sign will depend on available wall space and material. The sign will not impact traffic or distract in any unlawful way.

Operational aspect	Comment
	▪ Tyrecycle quality signage: This sign would be located on the building near the loading docks. The dimensions will be approximately 1220 mm x 2440 mm.
Amenities	The project would be serviced by existing amenities within the administration office. Such amenities would include toilet and hand washing facilities, kitchen and break room. The internal floor space of the existing office facility would be modified as part of the project to accommodate a meeting room and other desirable operational requirements. Refer to **Appendix C** of the SEE for an office layout plan.
Capital investment value (CIV)	Refer to **Appendix F** of the SEE.
Commencement of operations	The project is anticipated to commence in December 2020 (subject to approval), with establishment of plant and equipment to take up to two months prior to the commencement of operations.
Landscaping	Existing landscaping from the warehouse includes a selected range of Australian native ground covers, shrubs and non-deciduous trees to the local areas. The existing landscape plan for the warehouse building was prepared by Viridian Designs and is included in **Appendix G** of the SEE. The project would require minor upgrade to electrical infrastructure, with the current 500 kilovolt ampere (kVA) transformer upgraded to 3,500 kVA. This would result in an additional substation to be located within the site, requiring the removal of one juvenile Spotted Gum (*Corymbia maculate*).
Waste management	Refer to section **Error! Reference source not found.** and **Appendix M** of the SEE.
Public safety management	Public safety risks may arise from un-authorised access of members of the public. All visitors to the site are required to report to the site administration office and register prior to gaining entry to the active areas of the site.
Work health and safety	Tyrecycle has a workplace health and safety policy, as required by the NSW *Work Health and Safety Act 2011* (WHS Act), whereby workers must conform to. All workers, contractors and visitors are inducted on safety protocols and procedures before entering active parts of the site. All personnel working on the site are trained in safety procedures (such as LOTO[2]) and required to wear personal protective equipment (PPE) such as high visibility clothing, safety glasses, steel toe cap enclosed footwear and other task specific PPE such as gloves, hearing protection etc. Regular communication of safety requirements and initiatives is also undertaken on a regular basis. Provided the implementation of workplace health and safety protocols during operation of the project, as required by the WHS Act and other relevant regulations or standards, the potential for injuries or fatalities to workers, contractors or visitors to the site would be minimised. Designated first aid and emergency rescue facilities and equipment would be available at the site. Appropriately trained personnel will be on site throughout the life of the project and operation of the plant to provide first aid and respond to site emergencies. Any injuries incurred at the site would be reported and investigated in consultation with SafeWork NSW and other relevant authorities as required and as outlined in Tyrecycle's incident management procedure. Any recommendations or findings of investigation reports would be implemented by Tyrecycle where feasible and practical.
Environmental management and impacts	Refer to the SEE for key environmental risks and management measures. Table 2.3 provides a summary of mitigation measures/safeguards outlined in the SEE.

[2] LOTO Lockout/Tagout, or Control of Hazardous Energy (29 CFR 1910.147), is an safety proecudre implemented to protect maintenance and service workers in the performance of their duties. It specifically addresses hazards that could inure employees from the unexpected energization or start up o machines or equipment, or when stored energy could be released, while servicing or maintain equipment. Employees are protected by LOTO to shut down the machine and ensure that it cannot activate while they are working on it.

2.4 SEE safeguards

Table 2.3 lists key mitigation measures outlined within the SEE.

Table 2.3: Summary of key mitigation measures outlined within the SEE

Aspect	Mitigation measure
Noise	Keep roller doors closed where possible.
	Truck engines to be switched off when not in use for extended periods.
	Noise complaints should be logged and investigated.
Dust (general)	Engines of on-site vehicles and plant to be switched off when not in use.
	Vehicles and plant are to be fitted with pollution reduction devices where practicable.
	Vehicles are to be maintained and serviced according to manufacturer's specifications.
	Visual monitoring of activities is to be undertaken to identify dust generation.
	Cyclones (air filtration system) to be maintained and operated in accordance with manufacturer's specification.
Dust (material handling)	Reduce drop heights from loading and handling equipment where practical.
Dust (hauling activities)	Spills on trafficked areas to be cleaned immediately.
	Driveways and hardstand areas to be swept/cleaned regularly as required etc.
	Vehicle traffic is to be restricted to designated routes.
	Co-ordinate the delivery schedule to avoid a queue of the incoming or outgoing trucks for extended periods of time.
	Speed limits are to be enforced.
	Vehicle loads are to be covered/secured when travelling off-site to prevent spillage.
	Regularly inspect roads and maintain surfaces to remove potholes or depressions.
Traffic and access	A Loading Dock Management Plan is recommended to ensure that only three trucks are parked in the loading bay and the other three truck spaces are vacant during the times when B-Doubles access the site
	Although the vehicle access, circulation, aisle width and car space dimensions comply with AS 2890.1 and 2890.2, however, two convex safety mirrors are recommended in the basement level car park between car spaces 12 and 13, and 15 and 16 to avoid conflict between entering and existing vehicles.
Contamination	All transportation vehicles will be refuelled off-site, with forklifts and other mobile equipment periodically re-fuelled within a bunded area of the warehouse. Personnel will regularly check and maintain machinery to minimise the risk of oil leaks. The re-fuelling of mobile equipment at the site and storage of oil filters in bunded areas

Aspect	Mitigation measure
	would also minimise the potential for leaks and spills to enter the Council stormwater system along Grady Crescent.
	If contaminated material (such as absorbent material for leaks and spills) is generated during operation of the project, relevant statutory requirements, including waste classification, will be complied with, and the material managed and disposed of appropriately.
Waste management	Waste management practices would be managed as set out in the WARR Act by adopting the principles of the waste management hierarchy during the project's operations.
	Regular programmed maintenance of the shredder system to ensure efficient operation, which keeps losses to a minimum and involves reviewing capture systems around the shredder to maximise recovery of material.
	All waste generated as a result of the project would be managed in accordance with the Waste Classification Guidelines (EPA, 2014) and relevant regulatory requirements. This will include (i) its classification prior to leaving the site and (ii) recording (via an appropriate waste tracking system) its legal off-site transportation for re-use, recycling or disposal.
	Any waste generated would be stored in a suitable container, with a lid (where appropriate), and transported from the site to an appropriately licensed facility. A sufficient number of suitable receptacles for general waste, hazardous waste and recyclable materials would be provided for waste disposal at the site, including sufficient bins to allow separation of wastes for recycling.
	All wastes will be securely stored to ensure that any pollutants are prevented from escaping.
	Any fuel, lubricant or hydraulic fluid spillages would be collected using absorbent material and the contaminated material disposed of immediately at a licensed waste facility;
	All hazardous or contaminated wastes on site (if identified) will be removed and disposed in accordance with the state and national regulations and guidelines and best practice for the removal of these materials. Hazardous materials will only be removed by suitably qualified, licensed and experienced contractors.
	Documents and records of the transport and fates of all materials removed from the project site would be kept as proof of correct disposal and for environmental auditing purposes.
	Waste streams will be sorted to maximise the reuse/recycling potential and minimise disposal costs.
	Materials would be re-used or recycled wherever possible. Details relating to the recycling of materials at appropriately licensed recycling facilities would be provided.
	waste would be covered stored and removed in a timely manner so as not to attract native animals or vermin.

Aspect	Mitigation measure
	All waste material handling, transport and disposal will be in accordance with the requirements of the POEO Act (1997), WARR Act and relevant UP, EPA or WorkCover Guidelines.
Public safety management	All visitors to the site are required to report to the site administration office and register prior to gaining entry to the active areas of the site.
Hazardous substances and dangerous goods	A Pollution and Incident Response Management Plan (PIRMP) would be developed by Tyrecycle for the project to manage any potential chemical or hydrocarbon spills. The PIRMP would include the following management and mitigation measures: ▪ All personnel would complete awareness training that includes hazardous substance management, emergency response and the use of spill kits. ▪ Appropriately sized and stocked spill response kits would be provided within strategic areas of the building, and within mobile vehicles used to transport hazardous materials to and from the site. ▪ Spill response kits would be maintained, clearly identified and readily accessible on site for use in case of accidental spillages. Key staff would be skilled in their location as well as usage, application and disposal of contaminated material; ▪ All potential chemical pollutants (e.g. fuels, oils, lubricants, paints, etc.) would be stored in appropriate containers in bunded areas within mobile vehicles, or designated storage areas to minimise the risk of spillages and mobilisation of any pollutants into stormwater drains. ▪ Equipment would not be used if there are any signs of fuel, oil or hydraulic leaks. Leaks would be repaired immediately, or the equipment will be removed from site and replaced with a leak-free item. ▪ Any contaminated material resulting from spills would be collected, classified in accordance with Waste Classification Guidelines, and disposed of at a licensed waste management facility.
Fire safety	▪ fire systems would be regularly maintained and tested in accordance with AS2118.1; ▪ storage and stacking of tyres, and tyre derived fuel, to be stored in accordance with the *NSW Guidelines for bulk storage of rubber tyres* ▪ the stacking of tyres and rubber crumb products would be limited to 3.8 m and 4.6 m respectively in height to ensure the existing fire systems at the warehouse remain compliant with AS2118 (refer to **Appendix O** of the SEE). ▪ make provision so on-site containment of fire-water has the capacity to hold the projected volumes of fire-water in the event of a fire emergency; and ▪ site emergency procedures are maintained to ensure systems and people are prepared for emergency events that may involve fire

Aspect	Mitigation measure
Monitoring of tonnage requirements	Tyrecycle will monitor tonnage limits and outgoing product using the weighbridge and reporting requirements, ensuring tonnage thresholds are not exceeded.

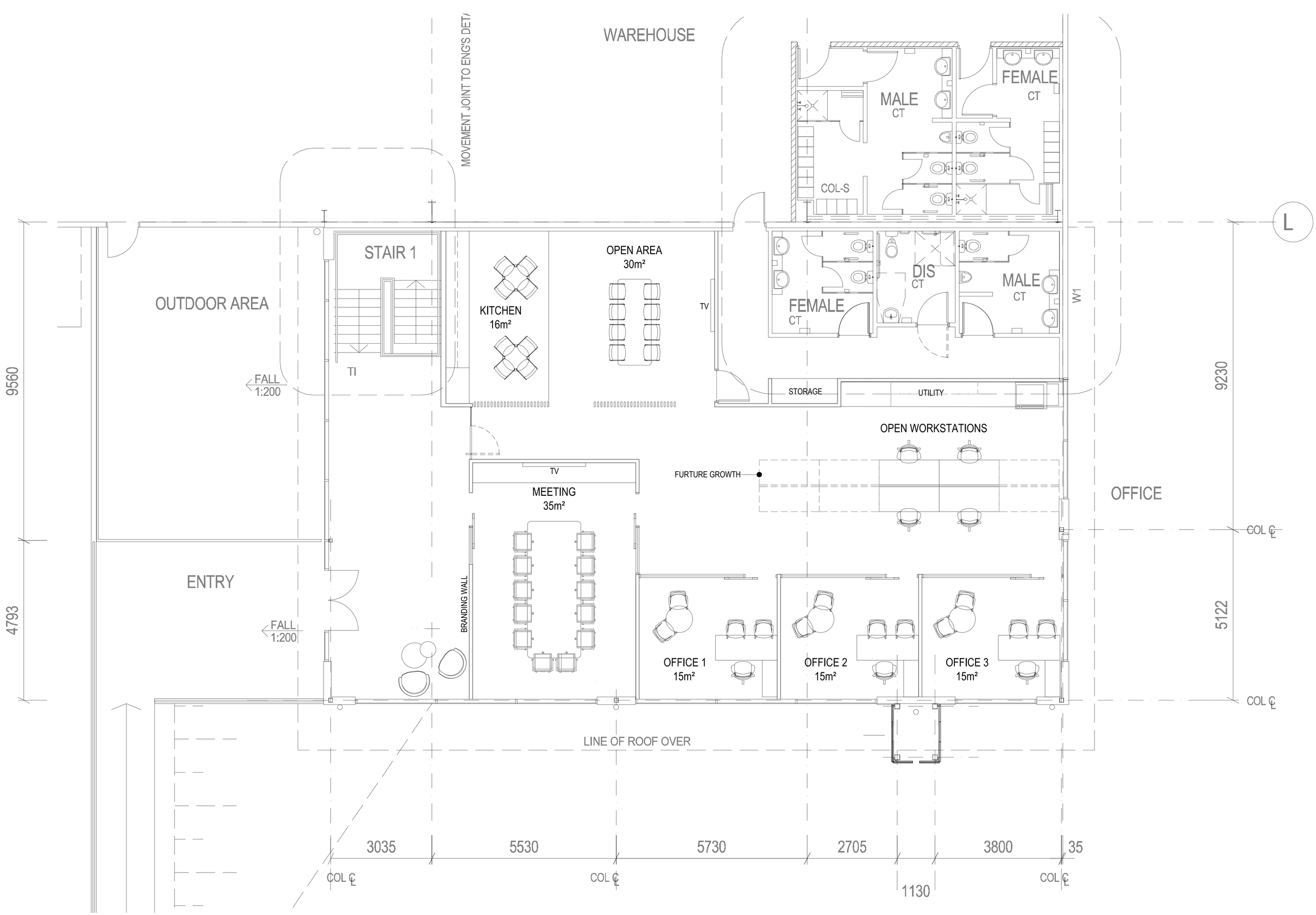
SYDNEY NEWCASTLE CENTRAL COAST MACKAY

elementenvironment.com.au

elementenvironment.com.au

APPENDIX C

ARCHITECTURAL PLAN OFFICE LAYOUT

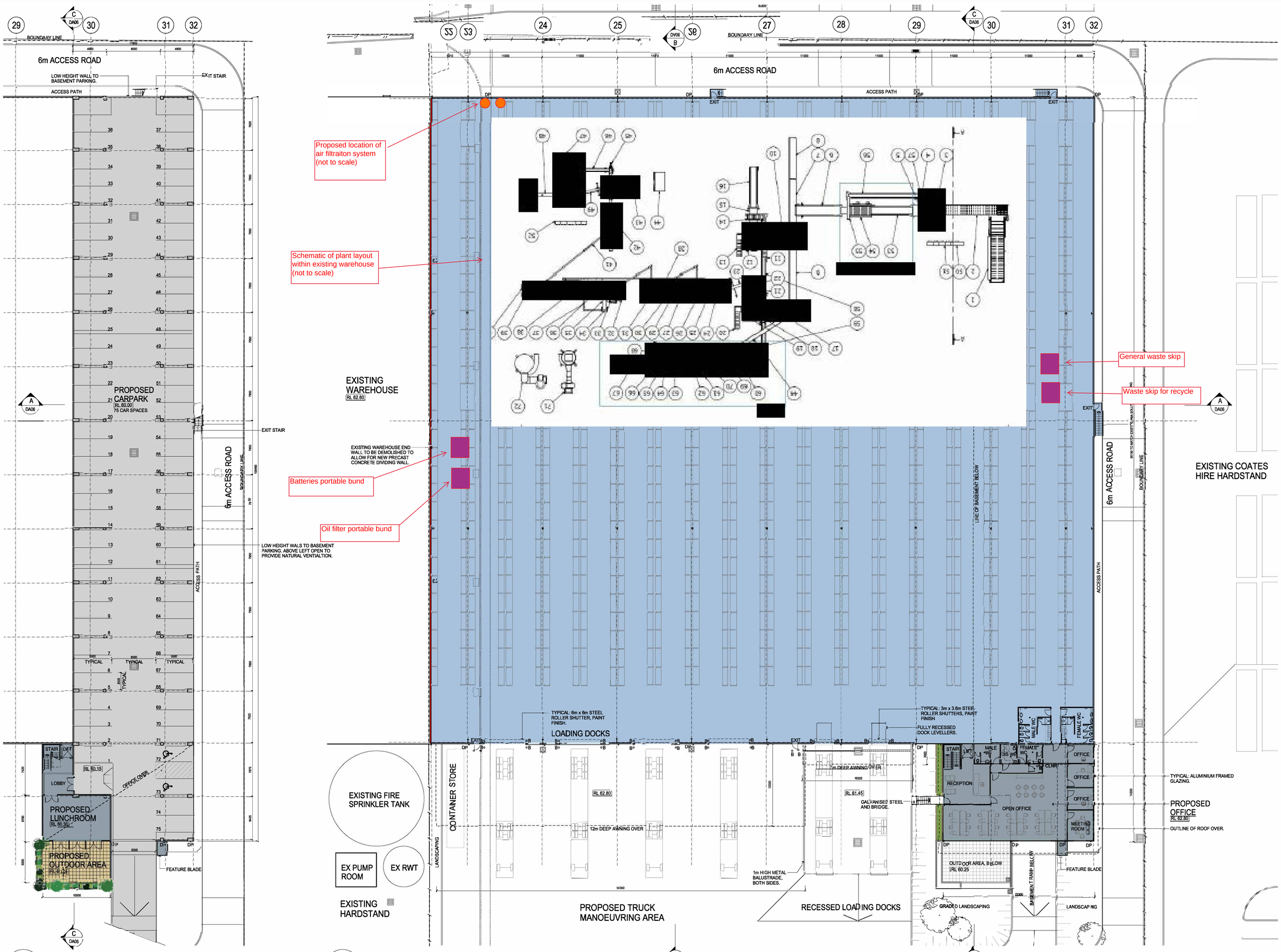


SK-1101 REV S1 03.09.2020 BAS200121 TYRECYCLE TEST FIT - ERSKINE PARK NSW

Bell Architecture Pty Ltd ABN 26 169 081 734 Matt Bell Nominated Architect NSW 9666. Level 2, Suite 209, 25-29 Berry Street North Sydney NSW 2060. PO Box 1037 North Sydney NSW 2059 **P** 02 8904 1650 **E** adelaide@bellarc.com.au www.bellarc.com.au

APPENDIX D

SCHEMATIC OF PLANT LOCATION AND WASTE DETAILS



ISSUE	REV.	DESCRIPTION	DATE
E		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

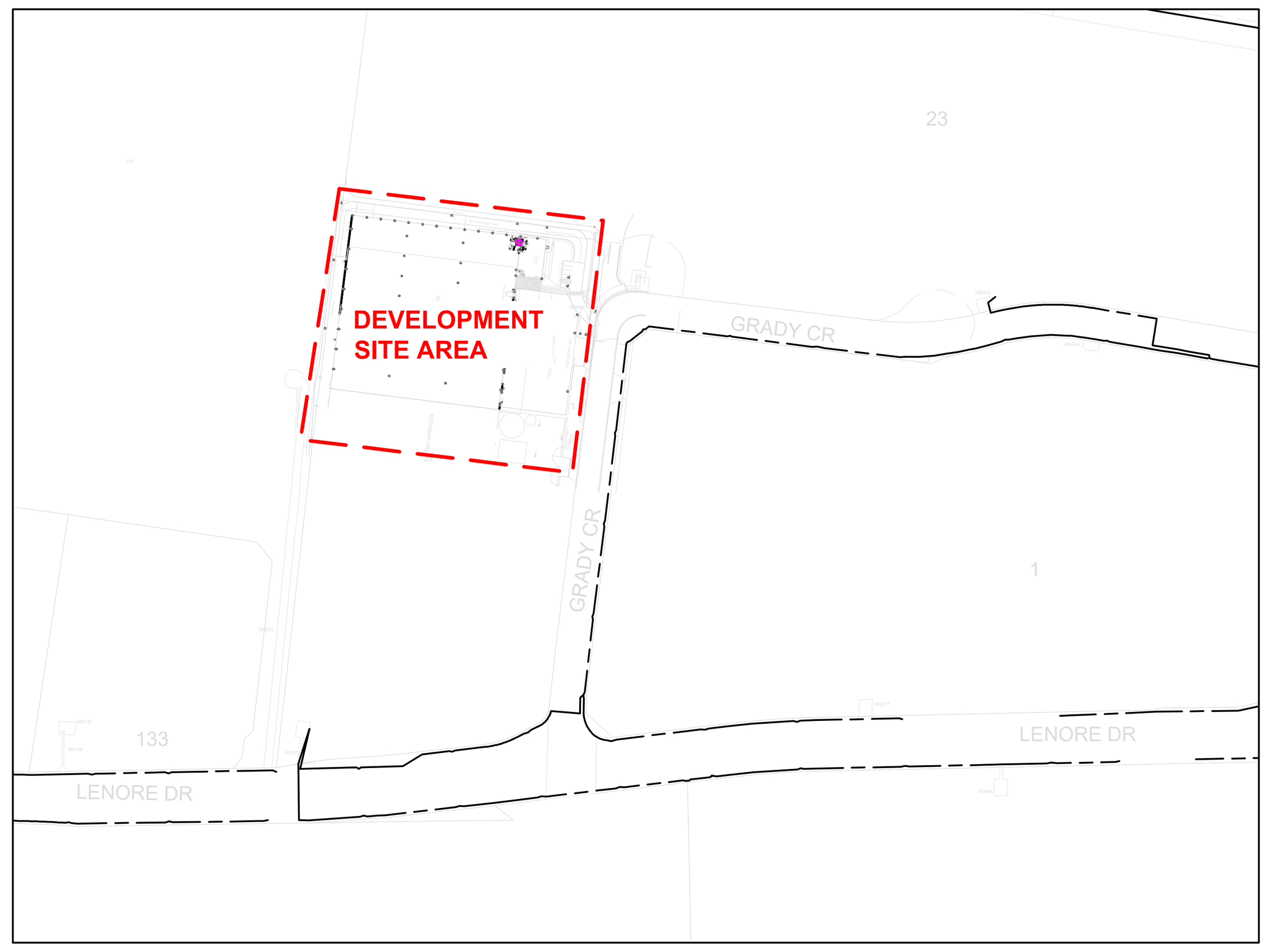
TITLE
PROPOSED BASEMENT and GROUND FLOOR PLANS

DATE	23.11.2012
SCALE	1:250 @ A1
DRAWN	RH
CHECKED	GB
APPROVED	
PROJECT No.	12203
DWG No.	DA - 04
ISSUE	/ E

Document Set ID: 9304844
Version: 1, Version Date: 21/09/2020

APPENDIX E

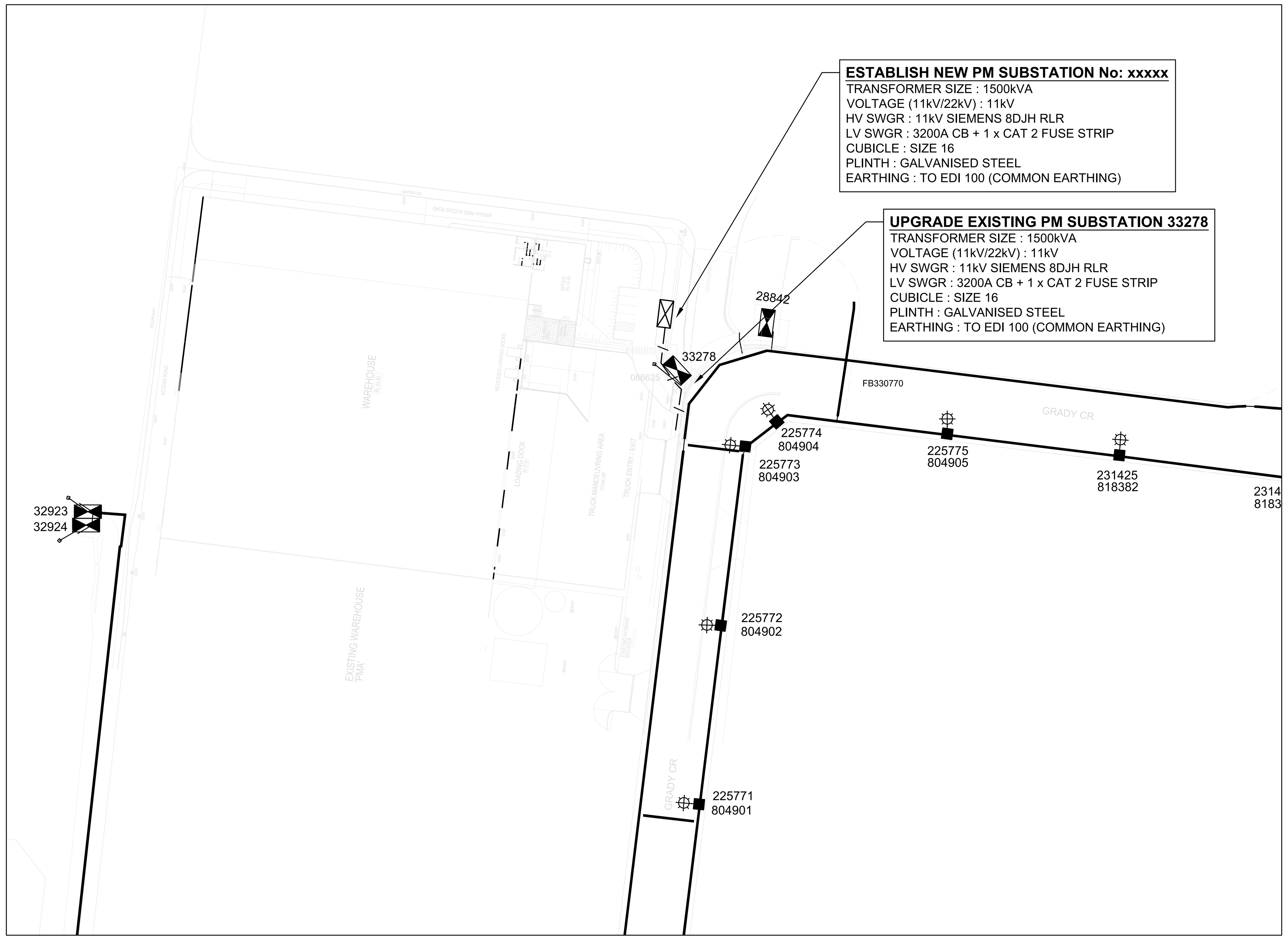
ELECTRICAL INFRASTRUCTURE PLAN



LOCALITY MAP
NOT TO SCALE

LEGEND

- EXISTING SUBSTATION
- NEW SUBSTATION LOCATION
- NEW SWITCHING STATION LOCATION
- EXISTING DUCTS
- INSTALL HV TRENCH
- EXISTING UNDERGROUND MAINS
- NEW LV UNDERGROUND MAINS
- NEW HV UNDERGROUND MAINS
- MAINS TO BE REMOVED
- EXISTING/NEW STJ
- EXISTING PILLAR
- EXISTING COLUMN
- EXISTING SL LANTERN



SITE PLAN
0 10 20 30 40 50 METRES
ORIGINAL SCALE - 1:1000

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
(I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
(II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND EASEMENT BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. AN EASEMENT FOR PADMOUNT SUBSTATION SITE (2.75m X 5.5m) AND SWITCHING STATION SITE (2.75 X 2.75) ARE TO BE CREATED IN FAVOUR OF ENDEAVOUR ENERGY WITHIN EXISTING LOT 10 DP 1157491. THIS EASEMENT IS A MINIMUM SIZE ONLY AND MUST BE LEVEL AND BUST BE FREE OF ALL OTHER SERVICES. THIS EASEMENT MUST BE POSITIONED IN ACCORDANCE WITH THE FOLLOWING:
-ENDEAVOUR ENERGY DOCUMENT SDI175 (11/22kV PADMOUNT SUBSTATION CONSTRUCTION & MATERIAL SPECIFICATION).
-ENDEAVOUR ENERGY DOCUMENT SDI104 (SUBSTATION DESIGN INSTRUCTION SPECIFICATION OF REQUIREMENTS FOR THE LOCATION OF PADMOUNT SUBSTATIONS).
-BUILDING CODES COMPLIANCE TO FIRE RATINGS.

7. EARTHING OF THE SUBSTATION TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY EDI100. COMMON EARTHING TO BE ACHIEVED. THE EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM OF REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100.

8. A RESTRICTION ON USE OF LAND IN RELATION TO THE FIRE RATINGS OF THE BUILDING MEASURED 3m FROM SUBSTATION PLINTH IS TO BE CREATED IN FAVOUR OF ENDEAVOUR ENERGY WITHIN EXISTING LOT 10 DP1157491.

9. A RESTRICTION ON USE OF LAND IN RELATION TO METALLIC STRUCTURES AND FENCES MEASURED 4m FROM SUBSTATION GRADING RING IS TO BE CREATED IN FAVOUR OF ENDEAVOUR ENERGY WITHIN EXISTING LOT 10 DP 1157491.

10. FINAL LOCATION OF EASEMENT FOR SUBSTATION SITE TO BE SURVEYED, AND PEGGED BY PROPONENT (OR THEIR REPRESENTATIVE) PRIOR TO CONSTRUCTION.

11. ATTENTION
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

12. ATTENTION
TELSTRA & OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. TELSTRA & OPTUS UNDERGROUND ASSETS LOCATED IN THE AREA. CONTACTS
TELSTRA NETWORK INTEGRITY HELP DESK: 1800 653 935
OPTUS: 1800 505 777

13. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS
SYDNEY WATER :(02) 8849 3800

14. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

15. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

16. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

17. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

18. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

19. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS			CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS		CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL		-PROTECTION CHARGES -CURRENT INJECTION -IMPEDANCE TESTING -PARTIAL DISCHARGE TESTING -PROJECT MANAGEMENT -PROTECTION SETTINGS REVIEW -OUTAGES PREPARATION & EXECUTION -SUBSTATION COMMISSIONING -MONOPOLY FEES TBA ON AND ACCESS AUTHORITY SWITCHING -PROVISION OF ACCESS AUTHORITY -TESTING & COMMISSIONING (AS PER FEE SENT BY EE'S CWA'S) -CONTRACT INSPECTION (EE REGIONS TO PROVIDE RELEVANT COSTS)	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EASEMENTS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED			EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT	WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT		732m x Ø125mm DUCTS @ $23/m = $16,836.00
NIL	NIL		CO-ORDINATION SUPPLY REQUIRED DATE
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSMENT		CUSTOMER FUNDED CONTESTABLE WORKS	DECEMBER 2020
PADMOUNT SUBSTATION: NIL EE REIMBURSTMENT CHARGES: $2,415.00 TOTAL EE CAPITAL CONTRIBUTION (EXCLUDING PM AND DESIGN) = $2,415.00 TOTAL EE CAPITAL CONTRIBUTION (HV REIMBURSED) = $2,649.00		ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO: - JOINTING - TRENCHING - CABLE INSTALLATION - SUPPLY & INSTALLATION OF SUBSTATION - CABLE SUPPLY & INSTALLATION	ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP NIL

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP: Connection Policy
EMS: Environmental Management Standard
MCI: Mains Construction Instruction
MDI: Mair TBA uction
PDI: Prot Instruction
SDI: Substation Design Instruction
SAD 0001: Design Drawing Standard
MMI: Mains Maintenance Instruction
SMI: Substation Maintenance Instruction
LDI 0001: Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: .... Name: BRYAN STRINGER

Service Provider Number: 2516/02 Date: 07/08/2020

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: ____
Date Approved: ____
Examiner's Signature: ____
Print Name: ____
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

KEY DOCUMENTS TABLE	
THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS	
AGREEMENT OF ENTRY, GRANT AND CR TBA EASEMENT- FPJ5013	TBA
SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	25/06/2020
DESIGNER'S SAFETY REPORT	17/06/2020

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed
			TBA	

Technical details of the arrangements are available from the Design ASP.

WARNING
WATER PIPE EXISTS IN THE VICINITY OF HV TRENCHING AREA.
ASP LEVEL 1 MUST SPECIFY EXACT LOCATION OF THE EXISTING WATER PIPE PRIOR EXCAVATION.

DUCT DECLARATION
I ____
OF ____
CONTACT NUMBER ____
HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0006. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.
THE INSTALLATION OF THE DUCTS WAS
COMMENCED ON ____
& COMPLETED ON ____
SIGNATURE ____
LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY: ____
WORKS COMPLETED: ____
SIGNATURE: ____ DATE: ____
INSPECTED BY: ____
SIGNATURE: ____ DATE: ____

ASSET RECORDING
I: ____
OF: ____
CONTACT No.: ____
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE: ____
DATE: ____

AMENDMENTS | ORIGINAL ISSUE | A | DRAFT No. 01

CONCEPT DESIGN
NOT FOR CONSTRUCTION

TEMPLATE VERSION No. 5.0

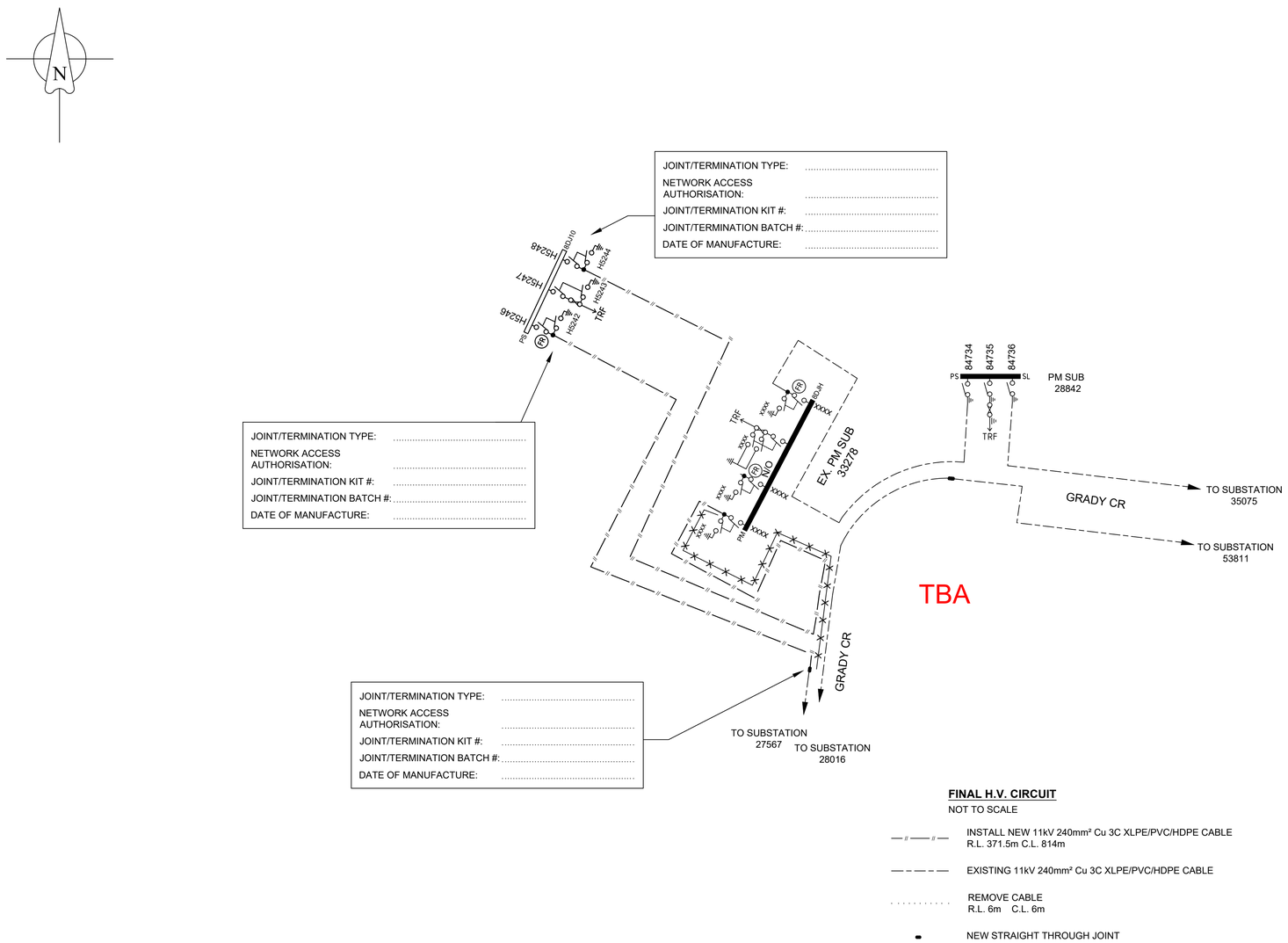
REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	UILXXXX
AM PROJ. No.	
ULTEGRA REF	
UBD/PENGUIN REF	
GIS MAP No	
HV OP DIAGRAM	
LOCAL GOV AREA	

ORIGINAL SCALE
DRAWN | DATE | CH'D
DO NOT SCALE
DIMENSIONS IN METRES
DESIGN

21 GRADY CRES
ERSKINE PARK
UIL5960
CONNECTION OF LOAD

Endeavour Energy
A1 | 999999 | A
SHEET No 1 OF 3 SHEETS



FINAL H.V. CIRCUIT

NOT TO SCALE

— // — // — INSTALL NEW 11kV 240mm² Cu 3C XLPE/PVC/HDPE CABLE
R.L. 371.5m C.L. 814m

— – — – — EXISTING 11kV 240mm² Cu 3C XLPE/PVC/HDPE CABLE

. . . . . REMOVE CABLE
R.L. 6m C.L. 6m

NEW STRAIGHT THROUGH JOINT

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
A - B	SL, EARTH, HV	EXISTING 6 x 125mm PVC CONDUITS & 2 x 50mm PVC CONDUIT	25m	NIL	25m X 1 X Ø50mm DUCTS @$6/m = $150.00 (RE-USE HV DUCT)
A - C	EARTH, HV	EXISTING 6 x 125mm PVC CONDUITS & 2 x 50mm PVC CONDUIT	TBA m	NIL	9m X 1 X Ø50mm DUCTS @$6/m = $54.00
C - D	EARTH, EARTH	EXISTING 6 x 125mm PVC CONDUITS & 2 x 50mm PVC CONDUIT	18m	NIL	18m X 1 X Ø50mm DUCTS @$6/m = $108.00
D - E	EARTH, EARTH, HV	EXISTING 6 x 125mm PVC CONDUITS & 2 x 50mm PVC CONDUIT	100m	NIL	100m X 1 X Ø50mm DUCTS @$6/m = $600.00
TOTAL				NIL	$912.00

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: ORIGINAL ISSUE A — DRAFT No. 01

CONCEPT DESIGN
NOT FOR CONSTRUCTION

TEMPLATE VERSION No. 5.0

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	UILXXXX
				AM PROJ. No.	
		GENERAL		ULTEGRA REF	
		OVERHEAD		UBD/PENGUIN REF	
		UNDERGROUND		GIS MAP No	
		SUBSTATIONS		HV OP DIAGRAM	
				LOCAL GOV AREA	

ORIGINAL SCALE

DRAWN

DATE

CH'D

DESIGN

DO NOT SCALE
DIMENSIONS IN METRES

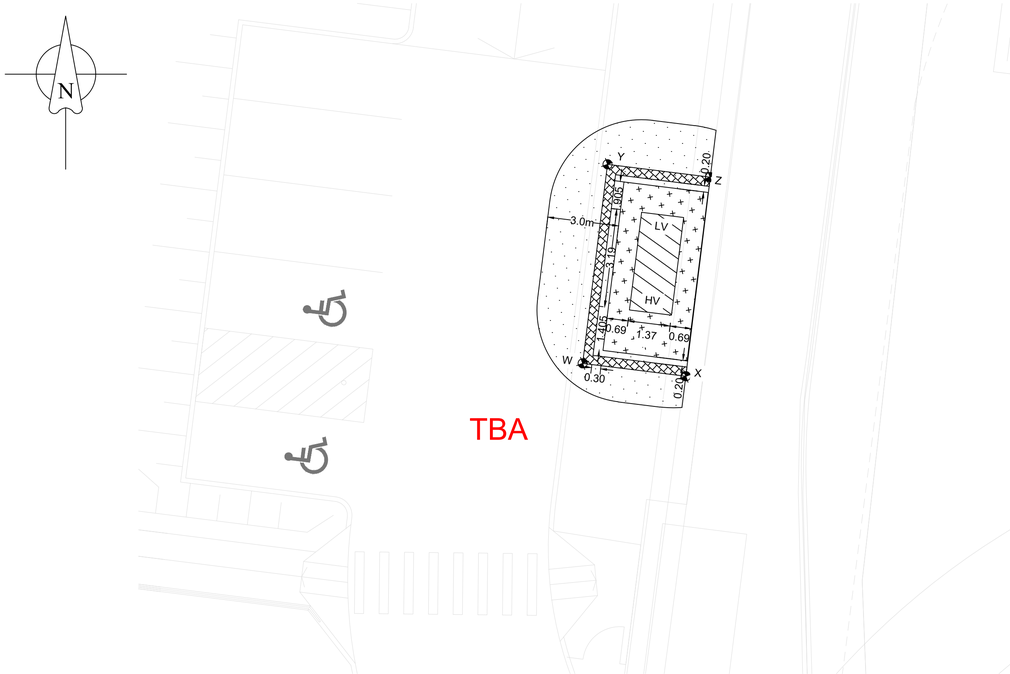
21 GRADY CRES
ERSKINE PARK
UIL5960
CONNECTION OF LOAD

Endeavour Energy

A1 | 999999 | A

SHEET No 2 OF 3 SHEETS

Document Set ID: 9304844
Version: 1, Version Date: 21/09/2020



SUBSTATION EASEMENT AND RESTRICTIONS

SUBSTATION PLINTH TO BE INSTALLED AS PER EE STANDARD ARRANGEMENT DRAWING: 016665 REV. S
(REFERT TO NOTES 5, 6, 8, 9 & 10)

ORIGINAL SCALE - 1:100

STANDARDED EASEMENT FOR SUBSTATION (2.75m x 5.5m AND VARIABLE)
(NO OTHER STRUCTURES OR SERVICES ALLOWED)

SUBSTATION PLINTH

3m FIRE RESTRICTION ZONE

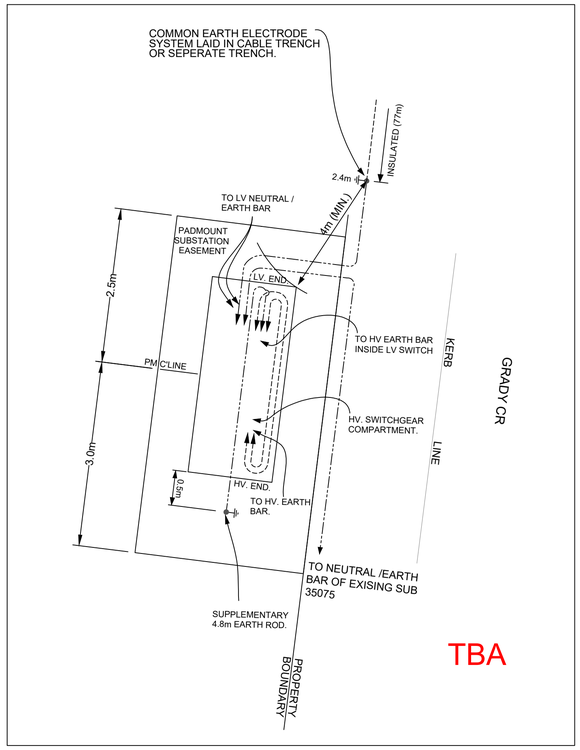
RETAINING WALL

POINT	EASTING	NORTHING
W	296546.4022	6256373.5424
X	296549.7447	6256373.1259
Y	296547.2085	6256379.9923
Z	296550.5304	6256379.5782

CERTIFIED BY ENDEAVOUR ENERGY
Amendment:
Date Approved:
Examiner's Signature:
Print Name:
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:



PM. SUBSTATION 53811 COMMON EARTHING LAYOUT

NOT TO SCALE.

THIS EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100
INFORMATION UPDATED AFTER COMMISSIONING ON _____

LEGEND

CABLE 70mm² INS CU R.L. 152 C.L. 190

CABLE 70mm² BARE CU R.L. 9 C.L. 30

EARTH ELECTRODE LOCATION & LENGTH. (LENGTH SHOWN IN METRES).

EARTHING DETAILS				
SOIL RESISTIVELY (OHMS.m)	LAYER 1	38.83	DEPTH (m)	2.6
	LAYER 2	6.12		-
DESIGNED EARTH RESISTANCE LIMIT (OHMS)				9.28
MEASURED EARTH RESISTANCE (OHMS)				
NUMBER OF ELECTRODES				2
LENGTH OF BARE ELECTRODE (m)				2.4
CONNECTOR TYPE (CAD OR CRIMP)				CRIMP

CONCEPT DESIGN
NOT FOR CONSTRUCTION

AMENDMENTS | ISSUE | DRAFT No. 01
A | ORIGINAL

TEMPLATE VERSION No. 5.0

REFERENCE DRAWING'S

WORK ORDERS

GENERAL	
OVERHEAD	
UNDERGROUND	
SUBSTATIONS	

CAP / SAMP No.	UILXXXX
AM PROJ. No.	
ULTEGRA REF	
UBD/PENGUIN REF	
GIS MAP No	
HV OP DIAGRAM	
LOCAL GOV AREA	

ORIGINAL SCALE
DRAWN
DATE
CH'D
DESIGN
DO NOT SCALE DIMENSIONS IN METRES

21 GRADY CRES
ERSKINE PARK
UIL5960
CONNECTION OF LOAD

Endeavour Energy
A1 | 999999 | A
SHEET No 3 OF 3 SHEETS

APPENDIX F

CIV STATEMENT

Quantity Surveyor's Report - Capital Investment Value

Tyrecycle Erskine Park

For

Tyrecycle Pty Ltd

DOCUMENT TITLE: QS Report – Capital Investment Value

ISSUE DATE: 27 August 2020

ALTUS GROUP trading as ALTUS GROUP COST MANAGEMENT PTY LTD in Australia
ABN 96 093 302 455
Level 12, 1 Market Street, Sydney NSW 2000 AUSTRALIA
T: +61 2 9283 7311 | E: sydney@altusgroup.com | altusgroup.com

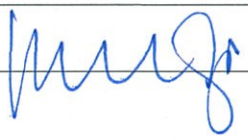
Quality Information

Document: QS Report - Capital Investment Value

Project No.: 71130.103860

Prepared By: Eric Lok

DOCUMENT CONTROL:

Signature:		Date:	27 August 2020
		Reviewed by:	Stephen Ngai

CONTENTS

1. Introduction

Altus Group has been requested by Element Environment Pty Ltd on behalf of Tyrecycle Pty Ltd to prepare a Quantity Surveyor's Report on the Capital Investment Value for the proposed capital works at the Tyre Recycling Facility at 1-21 Grady Crescent, Erskine Park NSW 2579.

2. Executive Summary

The estimated Capital Investment Value as at 27 August 2020 for the proposed capital works is **$12,258,088** excluding GST.

The proposal project is to operate a tyre processing and transfer facility in an existing warehouse building with primary operational activities including:

- receival and storage of tyres;
- shredding of tyres; and
- dispatch of processed tyre derived fuel (TDF) and other tyre derived products (TDP).

The northern section of the existing warehouse building (total approx. floor plan area of 9,620m2) has capacity to house new plant and equipment to process 29,000t tyres per year, without the need to expand or upgrade the existing warehouse building.

The Capital Investment Value has been assessed in accordance with the NSW Department of Planning – Planning Circular No. PS 10-008 dated 10 May 2010 under the Environmental Planning and Assessment Regulation 2000.

3. Project Scope

This Estimate of Capital Investment Value is prepared for the proposed capital works at the Tyrecycle Erskine Park and the scope of the capital works includes the following:-

- Major fixed and mobile mechanical processing equipment
- Site Utilities
- Minor modification of existing warehouse

4. Basis of Cost Estimate

This Estimate of the Capital Investment Value of the proposed capital works has been prepared based on the following information:-

- Project scope provided by Element Environment on 11/8/2020
- Tyrecycle's list of plant and site utilities supplies
- Potential plant layout within Erskine Park warehouse
- Existing building survey drawing
- Air Quality Impact Assessment prepared by Todoroski Air Sciences Pty Ltd dated 14 August 2020
- Noise Impact Assessment prepared by Todoroski Air Sciences Pty Ltd dated 14 August 2020
- Architectural Plans prepared by SBA Architects dated 23.11.2012 as reference plans of the existing warehouse

This preliminary cost estimate is priced at market rates for construction works on the basis of competitive lump sum tenders with escalation during the construction period included in the cost.

5. List of Exclusions

- Land costs and land acquisition costs
- Interest/ Finance/ Legal Fees / License costs
- Relocation, diversion and replacement of existing site services
- Removal of contaminants and hazardous material (if discovered)
- Construction of the original/existing warehouse
- Operating and maintenance costs for tyre recycling facility
- Office fitout works
- Provision of loose furniture, fittings and equipment for office
- Works outside project boundaries
- General inventory and consumables
- Future increase in costs from date of this estimate to date of actual commencement of construction works
- Goods and Service Tax (GST).

6. Summary of Cost Estimate

Capital Work Cost	
Construction and Procurement	
1. Major Equipment	$9,069,368
2. Site Utilities	$1,950,720
3. Minor Modification Works to Existing Warehouse	$180,000
4. Contingencies	$820,000
Estimated Total Construction Cost	**$12,020,088**
Professional Fees	
5. EPA Licence Consultant Fees	$120,000
6. Other Consultants and Authorities Fees	$118,000
Estimated Capital Investment Value (excl. GST)	**$12,258,088**

Note: Please refer to Section 5 - List of Exclusions and Appendix A – Cost Estimate for cost details.

Appendix A – Cost Estimate

Ref.	Description	Quantity	Unit	Rate	Total
	CAPITAL WORKS COST				
	CONSTRUCTION AND PROCUREMENT				
	Major Equipment				9,069,368
	Site Utilities				1,950,720
	Minor Modification Works to Existing Warehouse				180,000
	Contingencies				820,000
	ESTIMATE TOTAL CONSTRUCTION COST				**12,020,088**
	PROFESSIONAL FEES				
	EPA Licence Consultant Fees				120,000
	Other Consultants and Authorities Fees				118,000
	ESTIMATED CAPITAL INVESTMENT VALUE				**12,258,088**

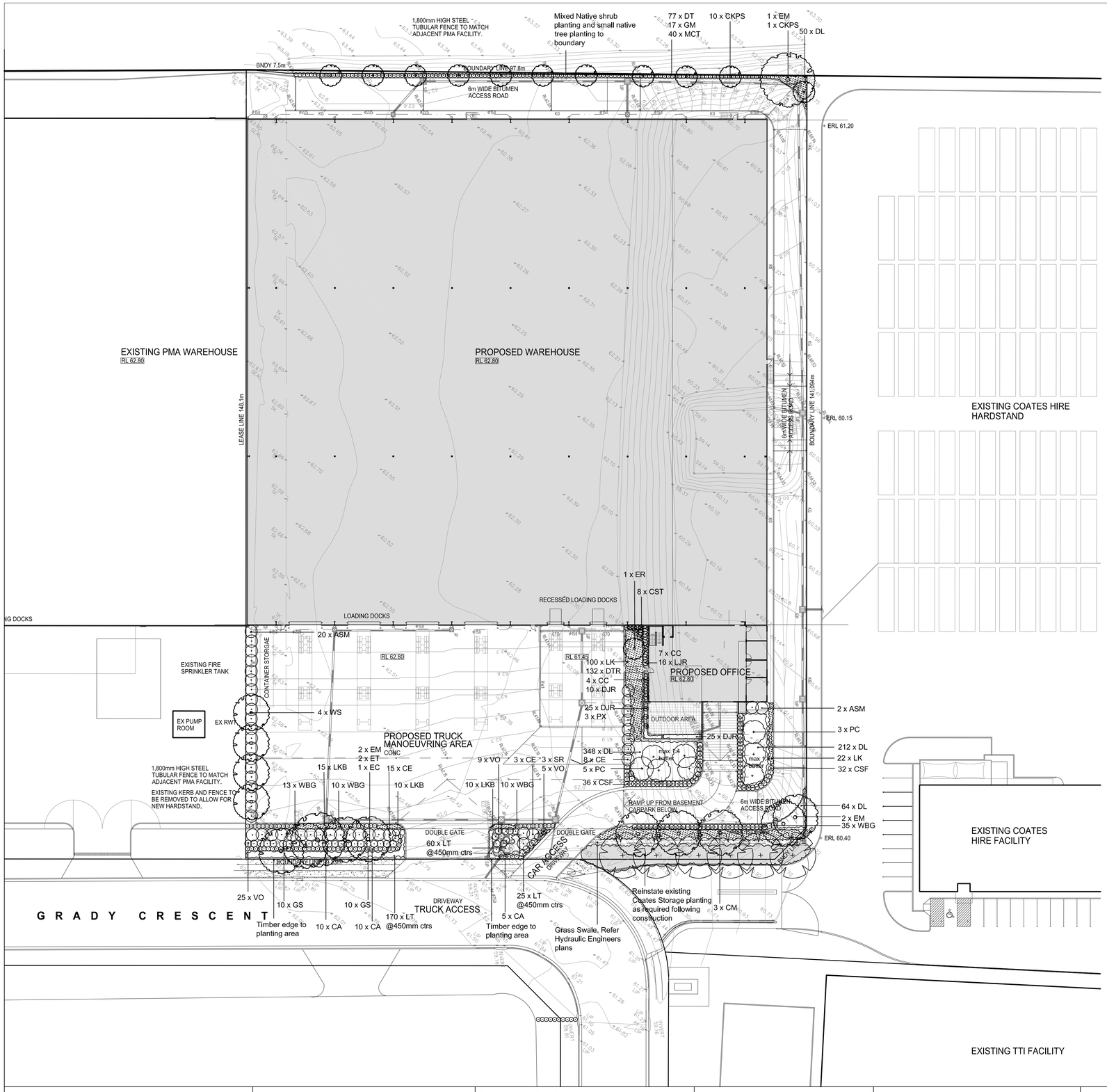
Ref.	Description	Quantity	Unit	Rate	Total
	MAJOR EQUIPMENT				
	Eldan Tyre Recycling and Powder plant				4,626,412
	Complete Jet Air Filter 70,000 m3/hr				595,702
	Complete Jet Air Filter 20,000 m3/hr				248,289
	Bagging System				129,421
	Overseas Freight Charge				245,902
	Spark detection system for 70,000 m3/hr filter				66,649
	Spark detection system for 20,000 m3/hr filter				70,987
	Spark detection system for Multi Purpose Rasper x 2				160,405
	1.5 Inch Line, Rasper				1,539,000
	Steel cleaning				723,792
	Magnet for super chopper				40,000
	Duty / customs / clearance				588,459
	Local freight (Botany Bay - Erskine Park)				34,350
				MAJOR EQUIPMENT TOTAL	**9,069,368**

Ref.	Description	Quantity	Unit	Rate	Total
	SITE UTILITIES				
	Weigbridge				250,000
	Bagging machine - 20kg bags				200,000
	Pallet weigher				25,000
	Pallet wrapper				25,000
	Pallet racking				250,000
	Water containment/recirc under shredders				150,000
	Firewater runoff containment				150,000
	Push-up walls for storage of tyres and product				150,000
	Noise reduction for choppers/raspers				120,000
	Electricity provision				320,000
	Power distribution to the machine panels				50,000
	Cranes				16,800
	Access lifts				10,300
	Project management				20,000
	Staff training				18,620
	Compressor and installation of pipework				160,000
	Plating on the floor under the shredders if we have to spread the load				10,000
	Safety guarding				25,000
				SITE UTILITIES TOTAL	**1,950,720**

Ref.	Description	Quantity	Unit	Rate	Total
	MINOR MODIFICATION WORKS TO EXISTING WAREHOUSE				
	Minor alterations to electrical services	1	Item	100,000	100,000
	Minor alterations to fire safety infrastructure	1	Item	50,000	50,000
	Form a small opening at the roof for installation of the new ventilation (air filtration) system, including make good and reinstatement	1	Item	30,000	30,000
	MINOR MODIFICATION WORKS TO EXISTING WAREHOUSE TOTAL				**180,000**

APPENDIX G

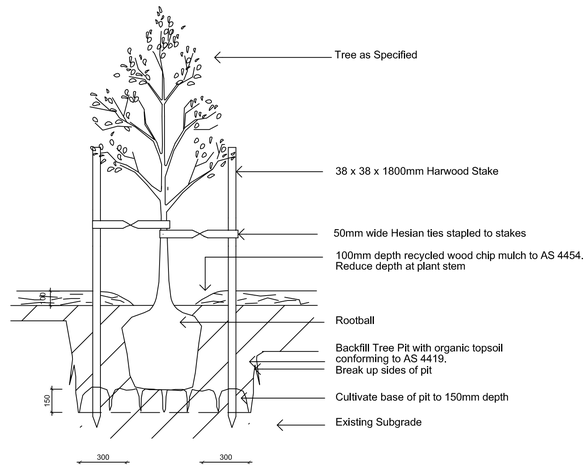
EXISTING WAREHOUSE LANDSCAPE PLAN



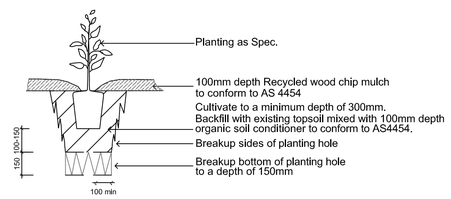
PLANT SCHEDULE

Symbol	Size	No.	Botanical Name	Common Name	
Native Trees					
CM	45L	3	Corymbia maculata	Spotted Gum	Staking req.
ER	25L	1	Elaeocarpus reticulatus	Blueberry Ash	Staking req.
EC	45L	1	Eucalyptus creba	Narrow Leafed Ironbark	Staking req.
EM	45L	5	Eucalyptus moluccana	Grey Gum	Staking req.
ET	45L	2	Eucalyptus tereticornis	Forest Red Gum	Staking req.
PC	45L	8	Pyrus 'Capital'	Ornamental Pear	Staking req.
WS	25L	4	Waterhousea floribunda 'Sweeper'	Sweeper Waterhousea	Staking req.
Shrubs					
ASM	200mm	22	Acmena smithii 'Minor'	Lily Pilly	
CA	200mm	22	Callistemon 'Anzac'	White Bottlebrush	
CE	200mm	26	Callistemon 'Endeavour'	Red Bottlebrush	
CKP	200mm	11	Callistemon 'Kings Park Special'	Red Bottlebrush	
CSF	200mm	68	Callistemon CC19 'Scarlet Flame'	Red Bottlebrush	
CST	200mm	8	Cordyline stricta	Palm Lily	
CC	200mm	11	Cordyline australis LELCO1 'Coral'	Red Palm lily	
DT	200mm	77	Dodonea viscosa purpurea	Hop Bush	
GM	200mm	17	Grevillea 'Moonlight'	Yellow Spider Flower	
GS	200mm	20	Grevillea serricea	Pink Spider Flower	
MCT	200mm	40	Melaleuca 'Claret tops'	Dwarf Paperbark	
PM	200mm	3	Philodendron 'Xanadu'	Small leafed Philodendron	
SR	200mm	2	Strelitzia reginae	Bird of Paradise	
VO	200mm	39	Viburnum odoratissimum	Sweet Viburnum	
WBG	200mm	68	Westringia Blue Gem WESO3	Coastal Rosemary	
Groundcovers & Grasses					
DL	virocell	624	Dianella 'Lucia'	Flax Lily	
DTR	virocell	132	Dianella 'Tasred'	Red based Flax Lily	
LJR	150mm	66	Liriope 'Just Right'	Flax Lily	
LK	virocell	122	Lomandra longifolia 'Katrinus'	Mat Rush	
LKB	virocell	35	Lomandra hystrix 'Katie Belles'	Mat Rush	
LT	virocell	255	Lomandra 'Tanika'	Thin-leaved Mat Rush	
Turf					
To turf areas & footpath			Greenlees Park Couch	Couch	

75mm depth Recycled wood chip mulch to all planting areas



45Lt Tree Planting Detail Scale 1:20



Shrub Planting Detail Scale 1:20

No.	Revision	Date
B	DA ISSUE- SW updated	12/02/13
A	DA ISSUE	08/02/13

N

0 4 8 20

Landscape Architect:
ViridianDesigns
Landscape Architects
PO Box 3002
North Turramurra NSW 2074
Ph: (02) 9440 8808
Fax: (02) 9440 8828
Mobile: 0408641059
viridian@bigpond.net.au

Architect:
SPA Architects

Client:
Fitzpatrick Investments
22-24 Junction Street
Forest Lodge NSW

Project:
Grady Crescent
Fitzpatrick Investments
Erskine Park

Dwg Title
Landscape Plan

Job No.	Dwg No.:
121307	121307 - 01
Date: Feb 2013	Issue No. B
Drawn: F.Ambrosino	Scale: 1:400 @ A1 Sheet 1 of 1

APPENDIX H

COUNCIL'S PRE-LODGEMENT NOTES

Our Ref: PL20/0047
Contact: Kathryn Saunders
Telephone: (02) 4732 8567

10 August 2020

Luke Farrell
Element Environment
PO Box 1563
WARRIEWOOD NSW 2102

Dear Luke,

Pre-Lodgement Advice

Proposed Development: Change of use of part of an existing warehouse to Waste and Resource Recovery Facility - Tyre Recycling Facility

Site: 1-21 Grady Crescent, Erskine Park (Lot 4 DP 1253870)

Thank you for taking part in Council's pre-lodgement meeting on 14 July 2020. The meeting and opportunity to review the documentation was useful for Council in gaining an understanding of your proposal.

You are advised that should the items in the attached information be addressed, your application will be suitable for submission and consideration.

Please be aware that information given by the pre-lodgement panel does not constitute a formal assessment of your proposal and at no time should comments of the officers be taken as a guarantee of approval of your proposal. A full assessment of the proposal will be undertaken once a development application is submitted.

If we can help you any further regarding the attached advice, please feel free to contact me on (02) 4732 8567.

Yours sincerely

Kathryn Saunders
Senior Development Assessment Planner

Penrith City Council
PO Box 60, Penrith
NSW 2751 Australia
T 4732 7777
F 4732 7958
penrithcity.nsw.gov.au

PENRITH CITY COUNCIL

PRE-LODGEMENT ADVICE

Proposal Tyre Recycling Facility

Address Lot 4 DP 1253870
1-21 Grady Crescent, Erskine Park

Attendees:

Council Officers -

Kathryn Saunders – Senior Development Assessment Planner
Stephen Masters – Senior Development Engineer
Kablan Mowad – Traffic Engineer
Michael Middleton – Team Leader Environmental Health
Craig Squires – Building Certification and Fire Safety Coordinator

Apologies:
Joshua Romeo – Senior Waste Officer

For the applicant -

Neville Hattingh – Director, Element Environment
Luke Farrell – Senior Environmental Consultant, Element Environment
Jim Fairweather – Chief Executive Officer, Tyrecycle
Andrew Gerlach – Chief Executive Officer, ResourceCo Property
Ludi Van Der Merwe – National Operations Manager, Tyrecycle
Jamie Stewart – Project Director, Fitzpatrick Investments

Zoning

The subject site is zoned IN1 Industrial under State Environmental Planning Policy (Western Sydney Employment Area) 2009.

Site Constraints

Proximity of the site to residential dwellings, shared site uses and potential conflicts.

Development Type

Tyre processing facility – 29,000t tyres per year.

Proposed on-site activities – Receipt of off-road, passenger and truck tyres, storage, processing, sorting, transport, rim separating and recycling. 24hour operations.

Integrated Development

The development is identified as integrated development under Schedule 3 of SEPP Infrastructure (waste or recourse recovery facilities) and is traffic generating development. Any future DA for the proposal will be referred to TfNSW.

The development is also identified as a Scheduled Activity requiring an Environment Protection Licence (EPL) and referral to the NSW Environment Protection Agency under the Protection of the Environment Operations Act 1997.

Designated Development

Refer to comments below.

Relevant Environmental Planning Instruments, Policies & Guideline Documents

- Sydney Regional Environmental Plan No. 20 – Hawkesbury Nepean River (No. 2 - 1997)
- State Environmental Planning Policy (Western Sydney Employment Area) 2009
- State Environmental Planning Policy No. 55 – Remediation of Land
- State Environmental Planning Policy (Infrastructure) 2007
- Penrith Development Control Plan 2014
- Penrith City Council - Cooling the City Strategy
- Stormwater Drainage Specification for Building Developments Policy
- Water Sensitive Urban Design Policy and Technical Guidelines

Draft Environmental Planning Instruments

- Draft SEPP Remediation of Land
- Draft SEPP Environment
- Draft Penrith LEP 2010

Advisory Note

The pre-lodgement panel will endeavour to provide information which will enable you to identify issues that must be addressed in any application. The onus remains on the applicant to ensure that all relevant controls and issues are considered prior to the submission of an application.

KEY ISSUES

The proposal is to address the following issues:

1. Planning Matters

(a) Permissibility

The development proposal is identified in the submitted cover letter prepared by Element, dated 7 July 2020, that the proposal can be defined as *Industries (other than offensive or hazardous industries)* under WEPP WSEA, and thus is permissible in the IN1 General Industrial zone.

The Standard Instrument confirms that *'Industry'* means any of the following: General industry, heavy industry, light industry.

Any future application will need to be accompanied by a document which details all of the proposed activities, all plant machinery and the hours of operation of the various aspects of the development, and any required reports which demonstrate that the proposal is not an 'offensive' or 'hazardous' industry'; and demonstrates that the proposal is of the type and nature whereby 'General Industry' is the best fit land use descriptor.

Notwithstanding the above, it is raised that the proposed activities are best defined as *Waste or resource management facility* which is a prohibited land use in the IN1 General Industrial zone under SEPP WSEA – although, as the IN1 General Industrial zone is a 'prescribed zone' under SEPP Infrastructure, the use as *Waste or resource management facility*, is therefore permissible in the zone, with consent.

(b) Designated Development

The submitted cover letter includes that the proposal is not Designated Development as the proposed handling capacity of rubber referred to under 32 *Waste management facilities or works*, of Schedule 3 of the Environmental Planning and Assessment Regulation 2000 (the Regulations) identified as 30,000t, will be capped at 29,000t.

It is noted that the organisation's current operations exceed 30,000t and thus the organisation is 'downsizing' in its relocation to the new site. Information is to be included which details how the organisation will monitor their tonnage limits to ensure they do not exceed the Designated Development thresholds.

Schedule 3 of the Regulations, at 32 *Waste management facilities or works*, states that 'Waste management facilities or works', are designated development if the facility or waste management works;

- *…sort, consolidate or temporarily store waste at transfer stations or materials recycling facilities for transfer to another site for final disposal, permanent storage, reprocessing, recycling, use or reuse and,*
  – (iii) that have an intended handling capacity of more than 30,000t per year of waste such as glass, plastic, paper, wood, rubber or building demolition material, or…

- *…that are located – (vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.*

The subject site is located within 500m of a residential zone and thus it is raised for your attention, that the consent authority will need to be satisfied in accordance with the matters for consideration under the clause, that the development is not likely to significantly affect the amenity of the neighbourhood in the above mentioned ways.

In this respect, satisfactory evidence is to be provided to confirm that impacts will not significantly impact amenity, in the form of relevant reports and plans.

Evidence is also to be provided as to why the proposal is not the type of designated development described at 9 *Chemical Industries and Works*, *(2)'(j) rubber industries or works – (ii) that manufacture, re-tread or recycle more than 5,000 tonnes per year of rubber products or rubber tyres, or (iii) that dump or store (otherwise than in a building) more than 10 tonnes of used rubber tyres,…'*

Noting that Clause 9(3) states that this clause does not apply to… (b) development specifically referred to elsewhere in this Schedule.

(c) General

(i) Material submitted for review does not clarify the extent of activities and operations at the site or the component hours of operation. It is envisaged that the existing warehouse will require some augmentation to facilitate the activities and uses proposed.

(ii) Plans and reports are to be provided which detail and fully explain all aspects of the proposal including all plant machinery to be installed. All storage areas and storage capacity are to be noted.

(iii) Staff areas and amenities are to be indicated and any outdoor lighting is to be noted on plans.

(iv) It is raised that a Building Code of Australia/NCC Compliance Assessment report may be required.

(v) A cost estimate which identifies the Capital Investment Value (CIV) for the proposal is to be provided.

(vi) Potential negative impacts of the proposed 24 hour operations, lighting, air quality and noise on nearby sensitive receivers (including the residential to the north) is to be addressed by the submission of specialist reports.

(vii) Details of signage are to be provided. All existing signage structures proposed to be utilised must be lawful.

(viii) Any future DA is to detail the other uses on the subject site and is to demonstrate that the two uses can function practically and safety.

(ix) It is recommended that the applicant liaise with the NSW Fire Brigades/RFS as to any fire safety requirements the proposal may require from a fire fighting perspective. Details are to be provided as to any recommendations made. A Fire Risk Management Plan may be required.

(d) Protection of the Environment Operations Act 1997 (POEO Act)

Section 48 of the POEO Act requires an Environment Protection Licence (EPL) for

any scheduled activity. Schedule 1 Scheduled Activities, 34 Resource Recovery states under (1) that '*This clause applies to the following activities - …recovery of waste tyres, meaning the receiving of waste tyres from off site and their processing, otherwise than for the recovery of energy.*

Additional provisions of 34, identify that an EPL is required for the recovery of waste tyres which involves having on site at any time (other than in or on a vehicle used to transport the tyres to or from the premises) more than 5 tonnes of waste tyres or 500 tyres, or involves processing more than 5,000 tonnes of waste tyres per year.

Documentation submitted with the application indicates that an EPL is required and thus the application is integrated and will be referred to the EPA.

(e) State Environmental Planning Policy (Western Sydney Employment Area) 2009

Matters raised above, which are related to land use characterisation are to be resolved prior to the lodgement of any application for the proposal.

The *Aims of Policy* and objectives of the IN1 zone are to be addressed in any future application.

Waste or resource management facility is not identified in the Land Use Table, list of uses which are permissible with consent and is therefore prohibited development in the IN1 General Industrial zone. Refer to discussion under permissibility at (a) above.

Adequate information is to accompany any future application which demonstrates that the proposal complies with the Principal development standards set out under Part 5 of the Policy, in particular:

- Clause 20 Ecologically sustainable development,
- Clause 22 Rainwater harvesting,
- Clause 23 Development adjoining residential land (if applicable),
- Clause 26 and 29 apply and as such, a DA for the proposal will be referred under these clauses to the Secretary of the Department of Planning (DPIE).

The proposal shall address the Design principles outlined at Clause 31 of the Policy, as they apply.

(f) State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

The applicant is advised to consider the Department of Planning's 'Applying SEPP 33' Guidelines and address the risk screening to determine whether a Preliminary Hazard Analysis is required. Refer environmental management matters raised below.

(g) Penrith DCP - Part E6 Erskine Business Park

In addition to the City Wide provisions, Part E6 of the DCP applies and is to be

addressed. The site is identified as being within the Northern Area of the Erskine Business Park.

Section 6.3.6 Lighting, 6.4 Environmental Quality and 6.6 Transport Network of the Section are to be addressed.

(h) Draft EPIs, Development Controls Plan and Contribution Plans

The applicant is to be aware of Council's Draft LEP, DCP and 7.12 Contributions plans which have been placed on public exhibition and are available to view on Council's website.

2. Environmental Management Matters

(a) Designated & Integrated Development

The applicant will need to address the activities being undertaken on the site and the associated implications of the development potentially being Designated Development under the Regulations, particularly in relation to the close proximity of the site, to nearby sensitive residential receivers and possible amenity impacts.

(b) NSW EPA Licence

Table 1 under Cluse 34 of Schedule 1 of the POEO Act lists recovery of waste tyres as a scheduled activity which requires a NSW EPA Environment Protection Licence.

Any application should be referred to the NSW EPA for comment and General Terms of Approval. Council encourages early discussions with the NSW EPA to determine requirements of a licence and whether they require any further information or whether they have concerns about the proposed development.

(c) Noise Impacts

The main source of noise generated by commercial and industrial development can be from the operation of machinery, loading and unloading, deliveries and equipment. Noise generated from air conditioning, exhaust and refrigeration systems have been major sources of noise complaints received by Council. In this regard, Section C12.4 C of Council's DCP states that:

"*All development applications where the above controls are relevant are required to provide a Noise Impact Statement prepared by a qualified acoustic consultant in accordance with the requirements set out in the DA Submission Requirements Appendix of this DCP*".

Due to the proposal involving 24 hour operations, and due to the site's close proximity to residential receivers, an acoustic assessment is required to be submitted as part of the development application. The Report is to demonstrate that the proposed development will not result in any unacceptable noise impacts on nearby sensitive receivers, including nearby residences and workplaces.

The above-mentioned report is to be prepared by a suitably qualified acoustic

consultant and is to consider:

- The 'NSW Noise Policy for Industry' in terms of assessing the noise impacts associated with the development, all noise generating activities on the site (including, but not limited to, use of plant and equipment, deliveries, traffic and car parking) and the location of nearby workplaces and residents;

- The acoustic report should take into consideration the potential impact from road traffic noise resulting from vehicles entering and exiting site, demonstrating compliance with *NSW Road Noise Policy;* and

- Given the proposed hours of operation, the acoustic report should also consider the requirements of the NSW EPA's Sleep Disturbance Criteria.

Should mitigation measures be necessary, recommendations should be included to this effect and should be shown on all architectural plans.

(d) Air Quality

A formal Air Quality Assessment may not necessarily be required if the applicant is able to take into account all activities on the site that may cause air quality/odour impacts and demonstrate that there will be no impact.

As discussed in the meeting, the applicant has advised they will be using new technology and all activities will be confined to inside the factory, meaning there will be no odour and no emissions that will impact neighbouring properties. Further commentary in this regard, is required to be provided and may be included in the submitted Statement of Environmental Effects.

If Council is not satisfied by the information provided, a formal Air Quality Assessment prepared by a suitably qualified environmental consultant will be required. This assessment is to consider the relevant NSW EPA guidelines and criteria, including the 'Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales' and the *Protection of the Environment Operations (Clean Air) Regulation 2010*, and the location of nearby residences and workplaces.

(e) State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

Consider the Department of Planning's 'Applying SEPP 33' Guidelines and address the risk screening to determine whether a Preliminary Hazard Analysis is required. If required, a Preliminary Hazard Analysis should be prepared in accordance with the guidelines and submitted with the DA. Consider inputs and outputs, what stored on site, and other activities occurring on the site and nearby.

(f) Contamination - State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)

The application is to address all relevant sections SEPP 55. A consent authority must not consent to any development unless these requirements have been

satisfied.

The application is to demonstrate that the land is suitable for the proposed use. Any reports need to be completed by an appropriately qualified person(s) or company and be prepared in accordance with NEPM 2013 and the relevant EPA guidelines.

An appropriately qualified person is defined as *"a person who, in the opinion of the Council, has a demonstrated experience or access to experience in hydrology, environmental chemistry, soil science, eco-toxicology, sampling and analytical procedures, risk evaluation and remediation technologies*". In addition, the person(s) or company will be required to have appropriate professional indemnity and public liability insurance.

During the meeting, the applicant advised that the contamination status of the property was only recently investigated when the factory building was originally built. As a result, depending on the contamination status of the property, this may be addressed as part of the Statement of Environmental Effects and not necessarily through a formal Contamination Report.

(g) Waste Management

A stand-alone Waste Management Plan is to be provided and is to address all waste produced during the operational phase of the development. The Plan must address waste quantities, storage locations and removal and vehicular access for collection.

(h) General Environmental Health Impacts

The general environmental impacts associated with the operational phase of the development will also need to be addressed, such as water quality, noise, dust, air quality and sediment and erosion control. These can be addressed through the submission of plans and information within the submitted Statement of Environmental Effects.

The specifications for the various equipment proposed to be utilised will need to be provided as well as a general guide on the operation of the facility.

Details of other ancillary activities are to be included in the Statement of Environmental Effects, such as how company fleet vehicles are maintained and where they are washed as well as things like general storage, type and volumes of materials. Confirmation is to be provided as to whether any mechanical repairs or refuelling is undertaken at the site.

Information should be included as to how the organisation will monitor their tonnage limits to ensure they do not exceed the Designated Development thresholds.

3. Engineering Matters

(a) Stormwater

Stormwater drainage for the site must be in accordance with the following:

- The Penrith Development Control Plan 2014,
- Council's Stormwater Drainage Specification for Building Developments Policy, and
- Council's Water Sensitive Urban Design Policy and Technical Guidelines.

As the proposal is for a change of use, the application shall ensure that the proposed development complies with any stormwater management system approved under the DA for construction of the warehouse.

4. Traffic Matters

The application shall be supported by a traffic impact statement addressing, but not limited to, traffic generation, access, car parking, and manoeuvring.

Car parking numbers are to be addressed and detail is to be provided s to how the existing number of staff and visitor car parking spaces can adequately service the proposal.

The application shall ensure the development is consistent with any traffic studies approved as part of the DA for construction of the warehouse. It is suggested that past traffic studies for construction of the warehouse be submitted with the application – noting that the activities and use at the site shall be addressed in any final traffic statement.

The application must demonstrate that access, car parking, and manoeuvring details comply with AS 2890, Parts 1, 2 & 6 and Section C10 of the Penrith DCP 2014.

The application shall be supported by turning path diagrams for the largest vehicle proposed to be utilised on site. The turn paths provided shall be in accordance with AS 2890 clearly demonstrating satisfactory manoeuvring on-site, and forward entry and exit to and from the public road.

5. Building Matters

Access to and within the building and facilities will need to comply with Part D3 of the Building Code of Australia (BCA) and National Construction Code (NCC), and AS 1428.1-2009.

The following is also noted:

- Ensure construction and essential services provided comply with the provisions of Volume 1 of the BCA; and

- Council may use the lodgement of a new DA and Clause 93/94 of the Regulations to require upgrade of the existing building for fire safety. If any fire safety upgrades are proposed as part of the application, please include details with the submission.

Please also include the fire safety strategy proposed which addresses the hazard provided by the material used in the recycling process.

6. Waste Matters

Waste management and collection arrangements shall have regard to Section 2.2 and Section 3.1. of the Council's *'Industrial, commercial and mixed-use waste* management guideline' document.

Details of waste management and storage are to be detailed within a comprehensive operational waste management plan submitted with the application.

The plan is to include details of waste stream separation (i.e. office waste, recyclables and residual etc.), bin sizes, storage and access, delivery times and locations, waste truck sizes, swept paths, paths of travel and the like.

Waste generation rates for warehouse (office) are within Section 3.3 of the *'Industrial, commercial and mixed-use waste management guideline'* document. Commercial and industrial generation rates not detailed in this section are to be detailed in the submitted operational plan of management.

Documentation to be submitted with Development Application	
▪ Survey Drawing	▪ Site Plan
▪ Floor plans, elevation and sections.	▪ Fire Safety Schedule
▪ Statement of Environmental Effects/EIS (as may be required)	▪ Construction Waste Management Plan
▪ Air Quality Assessment	▪ Operational Waste Management Plan
▪ Traffic and parking Statement	▪ Contamination Assessment (in SEE)
▪ Schedule of external materials and finishes (if any alterations are proposed)	▪ Building Code of Australia/NCC compliance assessment report
▪ Signage details	▪ Operational plan of management / plan of operations (use and activities)
▪ Acoustic report or statement	▪ Landscape plan (if amended)

The Development Application is to be lodged through the NSW ePlanning Portal.

https://www.planningportal.nsw.gov.au/major-projects/services/lodge-application

Please ensure that plans submitted illustrate consistent detail.

Key Land Based Considerations

Bushfire Prone Land will likely require lodgement of a Bushfire Assessment Report.

Flood Affected Land will require floor levels to Australian Height Datum (AHD).

Impacts to native vegetation (including grassland) will require an assessment under the NSW Biodiversity Offset Scheme and may require a Biodiversity Assessment Report or a Test of Significance.

Fees

Please call the Development Services Department Administrative Support Team on (02) 4732 7991 to enquire about fees and charges.

APPENDIX I

NOISE IMPACT ASSESSMENT

NOISE IMPACT ASSESSMENT

TYRECYCLE ERSKINE PARK

Tyrecycle Pty Ltd

4 September 2020

Job Number 20051123

Prepared by
Todoroski Air Sciences Pty Ltd
Suite 2B, 14 Glen Street
Eastwood, NSW 2122
Phone: (02) 9874 2123
Fax: (02) 9874 2125
Email: info@airsciences.com.au

Noise Impact Assessment

Tyrecycle Erskine Park

DOCUMENT CONTROL

Report Version	Date	Prepared by	Reviewed by
DRAFT - 001	11/08/2020	P Henschke	
FINAL - 001	14/08/2020	P Henschke	A Todoroski
FINAL - 002	04/09/2020	P Henschke	

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

Todoroski Air Sciences has prepared this report to support a development application by Tyrecycle Pty Ltd (Tyrecycle) for a proposed tyre recycling facility at 1-21 Grady Crescent, Erskine Park, New South Wales (NSW) (hereafter referred to as the Project).

The proposed operations include the receival and storage of tyres for shredding and granulating which would all occur within the industrial building. The tyres are processed at an annual production rate of approximately 29,000 tonnes per annum (tpa).

This noise impact assessment has been prepared in general accordance with the NSW Environment Protection Authority (EPA) documents:

- Noise Policy for Industry (**NSW EPA, 2017**);
- NSW Road Noise Policy (**NSW DECCW, 2011**); and,
- Interim Construction Noise Guideline (**NSW DECC, 2009**).

The relevant noise and vibration requirements in the Penrith Development Control Plan 2014 (**Penrith City Council, 2014**) have also been considered in this assessment.

2 PROJECT SETTING AND DESCRIPTION

2.1 Project setting

The Project site is located at 1-21 Grady Crescent, Erskine Park, approximately 10.8 kilometres (km) southwest of Blacktown and approximately 5.6km southeast of St Marys. The area surrounding the Project site is predominantly comprised of industrial operations with an electrical powerline easement separating the residential land to the north.

Figure 2-1 presents the location of the Project with reference to the assessment locations considered in this assessment. **Table 2-1** identifies the approximate address for each of the assessment locations.

Table 2-1: Assessment locations

Assessment location ID	Address
R1	22 Regulus Street
R2	28 Shaula Crescent
R3	116 Weaver Street
IN1	133-145 Lenore Drive
IN2	133a Lenore Drive
IN3	25 Grady Crescent
IN4	23 Grady Crescent
IN5	22 Grady Crescent

Figure 2-2 presents a pseudo three-dimensional visualisation of the topography in the general vicinity of the Project. The local topography is gently undulating with elevation increasing to the southeast of the site.

Figure 2-1: Project setting

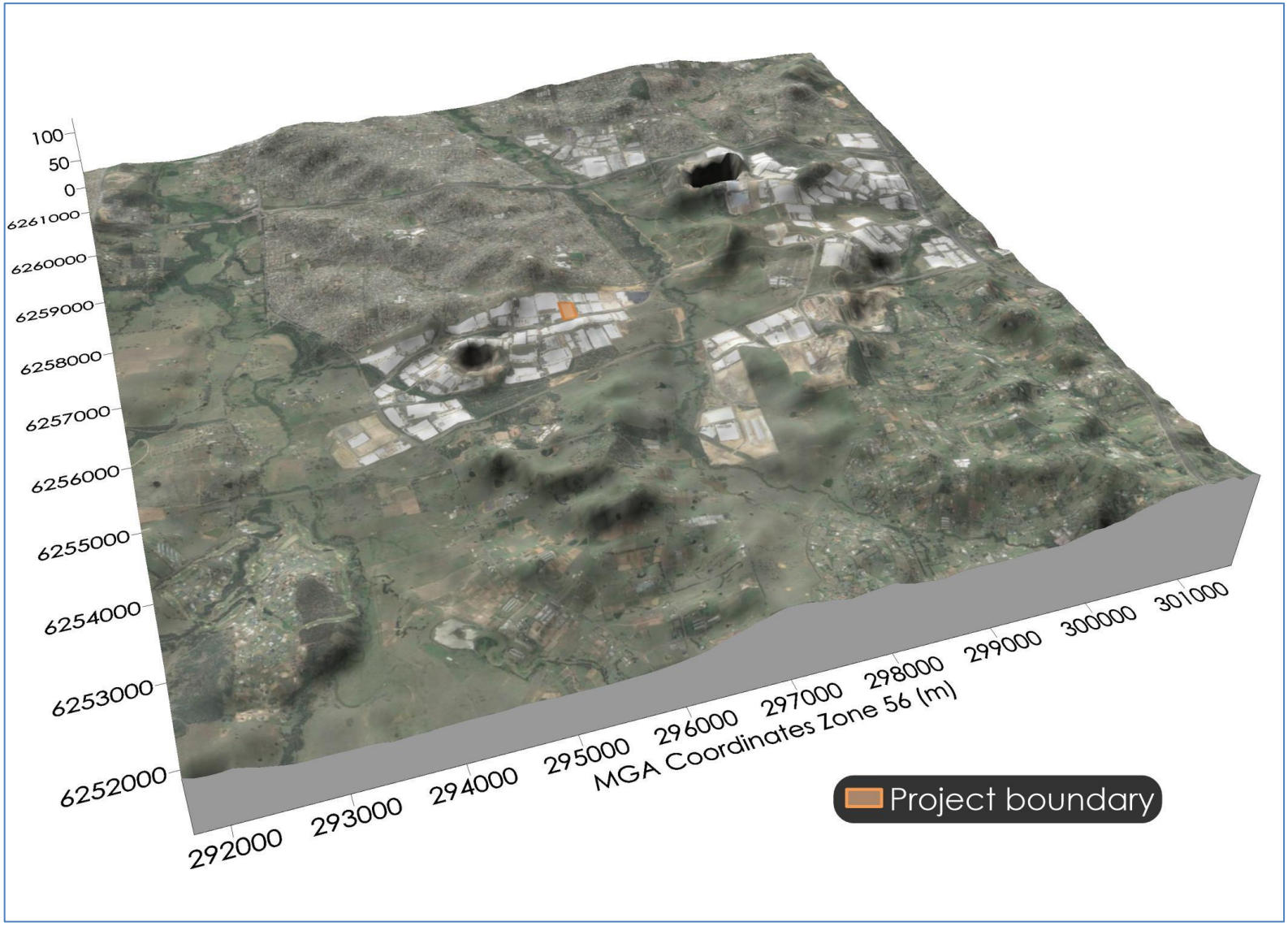


Figure 2-2: Representative visualisation of topography in the area surrounding the Project

2.2 Project description

Tyrecycle propose to process approximately 29,000 tonnes per annum (tpa) of passenger and four wheel drive tyres into either two or six inch pieces (known as Tyre Derived Fuel (TDF)), as well as Tyre Derived Products (TDP) through a shredding operation. The TDF are used for either energy recovery (i.e. co-processing for use within cement kilns) or for energy generation within export markets. The TDP associated with the operation includes granules (1 millimetre (mm) diameter), which are commonly applied to sporting fields and playgrounds, along with rubber crumb products (0.74 mm diameter) which are used in tile manufacturing and road sectors. The activities at the Project would largely be contained within the northern section of the existing warehouse building, which has capacity to house new plant and equipment infrastructure to process the proposed material.

The facility would also act as a transfer station to sort and transport tyres interstate (primarily to Tyrecycle's Somerton facility) for further processing if required.

Table 2-2 presents the proposed operating hours per activity for the Project.

Table 2-2: Proposed operating hours

Activity	Monday to Friday	Saturday	Sunday
Trucks – Collection	4:00am to 1:00am	4:00am to 6:00pm (as required)	-
Plant operation – Shredding	7:00am (start)	7:00am (finish)	-
Plant operation - Crumbing	24 hours	24 hours	24 hours
Deliveries - Containers	8:00am to 5:00pm	8:00am to 6:00pm (as required)	-

Figure 2-3 provides an indicative layout of equipment at the Project.

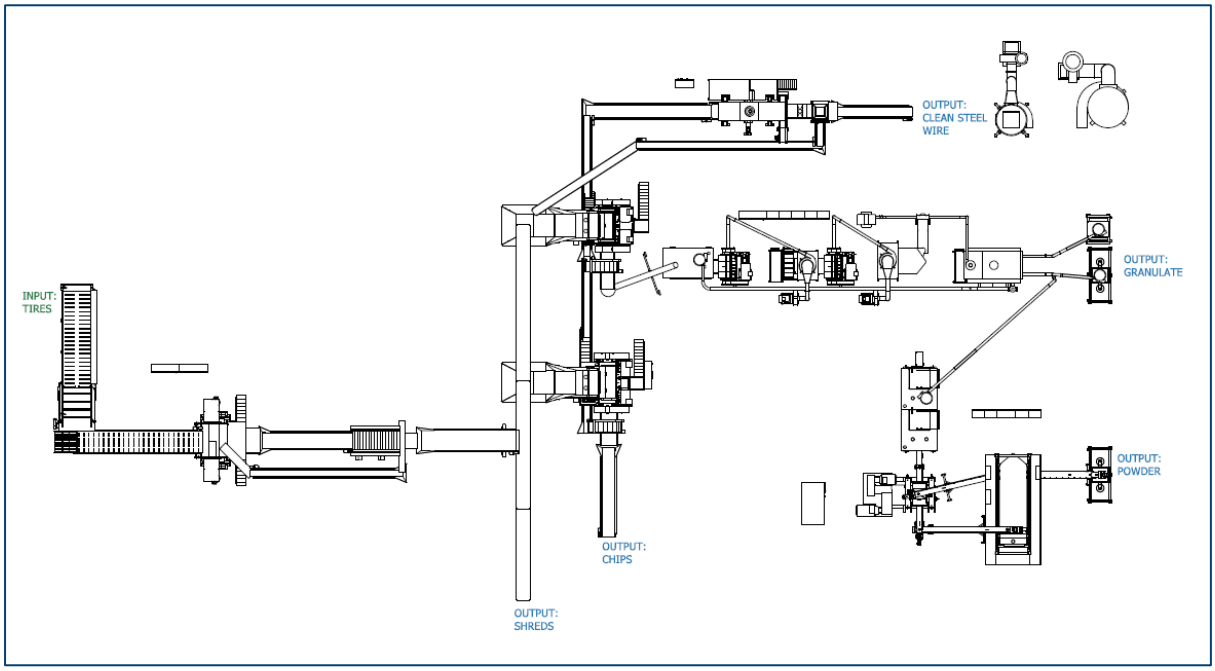


Figure 2-3: Equipment layout for the Project

2.3 Construction activity

The construction activities associated with the Project would include delivery and installation of associated fixed plant and equipment within the warehouse building.

Construction hours will be restricted to 7:00am to 6:00pm Monday to Friday and 8:00am to 1:00pm Saturday. No construction work would occur on Sunday or public holidays.

3 EXISTING ENVIRONMENT

3.1 Noise monitoring

To quantify the existing noise environment in the area surrounding the Project unattended noise monitoring was conducted from 17 July 2020 to 30 July 2020. The noise loggers consisted of Acoustic Research Laboratories Type 1 Environmental Noise Loggers set to A-weighted, fast response, continuously monitoring in 15-minute intervals.

The noise loggers were positioned to the north of the Project site (see **Figure 3-1**). These locations were selected to represent the likely background noise levels experienced at the nearest receiver locations.

The results of the monitoring are summarised in **Table 3-1** and **Table 3-2** are shown graphically in **Appendix A**. The results of noise measurements were processed in accordance with the procedures of the *Noise Policy for Industry* (**NSW EPA, 2017**) and *NSW Road Noise Policy* (**NSW DECCW, 2011**).

We note that the measured RBL levels at Location 1 and Location 2 are higher during the night period compared to the day and evening period. This would suggest the occurrence of noise-enhancing weather conditions during the night period elevating the RBL (note that this assessment considers night time noise enhancing conditions in the modelling predictions).

Table 3-1: Summary of unattended noise measurement results

Location	Period	Rating background level (RBL) (dBA)
10 Regulus Street (Location 1)	Day	40.7
	Evening	43.6
	Night	42.3
16 Shaula Crescent (Location 2)	Day	36.8
	Evening	39.6
	Night	41.4

dBA = A-weighted decibel

Table 3-2: Summary of measured traffic noise descriptors

Location	$L_{Aeq, 15hr}$ (dBA)	$L_{Aeq, 9hr}$ (dBA)
10 Regulus Street (Location 1)	54.6	50.2
16 Shaula Crescent (Location 2)	56.5	49.3

L_{Aeq} = sound level equivalent to the total A-weighted sound energy measured over a stated period

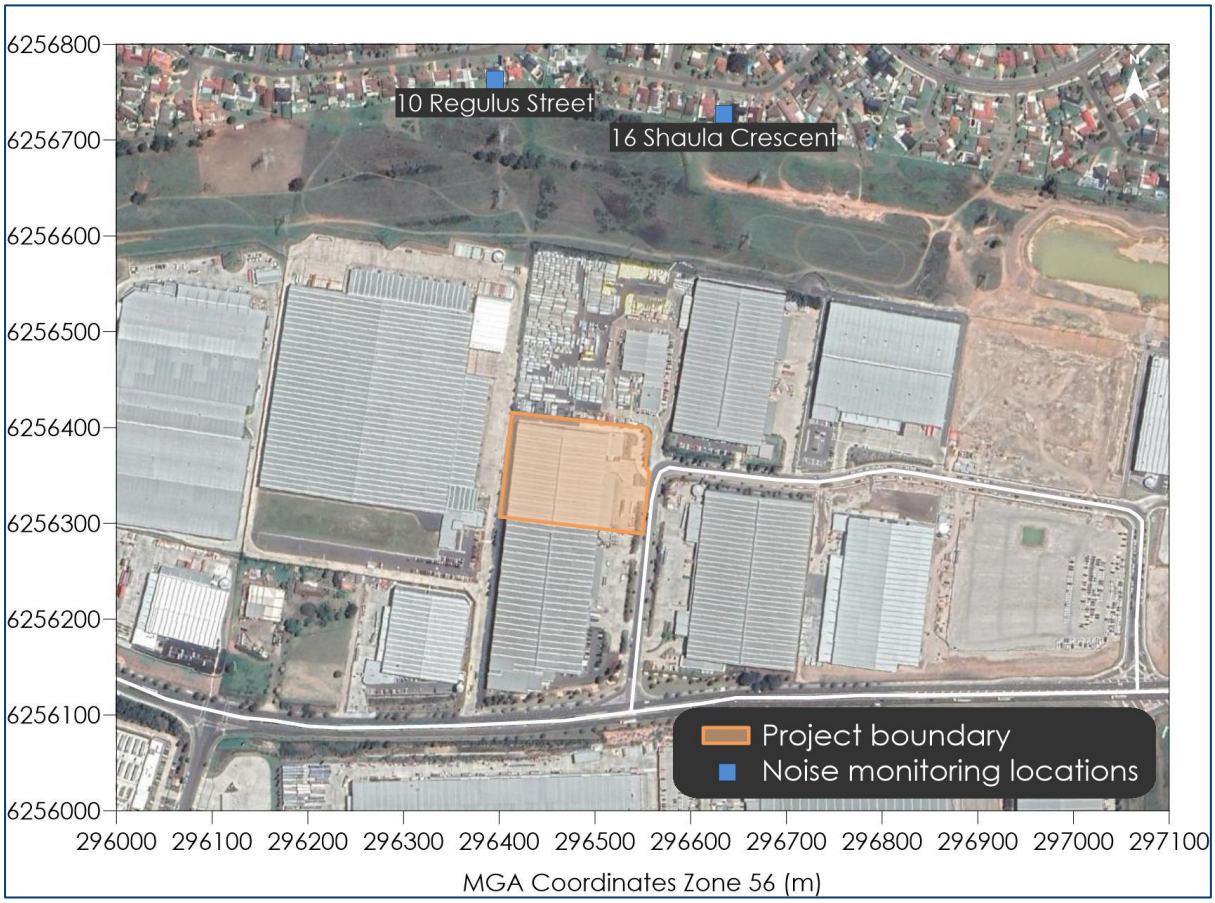


Figure 3-1: Unattended noise monitoring locations

3.2 Local meteorological conditions

To characterise the local meteorological conditions for the Project site, representative local meteorological data required for this assessment were obtained from the CALMET meteorological modelling used in the Air Quality Impact Assessment for the Project (**Todoroski Air Sciences, 2020**).

The CALMET model was setup in general accordance with methods provided in the NSW EPA document *Generic Guidance and Optimum Model Settings for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia'* (**TRC Environmental Corporation [TRC], 2011**).

Figure 3-2 presents the annual and seasonal windroses from the CALMET data. On an annual basis, winds are predominately from the south-southwest. In summer, winds are predominately from the south. Autumn and spring follow a similar distribution to the annual trends with winds most frequent from the south-southwest. The winter period is dominated by winds from the southwest.

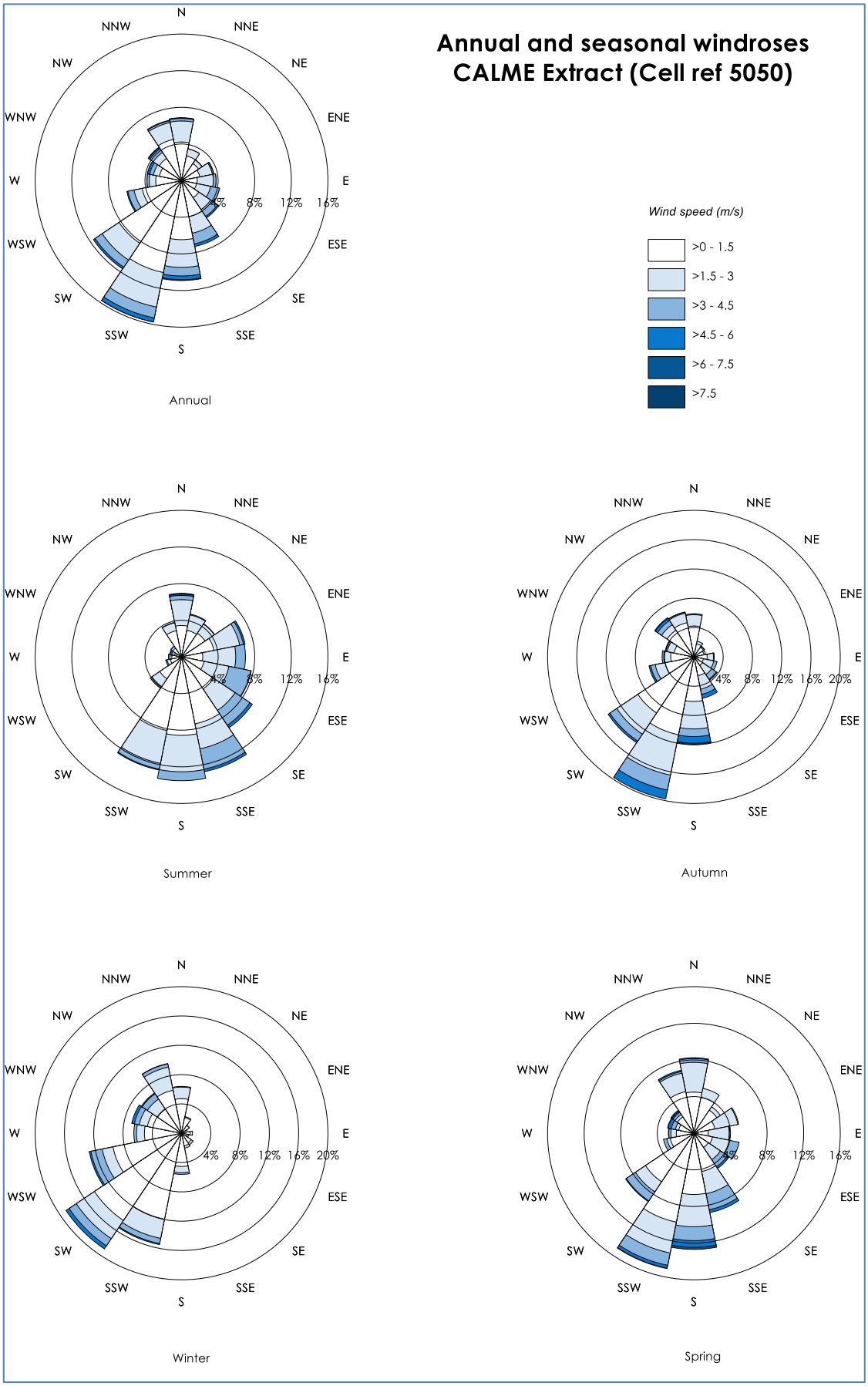


Figure 3-2: Windroses from CALMET extract (cell ref 5050)

3.2.1 Wind

Light winds blowing in the direction from a source to a receiver can increase the source noise levels experienced by the receiver. Where the frequency of wind speeds of up to 3 metres per second (m/s) from a source to a receiver is greater than 30% for each seasonal assessment period, wind is considered a significant characteristic of the area.

To assess the frequency of winds in the CALMET data, the Noise Enhancement Wind Analysis (NEWA) program has been applied. For each season, the dominant wind direction was analysed to determine the frequency of winds in the range 0.5m/s to 3m/s. The results of the analysis are presented in **Table 3-3**.

The analysis indicates that significant winds arise from southwest in the daytime. During the evening period significant winds arise east-northeast, south and south-southwest and from the south and south-southwest during the night periods in this area.

Based on the location of the Project relative to the nearest identified residential receivers, the identified significant winds are likely to affect these locations.

Table 3-3: Wind frequency for seasonal assessment periods

Season	Daytime		Evening		Night	
	Direction	Percentage	Direction	Percentage	Direction	Percentage
Summer	N	24.7	ENE	**31.1**	SSW	**46.5**
Autumn	SSW	26.1	S	**40.5**	SSW	**47.7**
Winter	SW	**30.4**	SSW	**40.8**	SW	**41.2**
Spring	NNW	26.9	ENE	16.8	SSW	**44.3**

3.2.2 Temperature inversions

A temperature inversion is a meteorological phenomenon where the air temperature profile increases vertically through the atmosphere. As sound moves faster in warmer air, this phenomenon causes sound waves to bend towards the ground, increasing the received noise levels from a source, some distance away.

For temperature inversions to be a significant characteristic of the area, they need to occur for approximately 30% of the total night-time periods during winter. An analysis of the CALMET data indicates that the frequency of temperature inversion occurring at night during the winter months is approximately 10% of the time and hence inversions are not a significant feature of the area.

Nevertheless, as a conservative measure this assessment considers night time noise enhancing conditions (inversions and wind towards receivers) in the modelling predictions.

4 NOISE CRITERIA

4.1 Operational noise criteria

The Project noise trigger level is the lower (more stringent) value of the project intrusiveness noise level and project amenity noise level.

The project intrusiveness noise level aims to protect against a significant increase in noise levels from just the project relative to the existing acoustic environment, whilst the project amenity noise level seeks to protect against cumulative noise impacts from many noise sources and to thus maintain a pre-defined, suitable level of amenity within particular land use zones.

The criteria are applied to the most affected point at a receiver property. The intrusive criteria are set out in **Table 4-1**. Amenity levels apply according to the receiver type identified in **Table 4-2**. The Project noise trigger levels are set out in **Table 4-3**.

4.1.1 Intrusive noise levels

The intrusiveness of an industrial noise source may generally be considered acceptable if the level of noise from the source's $L_{Aeq,\ 15min}$ does not exceed the background noise level by more than 5 dB. Where the $L_{Aeq,\ 15min}$ represents the equivalent continuous (energy average) A-weighted sound pressure level of the source over 15 minutes.

The Rating background noise level (RBL) is the overall single-figure background level representing each assessment period over the whole monitoring period (**NSW EPA, 2017**). RBL measurements from Location 2 have been selected as they represent the lowest background noise levels.

Table 4-1: Project intrusiveness noise levels

Period	RBL	Intrusive noise criteria ($L_{Aeq,\ 15min}$ dBA)
Day	37	(37 + 5) 42
Evening	40	(40 + 5) 45
Night	41	(41 + 5) 46

4.1.2 Amenity noise levels

To limit continuing increases in noise levels from application of the intrusiveness level alone, the ambient noise level within an area from all noise sources combined should, where reasonable and feasible, remain below the recommended amenity noise levels for the specific land use, as set out in **Table 4-2**.

The recommended amenity noise levels represent the objective for total industrial noise at a receiver.

Table 4-2: Amenity noise levels

Receiver	Noise amenity area	Time of day	Recommended amenity noise level ($L_{Aeq,\ 15min}$ dBA)
Residential	Rural	Day	50
		Evening	45
		Night	40
	Suburban	Day	55
		Evening	45
		Night	40

Receiver	Noise amenity area	Time of day	Recommended amenity noise level ($L_{Aeq, 15min}$ dBA)
	Urban	Day	60
		Evening	50
		Night	45
Hotels, motels, caretakers' quarters, holiday accommodation, Permanent resident caravan parks			5 dBA above recommended amenity noise level for a residence for the relevant noise amenity area and time of day
School classroom – internal	All	Noisiest 1-hour period when in use	35
Hospital ward internal	All	Noisiest 1-hour	35
Hospital ward external	All	Noisiest 1-hour	50
Place of worship – internal	All	When in use	40
Area specifically reserved for passive recreation (e.g. national park)	All	When in use	50
Active recreation area (e.g. school playground, golf course)	All	When in use	55
Commercial premises	All	When in use	65
Industrial premises	All	When in use	70
Industrial interface (applicable only to residential noise amenity areas)	All	All	Add 5 dBA to recommended noise amenity area

In the case of a single new noise source being proposed, the project amenity noise level represents the objective for noise from a single industrial development at the receiver location calculated as the recommended amenity noise level minus 5dBA. Due to the different averaging periods for the $L_{Aeq, 15min}$ and $L_{Aeq, period}$ noise descriptors, it is assumed the $L_{Aeq, period}$ noise level is equal to the $L_{Aeq, 15min}$ level plus 3dB.

The urban amenity criteria would be applicable to the nearest potentially affected receiver locations.

The applicable operational noise criteria are set out in the table below.

Table 4-3: Project noise trigger levels ($L_{Aeq, 15min}$ dBA)

Receiver	Period	Project intrusiveness noise levels	Project amenity noise levels	Trigger levels
Residential receivers	Day	42	(60-5+3) 58	42
	Evening	45	(50-5+3) 48	45
	Night	46	(45-5+3) 43	43
Industrial	When in use	n/a	70	70

4.2 Sleep disturbance criteria

As outlined in the *Noise Policy for Industry* (**NSW EPA, 2017**), the potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages.

The considerations apply to sensitive receivers where the subject development/ premises night-time noise levels at a residential location exceed:

- $L_{Aeq,\ 15min}$ 40 dBA or the prevailing RBL plus 5 db, whichever is greater, and/ or
- L_{AFmax} 52 dBA or the prevailing RBL plus 15 dB, whichever is greater

As the Project intends to operate on a 24-hour basis, the maximum noise level events need to be considered for potential sleep disturbance. **Table 4-4** presents the maximum noise trigger levels for the residential receivers.

Table 4-4: Maximum noise trigger level

Receiver	RBL (dBA)	RBL + 15dBA	Maximum noise trigger level (dBA)
All residential receivers	41	56	56

4.3 Road traffic noise criteria

The potentially applicable road traffic noise criterion for the Project is presented in *NSW Road Noise Policy* (**NSW DECCW, 2011**). The assessment criteria for residential land uses relevant in this assessment are presented in **Table 4-5**.

Table 4-5: Road traffic noise criteria

Road category	Type of project/ land use	Assessment criteria - dBA	
		Day (7:00am-10:00pm)	Night (10:00pm-7:00am)
Sub-arterial roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	$L_{Aeq,\ (1\ hour)}$ 60 (external)	$L_{Aeq,\ (1\ hour)}$ 55 (external)

4.4 Construction Criteria

Management levels for construction noise at residences and how they are to be applied are presented in the *Interim Construction Noise Guideline* (**NSW DECC, 2009**) and outlined in **Table 4-6** below.

Table 4-6: Construction noise management level

Time of day	Management level $L_{Aeq,\ (15\ min)}$	How to apply
Recommended standard hours: Monday to Friday 7am to 6pm Saturday 8am to 1 pm	Noise affected RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured LAeq, (15-min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.

Time of day	Management level $L_{Aeq,\ (15\ min)}$	How to apply
No work on Sundays or public holidays	Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noise activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-mornings or mid-afternoon for works near residences). 2. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dBA above the noise affected level, the proponent should negotiate with the community.

5 NOISE AND VIBRATION ASSESSMENT

The operational noise assessment for the Project has considered a potential worst-case scenario, based on the potential maximum likely number of plant and equipment operating simultaneously at the site.

We note that there are no significant operational sources of vibration identified for the Project and a detailed vibration assessment has not been considered necessary as there are no site sources capable of generating sustained vibration impacts at receivers.

It is noted that it may be possible that intermittent airborne vibration to be detectable at times, for example when a certain number of trucks in a specific alignment may be operating in synchronicity. Also it is possible that, depending on a range of factors such as type of vehicle, axle separation, mass, braking or acceleration dynamics etc, vehicle movements on the public concrete road may lead to detectable vibration, for example arising from vehicle induced movement on a concrete road slab, a pothole or discontinuity in level between road slabs. It is noted that these issues appear to be potentially applicable to the public road and if present would be unchanged as a result of the Project, whereas the surfaces on the site are regular and smooth.

5.1 Operational noise modelling methodology

For this assessment, noise predictions were made using the Environmental Noise Model (ENM) noise model, which calculates noise propagated from the site to receivers in consideration of the following factors:

- distance;
- barrier effects from existing buildings;
- ground attenuation;
- air absorption; and,
- wind enhancement.

Digital terrain data and site buildings were included in the modelling.

Per the analysis of local meteorological conditions, refer to **Section 3.2**, noise-enhancing meteorological conditions related to south, south-southwest and southwest are a significant feature of the area and would be in the general direction of the nearest receivers.

Potential worst-case (noise-enhancing) meteorological conditions assuming low speed winds towards receivers and a stability category F were applied in the assessment, along with daytime levels of plant activity. Reduced plant operates at night, including some of the noisier plant items.

The assessment presents only the worst-case modelled scenario (which is low wind speeds with F-class stability conditions, and all daytime activity occurring).

5.2 Source noise levels

This assessment is based on a worst-case operating scenario by modelling the noise due to a likely maximum number of potentially operating plant and equipment items at the Project site.

The identified noise levels of each significant noise source included in the assessment are presented in **Table 5-1** along with the number of items modelled to be operating concurrently at the site.

The most significant sources of operational noise associated with the Project operate within the building with some truck and forklift movements on the hardstand in front of the building. It has been assumed roller doors at the front of the building remain open during operations.

Table 5-1: Equipment sound power levels included in modelling

Equipment	Sound power levels (dBA)
Granulator (FG)	107
Shredder (MPR)	103
Conveyor	96
Forklift	80
Skidsteer loader	94
Front-end-loader	103
Cyclone fan	101
Trucks unloading inside	104
Truck movement inside	98
Loading truck outside	90
Truck movement outside	104

5.3 Predicted noise levels

Table 5-2 presents the predicted noise modelling results at the assessed sensitive receiver locations for a single worst-case scenario.

As a conservative measure, the scenario assumes daytime levels of plant activity, along with an F-class temperature inversion and light winds towards receivers. In reality, the modelled weather condition corresponds with night time periods when there would likely be minimal site activity external to the warehouse building.

The predicted noise levels for the Project are also presented as an isopleth diagram in **Figure 5-1**. The isopleths align well with the observed key noise sources on the site. The figure illustrates the effects of the conservatively assumed inversion and wind towards residential receivers, indicating a level of 40dB(A) in the residential areas to the north.

The results indicate the predicted noise levels would comply with the applicable criteria at the assessed receiver locations.

We note the Project noise trigger levels during the day is 42dBA (refer to **Table 4-3**) at the residential receivers. The predicted noise levels for the Project are based on day time noise generation and modelling with F-class inversion condition with wind towards receivers and comply with this trigger level. In reality, there would not be such inversions in the day time and the actual day time noise levels would be lower than predicted.

Table 5-2: Predicted operational noise impacts for sensitive receiver

Receiver ID	Predicted level (dBA)	Night - Trigger level (dBA)
R1	30	43
R2	42	43
R3	35	43
IN1	46	70
IN2	33	70
IN3	62	70
IN4	59	70
IN5	62	70

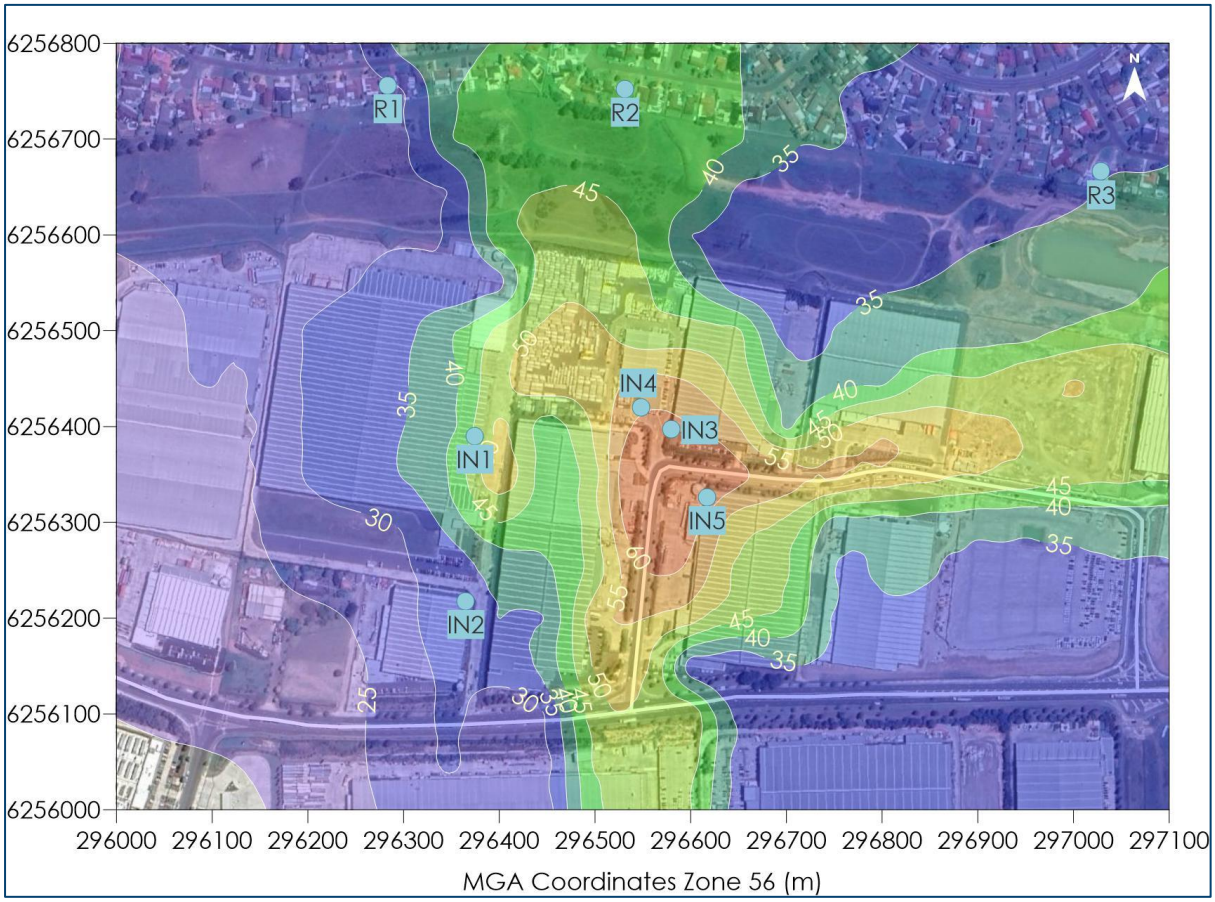


Figure 5-1: Predicted worst case noise levels (dBA)

5.4 Sleep disturbance

Maximum noise events may occur for example if equipment is dropped, items slammed such as a truck tailgate or release of air from pneumatic brake systems. The maximum sound power for such events are typically around 120-125 dBA or approximately 4-9 dBA higher than the total modelled sound power. Thus, the L_{AFmax} at any residential receiver would be approximately 4-9 dBA higher than the predicted worst-case noise levels which are up to 42dBA at the most impact residential receiver. The estimated L_{AFmax} at the most impact residential receiver is 51dBA which is below maximum noise trigger level of 56dBA.

6 ROAD TRAFFIC NOISE ASSESSMENT

The Traffic Impact Assessment (**PTC, 2020**) for the Project indicates up to 37 trips (comprising 7 trucks and 30 light vehicles) in the AM and PM peak hours would be generated. The estimated existing number of trips for the Project warehouse is calculated at 48 trips during peak hour and hence the Project would see a potential reduction in number of trips during this period.

As the estimated number of vehicles would likely reduce form the existing situation, the Project would not result in any additional noise generation from road traffic. It is noted that the traffic generation would need to increase by approximately 60% above the existing situation to result a 2db increase. As Lenore Drive is a State Road it is expected that the peak hour traffic volume on this is road is significantly greater that the estimated 37 trips for the Project during peak hour and as such would see any tangible change to the existing noise generation from road traffic.

Furthermore, the traffic movements from the Project (along Grady Crescent and Lenore Drive) and would not pass any land uses considered sensitive to traffic noise and further detailed assessment is not warranted.

7 CONSTRUCTION ASSESSMENT

The proposed construction activity for the Project would occur during standard constructions hours. The significant sources of construction noise may include trucks, cranes and hand tools.

Given that the proposed plant and equipment modelled would generate similar noise levels and would comply with intrusive and amenity criteria, the indication is that the noise from construction activities would be below the less stringent noise criteria for operation of the Project. Overall, the modelling indicates no significant risk of construction noise impacts arising.

8 MITIGATION AND MANAGEMENT

The design features of the Project are suitable, and no additional operational controls or mitigation measures need to be applied to best manage noise impacts from the Project.

Nevertheless, **Table 8-1** summarises suggested noise mitigation and management measures to ensure noise levels are minimised were possible.

Table 8-1: Suggested noise mitigation and management measures

Type	Mitigation measure
General	Keep roller doors closed where possible.
Plant and equipment	Truck engines to be switched off when not in use for extended periods.
Incident and complaints management	Complaints are logged and investigated.

9 SUMMARY AND CONCLUSIONS

This report has assessed the potential noise impacts associated with a proposed tyre recycling facility at Erskine Park.

Noise modelling was used to predict potential off-site noise impacts in the surrounding area due to the operation of the Project, and consideration of potential sleep disturbance, road traffic and construction noise was made.

The modelling in this assessment assumed a potential worst-case scenario, with a maximum likely number of operational plant and equipment operating simultaneously at the site under inversion conditions with a light wind towards receivers. The assumptions used in the operational noise modelling are generally conservative and in general the predicted levels are likely to somewhat overestimate the potential impact that may arise.

The results indicate that noise levels would be within the applicable criteria at the nearest receivers, and that no sleep disturbance, road traffic and construction noise impacts are likely to arise.

Overall, the assessment confirms that the proposed Project would operate within acceptable noise criteria at the nearest receivers.

10 REFERENCES

NSW DECC (2009)

"Interim Construction Noise Guideline", NSW Department of Environment and Climate Change, July 2009.

NSW DECCW (2011)

"NSW Road Noise Policy", NSW Department of Environment, Climate Change and Water, March 2011.

NSW EPA (2017)

"Noise Policy for Industry", NSW Environment Protection Authority, October 2017.

Penrith City Council (2014)

"Penrith Development Control Plan 2014", Penrith City Council, 2014.

PTC (2020)

"Traffic Impact Assessment 1-21 Grady Crescent, Erskine Park", prepared for Tyrecycle Pty Ltd by PTC, August 2020.

Todoroski Air Sciences (2020)

"Air Quality Impact Assessment Tyrecycle Erskine Park", prepared for Tyrecycle Pty Ltd by Todoroski Air Sciences, August 2020.

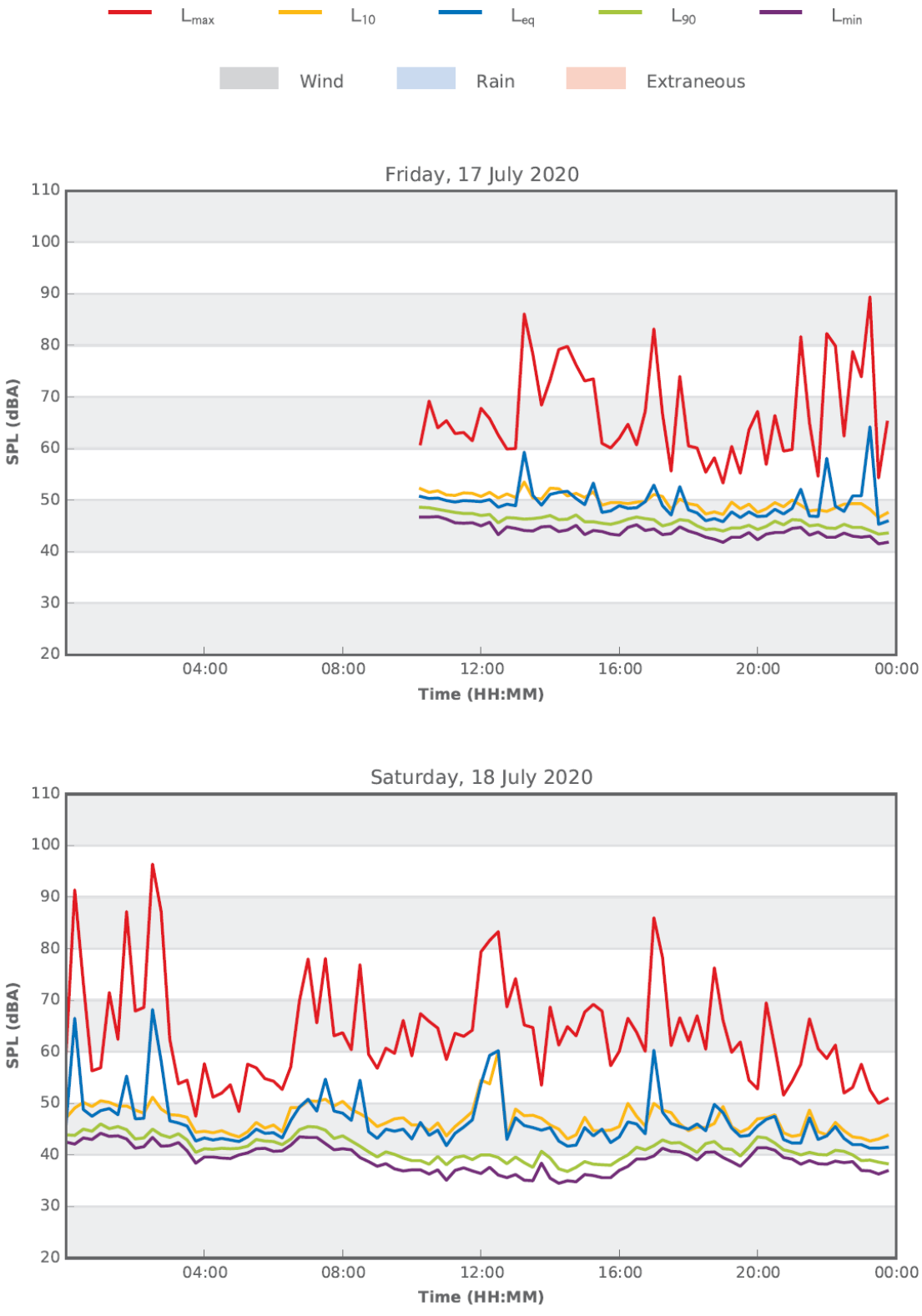
TRC (2011)

"Generic Guidance and Optimum Model Settings for the CALPUFF Modeling System for Inclusion into the Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia", Prepared for the NSW Office of Environment and Heritage by TRC Environmental Corporation.

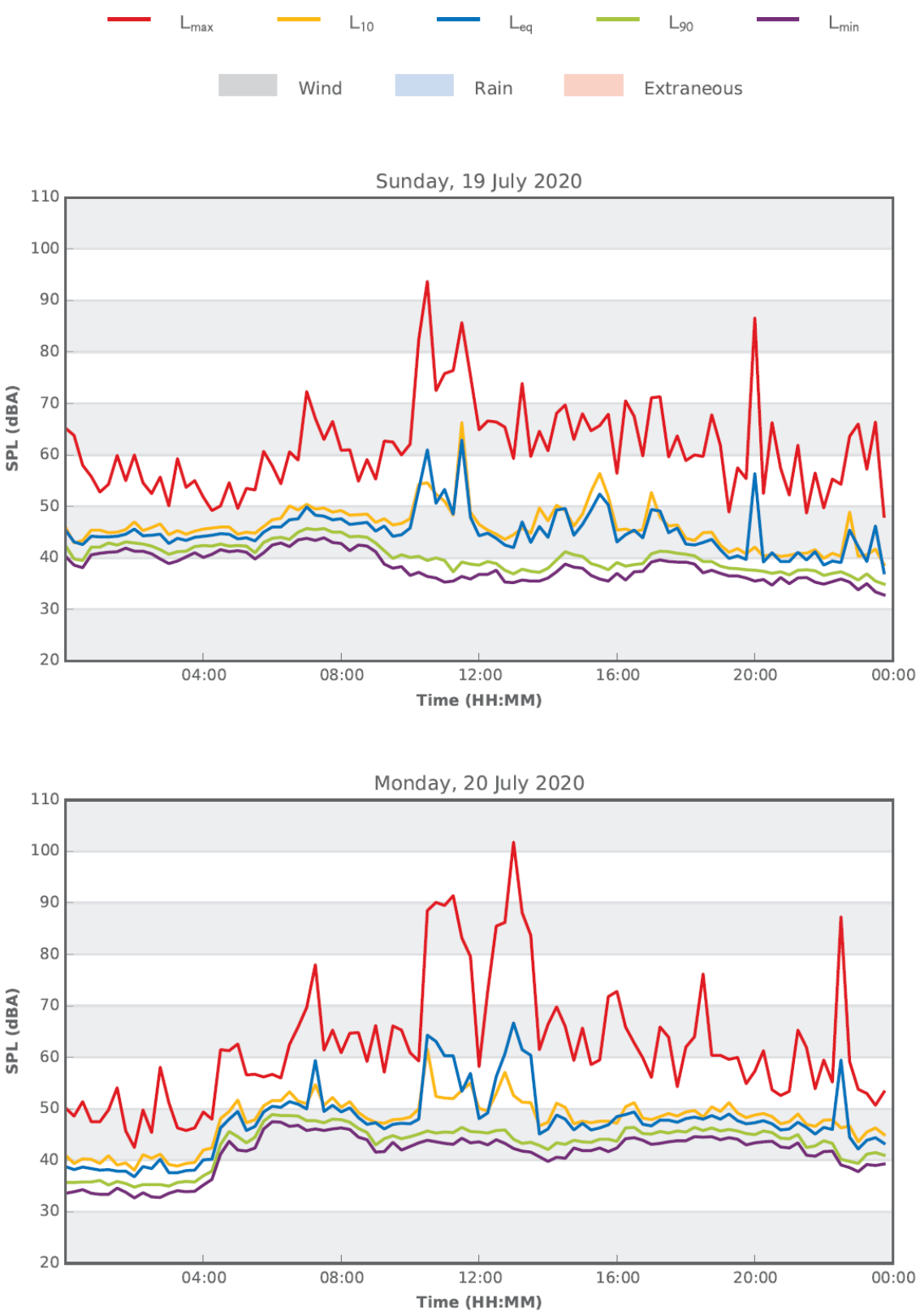
Appendix A

Noise Measurement Results

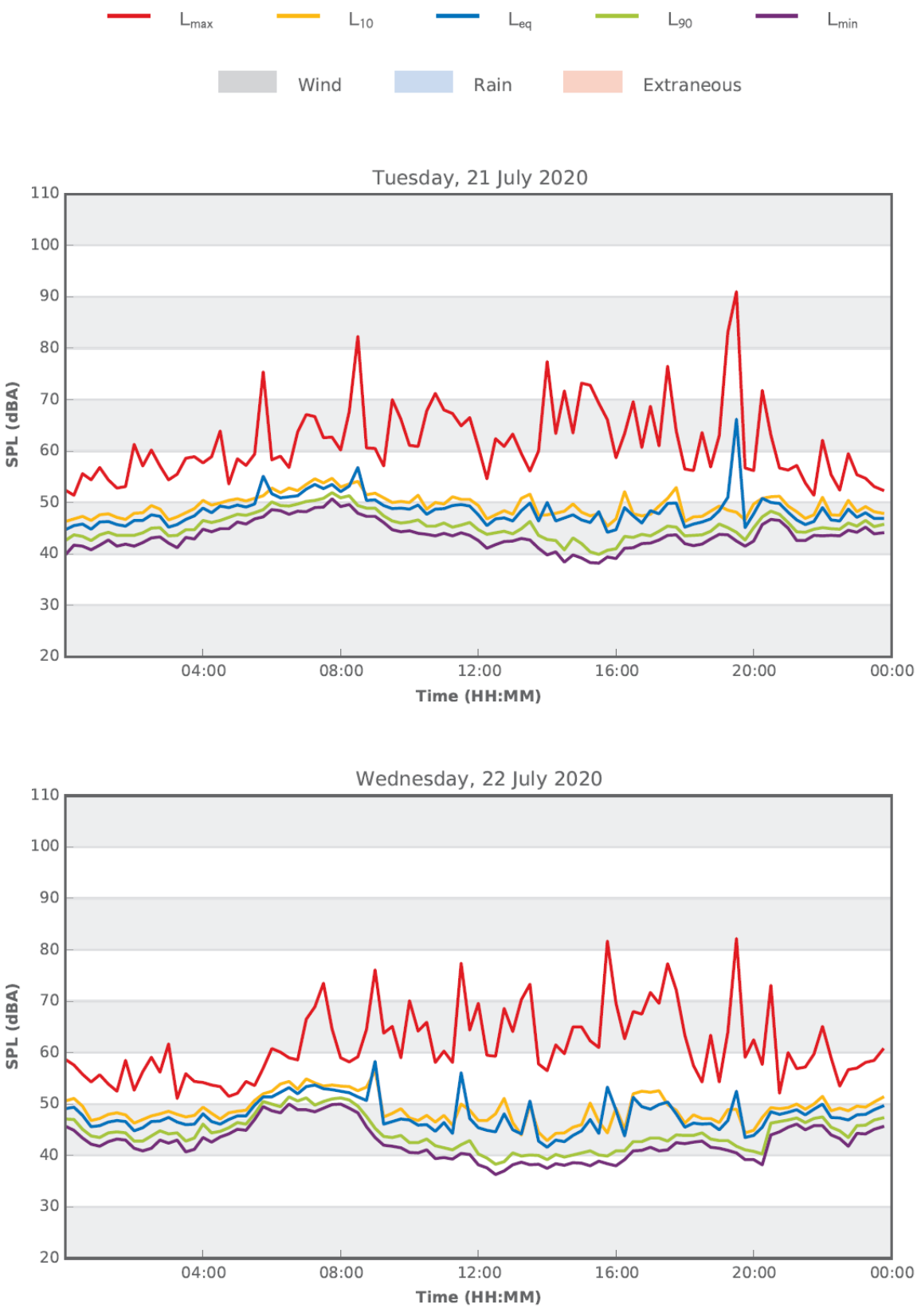
10 Regulus Street, Erskine Park



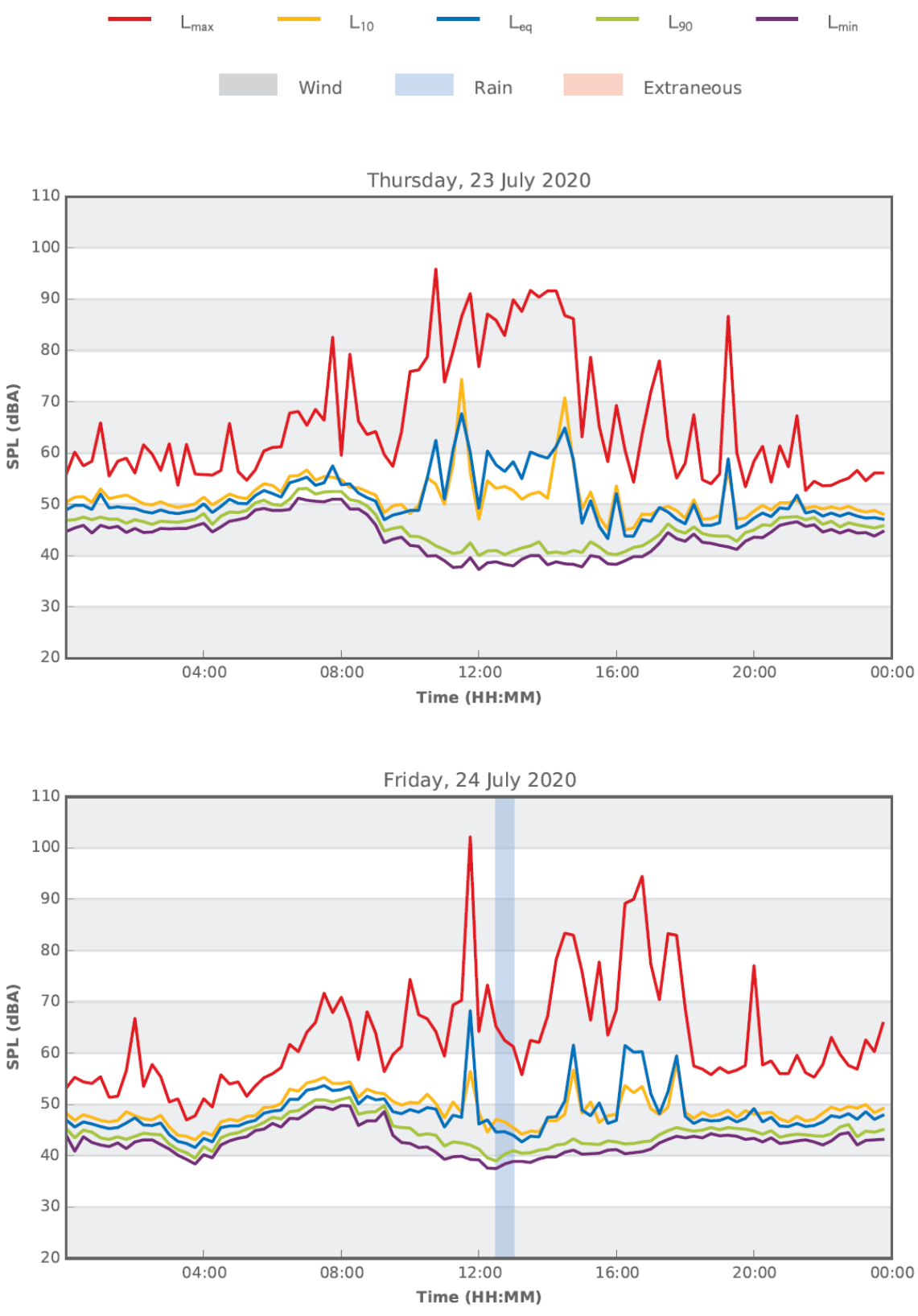
10 Regulus Street, Erskine Park



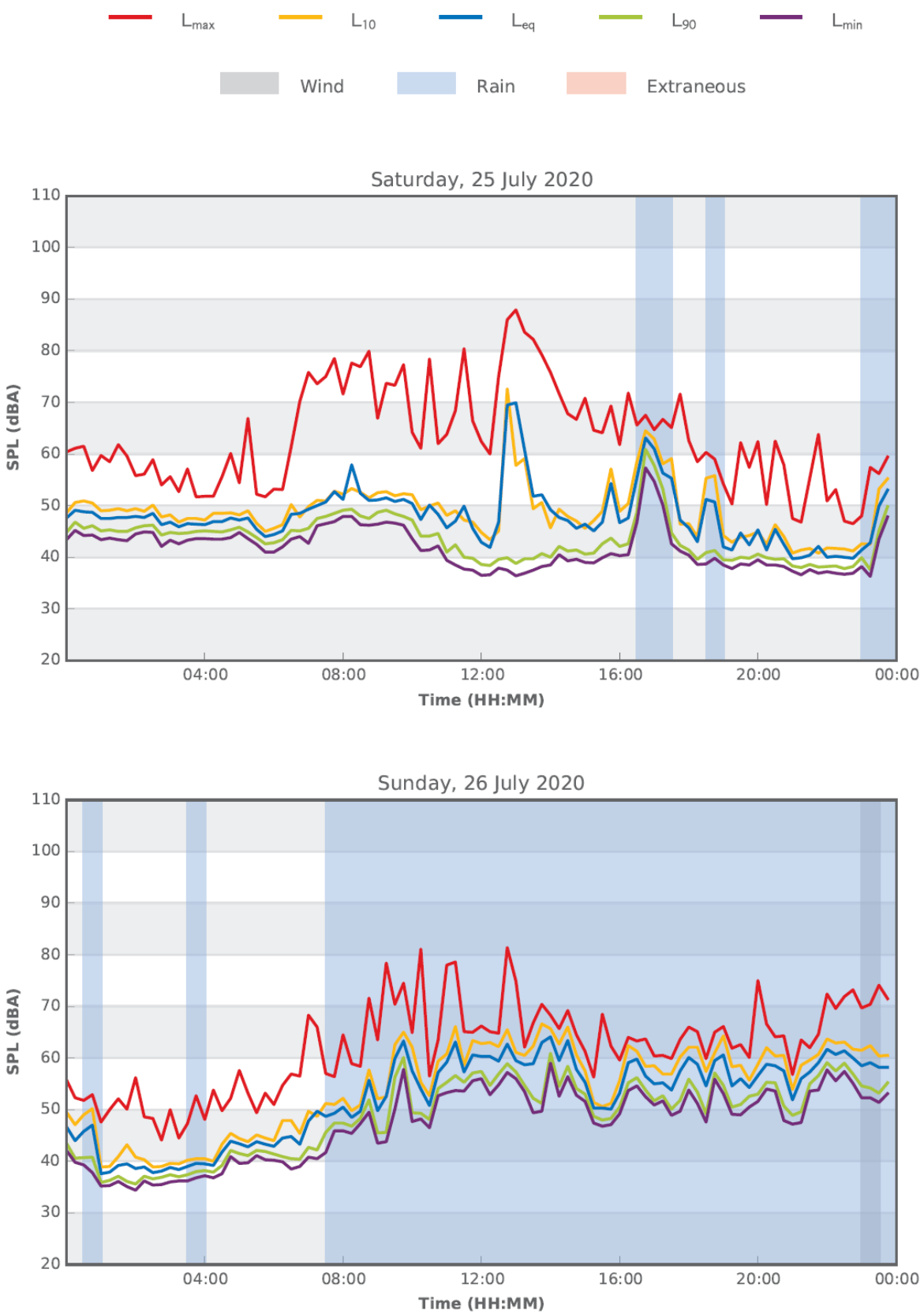
10 Regulus Street, Erskine Park



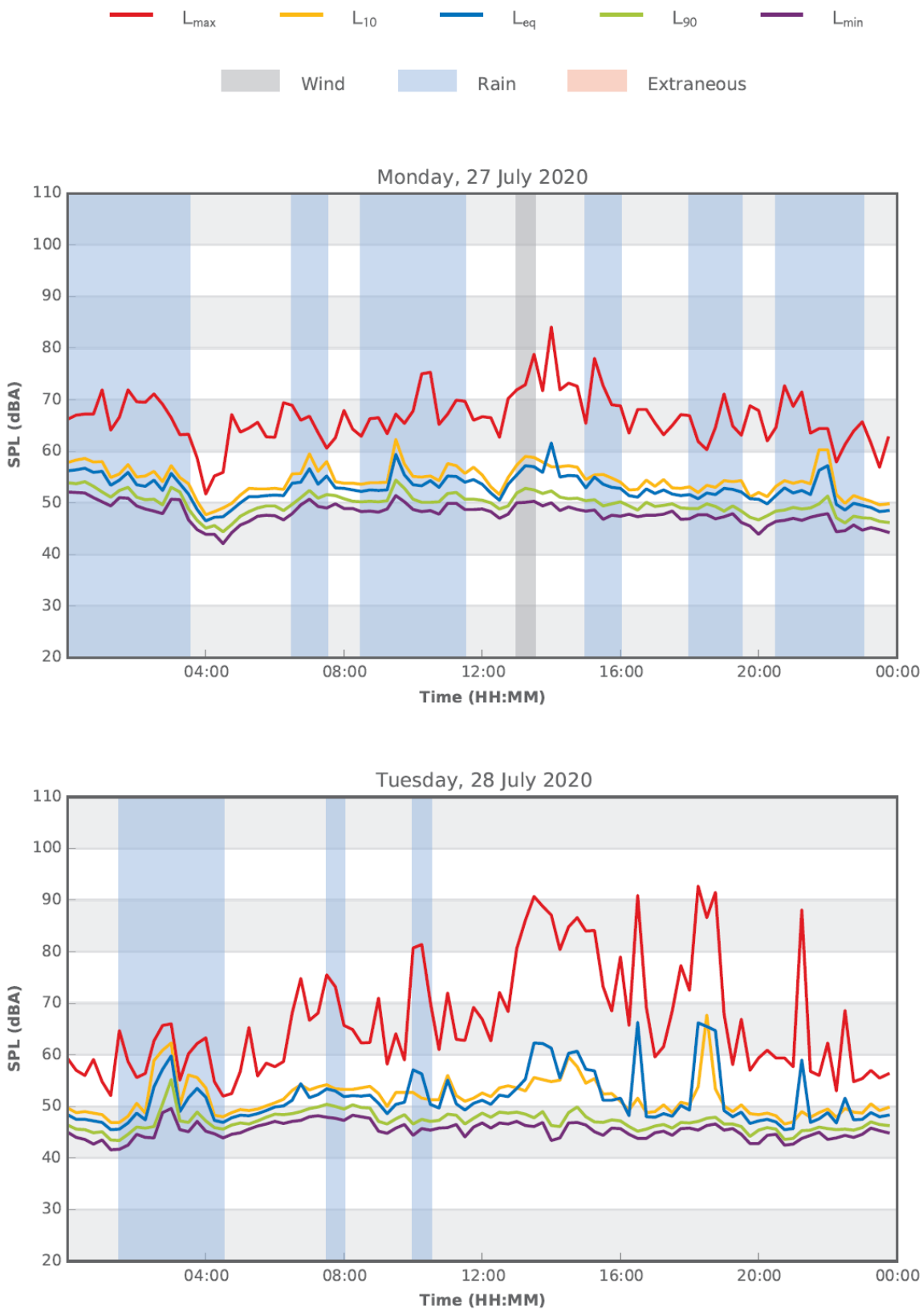
10 Regulus Street, Erskine Park



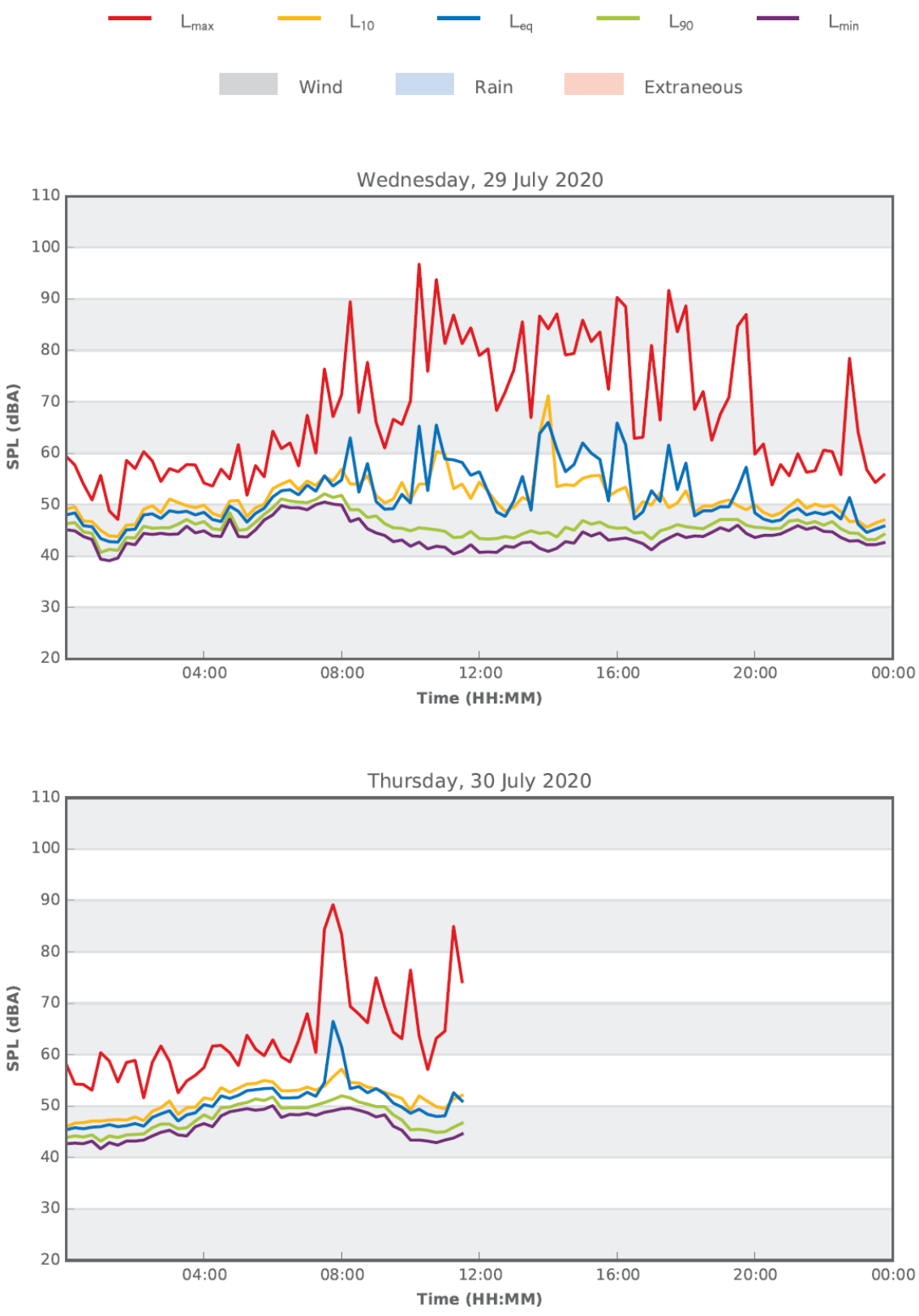
10 Regulus Street, Erskine Park



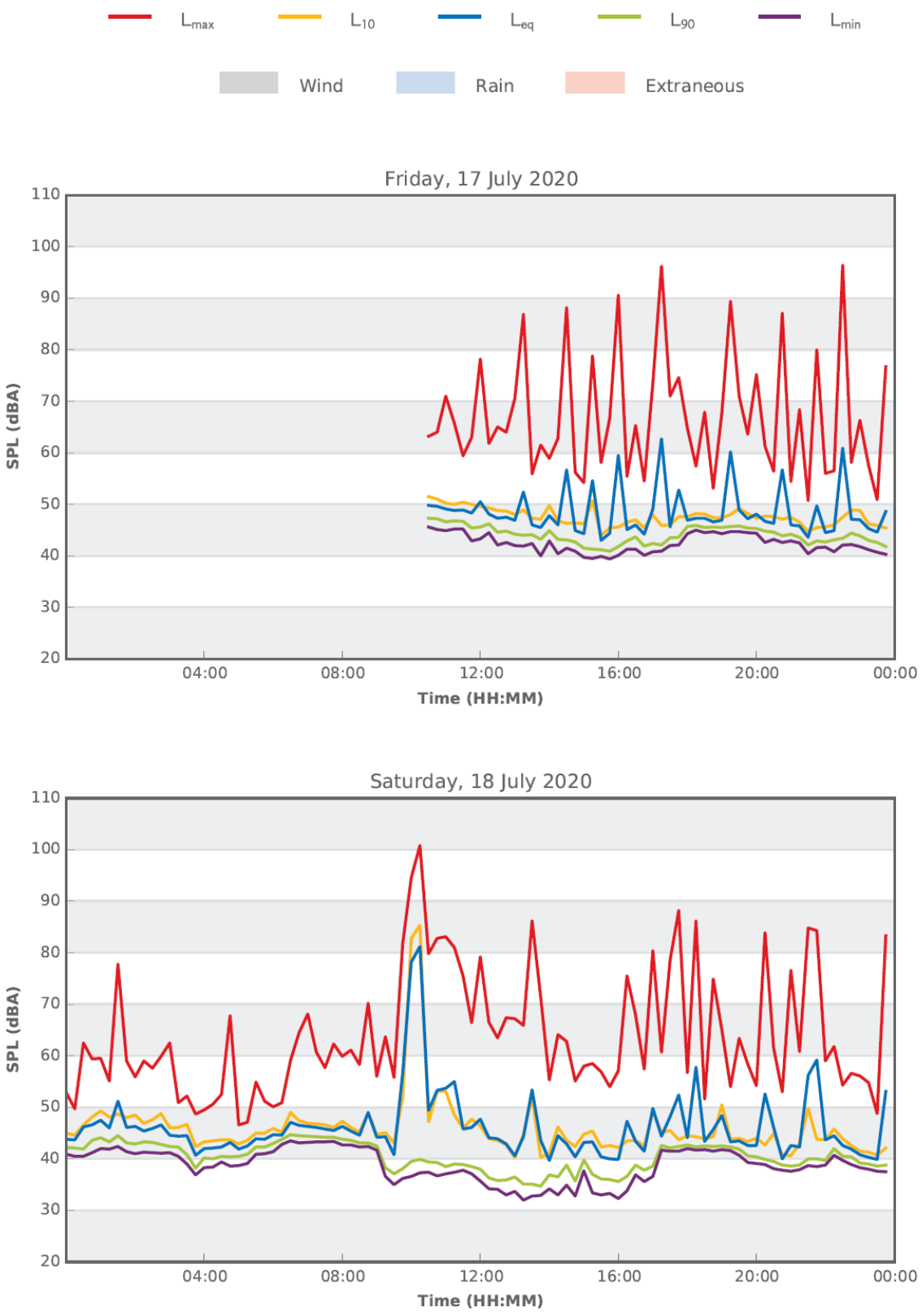
10 Regulus Street, Erskine Park



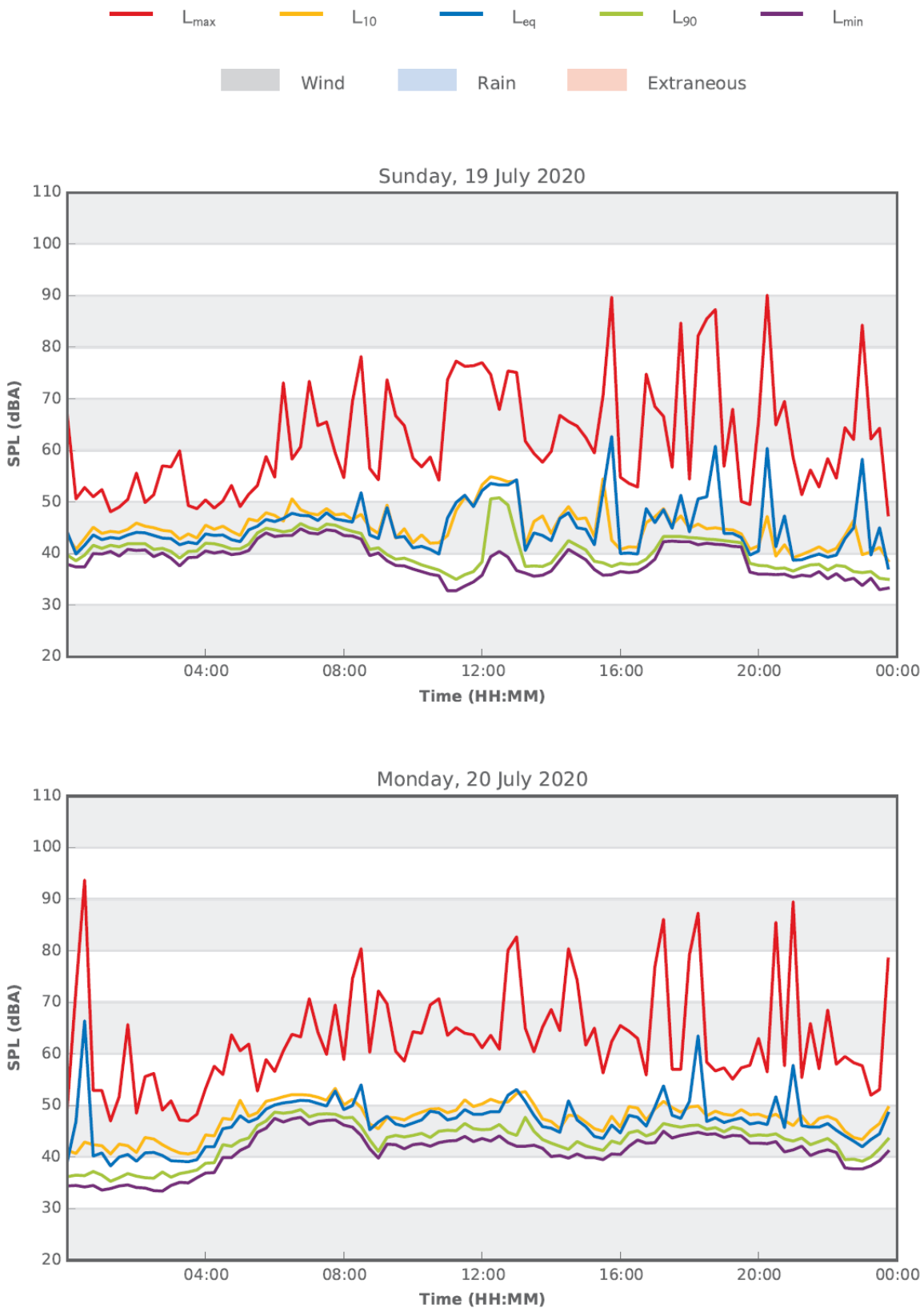
10 Regulus Street, Erskine Park



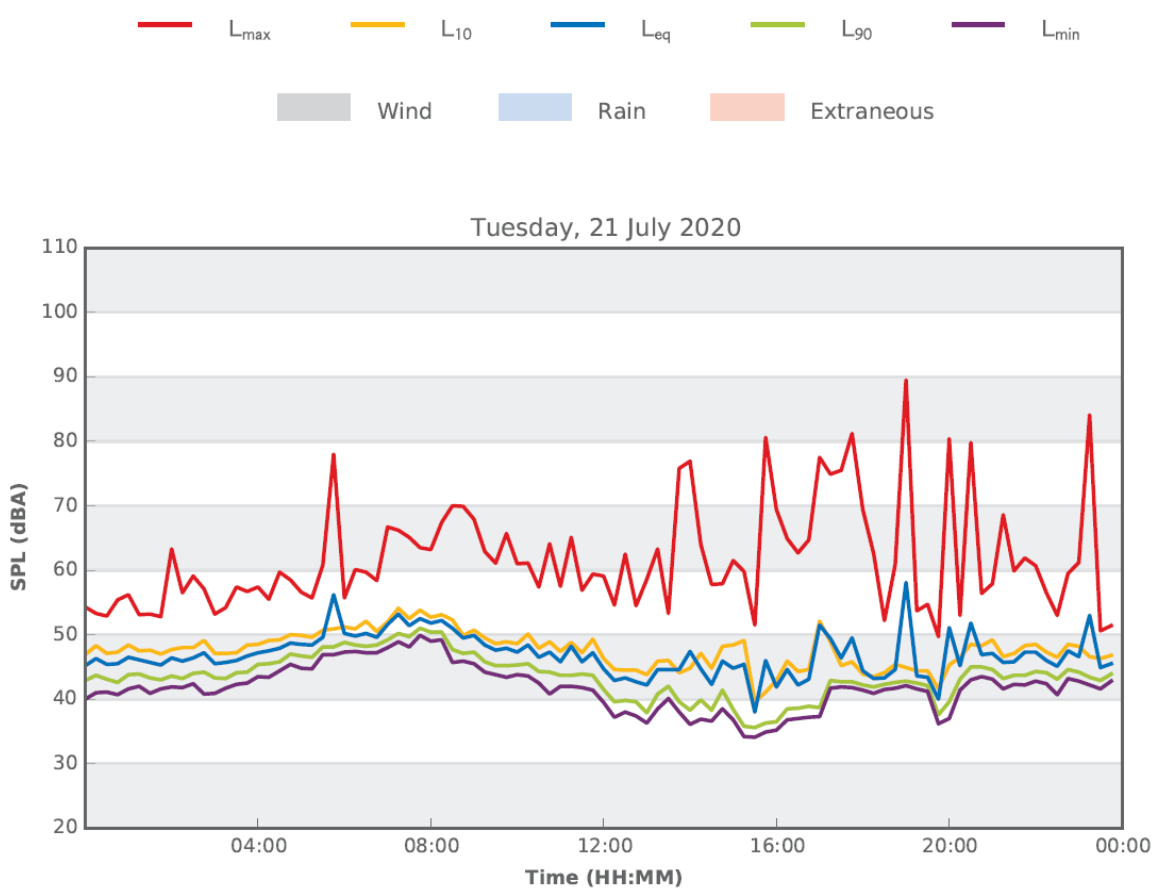
16 Shaula Crescent, Erskine Park

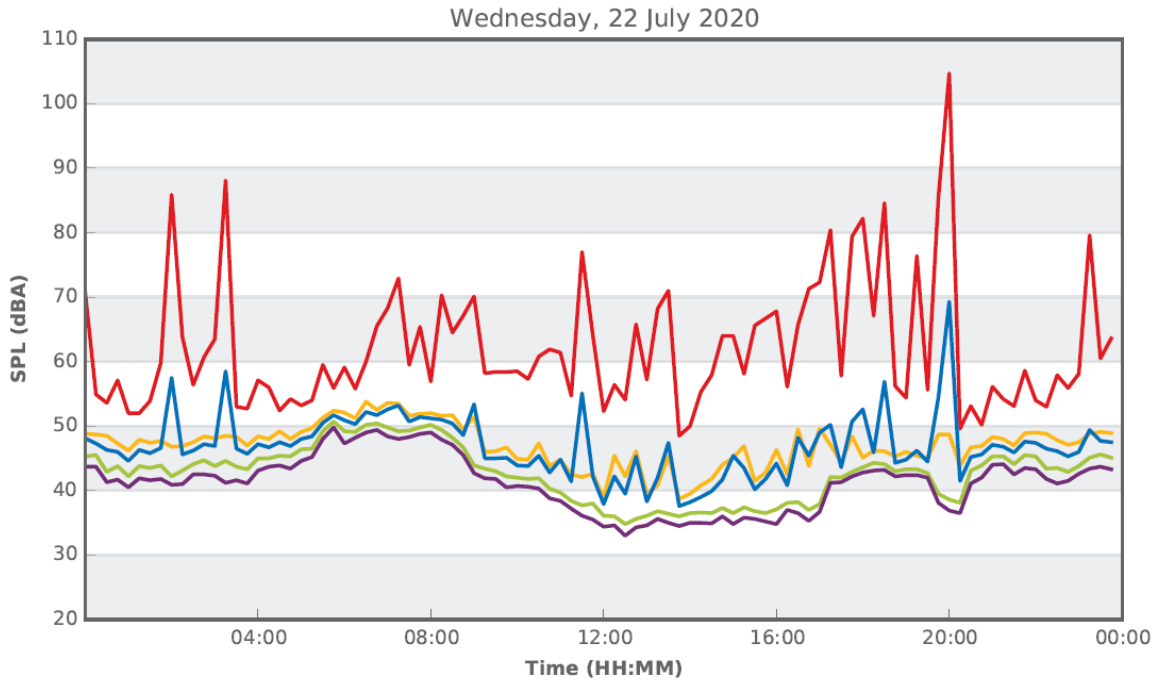


16 Shaula Crescent, Erskine Park

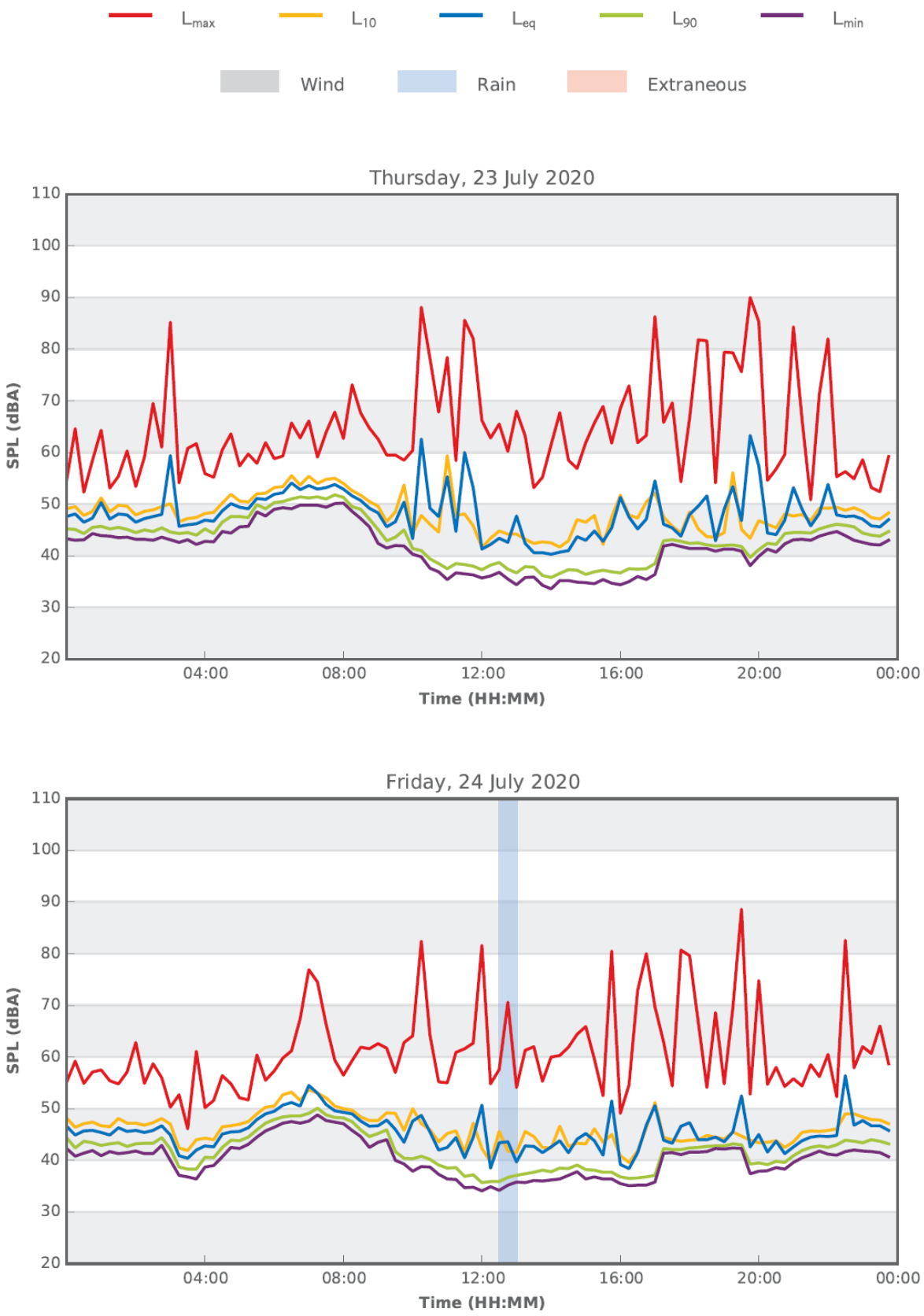


16 Shaula Crescent, Erskine Park

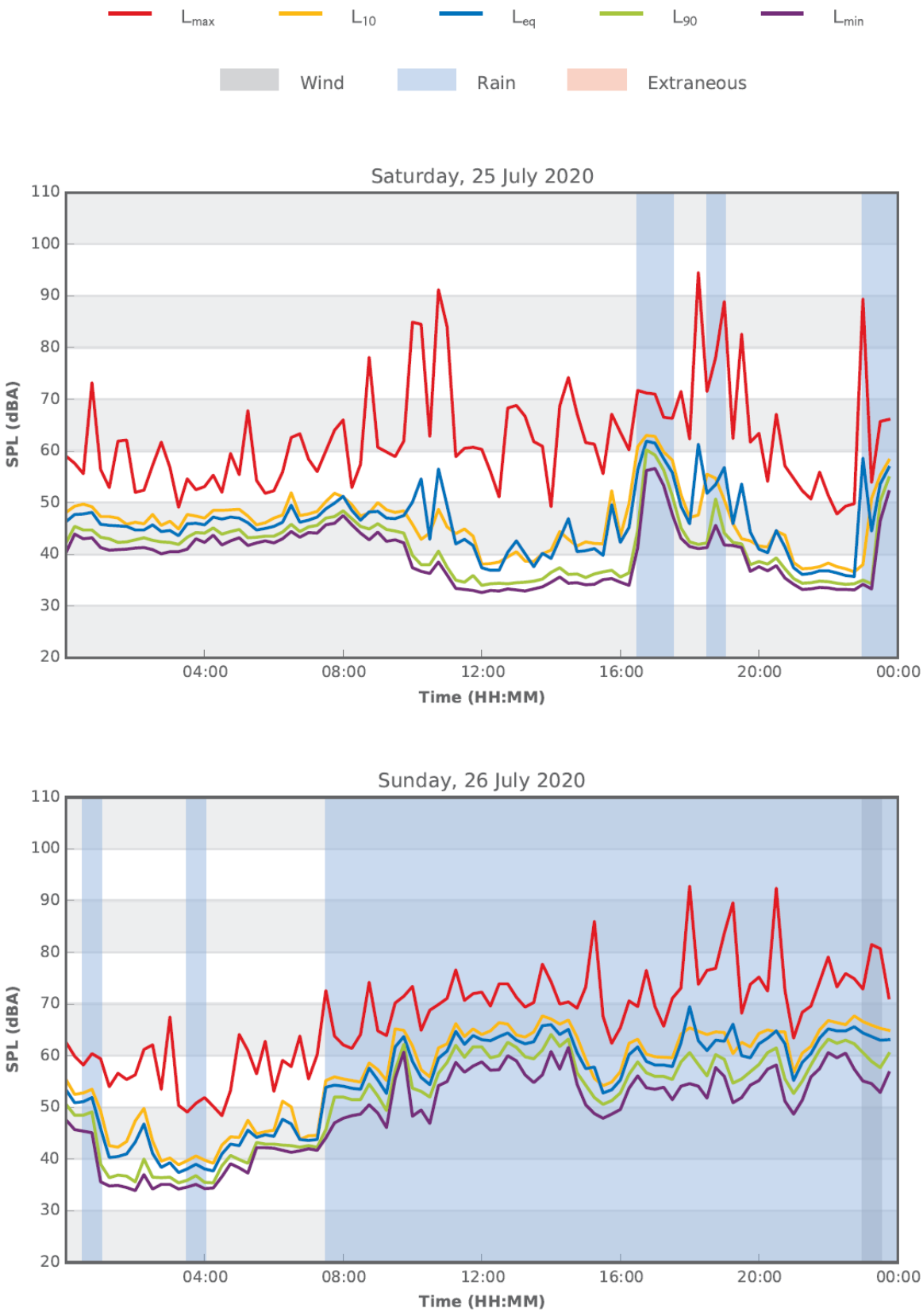




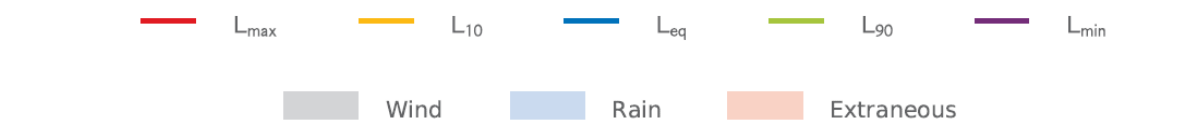
16 Shaula Crescent, Erskine Park

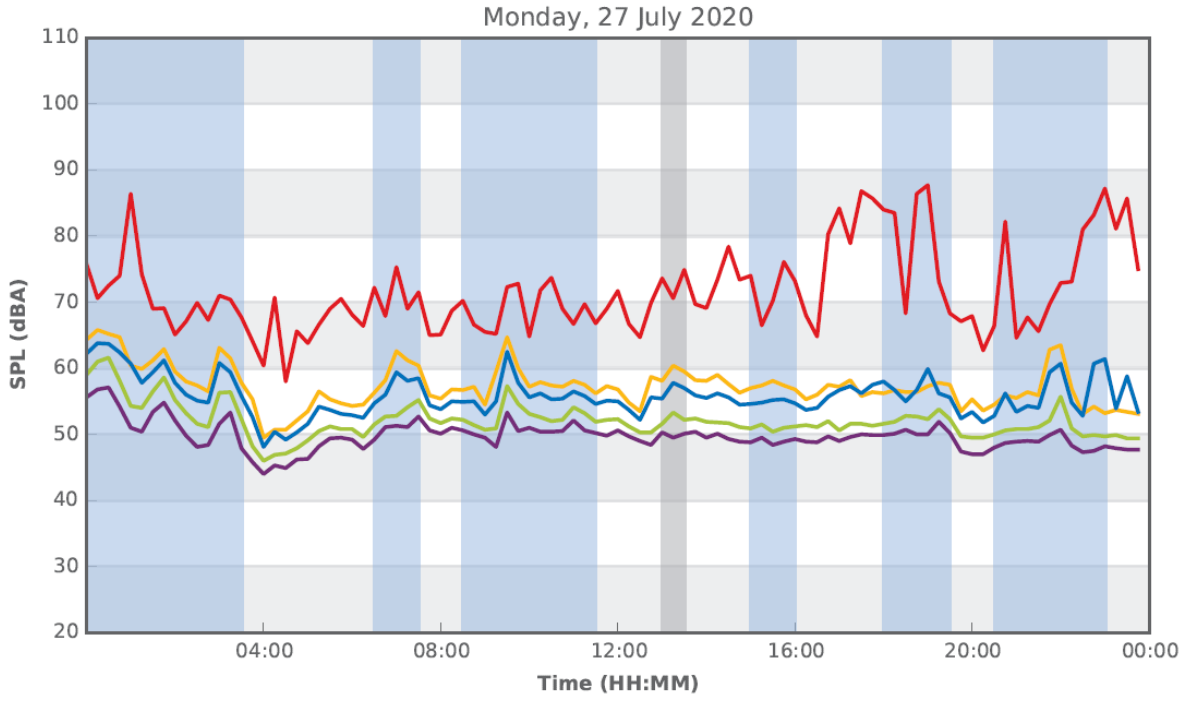


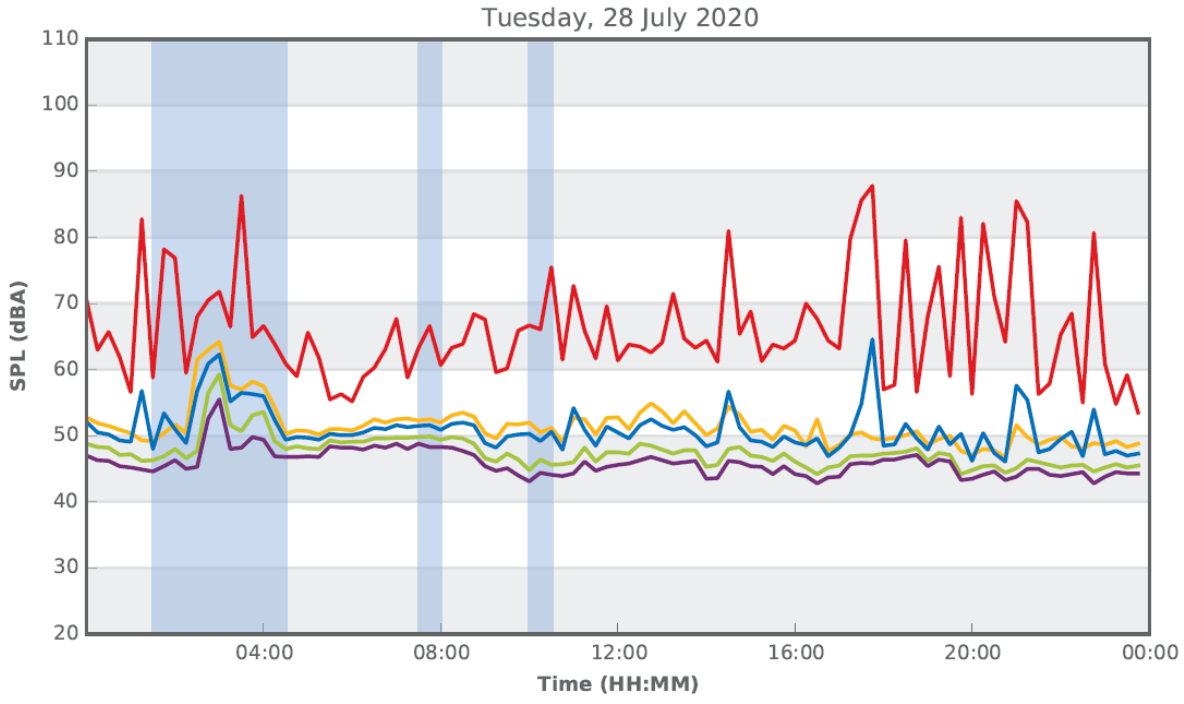
16 Shaula Crescent, Erskine Park



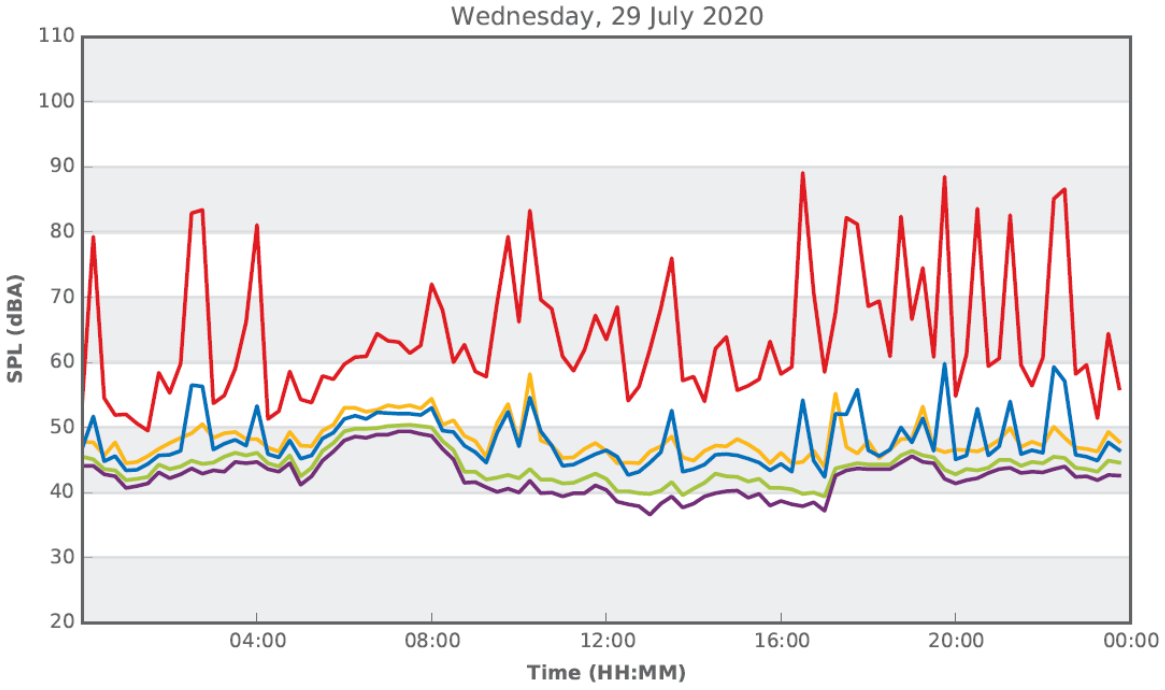
16 Shaula Crescent, Erskine Park

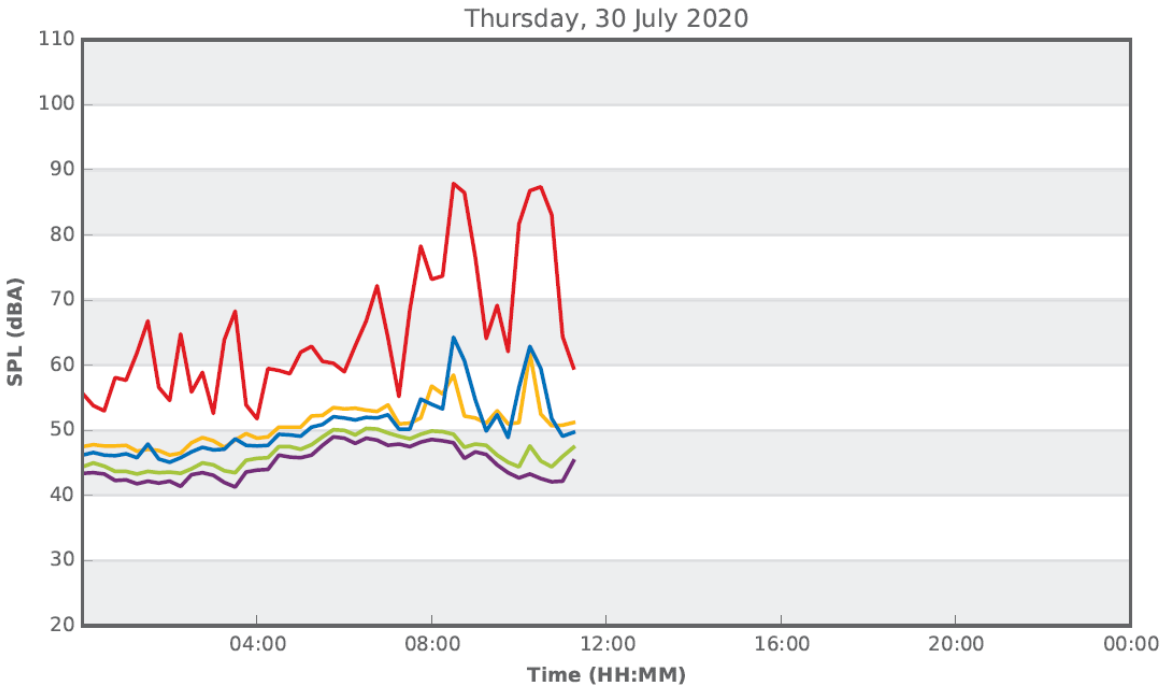






16 Shaula Crescent, Erskine Park





APPENDIX J

AIR QUALITY IMPACT ASSESSMENT

AIR QUALITY IMPACT ASSESSMENT
TYRECYCLE ERSKINE PARK

Tyrecycle Pty Ltd

4 September 2020

Job Number 20051123

Prepared by
Todoroski Air Sciences Pty Ltd
Suite 2B, 14 Glen Street
Eastwood, NSW 2122
Phone: (02) 9874 2123
Fax: (02) 9874 2125
Email: info@airsciences.com.au

Air Quality Impact Assessment
Tyrecycle Erskine Park

DOCUMENT CONTROL

Report Version	Date	Prepared by	Reviewed by
DRAFT - 001	06/08/2020	E Aragnou & P Henschke	
FINAL - 001	14/08/2020	E Aragnou & P Henschke	
FINAL - 002	04/09/2020	P Henschke	

This report has been prepared in accordance with the scope of works between Todoroski Air Sciences Pty Ltd (TAS) and the client. TAS relies on and presumes accurate the information (or lack thereof) made available to it to conduct the work. If this is not the case, the findings of the report may change. TAS has applied the usual care and diligence of the profession prevailing at the time of preparing this report and commensurate with the information available. No other warranty or guarantee is implied in regard to the content and findings of the report. The report has been prepared exclusively for the use of the client, for the stated purpose and must be read in full. No responsibility is accepted for the use of the report or part thereof in any other context or by any third party.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

Todoroski Air Sciences has prepared this report to support a development application by Tyrecycle Pty Ltd (Tyrecycle) for a proposed tyre recycling facility at 1-21 Grady Crescent, Erskine Park, New South Wales (NSW) (hereafter referred to as the Project).

The proposed operations include the receival and storage of tyres for shredding and granulating which would all occur within the industrial building. The tyres are processed at an annual production rate of approximately 29,000 tonnes per annum (tpa).

The report presents an assessment of potential air quality impacts associated with the Project. This air quality impact assessment has been prepared in general accordance with the New South Wales (NSW) Environment Protection Authority (EPA) document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (**NSW EPA, 2017**).

To assess the potential air quality impacts associated with the Project, this report comprises:

- A background to the Project and description of the proposed site and operations;
- A review of the existing meteorological and air quality environment surrounding the site;
- A description of the dispersion modelling approach and emission estimations used to assess potential air quality impacts; and,
- Presentation of the predicted results and discussion of the potential air quality impacts and associated mitigation and management measures.

2 PROJECT SETTING AND DESCRIPTION

2.1 Project setting

The Project site is located at 1-21 Grady Crescent, Erskine Park, approximately 10.8 kilometres (km) southwest of Blacktown and approximately 5.6km southeast of St Marys. The area surrounding the Project site is predominantly comprised of industrial operations with an electrical powerline easement separating the residential land to the north.

Figure 2-1 presents the location of the Project with reference to the assessment locations considered in this assessment. **Table 2-1** identifies the approximate address for each of the assessment locations. These locations represent the nearest locations likely to experience any air quality effects due to the Project.

Table 2-1: Assessment locations

Assessment location ID	Address
R1	22 Regulus Street
R2	28 Shaula Crescent
R3	116 Weaver Street

Figure 2-2 presents a pseudo three-dimensional visualisation of the topography in the general vicinity of the Project. The local topography is gently undulating with elevation increasing to the southeast of the site.

Figure 2-1: Project setting

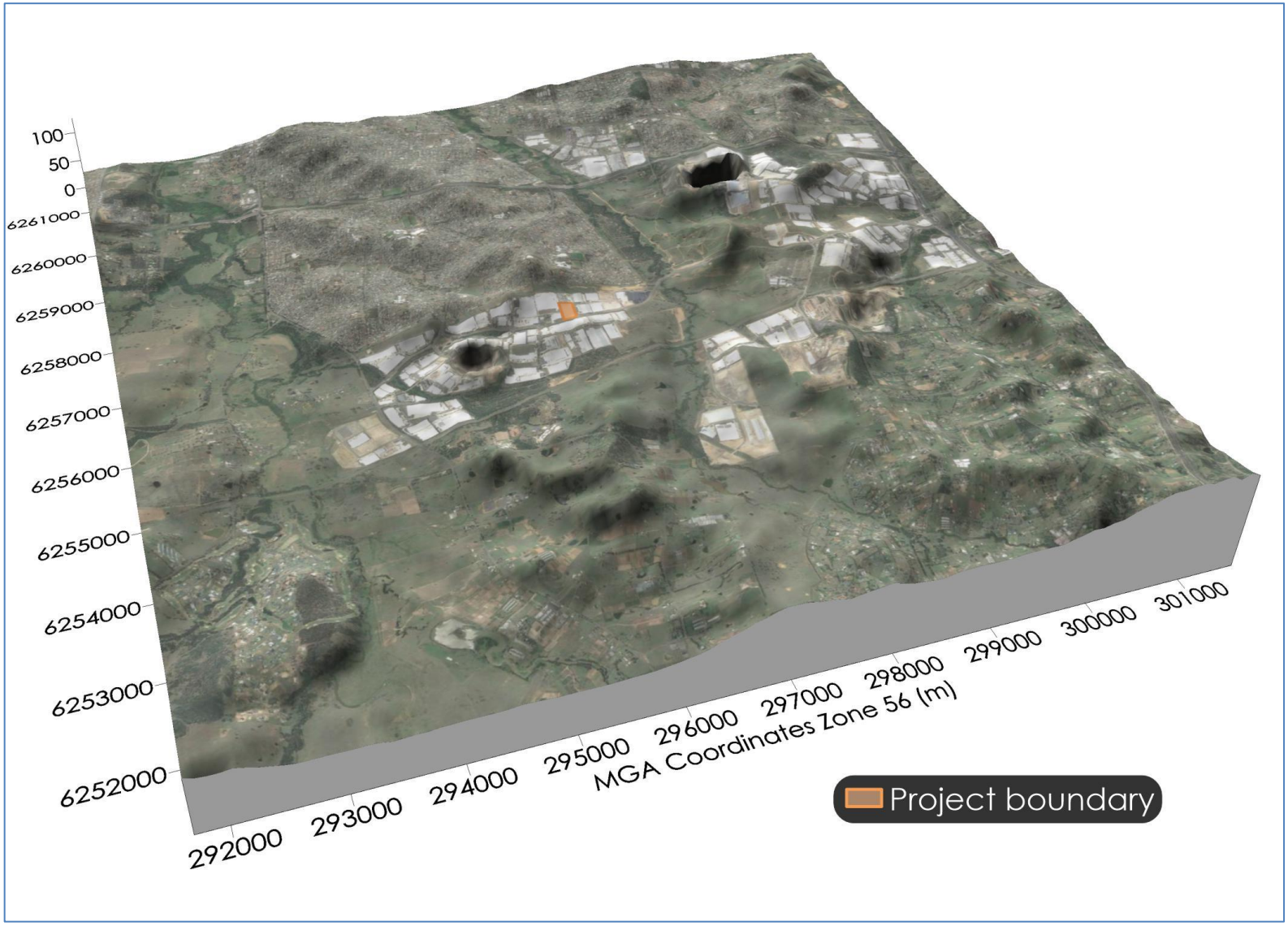


Figure 2-2: Representative visualisation of topography in the area surrounding the Project

2.2 Project description

Tyrecycle propose to process approximately 29,000 tonnes per annum (tpa) of passenger and four wheel drive tyres into either two or six inch pieces (known as Tyre Derived Fuel (TDF)), as well as Tyre Derived Products (TDP) through a shredding operation. The TDF are used for either energy recovery (i.e. co-processing for use within cement kilns) or for energy generation within export markets. The TDP associated with the operation includes granules (1 millimetre (mm) diameter), which are commonly applied to sporting fields and playgrounds, along with rubber crumb products (0.74 mm diameter) which are used in tile manufacturing and road sectors. The activities at the Project would largely be contained within the northern section of the existing warehouse building, which has capacity to house new plant and equipment infrastructure to process the proposed material.

The facility would also act as a transfer station to sort and transport tyres interstate (primarily to Tyrecycle's Somerton facility) for further processing if required.

Table 2-2 presents the proposed operating hours per activity for the Project.

Table 2-2: Proposed operating hours

Activity	Monday to Friday	Saturday	Sunday
Trucks – Collection	4:00am to 1:00am	4:00am to 6:00pm (as required)	-
Plant operation – Shredding	7:00am (start)	7:00am (finish)	-
Plant operation - Crumbing	24 hours	24 hours	24 hours
Deliveries - Containers	8:00am to 5:00pm	8:00am to 6:00pm (as required)-	-

Figure 2-3 provides an indicative layout of equipment at the Project.

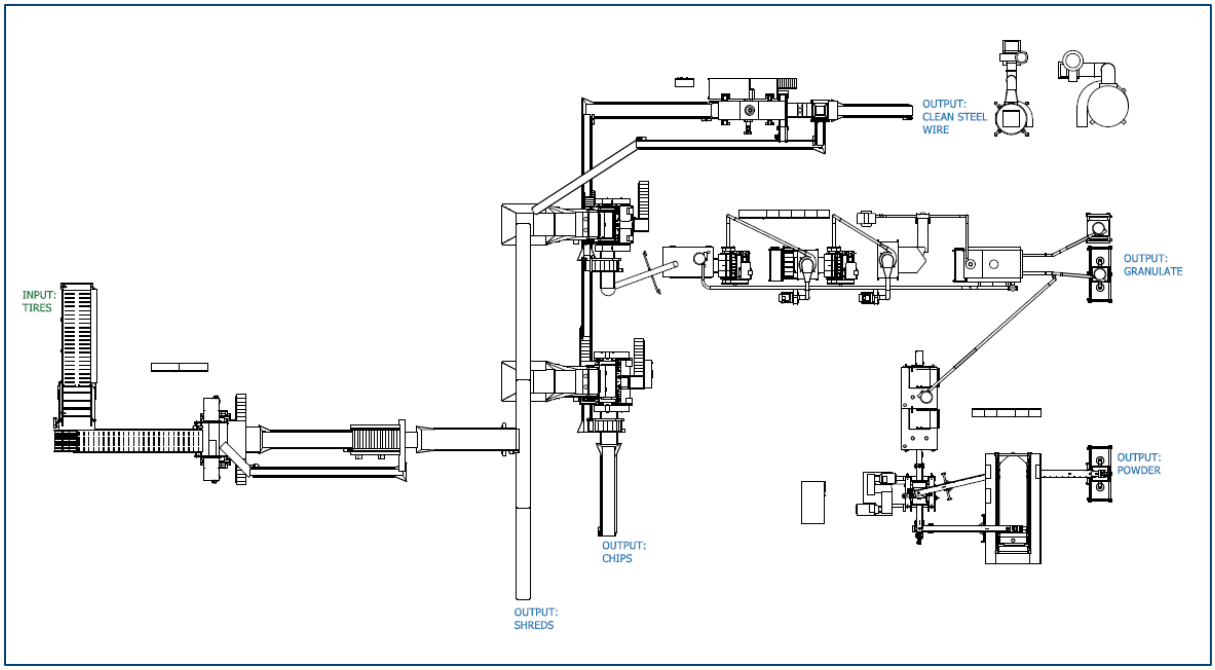


Figure 2-3: Equipment layout for the Project

3 AIR QUALITY CRITERIA

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The sections below identify the potential air emissions generated by the Project and the applicable air quality criteria.

3.1 Particulate matter

Table 3-1 summarises the air quality goals that are relevant to this assessment as outlined in the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (**NSW EPA, 2017**).

The air quality goals for key pollutants relate to the total pollutant burden in the air and not just the contribution from the Project. Consideration of background pollutant levels needs to be made when using these goals to assess potential impacts.

Table 3-1: NSW EPA air quality impact assessment criteria

Pollutant	Averaging Period	Criterion	Assessment location
TSP	Annual	90 µg/m^3	Receptor
PM_{10}	Annual	25 µg/m^3	Receptor
	24 hour	50 µg/m^3	Receptor
$PM_{2.5}$	Annual	8 µg/m^3	Receptor
	24 hour	25 µg/m^3	Receptor
Deposited dust	Annual	2 g/m^2/month	Receptor
		4 g/m^2/month	Receptor

Source: **NSW EPA, 2017**

µg/m^3 = micrograms per cubic metre

g/m^2/month = grams per square metre per month

3.2 Other air pollutants

Emissions of other air pollutants will also potentially arise from operations and equipment used on-site. Emissions from diesel powered equipment generally include carbon monoxide (CO), nitrogen dioxide (NO_2) and other pollutants, such as sulphur dioxide (SO_2). The amount of emissions of CO, NO_2 and SO_2 generated from diesel powered equipment at the Project site is generally considered to be too low to generate any significant off-site pollutant concentrations and have not been assessed further in this study.

Odour may also arise from the materials processed at the site. However, as the storage and processing of the material would all occur within the warehouse enclosure the potential for any off-site odour impacts are not considered to significant to cause any off-site impacts and have not been assessed further in this study.

4 EXISTING ENVIRONMENT

This section describes the existing environment including the climate and ambient air quality in the area surrounding the Project.

4.1 Local climatic conditions

Long-term climatic data from the closest Bureau of Meteorology (BoM) weather station at Horsley Park Equestrian Centre AWS (Site No. 067119) were analysed to characterise the local climate in the proximity of the Project. Horsley Park Equestrian Centre AWS is located approximately 2.1km west-southwest of the Project.

Table 4-1 and **Figure 4-1** present a summary of data from the Horsley Park Equestrian Centre AWS collected over a 13 to 23 year period for the various meteorological parameters.

The data indicate that January is the hottest month with a mean maximum temperature of 30.1 degrees Celsius (ºC) and July is the coldest month with a mean minimum temperature of 5.8ºC.

Rainfall decreases during the second half of the year, with an annual average rainfall of 748.4 millimetres (mm) over 74.1 days. The data indicate that February is the wettest month with an average rainfall of 119.2mm over 7.2 days and July is the driest month with an average rainfall of 35.2mm over 5.0 days.

Relative humidity levels exhibit variability over the day and seasonal fluctuations. Mean 9am relative humidity ranges from 61% in October to 81% in March. Mean 3pm relative humidity levels range from 42% in August and September to 55% in June.

Wind speeds exhibit seasonal variations with a greater spread between 9am and 3pm conditions in the warmer months. Mean 9am wind speeds range from 8.9 kilometres per hour (km/h) in March to 12.5km/h in October. Mean 3pm wind speeds range from 12.9km/h in June to 19.9km/h in December.

Table 4-1: Monthly climate statistics summary – Horsley Park Equestrian Centre AWS

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann.
Temperature													
Mean max. temp. (ºC)	30.1	28.8	26.8	23.9	20.6	17.6	17.4	19.1	22.4	24.8	26.6	28.5	23.9
Mean min. temp. (ºC)	18.0	17.8	16.1	12.9	9.0	7.2	5.8	6.4	9.2	11.8	14.4	16.2	12.1
Rainfall													
Rainfall (mm)	73.7	119.2	84.8	69.5	42.7	72.6	35.2	36.8	37.6	57.6	76.1	63.6	748.4
No. of rain days (≥1mm)	7.6	7.2	8.1	6.7	5.1	6.2	5.0	4.0	4.8	5.7	6.8	6.9	74.1
9am conditions													
Mean temp. (ºC)	22.0	21.5	19.4	17.5	13.8	11.1	10.3	12.0	15.6	18.1	19.2	20.9	16.8
Mean R.H. (%)	73	77	81	76	77	80	78	70	65	61	70	71	73
Mean W.S. (km/h)	10.1	9.7	8.9	10.5	10.7	10.3	10.8	11.7	12.2	12.5	11.8	10.7	10.8
3pm conditions													
Mean temp. (ºC)	28.2	27.1	25.3	22.2	19.2	16.6	16.1	17.8	20.8	22.5	24.2	26.5	22.2
Mean R.H. (%)	49	53	54	53	52	55	50	42	42	45	50	48	49
Mean W.S. (km/h)	19.4	17.0	14.8	14.4	13.0	12.9	13.9	16.1	18.1	19.8	19.5	19.9	16.6

Source: **Bureau of Meteorology, 2020 (July 2020)**

R.H. – Relative Humidity, W.S. – wind speed

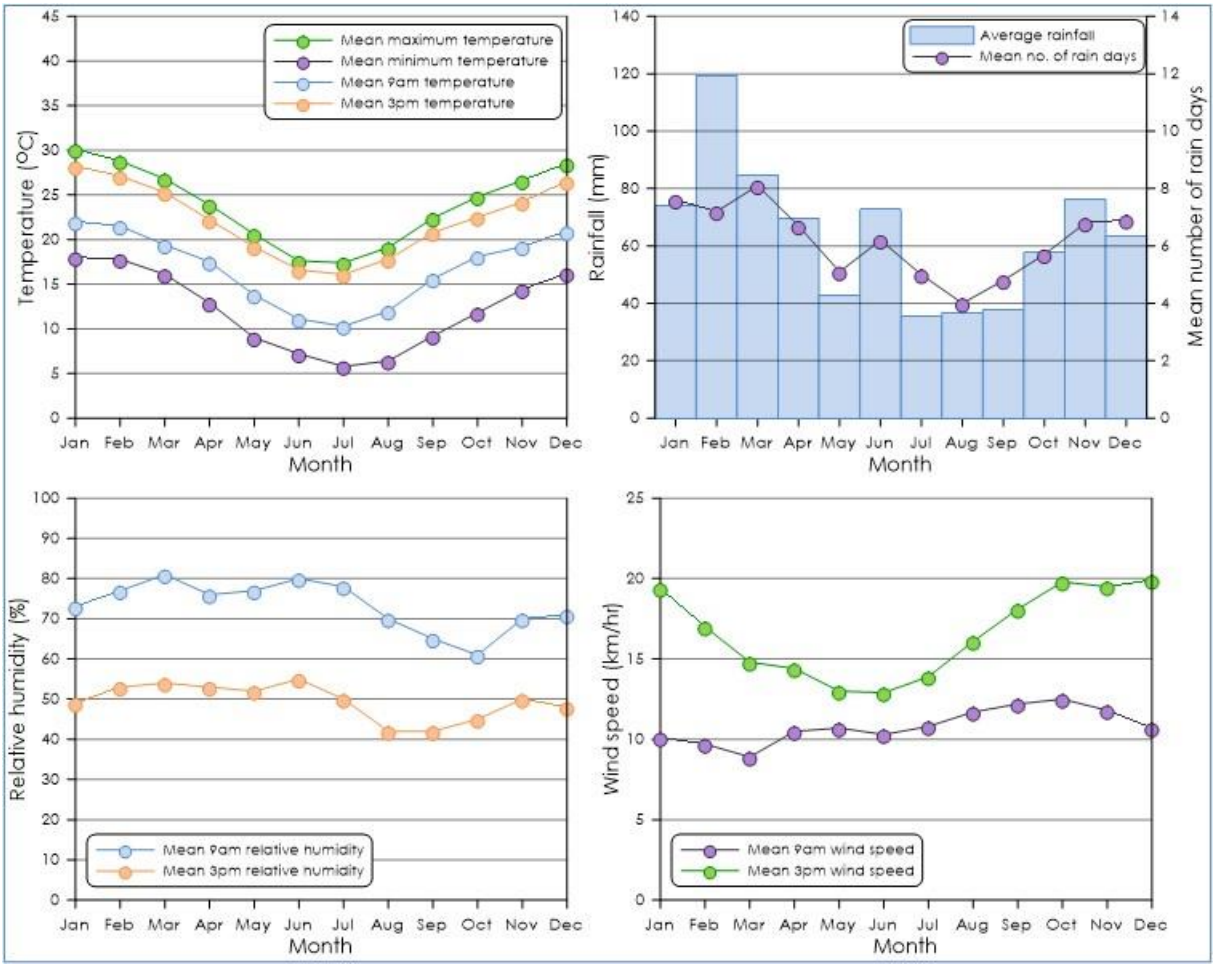


Figure 4-1: Monthly climate statistics summary – Horsley Park Equestrian Centre AWS

4.2 Local meteorological conditions

Annual and seasonal windroses for the Horsley Park Equestrian Centre AWS during the 2015 calendar period are presented in **Figure 4-2**.

The 2015 calendar period corresponds to the period of meteorological modelling based on an analysis of data trends in meteorological data and appropriate monitoring data recorded for the area as outlined in **Appendix A**.

Analysis of the annual windrose shows that the wind directions are predominately from the southwest with variable winds from the other directions. The summer windrose shows winds are mostly variable with stronger winds from the south-southeast, southeast and east. During winter, winds from the southwest and west-southwest quadrants are most frequent. In autumn and spring, wind directions follow a similar distribution to the annual windrose with winds predominately from the southwest with variable winds from the other directions.

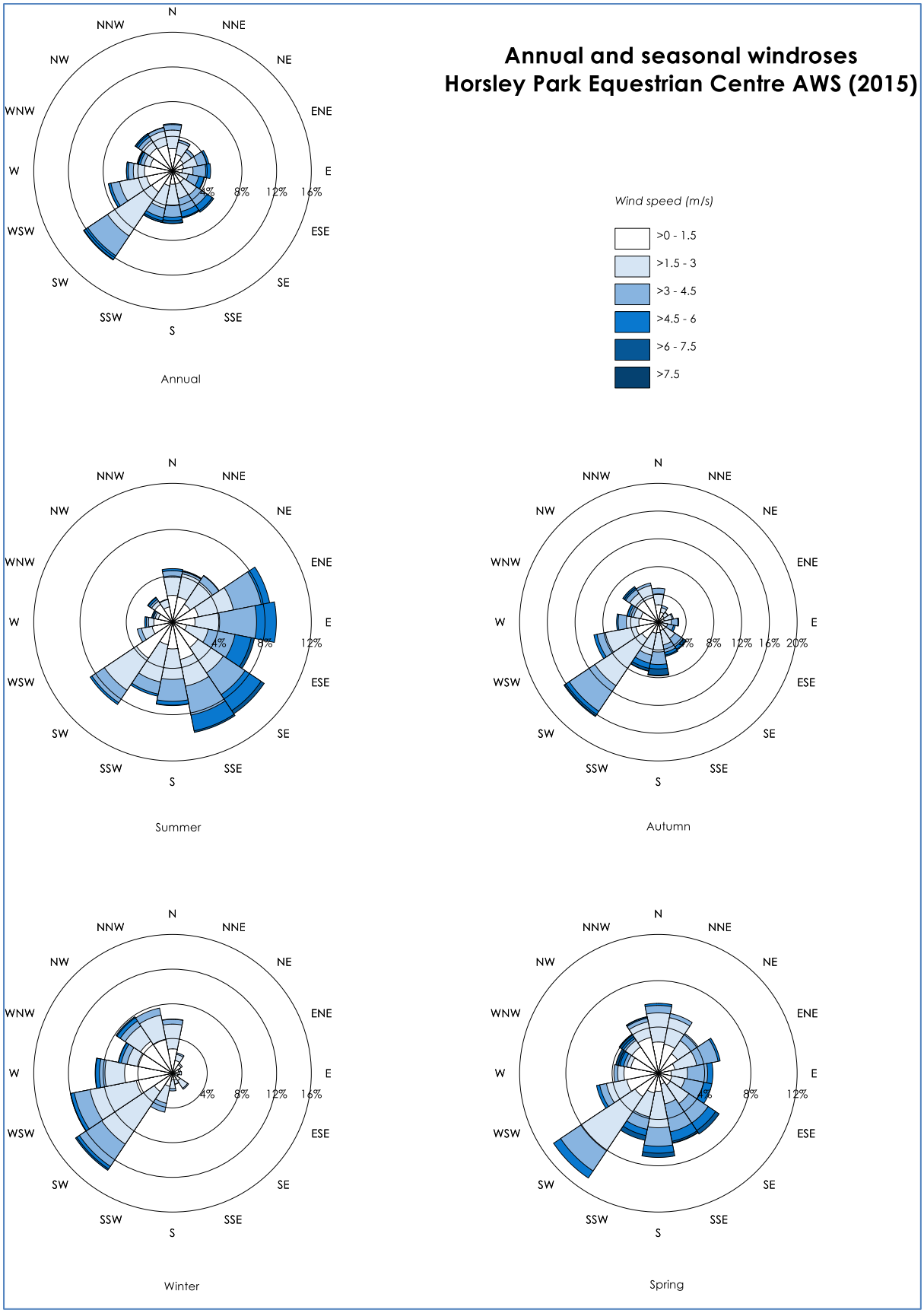


Figure 4-2 : Annual and seasonal windroses – Horsley Park Equestrian Centre AWS (2015)

4.3 Local air quality monitoring

The main sources of air pollutants in the area surrounding the Project would include emissions from surrounding industrial operations, the Cleanaway Erskine Park Landfill and from other anthropogenic activities such as wood heaters and motor vehicle exhaust.

Ambient air quality monitoring data from the nearest air quality monitors operated by the NSW Department of Planning, Industry and Environment (DPIE) at St Marys (located approximately 3.7km to the northwest of the Project) and Prospect (located approximately 10.6km to the east-northeast of the Project) were used to characterise the background levels for the Project site.

4.3.1 PM_{10} monitoring

A summary of the available PM_{10} monitoring data from 2015 to 2020 for the St Marys and Prospect monitoring stations is presented in **Table 4-2**. Recorded 24-hour average PM_{10} concentrations are presented in **Figure 4-3**.

A review of **Table 4-2** indicates that the annual average PM_{10} concentrations for the St Marys monitoring station were below the relevant criterion of 25µg/m³ for all years. The Prospect monitoring station recorded levels above the criterion in 2019.

The maximum 24-hour average PM_{10} concentrations were found on occasion to exceed the relevant criterion of 50µg/m³ for all years of the review period at each monitoring station with the exception of St Mary's in 2017.

A review of **Figure 4-3** shows anomalously high PM_{10} concentrations were recorded at each monitoring stations during October 2019 to February 2020 which are attributed to widespread bushfires occurring in NSW during this period.

Table 4-2: Summary of PM_{10} levels from monitoring stations (µg/m³)

Year	St Marys	Prospect	Criterion
	Annual average		
2015	15.0	17.6	**25**
2016	16.1	18.9	**25**
2017	16.2	18.9	**25**
2018	19.4	21.9	**25**
2019	24.7	**26.0**	**25**
2020	-	-	**25**
Year	**Maximum 24-hour average**		**Criterion**
2015	**53.0**	**68.7**	**50**
2016	**100.2**	**110.1**	**50**
2017	49.8	**61.1**	**50**
2018	**100.5**	**113.3**	**50**
2019	**159.8**	**182.8**	**50**
2020	**260.3**	**245.8**	**50**

- No Data

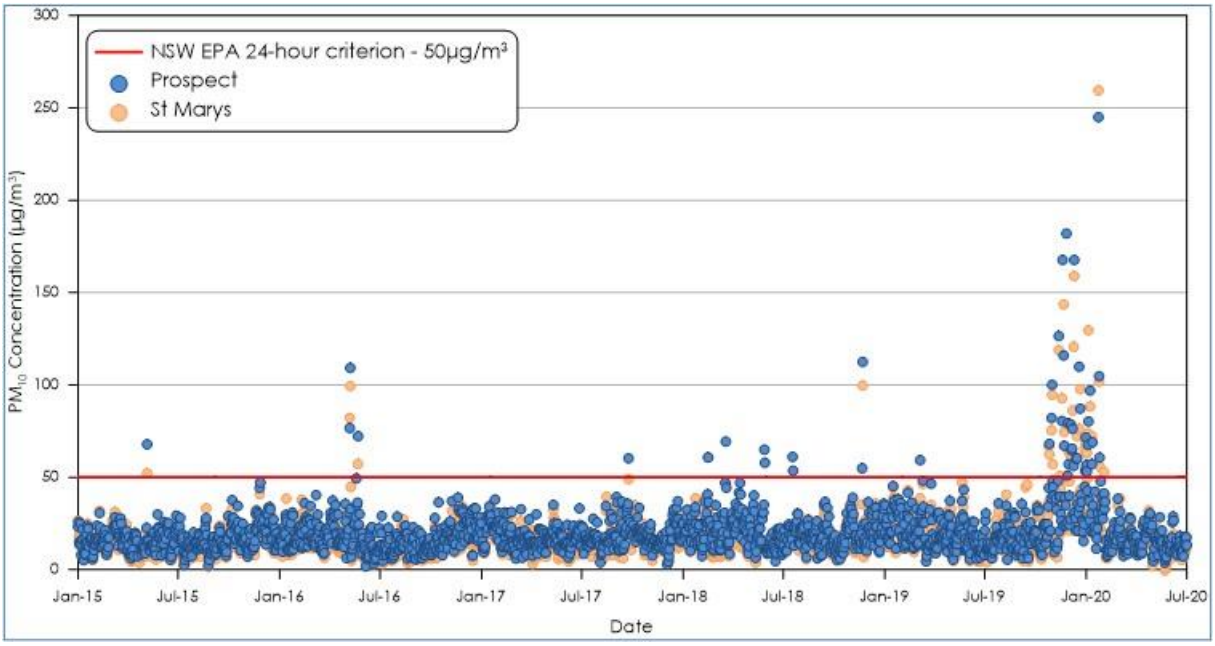


Figure 4-3: 24-hour average PM_{10} concentrations

4.3.2 $PM_{2.5}$ monitoring

A summary of the available data for the 2015 to 2020 for the St Marys and Prospect monitoring stations is presented in **Table 4-3**. Recorded 24-hour average $PM_{2.5}$ concentrations are presented in **Figure 4-4**.

Table 4-3 indicates that the annual average $PM_{2.5}$ concentrations for the St Marys monitoring station were above the relevant criterion of 8µg/m³ in 2019 and 2020. Prospect recorded levels above the criterion for all years of the review period with the exception of 2017.

The maximum 24-hour average $PM_{2.5}$ concentrations were found on occasion to exceed the relevant criterion of 25µg/m³ for all years of the review period at each monitoring station. Similar to the PM_{10} monitoring data, the widespread bushfires affecting NSW in late 2019 and early 2020 are seen in the $PM_{2.5}$ monitoring data.

Table 4-3: Summary of $PM_{2.5}$ levels from monitoring stations (µg/m³)

Year	St Marys	Prospect	Criterion
	Annual average		
2015	-	**8.2**	**8**
2016	7.8*	**8.7**	**8**
2017	7.0	7.7	**8**
2018	7.8	**8.5**	**8**
2019	**9.8**	**11.9**	**8**
2020	-	-	**8**
Year	**Maximum 24-hour average**		**Criterion**
2015	-	**29.6**	**25**
2016	**93.2**	**84.9**	**25**
2017	**38.2**	**30.1**	**25**
2018	**80.5**	**47.5**	**25**
2019	**88.3**	**134.1**	**25**
2020	**82.5**	**70.8**	**25**

- No Data * Data available from 15 March 2016

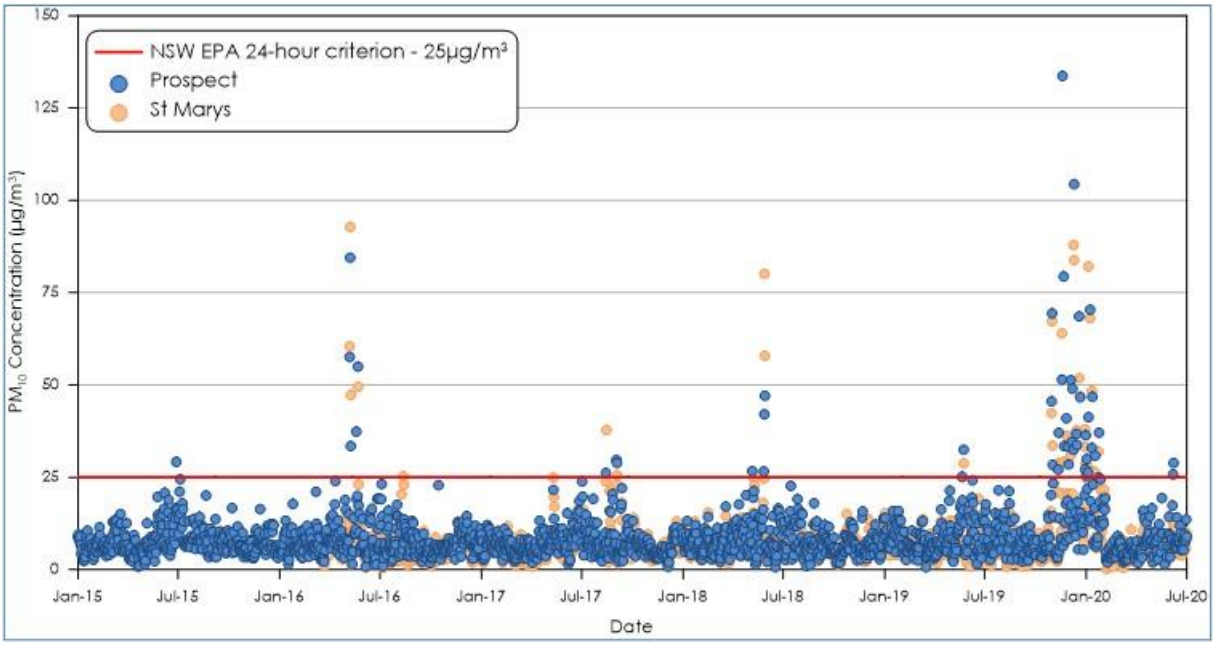


Figure 4-4: 24-hour average $PM_{2.5}$ concentrations

4.3.3 Estimated background levels

There are no readily available site-specific monitoring data, and therefore the background air quality levels from the closest monitor (the St Marys monitor) for the 2015 calendar year were used to represent the background levels for the Project.

The 2015 calendar period corresponds to the period of meteorological modelling based on an analysis of data trends in meteorological data and appropriate monitoring data recorded for the area as outlined in **Appendix A**.

In the absence of available data, estimates of the annual average background TSP and deposited dust concentrations can be determined from a relationship between $PM_{10,}$ TSP and deposited dust concentrations and the measured PM_{10} levels.

This relationship assumes that an annual average PM_{10} concentration of 25µg/m^3 corresponds to a TSP concentration of 90µg/m^3 and a dust deposition value of 4g/m^2/month. This assumption is based on the NSW EPA air quality impact criteria.

Applying this relationship with the measured annual average PM_{10} concentration of 15.0µg/m^3 indicates an approximate annual average TSP concentration and deposition value of 53.9µg/m^3 and 2.4g/m^2/month, respectively.

It is noted that there are no readily available data for $PM_{2.5}$ background levels at the St Mary's monitor during 2015, however there are data available for the 2016 to 2019 calendar year. To estimate background $PM_{2.5}$ concentrations for the Project, we have assumed the average of the $PM_{2.5}$ / PM_{10} ratio of the annual average values recorded for 2016 to 2019 are equivalent to the ratio experienced in 2015. The ratio of 0.43 is multiplied by measured maximum 24-hour average and annual average PM_{10} values in 2015, this results in an estimated maximum 24-hour and annual average background $PM_{2.5}$ concentrations of 22.6µg/m^3 and 6.4µg/m^3, respectively.

The background air quality levels applied in this assessment are summarised in **Table 4-4**.

Table 4-4: Summary of background levels

Pollutant	Background level	Units
24-hour average $PM_{2.5}$	22.6	µg/m³
Annual average $PM_{2.5}$	6.4	µg/m³
24-hour average PM_{10}	Daily varying	-
Annual average PM_{10}	15.0	µg/m³
Annual average TSP	53.9	µg/m³
Annual average deposited dust	2.4	g/m²/month

5 DISPERSION MODELLING APPROACH

5.1 Introduction

The following sections are included to provide the reader with an understanding of the model and modelling approach applied for the assessment. The CALPUFF is an advanced air dispersion model which can deal with the effects of complex local terrain on the dispersion meteorology over the modelling domain in a three-dimensional, hourly varying time step.

The model was setup in general accord with the methods provided in the NSW EPA document *Generic Guidance and Optimum Model Setting for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia'* (**TRC**, **2011**).

5.2 Modelling methodology

The meteorological modelling methodology applied a 'hybird' approach which includes a combination of prognostic model data from TAPM with surface observations.

Modelling was undertaken using a combination of the CALPUFF Modelling System and The Air Pollution Model (TAPM). The CALPUFF Modelling System includes three main components: CALMET, CALPUFF and CALPOST and a large set of pre-processing programs designed to interface the model to standard, routinely available meteorological and geophysical datasets.

5.2.1 Meteorological modelling

The TAPM model was applied to the available data to generate a three-dimensional upper air data file for use in CALMET. The centre of analysis for the TAPM modelling used is 33deg 48min south and 150deg 48min east. The simulation involved an outer grid of 30km, with three nested grids of 10km, 3km and 1km with 35 vertical grid levels.

The CALMET domain was run on a domain of 10 x 10km with a 0.1km grid resolution. The available meteorological data for January 2015 to December 2015 from the Horsley Park Equestrian Centre AWS (BoM), the Badgerys Creek AWS (BoM) and the St Marys DPIE monitor were included in the simulation.

Local land use and detailed topographical information was included to produce realistic fine scale flow fields (such as terrain forced flows) in surrounding areas, as shown in **Figure 5-1**.

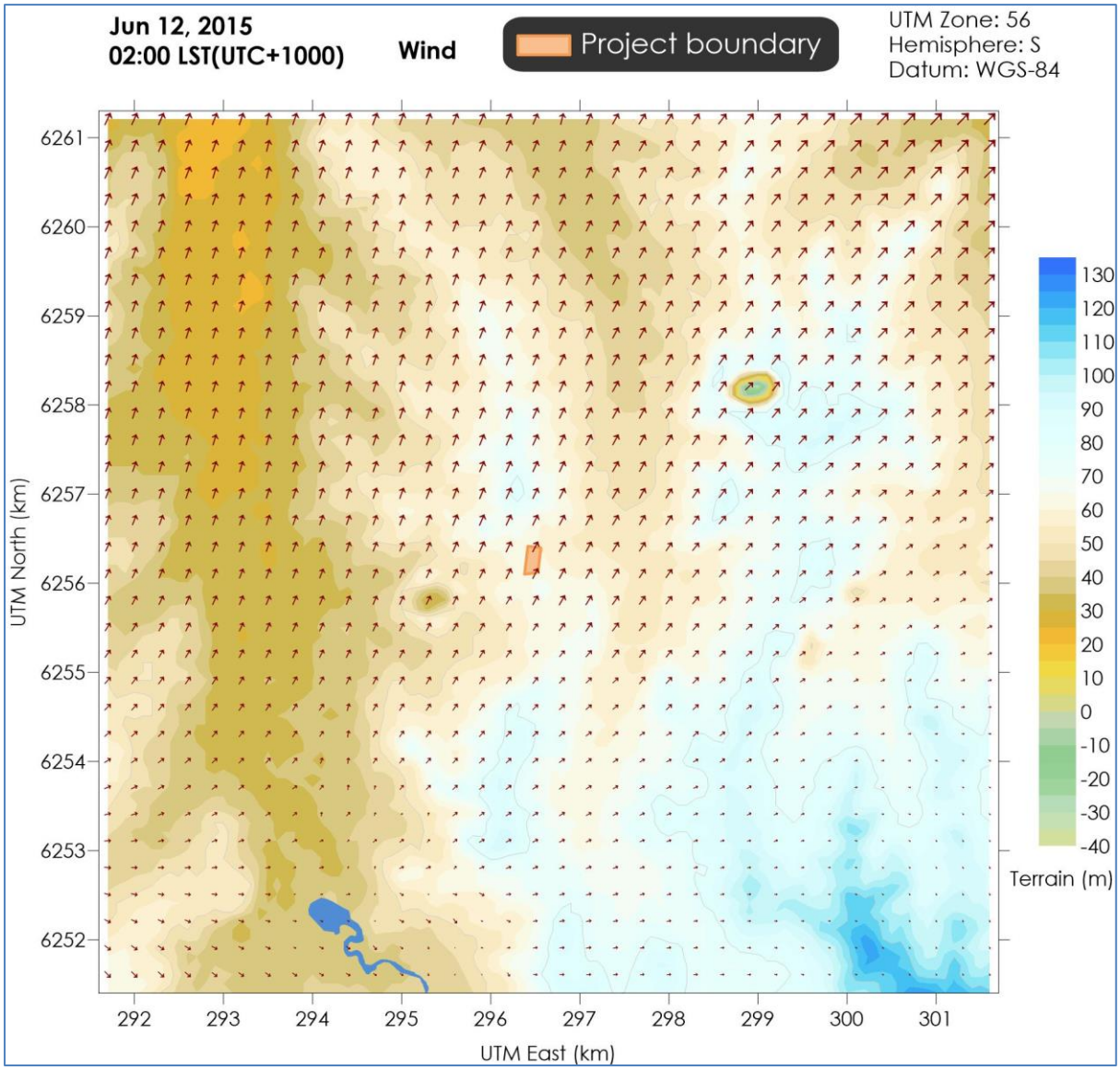


Figure 5-1: Representative 1-hour average snapshot of wind field for the Project

CALMET generated meteorological data were extracted from a point within the CALMET domain and are graphically represented in **Figure 5-2** and **Figure 5-3**.

Figure 5-2 presents the annual and seasonal windroses from the CALMET data. Overall, the windroses generated in the CALMET modelling reflect the expected wind distribution patterns of the area as determined based on the available measured data and the expected terrain effects on the prevailing winds. **Figure 5-3** includes graphs of the temperature, wind speed, mixing height and stability classification over the modelling period and shows sensible trends considered to be representative of the area.

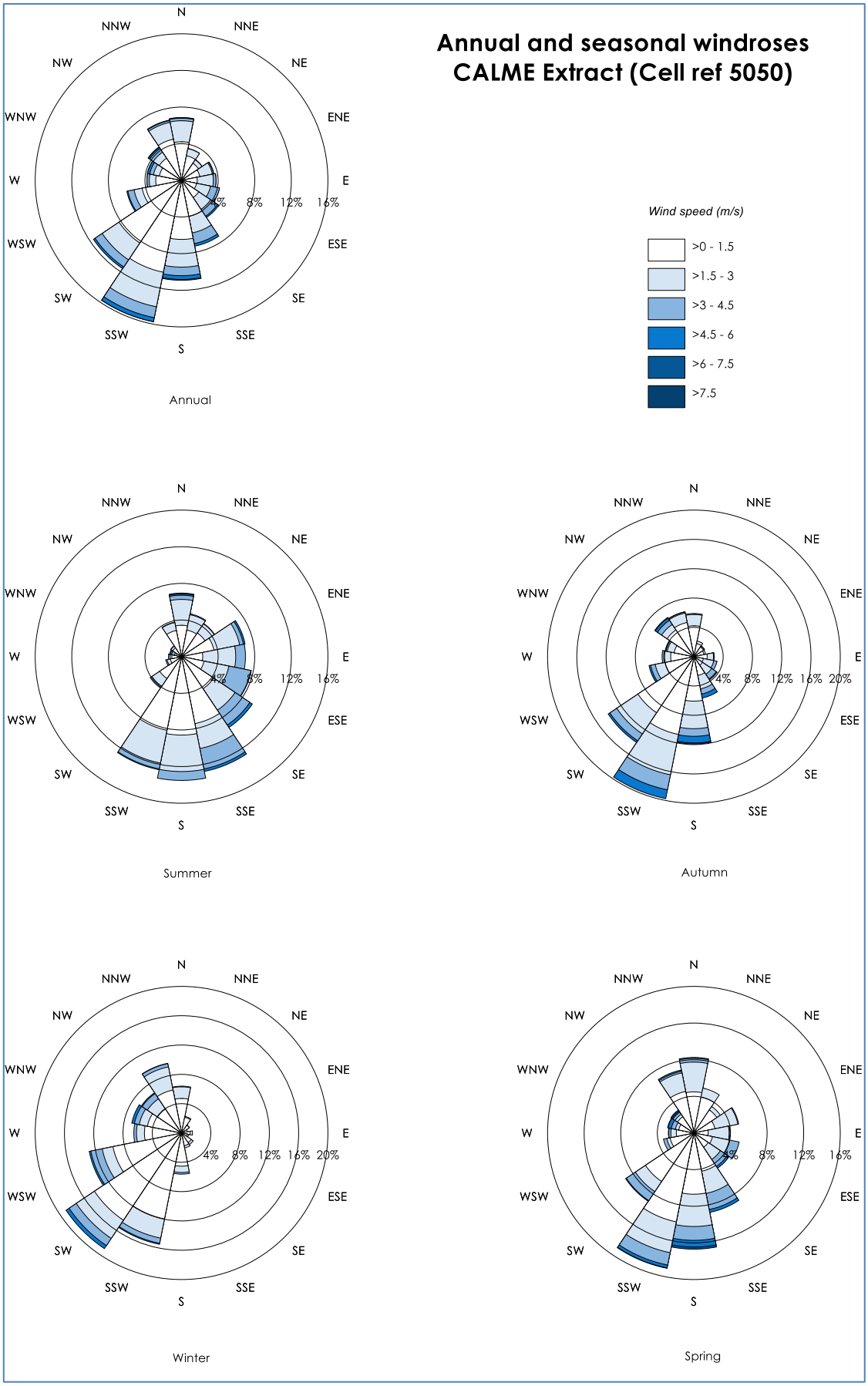


Figure 5-2: Annual and seasonal windroses from CALMET (Cell ref 5050)

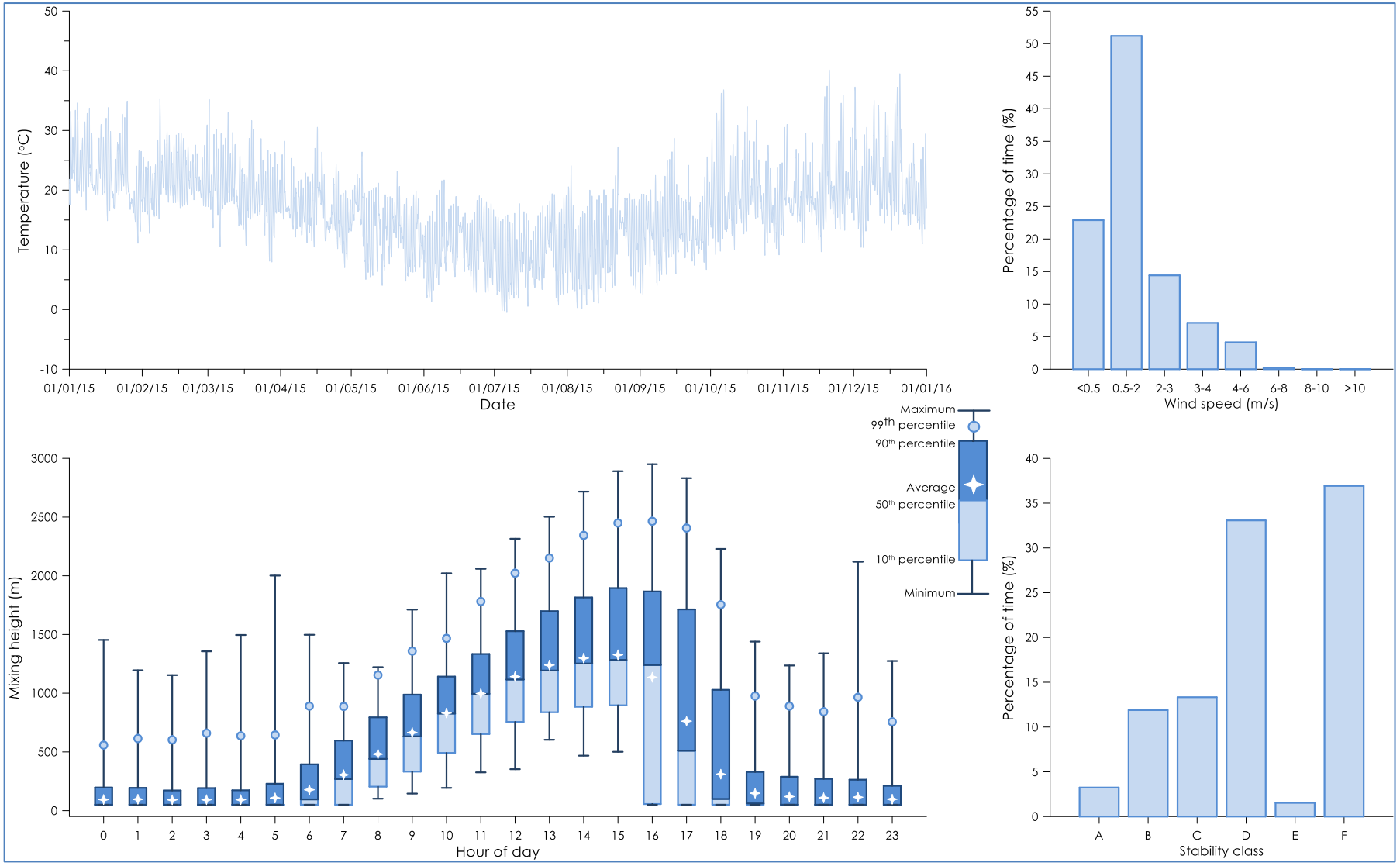


Figure 5-3: Meteorological analysis of CALMET (Cell REF 5050)

5.2.2 Dispersion modelling

The CALPUFF dispersion model, in conjunction with a CALMET generated meteorological data file, was applied to provide predictions of the ground level concentrations of potential pollutant concentrations associated with the operation of the Project.

Ground based operational activity of the Project were represented by a series of volume sources and were included in the CALPUFF model via an hourly varying emission file. Meteorological conditions associated with dust generation (such as wind speed) and levels of dust generating activity were considered in calculating the hourly varying emission rate for each source.

As most of the activity at the site would occur within the warehouse, potential for dust emissions emanating from the site are expected to be low. For the purposes of this assessment it is conservatively assumed that the activities occur out in the open and would overestimate the potential emissions released.

Two cyclone filters would be operated at the Project and have been modelled as point sources with parameters outlined in **Table 5-1**. The cyclone filters would be positioned in the warehouse and as such the outlets would be installed through the warehouse roof.

Table 5-1: Modelled stack parameters

ID	Parameter				
	Stack height (m)	Stack diameter (m)	Temperature (°C)	Exit velocity (m/sec)	Concentration (mg/m³)
BH1	14	1.2	25	22	10
BH2	14	1.2	25	22	10

The modelled stack source locations for the Project are shown in **Figure 5-4**. The model included consideration of potential "building" wake effects on air dispersion which arise due to the effect of winds passing over the buildings surrounding the Project site.

Figure 5-4: Stack source locations

5.2.3 Emission estimation

The dust generating activities associated with operation of the Project are identified as the handling and processing of the material and vehicles travelling on-site. The vehicles also have the potential to generate particulate emissions from the diesel exhaust. Dust emission estimates have been calculated by analysing the place and utilising suitable emissions sourced from both locally developed and United States various types of activities taking Environmental Protection Agency (US EPA) developed documentation.

A summary of the estimated annual TSP, PM_{10} and $PM_{2.5}$ emissions are presented in **Table 5-2**. Detailed calculations of the dust emission estimates are provided in **Appendix B**.

Table 5-2: Summary of estimated emissions for the Project (kg/year)

Activity	TSP Emissions	PM_{10} emissions	$PM_{2.5}$ emissions
Delivering material to site	98	19	5
Unloading material in building	22	10	2
Rehandle material at stockpile (within warehouse)	22	10	2
Loading material to shredder	22	10	2
Shredding material	78	35	6
Granulating material	363	125	8
Granulating material	363	125	8
Unloading processed material to stockpile (within warehouse)	22	10	2
Rehandle material at stockpile	22	10	2
Loading processed material to truck	22	10	2
Hauling processed material offsite	99	19	5
Exhaust emissions	98	98	95
Total dust emissions (kg/yr.)	**1,232**	**483**	**137**

6 DISPERSION MODELLING RESULTS

The dispersion model predictions presented in this section include those for the operation of the Project in isolation (incremental impact) and the operation of the Project with consideration of other sources (total impact). The results show the predicted:

- Maximum 24-hour average $PM_{2.5}$ and PM_{10} concentrations;
- Annual average $PM_{2.5}$, PM_{10} and TSP concentrations; and,
- Annual average dust (insoluble solids) deposition rates.

It is important to note that when assessing impacts per the maximum 24-hour average levels, these predictions are based on the highest predicted 24-hour average concentrations which were modelled at each point within the modelling domain for the worst day (i.e. a 24-hour period) during the one year long modelling period.

Associated isopleth diagrams of the dispersion modelling results are presented in **Appendix C**.

The total (cumulative) impact is defined as the operation of the Project combined with the estimated ambient background levels in **Section 5.3.**

Table 6-1 presents the predicted incremental and cumulative particulate dispersion modelling results at each of the assessed receptor locations.

The predicted incremental results show that minimal incremental effects would arise at the closest residential receptor locations due to the Project. The predicted cumulative results indicate that the residential receptor locations are predicted to experience levels below the relevant criteria for each of the assessed dust metrics.

Table 6-1: Dust dispersion modelling results for sensitive receptors

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD* (g/m²/mth)
	Incremental						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
R1	1.3	0.2	2.8	0.5	0.6	<0.1	6.6	15.5	54.5	2.4
R2	1.5	0.3	3.5	0.8	1.0	<0.1	6.7	15.8	54.9	2.4
R3	0.5	0.1	1.1	0.2	0.3	<0.1	6.5	15.2	54.2	2.4

*Deposited dust

6.1 Assessment of Cumulative 24-hour average $PM_{2.5}$ and PM_{10} Concentrations

The results for incremental 24-hour average $PM_{2.5}$ and PM_{10} concentrations indicate there are no predicted exceedances of the relevant criteria at the assessed receptors.

When assessing the cumulative 24-hour average impacts based on model predictions, an assessment of cumulative 24-hour average $PM_{2.5}$ and PM_{10} impacts was undertaken in accordance with Section 11.2

of the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (**NSW EPA**, **2017**).

A "Level 1 assessment – Maximum impact" has been applied to assess the potential cumulative 24-hour average $PM_{2.5}$ impacts and a "Level 2 assessment - Contemporaneous impact and background approach" was applied to assess potential impacts for PM_{10}.

In simple terms, the Level 1 assessment involves adding maximum background level with the maximum predicted Project only level and the Level 2 assessment involves matching one year of ambient air quality monitoring data with the corresponding Project only level predicted using the same day's weather data to account for the spatial and temporal variation in background levels on a given day.

Table 6-2 provides a summary of the findings from the Level 1 and Level 2 assessments for the assessment locations.

The results in **Table 6-2** indicate that the Project does not increase the number of days above the 24-hour average criterion at the assessed receptors for $PM_{2.5}$ and PM_{10}. Based on this result it can be inferred that the Project does not increase the number of days above the 24-hour average $PM_{2.5}$ and PM_{10} criterion at any location surrounding the Project.

Detailed tables of the contemporaneous assessment results are provided in **Appendix D**.

Table 6-2: NSW EPA contemporaneous assessment - maximum number of additional days above 24-hour average criterion

Receptor ID	$PM_{2.5}$	PM_{10}
R1	0	0
R2	0	0
R3	0	0

7 MITIGATION AND MANAGEMENT

The proposed operations of the Project have the potential to generate dust emissions. To ensure that activities associated with the Project have a minimal effect on the surrounding environment, it is recommended that all reasonable and practicable dust mitigation measures be utilised.

Suggested reasonable and practicable dust mitigation measures for the Project are listed in **Table 7-1**.

Table 7-1: Potential operational dust mitigation measures

Source	Mitigation Measure
General	Engines of on-site vehicles and plant to be switched off when not in use.
	Vehicles and plant are to be fitted with pollution reduction devices where practicable.
	Vehicles are to be maintained and serviced according to manufacturer's specifications.
	Visual monitoring of activities is to be undertaken to identify dust generation.
	Cyclones to be maintained and operated in accordance with manufacturer's specification.
Material handling	Reduce drop heights from loading and handling equipment where practical.
Hauling activities	Spills on trafficked areas to be cleaned immediately.
	Driveways and hardstand areas to be swept/cleaned regularly as required etc.
	Vehicle traffic is to be restricted to designated routes.
	Co-ordinate the delivery schedule to avoid a queue of the incoming or outgoing trucks for extended periods of time.
	Speed limits are to be enforced.
	Vehicle loads are to be covered/ secured when travelling off-site to prevent spillage.
	Regularly inspect roads and maintain surfaces to remove potholes or depressions.

8 SUMMARY AND CONCLUSIONS

This study has examined the likely air quality effects associated with the proposed operations of a tyre recycling facility at Erskine Park.

Air dispersion modelling was used to predict the potential for off-site dust impacts in the surrounding area due to the operation of the Project with generally conservative assumptions.

It is predicted that all the assessed air pollutants generated by the operation of the Project would comply with the applicable assessment criteria at the assessed receptors and therefore would not lead to any unacceptable level of environmental harm or impact in the surrounding area. The Project would not result in air pollution that would significantly impact upon the amenity of residential land uses.

Nevertheless, the site would apply appropriate dust management measures to ensure it minimises the potential occurrence of excessive air emissions from the site.

Overall, the assessment demonstrates that even using conservative assumptions, the Project can operate without causing any significant air quality impact at receptors in the surrounding environment.

9 REFERENCES

Bureau of Meteorology (2020)

Climate statistics for Australian locations, Bureau of Meteorology website, accessed July 2020. http://www.bom.gov.au/climate/averages

NSW EPA (2017)

"Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales", NSW Environment Protection Authority, January 2017.

TRC (2011)

"Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the Approved Methods for the Modelling and Assessments of Air Pollutants in NSW, Australia", Prepared for the NSW Office of Environment and Heritage by TRC Environmental Corporation.

US EPA (1985 and update)

"Compilation of Air Pollutant Emission Factors", AP-42, Fourth Edition United States Environmental Protection Agency, Office of Air and Radiation Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711.

Appendix A

Selection of Meteorological Year

Selection of meteorological year

A statistical analysis of the latest five contiguous years of meteorological data from the nearest BoM weather station with suitable available data, Horsley Park Equestrian Centre AWS weather station, is presented in **Table A-1**.

The standard deviation of the latest five years of meteorological data spanning 2015 to 2019 was analysed against the available measured wind speed, temperature and relative humidity. The analysis indicates that the 2018 dataset is closest to the mean for wind speed and 2015 is closest for temperature and relative humidity. Therefore, based on this analysis it was determined that 2015 is generally representative of the long-term trends compared to other years and is thus suitable for the purpose of modelling.

Table A-1: Statistical analysis results for Horsley Park Equestrian Centre AWS

Year	Wind speed	Temperature	Relative humidity
2015	0.9	0.7	2.6
2016	0.8	0.9	5.0
2017	0.7	0.8	5.2
2018	0.6	0.9	7.0
2019	0.8	0.9	5.5

Figure A-1 shows the frequency distributions for wind speed, wind direction, temperature and relative humidity for the 2018 year compared with the mean of the 2015 to 2019 data set. The 2015 year data appear to be reasonably well aligned with the mean data.

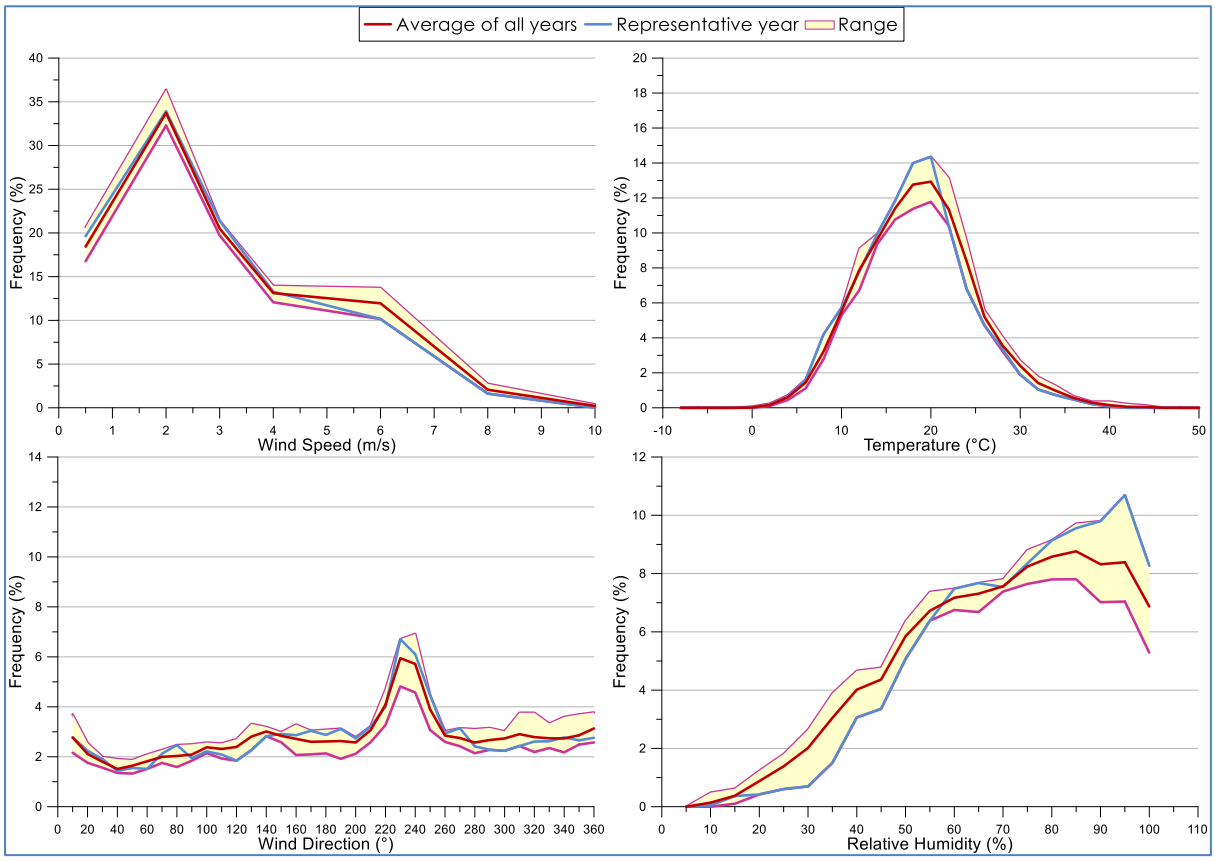


Figure A-1: Frequency distributions for wind speed, wind direction, temperature and relative humidity

TODOROSKI AIR SCIENCES | info@airsciences.com.au | 02 9874 2123

Appendix B

Emission Calculations

Emission Calculation

The dust emissions from the Project have been estimated from the operational description of the proposed activities provided by the Proponent and have been combined with emissions factor equations and utilising suitable emission and load factors which relate to the quantity of dust emitted from particular activities based on intensity, the prevailing meteorological conditions and composition of the material being handled.

Emission factors and associated controls have been sourced from the United States (US) EPA AP42 Emission Factors (**US EPA, 1985 and Updates**).

The emission factor equations used for each dust generating activity are outlined in **Table B-1** below. A detailed dust emission inventory for the modelled scenario is presented in **Table B-2**.

Table B-1: Emission factor equations

Activity	Emission factor equation		
	TSP	PM_{10}	$PM_{2.5}$
Loading / emplacing material	$EF = 0.74 \times 0.0016 \times \left(\frac{U}{2.2}^{1.3} / \frac{M}{2}^{1.4}\right) kg/tonne$	$EF = 0.35 \times 0.0016 \times \left(\frac{U}{2.2}^{1.3} / \frac{M}{2}^{1.4}\right) kg/tonne$	$EF = 0.053 \times 0.0016 \times \left(\frac{U}{2.2}^{1.3} / \frac{M}{2}^{1.4}\right) kg/tonne$
Hauling on sealed surfaces	$EF = 3.23 \times s.L.^{0.91} \times (1.1023 \times W)^{1.02} kg/VKT$	$EF = 0.62 \times s.L.^{0.91} \times (1.1023 \times W)^{1.02} kg/VKT$	$EF = 0.15 \times s.L.^{0.91} \times (1.1023 \times W)^{1.02} kg/VKT$
Shredding material	$EF = 0.0027\ kg/$tonne	$EF = 0.0012\ kg/$tonne	$EF = 0.0002\ kg/tonne$
Granulating material	$EF = 0.0125\ kg/$tonne	$EF = 0.0043\ kg/$tonne	$EF = 0.0003\ kg/tonne$

EF = emission factor, U = wind speed (m/s), s.L. = silt loading (g/m^2), W = average weight of vehicle (tonne), VKT = vehicle kilometres travelled (km)

Table B-2: Dust Emissions Inventory

Activity	TSP emission	PM10 emission	PM25 emission	Intensity	Units	Emission Factor - TSP	Emission Factor - PM10	Emission Factor - PM25	Units	Var. 1	Units	Var. 2	Units	Var. 3 (TSP/ PM10/ PM25)	Units	Var. 4	Units	Var. 5	Units
Delivering material to site	98	19	5	29,000	t/yr	0.0034	0.00065	0.000158	kg/t	9	t/load	0.4	km	0.07 / 0.01 / 0.003	kg/VKT	2	S.L g/m^2	9	Ave GMV (t)
Unloading material in building	22	10	2	29,000	t/yr	0.00076	0.00036	0.00005	kg/t	0.644	ave. (WS/2.2)$^{1.3}$	2	M.C. %						
Rehandle material at stockpile	22	10	2	29,000	t/yr	0.00076	0.00036	0.00005	kg/t	0.644	ave. (WS/2.2)$^{1.3}$	2	M.C. %						
Loading material to shredder	22	10	2	29,000	t/yr	0.00076	0.00036	0.00005	kg/t	0.644	ave. (WS/2.2)$^{1.3}$	2	M.C. %						
Shredding material	78	35	6	29,000	t/yr	0.0027	0.0012	0.0002	kg/t										
Granulating material	363	125	8	29,000	t/yr	0.0125	0.0043	0.0003	kg/t										
Granulating material	363	125	8	29,000	t/yr	0.0125	0.0043	0.0003	kg/t										
Unloading processed material to stockpile	22	10	2	29,000	t/yr	0.00076	0.00036	0.00005	kg/t	0.644	ave. (WS/2.2)$^{1.3}$	2	M.C. %						
Rehandle material at stockpile	22	10	2	29,000	t/yr	0.00076	0.00036	0.00005	kg/t	0.644	ave. (WS/2.2)$^{1.3}$	2	M.C. %						
Loading processed material to truck	22	10	2	29,000	t/yr	0.00076	0.00036	0.00005	kg/t	0.644	ave. (WS/2.2)$^{1.3}$	2	M.C. %						
Hauling processed material offsite	99	19	5	29,000	t/yr	0.0034	0.00066	0.000159	kg/t	14	t/load	0.4	km	0.11 / 0.02 / 0.01	kg/VKT	2	S.L g/m^2	15	Ave GMV (t)
Exhaust emissions	98	98	95																
Total emissions (kg/yr.)	**1,232**	**483**	**137**																

Appendix C

Isopleth Diagrams

Figure C-1: Predicted incremental maximum 24-hour average $PM_{2.5}$ concentrations (µg/m³)

Figure C-2: Predicted incremental annual average $PM_{2.5}$ concentrations (µg/m³)

Figure C-3: Predicted incremental maximum 24-hour average PM_{10} concentrations (µg/m³)

Figure C-4: Predicted incremental annual average PM_{10} concentrations (µg/m³)

Figure C-5: Predicted incremental annual average TSP concentrations (µg/m³)

Figure C-6: Predicted incremental annual average dust deposition levels (g/m²/month)

Figure C-8: Predicted cumulative annual average $PM_{2.5}$ concentrations (µg/m³)

Figure C-10: Predicted cumulative annual average PM_{10} concentrations (µg/m³)

Figure C-11: Predicted cumulative annual average TSP concentrations (µg/m³)

Figure C-12: Predicted cumulative annual average dust deposition levels (g/m²/month)

Appendix D

Further detail regarding 24-hour PM_{10} analysis

Further detail regarding 24-hour average PM_{10} analysis

The analysis below provides a cumulative 24-hour PM_{10} impact assessment in accordance with the NSW EPA Approved Methods; refer to the worked example on Page 46 to 47 of the Approved Methods.

The background level is the ambient level at the St Marys monitoring station.

The predicted increment is the predicted level to occur at the receptor due to the Project.

The total is the sum of the background level and the predicted level. The totals may have minor discrepancies due to rounding.

Table D-1 to **Table D-3** assess receptors R1, R2, and R3.

The left half of the table examines the cumulative impact during the periods of highest background levels and the right half of the table examines the cumulative impact during the periods of highest contribution from the project.

The green shading represents days ranked per the highest background level but below the criteria.

The blue shading represents days ranked per the highest predicted increment level but below the criteria.

The orange shading represents days where the measured background level is already over the criteria.

Any value above the PM_{10} criterion of 50µg/m³ is shown in **bold red.**

Table D-1: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor R1

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
6/05/2015	**53.0**	0.0	**53.0**				
27/11/2015	48.3	0.3	48.6	27/01/2015	6.1	2.8	8.9
26/11/2015	41.7	0.8	42.5	19/01/2015	20.1	2.6	22.7
17/10/2015	35.4	1.7	37.1	14/11/2015	10.3	2.4	12.7
12/12/2015	34.6	0.6	35.2	15/11/2015	12.0	2.4	14.4
21/08/2015	34.0	0.3	34.3	7/10/2015	33.6	2.2	35.8
7/10/2015	33.6	2.2	35.8	3/11/2015	0.0	2.2	2.2
9/02/2015	32.7	1.4	34.1	4/04/2015	6.5	2.1	8.6
9/03/2015	32.1	1.1	33.2	24/02/2015	17.1	2.1	19.2
13/12/2015	30.6	0.1	30.7	13/10/2015	12.7	2.1	14.8
17/12/2015	30.3	0.3	30.6	11/01/2015	6.2	2.1	8.3

Table D-2: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor R2

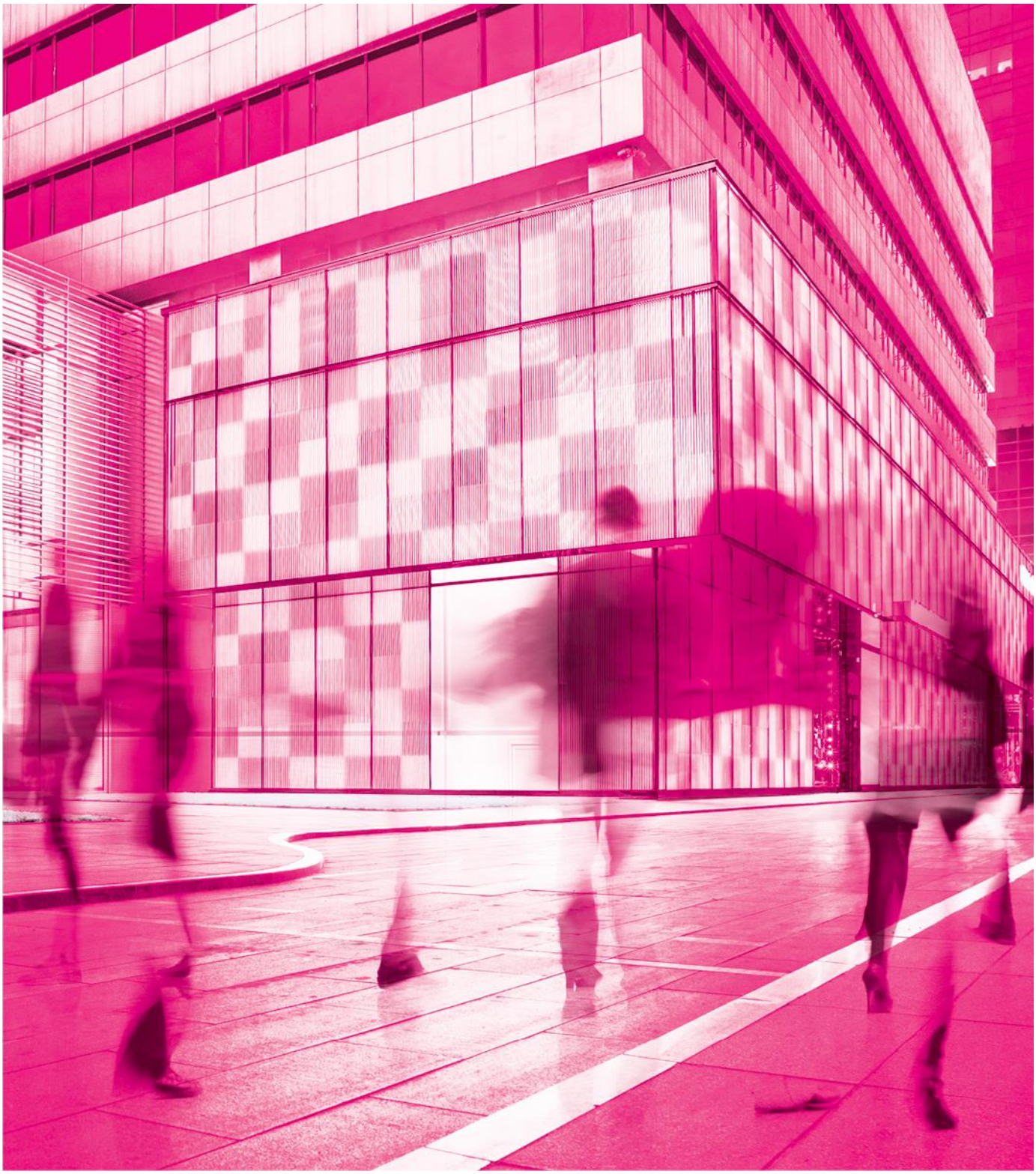
Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
6/05/2015	**53.0**	0.1	**53.1**				
27/11/2015	48.3	1.0	49.3	3/04/2015	17.0	3.5	20.5
26/11/2015	41.7	0.2	41.9	3/05/2015	8.3	3.1	11.4
17/10/2015	35.4	0.5	35.9	1/05/2015	7.9	2.7	10.6
12/12/2015	34.6	0.5	35.1	2/02/2015	14.1	2.7	16.8
21/08/2015	34.0	0.5	34.5	26/01/2015	18.2	2.5	20.7
7/10/2015	33.6	1.4	35.0	2/05/2015	9.7	2.4	12.1
9/02/2015	32.7	0.9	33.6	28/01/2015	6.3	2.4	8.7
9/03/2015	32.1	0.7	32.8	16/05/2015	11.1	2.3	13.4
13/12/2015	30.6	0.2	30.8	10/06/2015	15.2	2.3	17.5
17/12/2015	30.3	0.2	30.5	22/03/2015	12.4	2.3	14.7

Table D-3: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor R3

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
6/05/2015	**53.0**	0.9	**53.9**				
27/11/2015	48.3	0.0	48.3	27/07/2015	9.0	1.1	10.1
26/11/2015	41.7	0.0	41.7	13/08/2015	7.9	1.1	9.0
17/10/2015	35.4	0.2	35.6	17/07/2015	4.9	1.0	5.9
12/12/2015	34.6	0.1	34.7	25/08/2015	2.3	1.0	3.3
21/08/2015	34.0	0.2	34.2	13/05/2015	8.2	0.9	9.1
7/10/2015	33.6	0.0	33.6	6/05/2015	**53.0**	0.9	**53.9**
9/02/2015	32.7	0.0	32.7	3/06/2015	9.1	0.8	9.9
9/03/2015	32.1	0.2	32.3	18/06/2015	6.9	0.8	7.7
13/12/2015	30.6	0.0	30.6	29/08/2015	6.1	0.8	6.9
17/12/2015	30.3	0.0	30.3	6/07/2015	14.5	0.8	15.3

APPENDIX K

TRAFFIC IMPACT ASSESSMENT



traffic impact assessment;

1-21 Grady Crescent, Erskine Park

For Element Environment Pty Ltd

10 September 2020

parking;
traffic;
civil design;
wayfinding;

ptc.

Document Control

1-1-21 Grady Crescent, Erskine Park, Traffic impact assessment

Issue	Date	Issue Details	Author	Reviewed	For the attention of
1	30/07/20	Draft	PS	AM	Luke Farrell
2	19/08/20	Draft	PS	AM	Luke Farrell
3	09/09/20	Final	AP	AM	Luke Farrell
4	10/09/20	Final (Minor Amendment)	AP	AM	Luke Farrell

Contact

Andrew Morse
+61 2 8920 0800
+61 414 618 002
andrew.morse@ptcconsultants.co

Aaron Pau
+61 2 8920 0800
+61 406 601 284
aaron.pau@ptcconsultants.co

Pragya Sharma
+61 2 8920 0800
+61 406 601 284
pragya.sharma@ptcconsultants.co

ptc.
Suite 502, 1 James Place
North Sydney NSW 2060
info@ptcconsultants.co
t + 61 2 8920 0800
ptcconsultants.co

Contents

1. Introduction

1.1 Project Summary

ptc. is engaged by Element Environment Pty Ltd (Element) to prepare a Traffic Impact Assessment (TIA) to accompany the Development Application (DA) for a proposed tyre recycling facility development by Tyrecycle Pty Ltd (Tyrecycle) at 1-21 Grady Crescent, Erskine Park (subject site). The subject site lies within the Penrith City Council Local Government Area (LGA) and has been assessed in the context of Council's planning controls.

Tyrecycle propose to process approximately 29,000 tonnes per annum (tpa) of passenger and four wheel drive tyres into either two or six inch pieces (known as Tyre Derived Fuel (TDF)), as well as Tyre Derived Products (TDP) through a shredding operation (the 'proposal'). The TDF are used for either energy recovery (i.e. co-processing for use within cement kilns) or for energy generation (i.e. incineration for use in power plants) within export markets, primarily to Japan and Korea. The TDP associated with the operation includes granules (1 millimetre (mm) diameter), which are commonly applied to sporting fields and playgrounds, along with rubber crumb products (0.74 mm diameter) which are used in tile manufacturing and road sectors.

This report sets out the methodology and findings of the study to assess the traffic, parking and the road network related considerations associated with the proposal.

The location of the subject site is outlined in Figure 1.

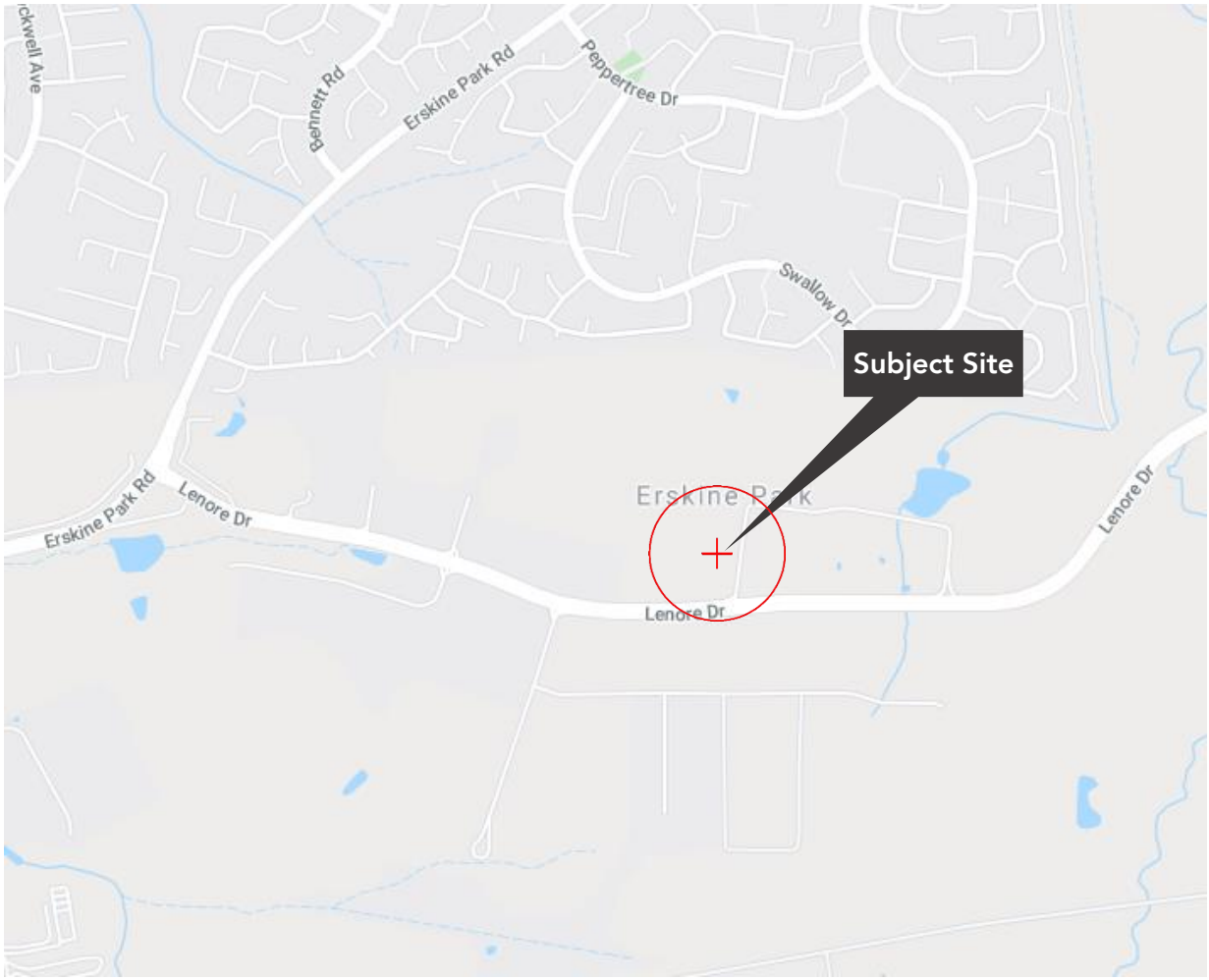


Figure 1 – Site Location (Source: Google Maps)

1.2 Purpose of the Report

The report presents the following considerations relating to the traffic and parking assessment of the development:

Section 1 Introduction of the proposal;

Section 2 Background information, including a description on the development site and the proposal;

Section 3 A description of the road network serving the development site and the existing public transportation options;

Section 5 Determination of the traffic activity associated with the development proposal, and the adequacy of the surrounding road network;

Section 4 Assessment of the proposed parking provision in the context of the relevant planning control requirements;

Section 6 Assessment of the proposed parking, access and circulation arrangements, in relation to compliance with relevant standards; and

Section 7 Conclusion

1.3 Referenced Documents

The following documents have been referenced in the preparation of this report:

- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- RMS Guide to Traffic Generating Developments Updated Traffic Surveys 2013 (TDT)
- Penrith City Council's Penrith Development Control Plan 2014 (DCP)
- Building Code of Australia 2016 (BCA).

2. Background Information

2.1 Site Location

The subject site is located at 1-21 Grady Crescent, Erskine Park, and identified as Lot 4 in Deposited Plan (DP) 1253870. It is located approximately 43 kilometres west of Sydney CBD within Erskine Park Employment Area (EPEA). More specifically, the subject site is located within a site shared with an existing Warehouse building for PMA Solutions. Other buildings in close proximity to the site include the Coates Hire Warehouse located on the northern side of Grady Crescent and a DHL Warehouse on the eastern side. The aerial view of the subject site is shown in Figure 2.

Figure 2 – Aerial View of the Subject Site (Source: Near Map)

2.2 Surrounding Land Use

The subject site is currently zoned as IN1 (General Industrial) under State Environmental Planning Policy (Western Sydney Employment Area) 2009, with the surrounding land use predominantly IN1 and a some E2 (Environmental Living Zones) within the vicinity of the site. The Local Land Use Map is presented in Figure 3.

Figure 3 – Local Land Use Map (Source: NSW Planning Viewer)

2.3 Development Proposal

The subject site comprises a rectangular property with a total area of 15,500m^2, with a frontage of approximately 62 metres to Grady Crescent, being the only road frontage of the site. The existing site is a warehouse facility with associated ancillary office occupying approximately 9,620m^2 (9,300m^2 warehouse +320m^2 ancillary office area).

The site also includes a provision of six (6) truck parking spaces on ground level, and a total of 78 car parking spaces on ground and basement levels. The ground level car parking area accommodates five (5) parking spaces including two (2) accessible car spaces, and the basement car park accommodates 73 parking spaces.

Vehicular access to the existing site is provided by the two (2) driveways within the Grady Crescent frontage enabling separated car and heavy vehicle movements within the property.

Tyrecycle is seeking development consent for the project to process and transfer up to 29,000 tpa of tyres at the site. The project seeks to operate a tyre processing and transfer facility at the site with primary operational activities including:

- Receival and storage of tyres;
- Shredding of tyres; and
- Dispatch of processed TDF and other TDPs.

No modifications are made to the footprint of the existing warehouse building or car parking facilities.

2.3.1 Operational Management Plan

Based on the information provided by Tyrecycle, the proposed tyre recycling facility is estimated to operate 24 hours per day, 7 days per week, with most of the operations occurring during the weekdays and occasional work during the weekends. The operation plan and vehicle movements of the proposed tyre recycling facility during the weekdays is estimated as follows:

• Deliveries (containers):	8:00am – 5:00pm (Monday-Friday) and 8:00am – 6:00pm Saturdays (as required)
• Trucks (collection)	4:00am – 6:00pm (Monday-Friday) (Day), 5:00pm – 1:00am (Monday-Friday) (Night) and 4:00am – 6:00pm (Saturday) (As required)
• Total trucks movements:	Approximately 29 trucks in and 29 trucks out per day
• Peak hour truck volumes:	13 trucks leaving site between 5:00am – 7:00am (conservative assessment)
	13 trucks returning to site between 4:00pm – 6:00pm (conservative assessment)
• Parking Requirement:	24 working staff during the day shift (7:00am – 3:00pm)
	4 management staff during the day shift (8:00am – 5:00pm)
	3 working staff during the afternoon shift (3:00pm – 11:00pm)
	3 working staff during the night shift (11:00pm – 7:00am)

- Peak hour light vehicles movement: 24 light vehicles entering and 3 light vehicles leaving the site between 6:30am – 7:30am.

  4 light vehicles entering the site between 7:30am – 8:30am.

  3 light vehicles entering and 24 light vehicles leaving the site between 2:30pm – 3:30pm.

  4 light vehicles leaving the site between 4:30pm – 5:30pm.

  3 light vehicles entering and 3 light vehicles leaving the site between 10:30pm – 11:30pm.

3. Existing Transport Facilities

3.1 Road Hierarchy

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

State Roads - Freeways and Primary Arterials (RMS managed)

Regional Roads - Secondary or Sub Arterials (Council managed, partly funded by the State)

Local Roads - Collector and Local Access Roads (Council managed)

Figure 4 provides an illustration of the road hierarchy of the nearby road network.

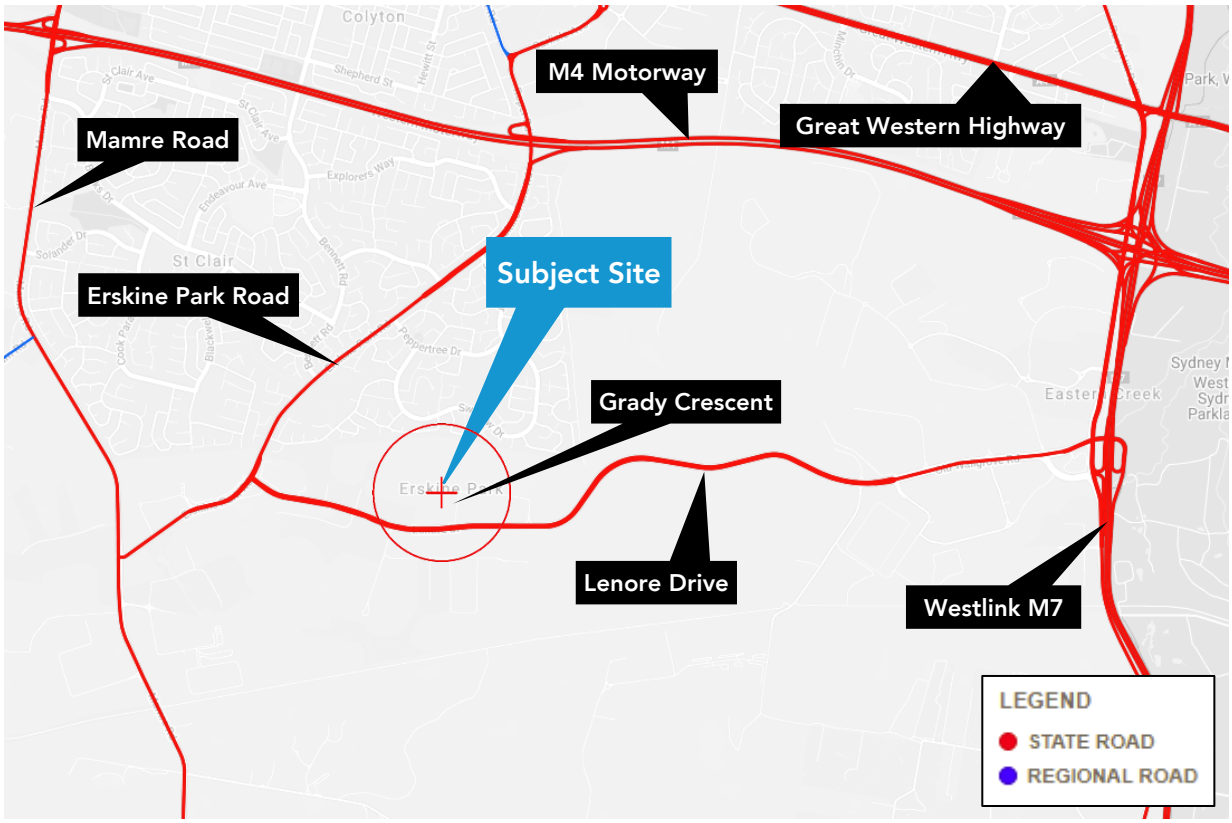


Figure 4 – Surrounding Road Network (Source: RMS Road Hierarchy)

The road network serving the site includes:

M4 Motorway comprises a 6 lane divided carriageway which has an east-west alignment along the northern side of the Erskine Park and St Clair areas and connects between the Great Western Highway at Strathfield and the Blue Mountains at Emu Plains.

M7 Motorway comprises a 4 lane divided carriageway which has a north-south alignment along the eastern side of the Erskine Park area and connects between the M2 at Baulkham Hills and the M5 at Prestons.

The **Great Western Highway** is a State Road, which connects between the City and the region to the west of the Blue Mountains. In the vicinity of Erskine Park, the Highway is aligned parallel to the M4 Motorway and operates as an alternative route to the motorway. For much of its length, the Highway carries 3 lanes in each direction, and provides connectivity to the local road network.

Mamre Road is a State Road connecting between the Great Western Highway at St Marys and Elizabeth Park at Cecil Hill.

Erskine Park Road is a State Road which provides a secondary connection between Mamre Road and the M4 Motorway.

Lenore Drive is a State Road and forms the primary access to the Erskine Park Employment Area. Lenore Drive connects with Old Walgrove Road at Eastern Creek, which connects with Walgrove Road and the M7 Motorway. The carriageway carries two lanes in each direction and is divided by a central median accommodating auxiliary right turn lane at a number of intersections.

Grady Crescent is a local access road which connects with the Lenore Drive. The carriageway has a width of 13 meters and carries a single lane in each direction.

3.2 Public Transport

The locality of the subject site has been assessed in the context of available forms of public transport that may be utilised by prospective staffs and visitors. When defining accessibility, the NSW Planning Guidelines for Walking & Cycling (2004) suggests that 400m-800m is a comfortable walking distance to access public transport and local amenities.

The only public transport available within the 800m catchment is the route 835 bus service as shown in Figure 5.

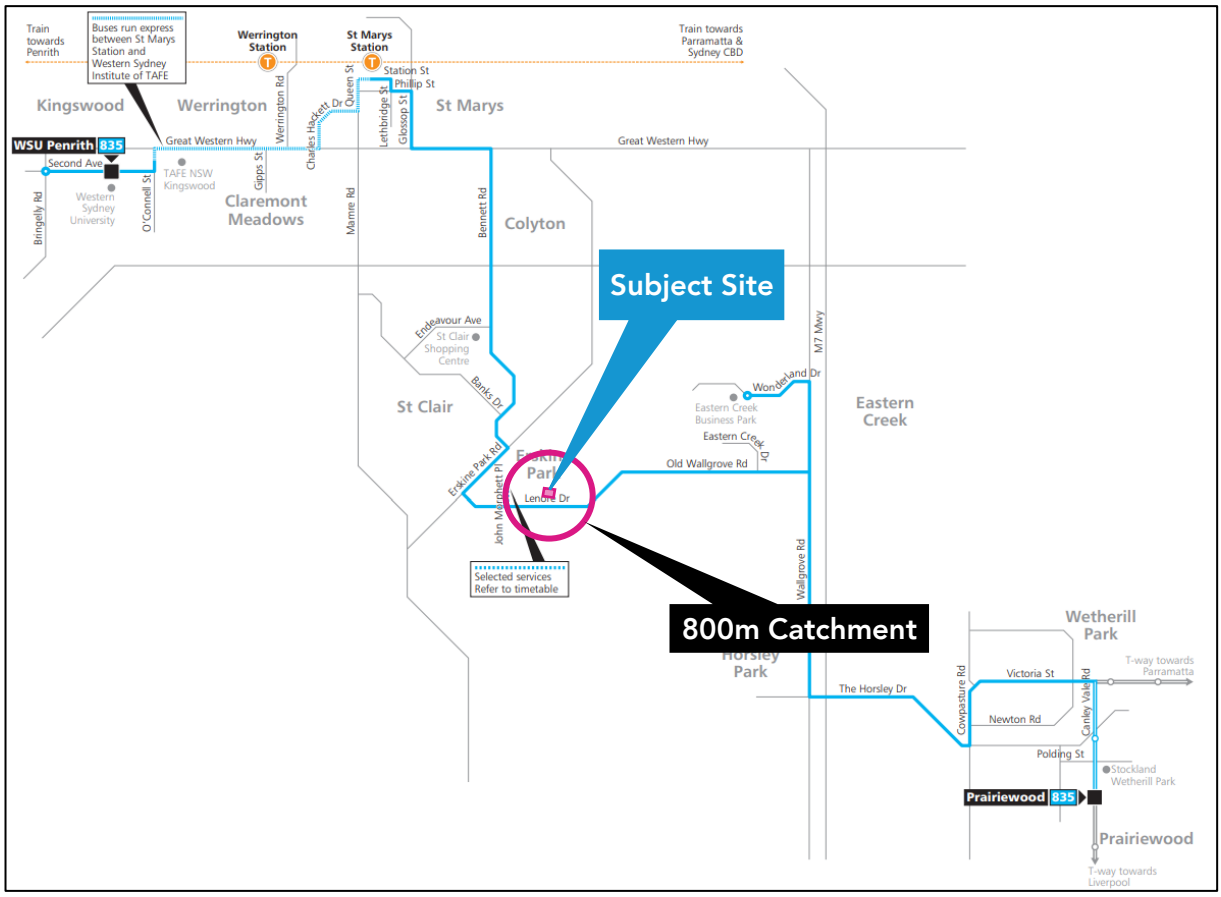


Figure 5 – Bus Service within 800m radius of the subject site (Source: Transport for NSW)

Route 835 operates along Lenore Drive past the site and operates only on weekdays providing a connection between Penrith and Prairiewood.

4. Development Traffic Assessment

4.1 Approved Traffic Generation

The existing development comprises a warehouse and in relation to this type of development, Section 3.10.2 of the RMS Guide recommends the following traffic generation rates for the morning peak hour:

- Warehouse: 0.5 trips per 100m^2 GFA during morning peak hour

Based on the Traffic Impact Assessment Report prepared by Parking and Traffic Consultants Pty Ltd on February 2013, following trips has been calculated for the existing warehouse. These trips were approved during the previous DA.

Table 1 – Approved Traffic Generation

Use	GFA	RMS Traffic Generation Rate	Approved AM Peak Hour Trips
Warehouse	**9,620 m^2**	**0.5 trips per 100m^2 GFA**	**48**

4.2 Development Traffic Generation

Neither RMS Guide nor the TDT provides any traffic generation rates for a tyre recycling facility. Hence, the traffic generation has been calculated based on first principles.

4.2.1 Morning Peak Period Traffic Volumes

Based on the information presented in Section 2.3.1, it is understood that approximately 13 outbound trucks trip will occur during 5:00am – 7:00am. This equates to approximately 7 outbound truck trips during the one-hour peak period. In regards to the light vehicle trips, from Section 2.3.1 we can see that the management staff trips do not coincide with the majority of the day shift staff during the morning peak hour, and therefore, only the working staff trips are considered for calculating the morning peak hour traffic volumes. The total morning (AM) peak hour traffic volumes for trucks and light vehicles are estimated as follows:

AM Peak Hour

- Truck trips: 7 (0 inbound, 7 outbound)
- Light vehicle trips: 31 (28 inbound, 3 outbound)

4.2.2 Evening Peak Period Traffic Volumes

As mentioned in Section 2.3.1, approximately 13 trucks trip (inbound movement) will occur during 4:00pm – 6:00pm. To calculate the one-hour peak volume for trucks, similar assumption as the AM peak hour has been applied. In regard to the staff trips, it is evident that the staff trips do not coincide with the tyre recycling facility evening peak hour, and since the number of staff during the evening peak period is very low, the working staff trips are considered to lie outside of the even peak period. Therefore, the total afternoon (PM) peak hour traffic volumes will be wholly dependent on trucks and is calculated as follows:

PM Peak Hour

- Truck trips: 7 (7 inbound, 0 outbound)

4.2.3 Total Peak Hour Traffic Volumes

Based on the calculations as shown in Section 4.2.1 and Section 4.2.1, the total future trips are summarised as follows:

Table 2 – Future Traffic Generation

Use	Total Trips for AM Peak Hour	Total Trips for PM Peak Hour
Tyre Recycling Facility	**38 (28 inbound, 10 outbound)**	**7 (7 inbound, 0 outbound)**

4.3 Net Trip Generation

In order to determine the traffic impact of the development, the net trip generation needs to be determined. This figure is calculated by subtracting the approved traffic generation from the future traffic generation. The net trip generation is summarised in Table 3.

Table 3 – Net Trip Generation

Peak Period	Future Trip Generation	Approved Trip Generation	Net Trip Generation
Weekday AM	**38**	**48**	**-10**
Weekday PM	**7**		

It is evident from Table 3 that the overall trips for the AM peak hour is expected to be reduced by 10. This equates to approximately 1 trip removed every 6 minutes and therefore, it is expected that the nearby intersection performance may improve marginally during the weekday AM peak hour.

In regard to the approved PM peak hour trips, the RMS Guideline does not provide any traffic generation rates, however, as we see that the net trip generation for the AM peak hour is reduced, it is more likely that the net trip generation for the PM peak hour will also be reduced. Additionally, as the existing warehouse and proposed tyre recycling facility are similar types of development, it is less likely that the future traffic generation will deviate from the approved generation, and therefore, the proposal will not result in a negative impact on the existing road network.

4.4 SIDRA Modelling

From Section 4.3 we can see that the future trips for the AM peak hour are less than the approved trips and the PM peak hour trips are estimated to align or be less than the approved PM peak hour trips. As such the future trips would not make a discernible impact to the existing road network and hence, SIDRA modelling is not required.

4.5 Traffic Impact on Existing Road Network

From the information provided by Tyrecycle we understand that majority of the trucks will approach the site via M4 motorway, then turn into Mamre Road or Erskine Park Road, turn into Lenore Drive and then then turn left onto Grady Crescent. When leaving the site, the trucks will exit the site via Grady Crescent, turn left into Lenore Drive and then turn into M7. From this information, it is obvious that there will be no truck movements along local roads which have the potential to impact residential receivers. Therefore, the project

will not result in significant impacts to the amenity of residential land uses or impact upon traffic network conditions.

The tuck routes are shown in Figure 6, with the pink lines for approaching trucks and blue lines for exiting trucks.

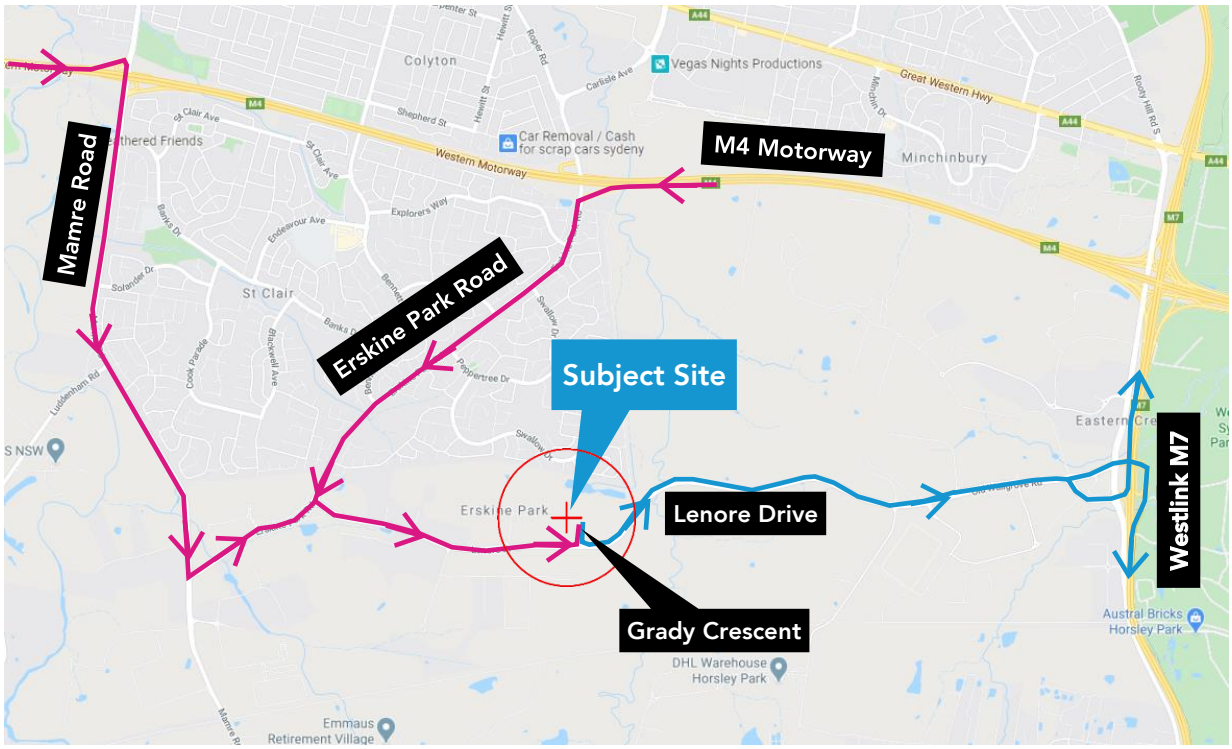


Figure 6 – Truck Routes

5. Parking Assessment

5.1 Car Parking Requirement

5.1.1 Car Parking Requirement according to the DCP

Part E6 (Erskine Business Park) of the DCP is applicable to the subject site, and the car parking rates are stipulated in Part C10 (Transport, Access and Parking) of the DCP. The DCP, however, does not provide car parking rates for the tyre recycling facility, and therefore, reference has been made to a warehouse development which is the most comparable.

It is noted that the ancillary office area is to be used in conjunction with the tyre recycling facility, meaning that a cumulative assessment of these components is not required. Applying the DCP car parking rates for warehouses to the proposed tyre recycling facility results in the following car parking requirements.

Table 4 – Car parking requirement provision according to the DCP

Use	GFA	DCP Car Parking Rate (min)	Minimum Parking Requirement	Proposed Parking Provision
Tyre Recycling Facility (Warehouse)	**9,620 m²**	**1 space per 100m² GFA**	**96**	**78**

While the DCP requires a higher parking demand, the current warehouse was approved with a lower parking provision of 78 spaces, based on reference to multiple sources as described in the following sections.

5.1.2 Car Parking Requirement according to the RMS Guide

Section 5 of the RMS Guide provides car parking rates for warehouse which is a comparable site for the tyre recycling facility. As mentioned in Section 5.1.1, ancillary office area has been used in conjunction with the tyre recycling facility. Applying the RMS Guide's car parking rates for warehouse to the proposed tyre recycling facility results in the following car parking requirements.

Table 5 – Car parking requirement provision according to the RMS Guide

Use	GFA	RMS Guide Car Parking Rate (min)	Minimum Parking Requirement	Proposed Parking Provision
Tyre Recycling Facility (Warehouse)	**9,620 m²**	**1 space per 300m² GFA**	**32**	**78**

It is evident from Table 5 that the provision of 78 car spaces exceeds and satisfies the RMS minimum requirement.

5.1.3 Car Parking Requirement according to the First Principles Assessment

From the information provided by Tyrecycle, it is understood that there will be approximately 28 staff (including 4 management staff) working during the day shift and 3 staff working during both the afternoon and night shifts. If it is assumed that all staff drive, the maximum car parking space required for staff will be

28. Therefore, based on first principles, the existing 78 car spaces exceeds the parking requirement for the proposed number of staff and visitors, and the parking demand is met.

5.1.4 Other Comparisons

Based on the GFA, the car parking provision rate of the development site is 1 per 128m^2. We have compared the parking provision available for similar developments within the EPEA which is provided at the following rates:

- For a Warehouse located at Lockwood Road – 1 per 250m^2
- For a Distribution Centre located at Lockwood Road – 1 per 300m^2
- For a Warehouse located at Grady Crescent – 1 per 300m^2

The parking provision of 1 space per 128m^2 compares favourably against the above parking provision for similar development within the EPEA, and the proposed parking provision of 78 car parking spaces exceeds the parking provision for these existing developments.

5.1.5 Car Parking Summary

While the proposed parking provision is slightly lower than indicated by the DCP, it is noted that the DCP does not provide a specific rate for tyre recycling facilities. To determine the actual parking demand of the tyre recycling facility, an assessment using RMS Guide, first principles and a comparison with similar developments within the EPEA was undertaken and, it is clear that the car parking provision exceeds the likely parking demand associated with the development. Furthermore, the provision represents a balanced approach having consideration for the location of the subject site and access to public transport and will not result in any on-street parking demand.

5.2 Accessible Car Spaces

In regard to the accessible parking, Part C10 of the DCP specifies that the accessible car spaces to be provided in accordance with the Building Code of Australia (BCA). The BCA 2016 classification for tyre recycling facility falls under Class 7B for building used for storage or display of goods or produce for sale by wholesale. The accessible car parking requirement and provisions are summarised in Table 6.

Table 6 – Accessible Car Parking Requirement and Provision

Use	Total Car Parking Provided	RMS Guide Car Parking Provision Rate (min)	Accessible Car Parking Requirement	Accessible Car Parking Provided
Class 7b - Tyre Recycling Facility	**78**	**1 space per every 100 car parking spaces or part thereof**	**1**	**2**

The provision of 78 car spaces results in a minimum requirement of one (1) accessible car parking space. The proposed provision of two (2) accessible car spaces has exceeded the accessible car parking requirement and is therefore compliant with the BCA requirement.

5.3 Loading Dock

The loading dock is provided on Ground Floor with a capacity to accommodate six (6) trucks at a time. From the information provided by Tyrecycle, it is understood that Tyrecycle owns six (6) trucks, and therefore, the trucks can be parked in the loading dock overnight.

The largest vehicle expected to access the site is a 25-metre B-Double, and from the swept path assessment as shown in Attachment 2, a B-Double is likely to occupy three (3) truck spaces. However, the B-Doubles will only be used for the forklift movements, with approximately two (2) B-Doubles movement per day. It is acknowledged that trucks movement spread across the day, and therefore, the subject site will be able to meet the future truck parking demand.

A Loading Dock Management Plan is recommended to ensure that only three (3) trucks are parked in the loading bay and the other three (3) trucks spaces are vacant during the times when B-Doubles access the site.

6. Access and Parking Assessment

The following section presents an assessment of the proposed development with reference to the requirements of AS2890.1:2004 (Off-Street Car Parking), AS2890.2:2002 (Off-street commercial vehicle facilities) and AS2890.6:2009 (Off-street parking for people with disabilities). This section is to be read in conjunction with the architectural plans provided by SBA Architects (see **Attachment 1**), dated 31.01.2013. and the swept path assessment undertaken by **ptc** (see **Attachment 2**)

The existing car park is to be predominantly used for employee and visitor parking, and therefore, the car park is assessed in accordance to AS 2890.1 for typical User Class 1A (residential/employee facilities).

6.1 Vehicular Access and Circulation

The existing warehouse site has road frontage to Grady Crescent with two access driveways for traffic movements. One driveway is 15.4m wide and is used as a truck access, while the other driveway is 6.35m wide and is used for car access. The 6.35m driveway narrows down to 6m wide private access road which continues to the basement level providing access to the basement level car park. The 6m wide private access road encircles the property on the north and west, extending from Grady Crescent to Lenore Drive (shown in Figure 7).

The basement level accommodates a total of 73 Class 1A car spaces with access from the private road (shown in Figure 7) requiring a Category 1 driveway being a combined entry and exit width of 3 to 5.5 metres. A 6.9 metres wide driveway is provided for the basement car park, and therefore, the provision is in accordance with the Standards.

The assessment of the existing driveways was previously undertaken in accordance to AS 2890.1 and AS 2890.2., and has been approved during the previous DA. No changes are proposed to the existing access arrangements, ramp grades, or headroom clearances.

The vehicular access, circulation, aisle width and car space dimensions comply with AS 2890.1 & 2890.6, however, two (2) convex safety mirrors are recommended in the basement level car park between car spaces 12 and 13, and 15 and 16 to minimise conflict between entering and exiting vehicles at the entrance to the carpark.

The design review and a swept path assessment demonstrating two-way passing of a B99 and B85 vehicle from Grady Crescent to the private access road with appropriate clearance is included in **Attachment 2**.

The location of the access driveways is shown in Figure 7.

Figure 7 - Vehicular Access to the Site

6.2 Car Parking Arrangement

6.2.1 Typical Requirements

The car park for the existing warehouse was designed according to User Class 1A for staffs and visitors. The User Class for the proposed tyre recycling facility will remain the same, and the existing car park is to be retained. The car parking spaces must comply with the following minimum requirements:

Class 1A (residential/employee facilities):

- Car Spaces: 2.4m x 5.4m
- Aisle Width: 5.8m (minimum)

  additional 300mm needs to be provided where one side of the aisle is bounded by high obstruction (i.e. wall or column)

The car spaces have been individually accessed and is in accordance with the requirements of AS 2890.1.

Blind aisle extensions have been provided.

6.2.2 Accessible Parking

All accessible parking spaces shall comply with the requirements of AS2890.6. Accessible parking spaces are to be designed based on the following dimensions:

- Accessible Space: 2.4m x 5.4m
- Adjacent Shared Bay: 2.4m x 5.4m (with bollard)

All shared bays and accessible spaces have been installed in accordance with AS2890.6, including the installation of bollards and relevant pavement markings. A minimum height clearance of 2.5m has been maintained above all accessible and shared bays.

6.3 Servicing and Loading Provisions

The servicing area for the existing warehouse was designed in accordance with AS 2890.2 and was approved to accommodate vehicles up to a 25-metre B-Double. There are no changes proposed to the existing servicing arrangements.

The loading dock is located on Ground floor level. All trucks are able to manoeuvre within the site and enter and exit the site in a forward direction, hence there are no expected queuing on public roads.

A swept path assessment has been conducted to ensure the feasibility of a 25-metre B-Double and 19-metre articulated vehicle (see Attachment 2).

6.4 Pedestrian Access

The pedestrian access to the site from Grady Crescent is provided via pedestrian walkway and zebra crossing located at the Ground Floor Level (see Figure 8).

The pedestrian access to the site from the Basement car park is provided via staircase connecting the Ground Floor Level to the Basement Level (see Figure 9).

Figure 8 – Pedestrian Access to the Site from Grady Crescent (Source: Near Map)

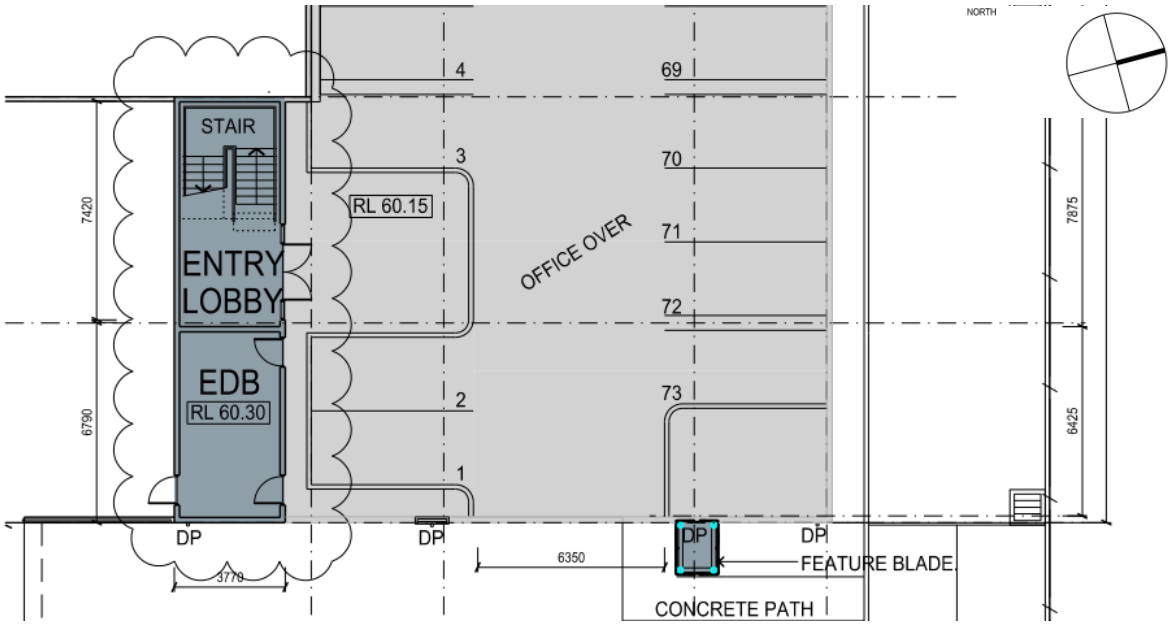


Figure 9 – Pedestrian Access to the Site from Basement Car Park (Source: SBA Architects)

7. Conclusion

This technical report has been prepared for assessing the proposed tyre recycling facility development at 1-21 Grady Crescent, Erskine Park in terms of parking provisions and traffic impacts on the surrounding road network.

The following findings have been identified through the assessment:

- The proposal is to change the use of the existing warehouse into a tyre recycling facility. No changes are proposed to the existing building footprint and parking arrangements;
- In terms of public transport, the site is accessible by bus providing transport links to the greater Sydney area;
- With reference to the most recent RMS survey data and first principles assessment, a review of the potential traffic generation of the site has revealed that the net trips for the morning peak hour is slightly reduced than the previously approved DA. For the evening peak hour, as the existing warehouse and proposed tyre recycling facility are similar types of development, it is anticipated that the future trips will not have any negative impact to the existing road network. Since the future trips does not deviate from the previously approved trips, SIDRA modelling is not required. It is also understood that the trucks mainly travel via arterial roads before entering and after exiting the site, and therefore, the truck movements will not have significant impact on residential streets;
- In context of parking, the assessment has been undertaken based on the requirements of the DCP, RMS Guide, first principles and similar land uses within the EPEA. The assessment shows that the parking provision of 78 car spaces is slightly lower than the DCP requirement, whilst, the provision exceeds the minimum RMS requirement, and assessments based on first principles and other similar developments. Therefore, it is more likely that the existing car parking spaces will satisfy the demand associated with the tyre recycling facility; and

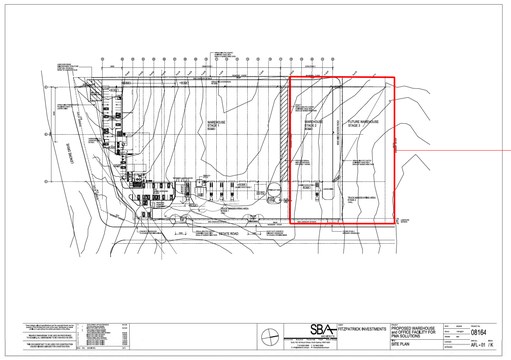
The existing access and car park were initially designed according to AS 2890.1:2004, AS 2890.2:2002 and AS 2890.6.2009 and has been approved during the previous DA. The User Class for the proposed development remains the same and no changes are proposed to the existing access and car parking arrangements. The design assessment shows that the existing car park and loading dock complies with the standards. In light of the above, the proposed development is endorsed in the context of parking and traffic.

Attachment 1 Architectural Plans

DEVELOPMENT APPLICATION

PROPOSED NEW WAREHOUSE and OFFICE FACILITY

DRAWING REGISTER:

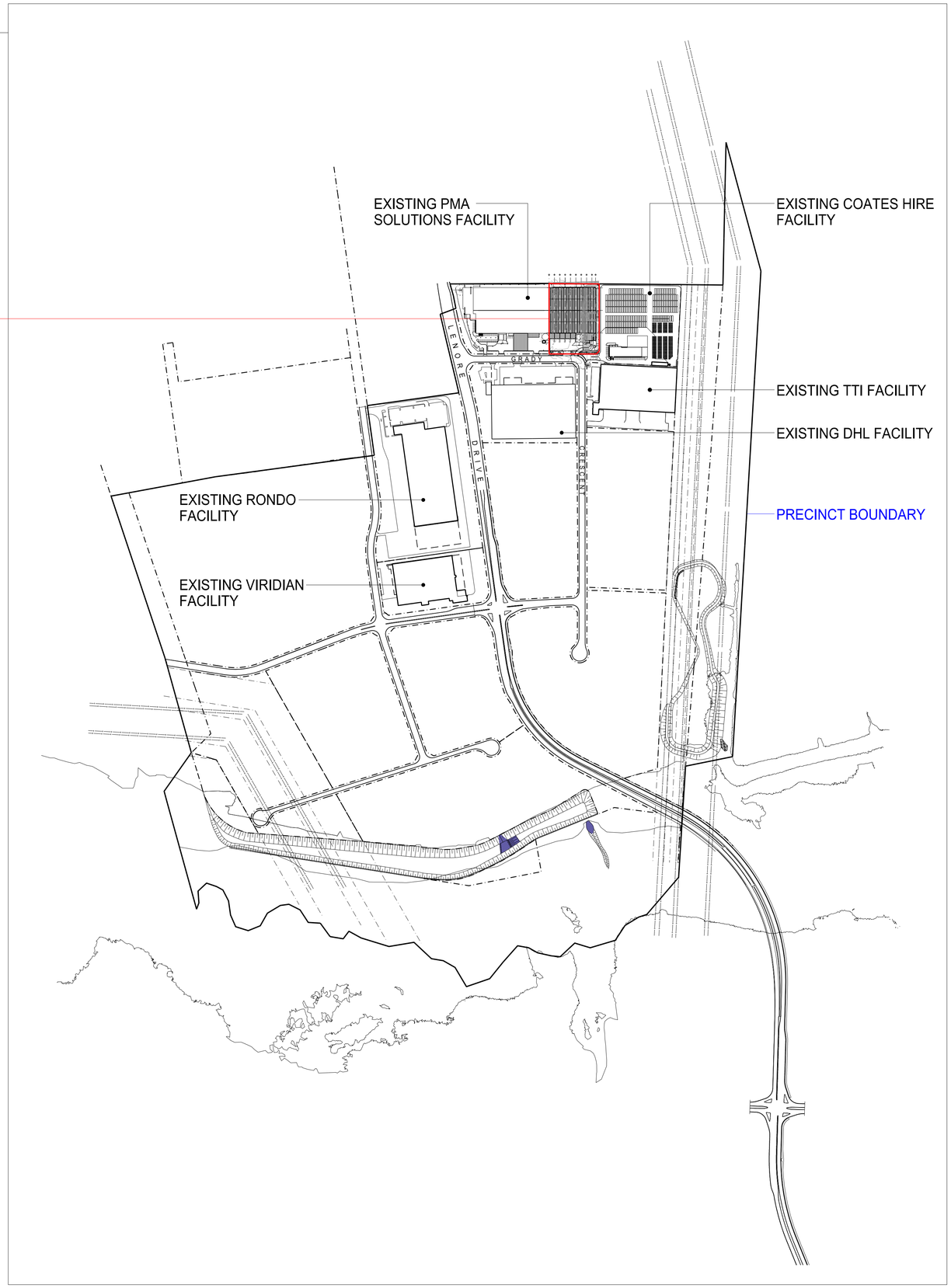


SITE LOCATION, ADJACENT TO EXISTING PMA SOLUTIONS FACILITY.

SITE LOCATED ON PREVIOUS **DA 08/1039** APPROVED STAGED DEVELOPMENT, EXTENSION TO EXISTING PMA SOLUTIONS FACILITY.

SITE FOR PROPOSED NEW WAREHOUSE and OFFICE FACILITY.

01 - ARIEL PHOTOGRAPH 1:5000



02 - LOCATION PLAN 1:5000

NORTH

ISSUE	REV.	DESCRIPTION	DATE
	G	S.96 APPLICATION	15.10.2013
	F	ISSUE FOR DEVELOPMENT APPLICATION	31.05.2013
	E	ISSUE FOR DEVELOPMENT APPLICATION	21.01.2013
	D	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
	C	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
	B	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
	A	ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Suite 702, 83 Mount Street, North Sydney NSW 2060
02 9929 9988 02 9929 8899
info@sbaarch.com.au www.sbaarch.com.au

CLIENT

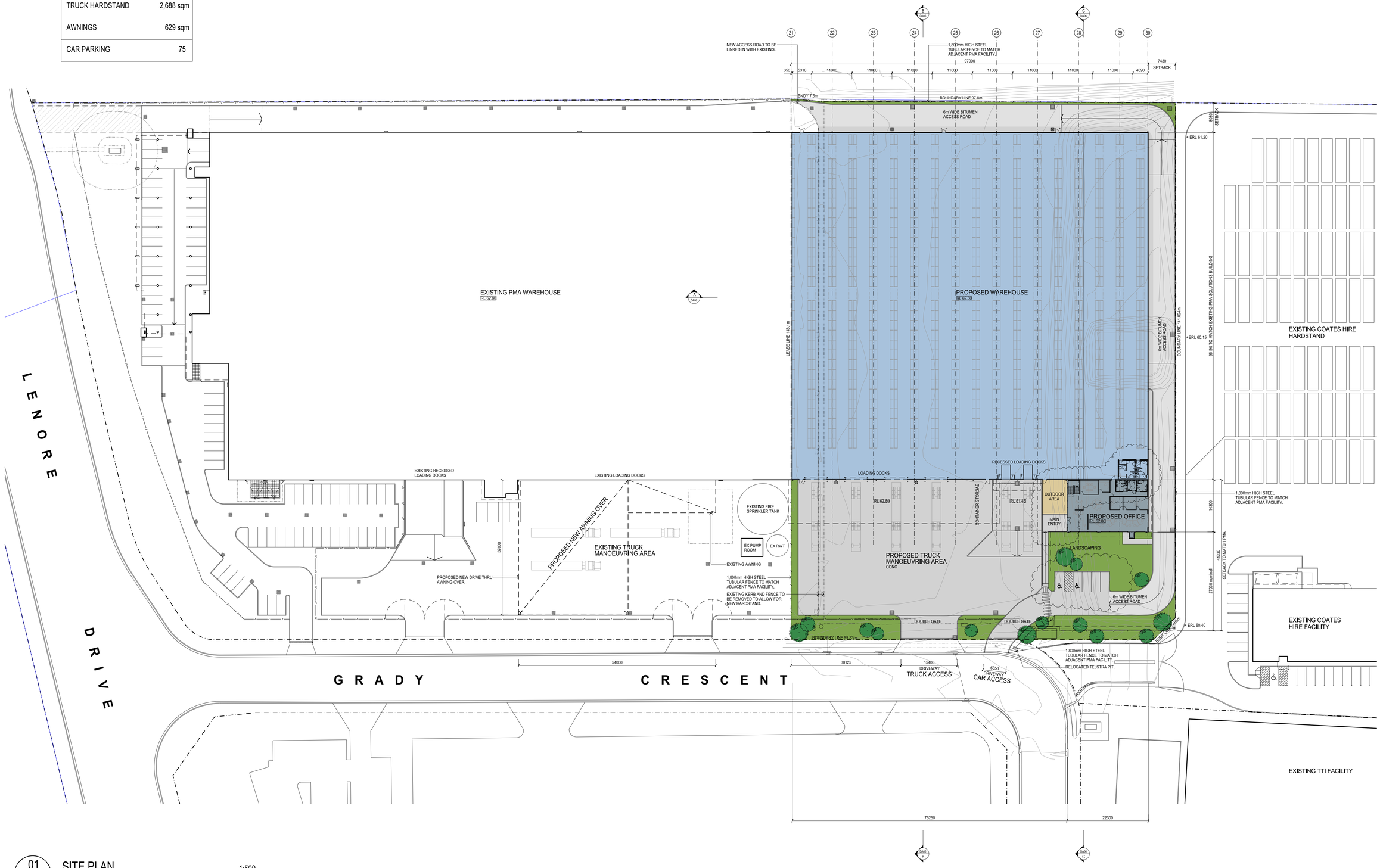
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SITE ANALYSIS PLAN

DATE	23.11.2012
SCALE	1:5000 @ A1
DRAWN	RH
CHECKED	GB
APPROVED	
PROJECT No.	12203
DWG No.	DA - 01
ISSUE	/ G

DEVELOPMENT AREA SCHEDULE	
SITE AREA	15,503 sqm
WAREHOUSE	9,300 sqm
OFFICE	320 sqm
OUTDOOR AREA & LUNCH ROOM	163 sqm
BASEMENT CAR PARK	1,893 sqm
TOTAL BUILDING AREA	**11,676 sqm**
TRUCK HARDSTAND	2,688 sqm
AWNINGS	629 sqm
CAR PARKING	75



01 - SITE PLAN 1:500

NORTH

ISSUE	REV.	DESCRIPTION	DATE
N		SJ46 APPLICATION	15.10.2013
	2	OFFICE LAYOUT REVISED	
	1	VISITOR AND ACCESSIBLE PARKING ADDED	
M		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
K		ISSUE FOR DEVELOPMENT APPLICATION	31.05.2013
	1	PMA Awning outlays as per council recommendation	
J		ISSUE FOR DEVELOPMENT APPLICATION	24.05.2013
H		ISSUE FOR DEVELOPMENT APPLICATION	21.03.2013
G		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
F		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	29.01.2013
E		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	17.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Suite 702, 83 Mount Street, North Sydney NSW 2060
02 9929 9988 02 9929 8899
info@sbaarch.com.au www.sbaarch.com.au

CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SITE PLAN

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:500 @ A1		
DRAWN	RH	DWG No.	DA - 02 / N
CHECKED	GB	ISSUE	
APPROVED			

Document Set ID: 9304844
Version: 1, Version Date: 21/09/2020

01 ROOF PLAN 1:250

-

NORTH

ISSUE	REV.	DESCRIPTION	DATE
J		S96 APPLICATION	15.10.2013
H		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
G		ISSUE FOR DEVELOPMENT APPLICATION	31.05.2013
	1	PMA fixeling outlook as per council recommendation	
F		ISSUE FOR DEVELOPMENT APPLICATION	31.03.2013
E		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	31.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

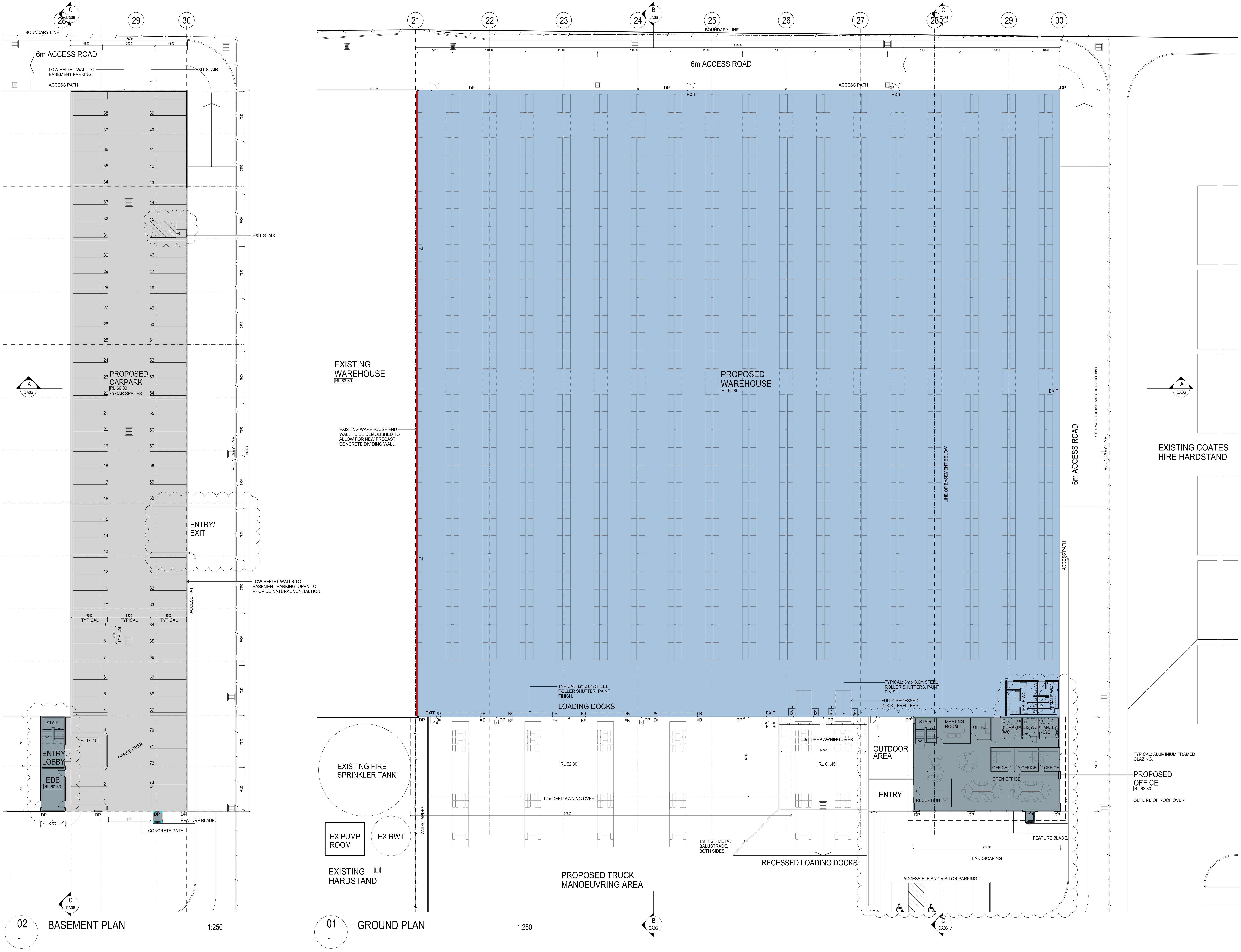
ARCHITECT
SBA ARCHITECTS
Suite 702, 83 Mount Street, North Sydney NSW 2060
02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED ROOF PLAN

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	DA - 03 / J
CHECKED	GB	ISSUE	
APPROVED			



NORTH

ISSUE	REV.	DESCRIPTION	DATE
G		S.96 APPLICATION VISITOR PARKING AND ACCESSIBLE PARKING ADDED OFFICE ENTRY REPOSITIONED, OFFICE TOILETS REPLANNED. BASEMENT RAMP DELETED	15.10.2013
F		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
E		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Suite 702, 83 Mount Street, North Sydney NSW 2060
T 02 9929 9988 F 02 9929 8899
E info@sbaarch.com.au W www.sbaarch.com.au

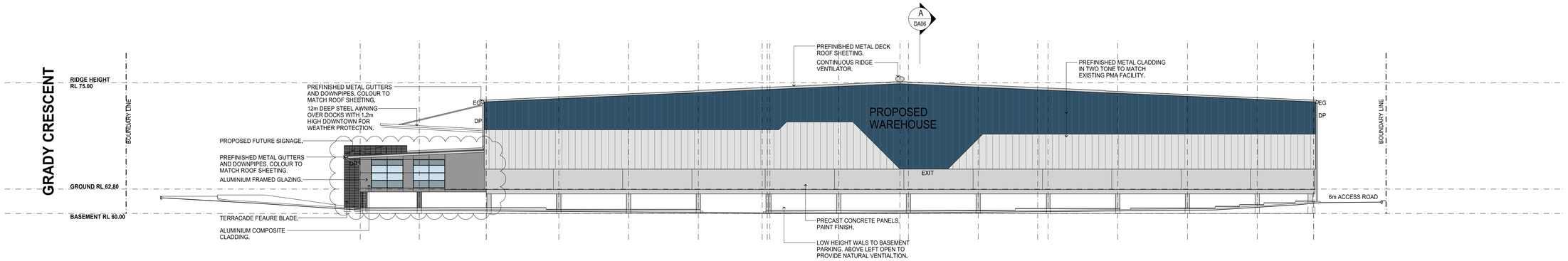
CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED BASEMENT and GROUND FLOOR PLANS

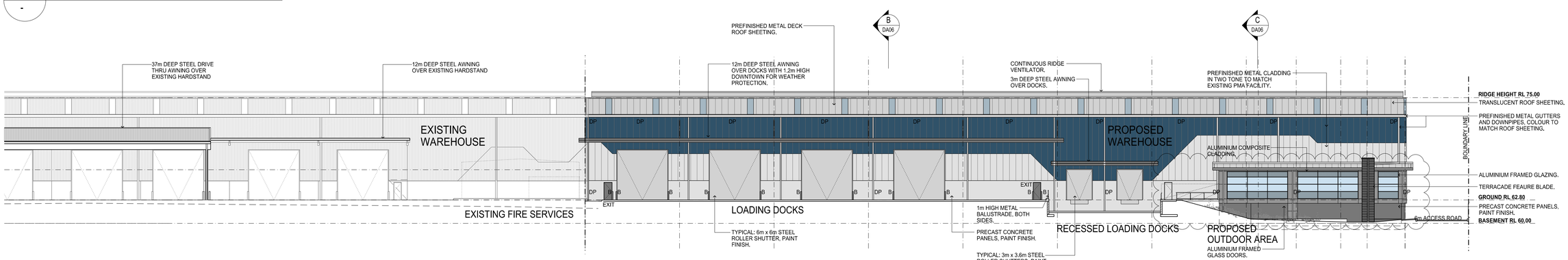
DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	ISSUE
CHECKED	GB	DA - 04	/ G
APPROVED			

Document Set ID: 9304844
Version: 1, Version Date: 21/09/2020

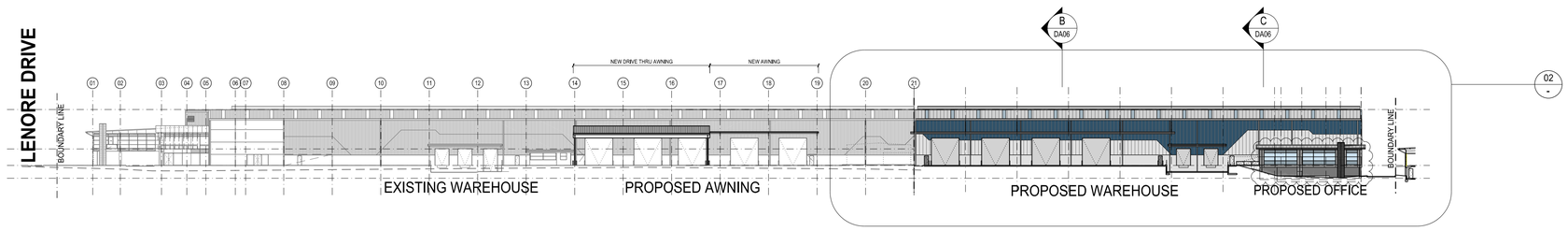


04 - NORTH ELEVATION 1:250

03 - PART WEST ELEVATION 1:250



02 - PART EAST ELEVATION 1:250



01 - OVERALL EAST ELEVATION 1:500

NORTH

ISSUE	REV.	DESCRIPTION	DATE
J		S.96 APPLICATION	15.10.2013
H		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
G		ISSUE FOR DEVELOPMENT APPLICATION	31.05.2013
	1	PMA Awning redued as per council recommendation.	
F		ISSUE FOR DEVELOPMENT APPLICATION	31.03.2013
E		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	31.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

ARCHITECT
SBA ARCHITECTS
Suite 702, 83 Mount Street, North Sydney NSW 2060
02 9929 9968 02 9929 8899
info@sbaarch.com.au www.sbaarch.com.au

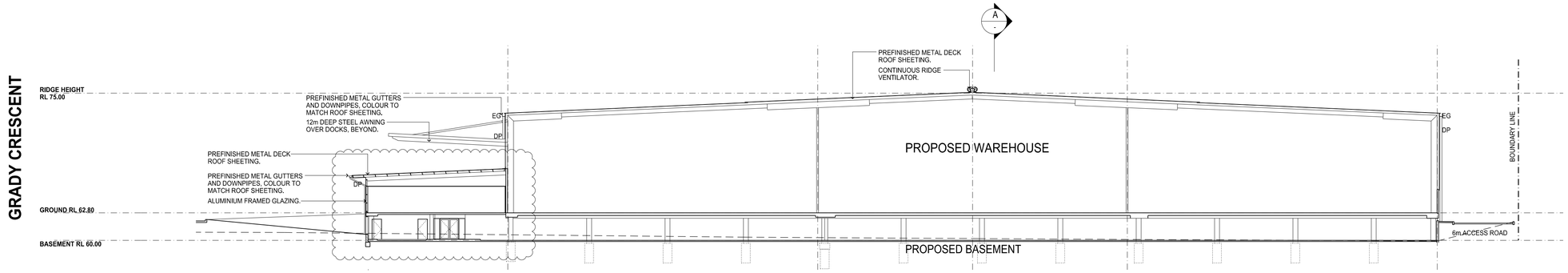
CLIENT

Fitzpatrick Investments

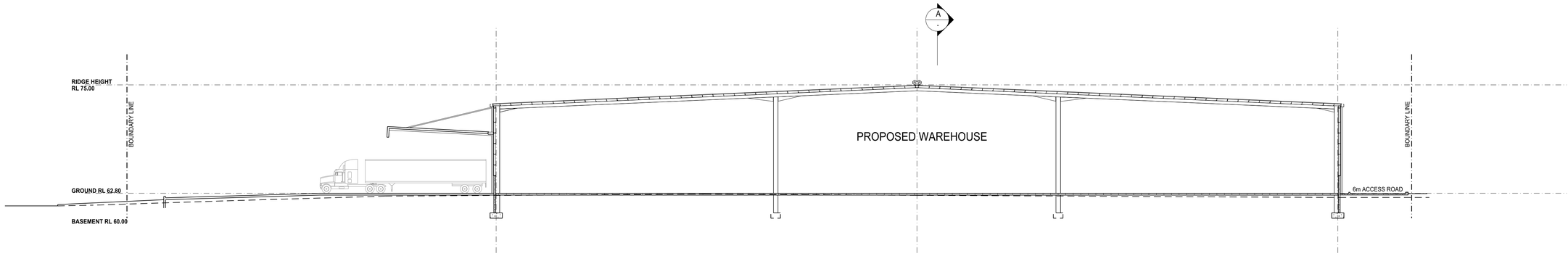
PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED ELEVATIONS

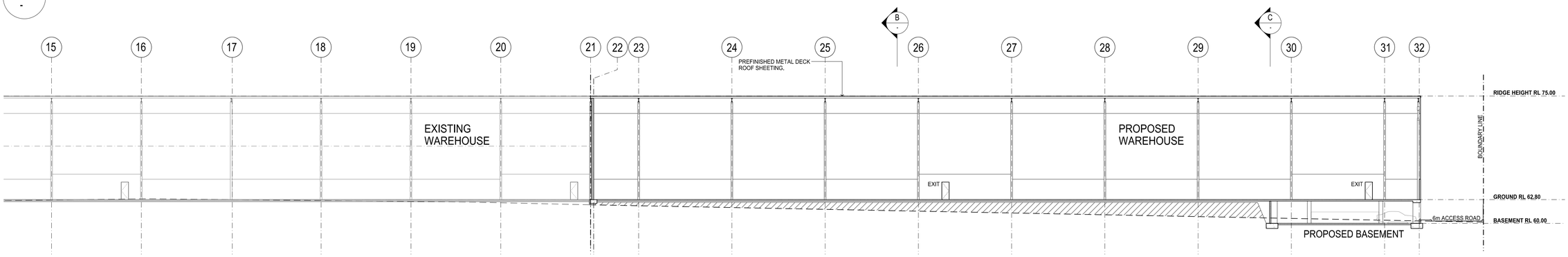
DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	DA - 05 / J
CHECKED	GB	ISSUE	
APPROVED			



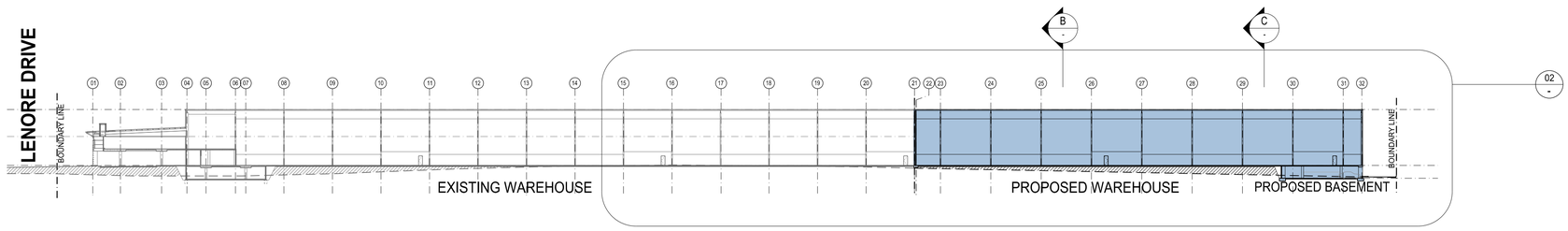
04 - SECTION C:C 1:250



03 - SECTION B:B 1:250



02 - PART SECTION A:A 1:250



01 - OVERALL SECTION A:A 1:500

NORTH

ISSUE	REV.	DESCRIPTION	DATE
F		S96 APPLICATION	15.10.2013
E		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
D		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
A		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013

ARCHITECT
SBA ARCHITECTS
Suite 702, 83 Mount Street, North Sydney NSW 2060
02 9929 9968 02 9929 8899
info@sbaarch.com.au www.sbaarch.com.au

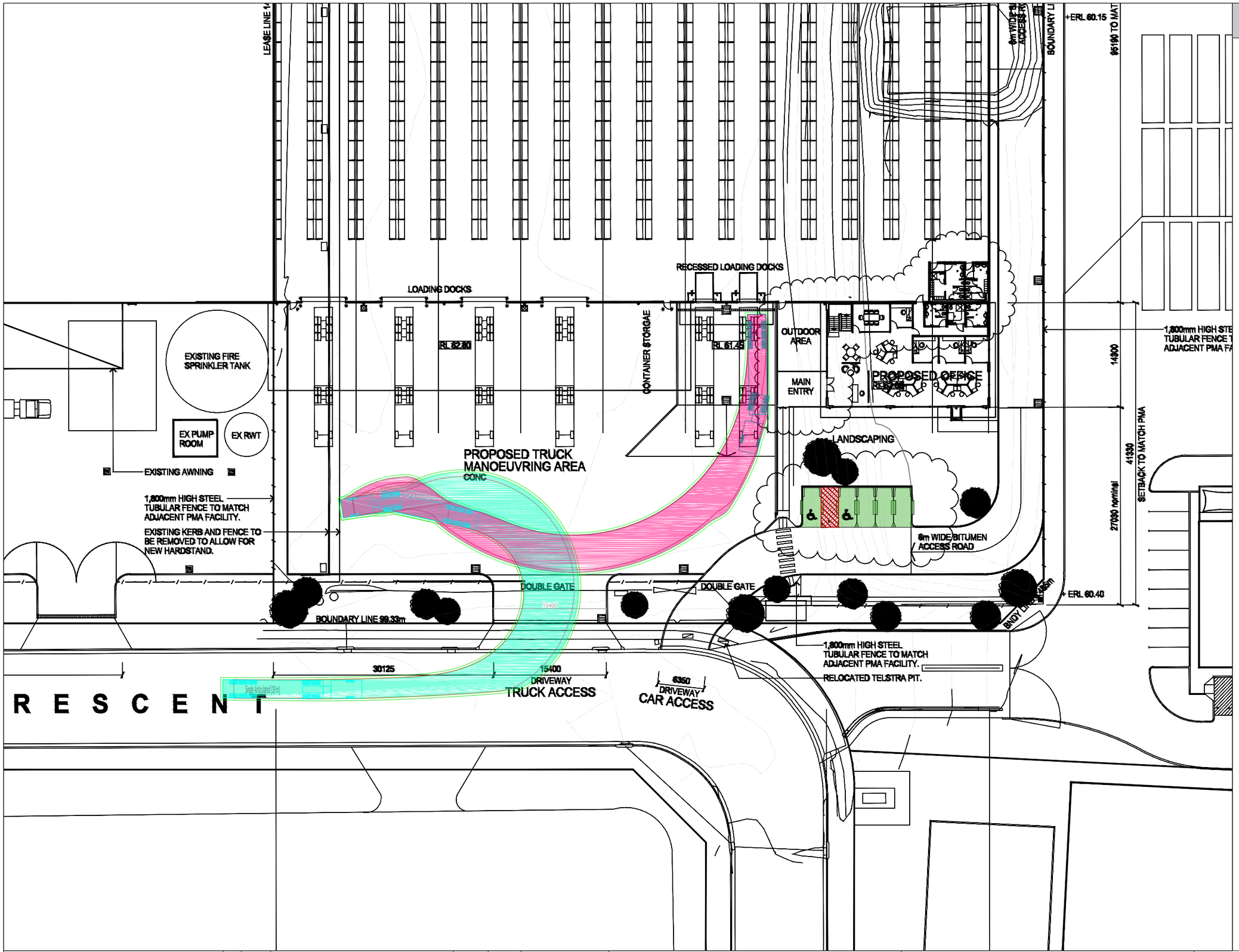
CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SECTIONS

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	DA - 06
CHECKED	GB	ISSUE	/ F
APPROVED			

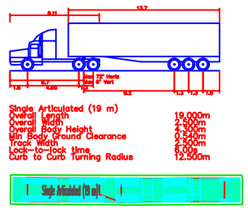
Attachment 2 Parking Assessment



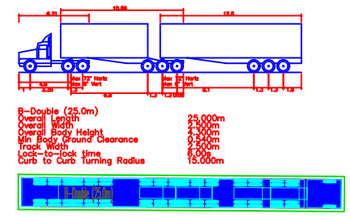
comments

A3

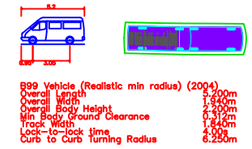
19m Articulated Vehicle



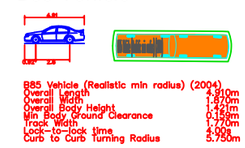
25m B-Double



B99 Vehicle



B85 Vehicle



2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

ptc.
Suite 502, 1 James Place
North Sydney NSW 2060
t +61 2 8920 0800
ptcconsultants.co

rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project: 1-21 Grady Crescent, Erskine Park

drawing title: Swept Path Analysis - 19m Articulated Vehicle

client	Element Environment Pty Ltd
drawing #	ptc-001
project #	2869
scale	1 : 500

rev 1

LEASE LINE 148.1m

EXISTING LOADING DOCKS

EXISTING FIRE SPRINKLER TANK

EX PUMP ROOM

EX RWT

EXISTING TRUCK MANOEUVRING AREA

EXISTING AWNING

1,800mm HIGH STEEL TUBULAR FENCE TO MATCH ADJACENT PMA FACILITY.

EXISTING KERB AND FENCE TO BE REMOVED TO ALLOW FOR NEW HARDSTAND.

LOADING DOCKS

RL 62.80

PROPOSED TRUCK MANOEUVRING AREA
CONC

DOUBLE GATE
15400

BOUNDARY LINE 99.33m

54000

30125

15400
DRIVEWAY
TRUCK ACCESS

C R E S C E N T

RECESSED LOADING DOCKS

CONTAINER STORAGE

RL 61.45

OUTDOOR AREA

MAIN ENTRY

PROPOSED OFFICE

LANDSCAPING

6m WIDE BITUMEN ACCESS ROAD

BOUNDARY LINE 141.094m

+ERL 60.15

95100 TO MATCH EXISTING

14800

21030 nominal

DOUBLE GATE

+ ERL 60.40

1,800mm HIGH STEEL TUBULAR FENCE TO MATCH ADJACENT PMA FACILITY.

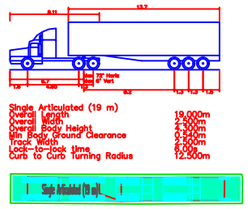
RELOCATED TELSTRA PIT.

6350
DRIVEWAY
CAR ACCESS

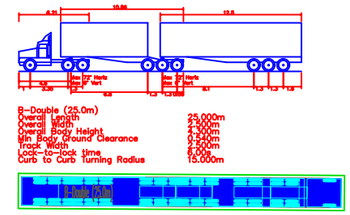
comments

A3

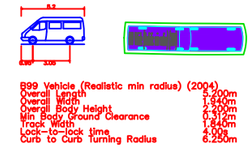
19m Articulated Vehicle



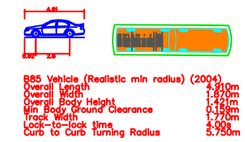
25m B-Double



B99 Vehicle



B85 Vehicle



2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

ptc.

Suite 502, 1 James Place
North Sydney NSW 2060

t +61 2 8920 0800

ptcconsultants.co

rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project
1-21 Grady Crescent, Erskine Park

drawing title
Swept Path Analysis - 25m B-Double

client	Element Environment Pty Ltd
drawing #	ptc-002
project #	2869
scale	1 : 500

rev 1

CONTAINER STORGAE

RL 61.45

OUTDOOR AREA

MAIN ENTRY

PROPOSED OFFICE

RL 62.80

LANDSCAPING

ED TRUCK
VRING AREA

6m WIDE BITUMEN
ACCESS ROAD

14300

41330

27030 nominal

DOUBLE GATE

DOUBLE GATE

15400

+ ERL 60.40

BNDY LINE 6485m

1,800mm HIGH STEEL
TUBULAR FENCE TO MATCH
ADJACENT PMA FACILITY.

RELOCATED TELSTRA PIT.

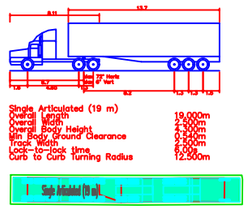
15400
DRIVEWAY
RUCK ACCESS

6350
DRIVEWAY
CAR ACCESS

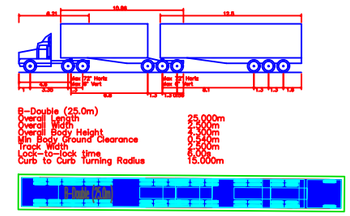
comments

A3

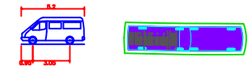
19m Articulated Vehicle



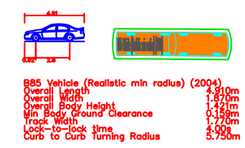
25m B-Double



B99 Vehicle



B85 Vehicle



2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

ptc.

Suite 502, 1 James Place
North Sydney NSW 2060

t +61 2 8920 0800

ptcconsultants.co

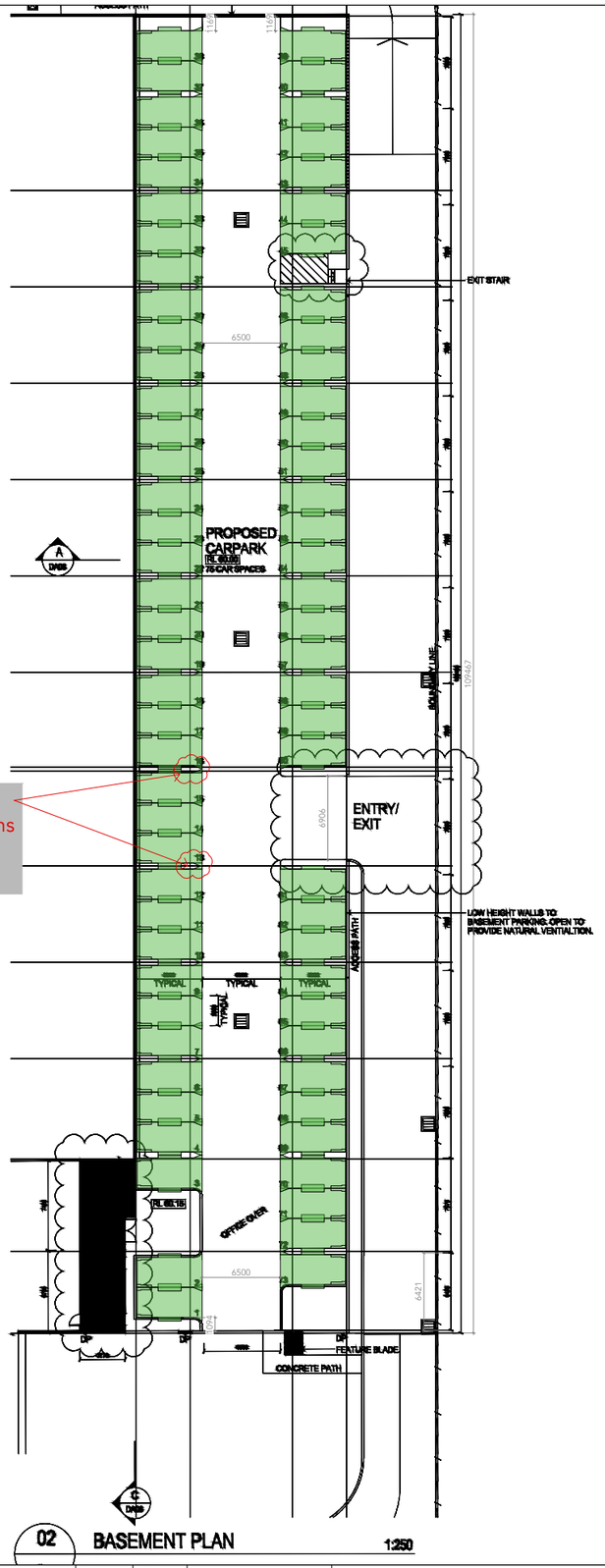
rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project
1-21 Grady Crescent, Erskine Park

drawing title
Design Review and Swept Path Analaysis - Ground Level Car Park

client	Element Environment Pty Ltd
drawing #	ptc-003
project #	2869
scale	1 : 200

rev 1



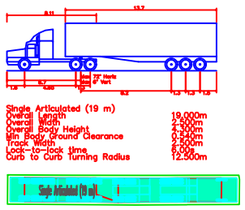
Convex Safety Mirrors are advised at the marked locations to avoid conflict between the entering and exiting vehicles

02 BASEMENT PLAN 1:250

comments

A3

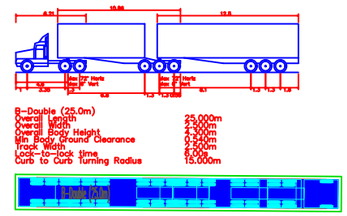
19m Articulated Vehicle



Single Articulated (19 m)

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.260m
Track Width	2.500m
Lock-to-lock time	8.00s
Curb to Curb Turning Radius	12.500m

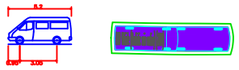
25m B-Double



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.260m
Track Width	2.500m
Lock-to-lock time	8.00s
Curb to Curb Turning Radius	15.000m

B99 Vehicle



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.400m
Min Body Ground Clearance	0.212m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

B85 Vehicle

B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.810m
Overall Width	1.870m
Overall Body Height	1.742m
Min Body Ground Clearance	0.158m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

ptc.
Suite 502, 1 James Place
North Sydney NSW 2060
t +61 2 8920 0800
ptcconsultants.co

rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project: 1-21 Grady Crescent, Erskine Park

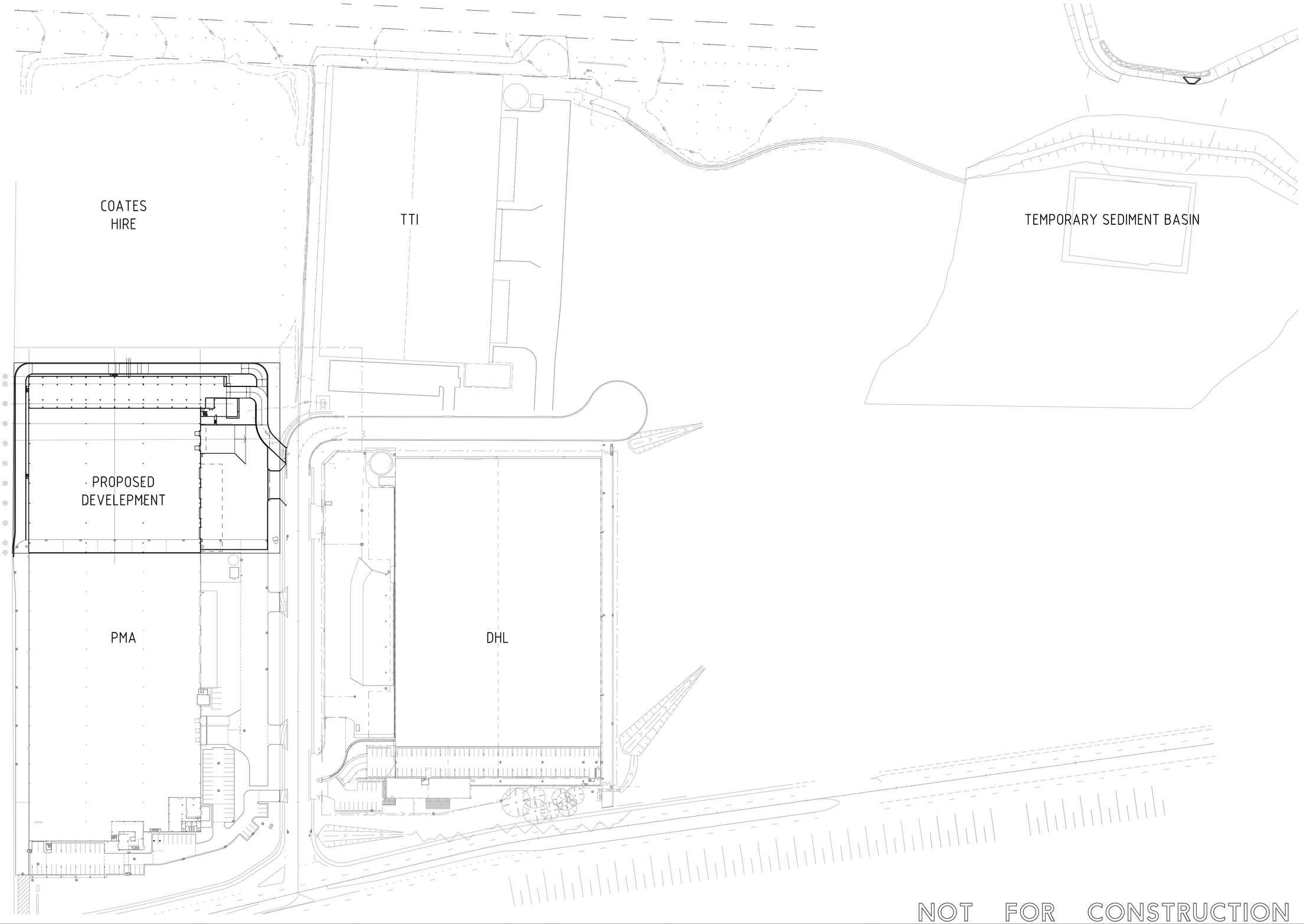
drawing title: Design Review - Basement Car Park

client	Element Environment Pty Ltd
drawing #	ptc-004
project #	2869
scale	1 : 200

rev 1

APPENDIX L

EXISTING STORMWATER MANAGEMENT PLAN (CIVIL SURVEY)



NOT FOR CONSTRUCTION

REVISION	AMENDMENT	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR DEVELOPMENT APPLICATION	S.W.	-	K.M.	08.02.13

DRAWN S.WAID
DESIGNED K.MELDRUM
S.WAID JOB MANAGER K.MELDRUM
VERIFIER -

CLIENT

FDC

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

SBA ARCHITECTS

ALL SETOUT TO ARCHITECT'S DRAWINGS, DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.

0 10 20 30 40 50m SCALE 1:1000 @ A1

0 10 20 30 40 50m SCALE 1:2000 @ A3

NORTHROP
Baulkham Hills
Suit 203, 10 Century Circuit, Baulkham Hills, NSW 2153
Ph (02) 9634 6033 Fax (02) 9634 6099
Email western@northrop.com.au ABN 81 094 433 100

PROJECT
GRADY CRESCENT
SPEC WAREHOUSE
ERSKINE PARK

DRAWING TITLE
SITE PLAN

JOB NUMBER **B120047**

DRAWING NUMBER **DA0.01**

REVISION **1**

DRAWING SHEET SIZE = A1

LEGEND

- DENOTES SEDIMENT FENCE IN ACCORDANCE WITH THE 'BLUE BOOK'
- DENOTES SEDIMENT FILTER TRAP AROUND STORMWATER DRAINAGE PIT IN ACCORDANCE WITH THE 'BLUE BOOK'
- DENOTES INSTALL SANDBAGS IN ACCORDANCE WITH THE 'BLUE BOOK'
- DENOTES CONSTRUCT SEDIMENT STABILISED SITE ACCESS IN ACCORDANCE WITH COUNCIL STANDARDS AND THE 'BLUE BOOK'. EXACT LOCATION TO BE DETERMINED ONSITE.

EXISTING SEDIMENT BASIN TO UTILISED DURING CONSTRUCTION WORKS.

"COATES HIRE" STORAGE YARD AND OFFICE

LOT 1 D.P. 1168407

LOT 2 D.P. 1152072

"PMA" CONCRETE PANEL AND TILT WAREHOUSE/ OFFICE

CONCRETE HARDSTAND

SEALED FIRE ACCESS ROAD

CHAINWIRE FENCE

CONCRETE DRIVEWAY

FOOTPATH

GRADY CRESCENT

INVERT 59.16

INVERT 58.81

INVERT 59.21

INVERT 59.16

(CAR PARK GRATE) INVERT 59.51

750 DIA

WM (TEMP) 62.06

HYD 61.54

IPI 61.56

GPT 62.28

GPT 62.30

DESIGNED K.MELDRUM \ S.WAID
DRAWN S.WAID
JOB MANAGER K.MELDRUM
VERIFIER -

NOT FOR CONSTRUCTION

REVISION	AMENDMENT	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR DEVELOPMENT APPLICATION	S.W.	-	K.M.	08.02.13

CLIENT FDC

ARCHITECT SBA ARCHITECTS

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ALL SETOUT TO ARCHITECT'S DRAWINGS, DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.

0 2.5 5.0 7.5 10.0 12.5m SCALE 1:250 @ A1

0 2.5 5.0 7.5 10.0 12.5m SCALE 1:500 @ A3

NORTHROP
Baulkham Hills
Suit 203, 10 Century Circuit, Baulkham Hills, NSW 2153
Ph (02) 9634 6033 Fax (02) 9634 6099
Email western@northrop.com.au ABN 81 094 433 100

PROJECT
GRADY CRESCENT SPEC WAREHOUSE ERSKINE PARK

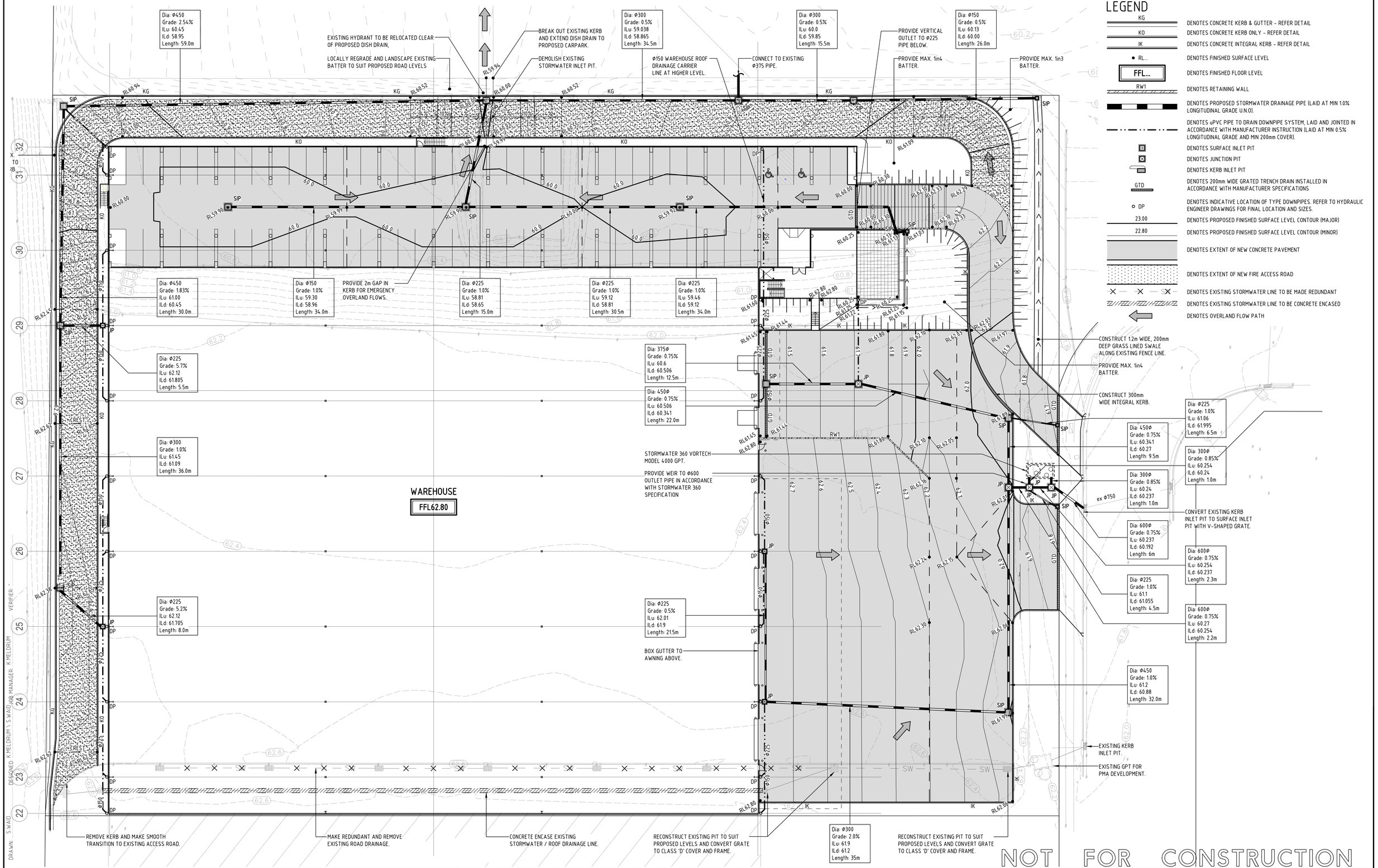
DRAWING TITLE
CONCEPT SEDIMENT & EROSION CONTROL PLAN

JOB NUMBER **B120047**

DRAWING NUMBER **DA0.02**

REVISION **1**

DRAWING SHEET SIZE = A1



REVISION	AMENDMENT	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR REVIEW	S.W.	-	K.M.	22.01.13
2	ISSUED FOR DEVELOPMENT APPLICATION	S.W.	-	K.M.	08.02.13

CLIENT

FDC

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

SBA ARCHITECTS

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.

ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.

0 2.5 5.0 7.5 10.0 12.5m SCALE 1:250 @ A1

0 2.5 5.0 7.5 10.0 12.5m SCALE 1:500 @ A3

NORTHROP
Baulkham Hills
Suite 203, 10 Century Circuit, Baulkham Hills, NSW 2153
Ph (02) 9634 6033 Fax (02) 9634 6099
Email western@northrop.com.au ABN 81 094 433 100

PROJECT

GRADY CRESCENT SPEC WAREHOUSE ERSKINE PARK

DRAWING TITLE

CONCEPT SITEWORKS & STORMWATER DRAINAGE PLAN

JOB NUMBER **B120047**

DRAWING NUMBER **DA1.01** REVISION **2**

DRAWING SHEET SIZE = A1

DESIGNED K.MELDRUM \ S.WAID JOB MANAGER K.MELDRUM VERIFIER

DRAWN S.WAID

APPENDIX M

COUNCIL'S WASTE MANAGEMENT PLAN FORM

WASTE MANAGEMENT PLAN
DEMOLITION, CONSTRUCTION AND USE OF PREMISES

If you need more space to give details, you are welcome to attach extra pages to this form.

PLEASE COMPLETE ALL PARTS OF THIS FORM THAT ARE RELEVANT TO YOUR DEVELOPMENT APPLICATION (DA).

IF YOU NEED MORE SPACE TO GIVE DETAILS, YOU ARE WELCOME TO ATTACH EXTRA PAGES TO THIS FORM.

Council will assess the information you provide on this form along with your attached plans. We will take into account the types and volumes of waste that could be produced as a result of your proposed development, and how you are planning to:

- minimise the amount of waste produced
- maximise re-use and recycling
- store, transport and dispose of waste safely and thoughtfully.

APPLICANT DETAILS

First name: Jim

Surname: Fairweather

[redacted]

DETAILS OF YOUR PROPOSED DEVELOPMENT

Street No.: 1-21

Street name: Grady Crescent

Suburb: Erskine Park

Post code: 2759

What buildings and other structures are currently on the site?

Existing warehouse building approved by Council in 2013 (DA13/0139)

Briefly describe your proposed development

The proposed project operations include the receival and storage of tyres for shredding and granulating which would all occur within the existing industrial warehouse/building. Tyrecycle estimate that the project would process up to 29,000 tpa of tyres at the site, without the need to expand or upgrade the existing warehouse building.

Applicant Signature

Date

PENRITH CITY COUNCIL

SECTION 1: DEMOLITION

*Please include details on the plans you submit with this form, for example location of on-site storage areas/ containers, vehicle access point/s.

Materials		Destination		
		Re-use and recycling		Disposal
Material	Estimated volume (m^2 or m^3)	ON-SITE* Specify proposed re-use or on-site recycling	OFF-SITE Specify contractor and recycling facility	Specify contractor and landfill site
Excavation (eg soil, rock)				
Green waste				
Bricks				
Concrete				
Timber (Please specify type/s)				
Plasterboard				
Metals (Please specify type/s)				
Other				

SECTION 2: CONSTRUCTION

*Please include details on the plans you submit with this form, for example location of on-site storage areas/ containers, vehicle access point/s.

Materials		Destination		
		Re-use and recycling		Disposal
Material	Estimated volume (m^2 or m^3)	ON-SITE* Specify proposed re-use or on-site recycling	OFF-SITE Specify contractor and recycling facility	Specify contractor and landfill site
Excavation (eg soil, rock)				
Green waste				
Bricks				
Concrete				
Timber (Please specify type/s)				
Plasterboard				
Metals (Please specify type/s)				
Other				

SECTION 3: WASTE FROM ON-GOING USE OF PREMISES

If relevant, please list the type/s of waste that may be generated by on-going use of the premises after the development is finished.	Expected volume (average per week)
Refer to section 5.4.7 (waste management plan) of the Statement of Environmental Effects (SEE).	

SECTION 4: ON-GOING MANAGEMENT OF PREMISES

If relevant, please give details of how you intend to manage waste on-site after the development is finished, for example through lease conditions for tenants or an on-site caretaker/manager. Describe any proposed on-site storage and treatment facilities. Please attach plans showing the location of waste storage and collection areas, and access routes for tenants and collection vehicles.

Refer to section 5.4.7 (waste management plan) of the SEE

APPENDIX N

EQUILIBRIUM'S RISK ASSESSMENT MATRIX

Appendix J – Risk Matrices

Likelihood matrix

(E) Very Likely	Very likely. The event is expected to occur in most circumstances as there is a history of regular occurrence
(D) Likely	There is a strong possibility the event will occur as there is a history of frequent occurrence
(C) Possible	The event might occur at some time as there is a history of casual occurrence
(B) Unlikely	Not expected, but there's a slight possibility it may occur at some time
(A) Very Unlikely	Very unlikely, but it may occur in exceptional circumstances. It could happen, but probably never will.

Consequence matrix

IMPACT	**ENVIRONMENTAL IMPACT** (ground water, waterways and water bodies, air, land)	**PEOPLE** (injury or death)	**PROPERTY**	**BUSINESS REPUTATION / STAKEHOLDER INTEREST**	**COSTS** (e.g. delays, legal, remediation)	**LEGAL & REGULATORY**
(5) Extreme	Impact extends beyond the site boundary; **and/or** long term residual impacts >5yrs	Multiple or single death	Site closure for 12 months	National Media outrage	Costs to Event of up to $5 million	Resulting in high level litigation and/or penalties
(4) Severe	Impact covers most of the site); **and/or** longer term residual impact (2-5yrs)	Serious health impacts on multiple or single persons or permanent disability.	Major damage and site closure for 3 months	National media attention	Costs to Event between $2.5 – $5 million	Resulting in low level litigation and/or penalties

IMPACT	**ENVIRONMENTAL IMPACT** (ground water, waterways and water bodies, air, land)	**PEOPLE** (injury or death)	**PROPERTY**	**BUSINESS REPUTATION / STAKEHOLDER INTEREST**	**COSTS** (e.g. delays, legal, remediation)	**LEGAL & REGULATORY**
(3) Major	Impacts are within a smaller percentage of the site; **and /or** medium term residual impact (1-2yrs)	More than 10 days rehabilitation required for injured persons	Some damage and disruption to part of the operations	Local media and community concern	Costs to Event between $200,000 and $2.5 million	Notification and minor on the spot fine by regulator
(2) Moderate	Impacts within the immediate vicinity of the impact; **and** short term residual impact <1 year	Injury to person resulting in lost time and claims	Minor damage and minimal delays to operations	Minor isolated concerns raised by stakeholders, customers	Costs to Event between $50,000 and $200,000	Notification and/or negotiations with regulator
(1) Minor	Impacts within immediate the vicinity of the impact; **and** no residual impact	Persons requiring first aid	Minor damage and no delays to operations	Minimum impact to reputation	Costs to Event up to $50,000	No impact

Issues were prioritised using the following matrix to identify whether the potential environmental risks associated with the request to increase recycling activities would be considered critical, high, medium or low prior to further assessment.

Risk matrix

		Likelihood				
		(A) Very Unlikely	(B) Unlikely	(C) Possible	(D) Likely	(E) Very Likely
Consequence	(5) Extreme	High	Critical	Critical	Critical	Critical
	(4) Severe	Medium	High	High	Critical	Critical
	(3) Major	Low	Medium	High	High	Critical
	(2) Moderate	Low	Low	Medium	High	High
	(1) Minor	Low	Low	Low	Medium	Medium

APPENDIX O

FIRE COMPLIANCE REVIEW

- Fire Sprinkler Systems
- Fire Alarm Systems
- Fire Evacuation Systems
- Fire Extinguishers
- Fire Hydrant Systems
- Fire Hose Reels

Attention: Senan Ogrady

Company: Ogtec

Email: senano@ogtec.ie

From: Clyde Radford

Date: 17/04/2019

No of Pages: 1

Re: 1-21 Grady Crescent Erskine Park Facility

Referencing AS2118, the tyre storage on the floor up to 3.7m would be covered by the existing sprinkler system as there are K17 ESFR sprinklers installed according to the sprinkler block plan.

The flow test of the system shows that the installed pumps satisfy the fire sprinkler demand of 5703 l/min @ 940 kPa. Results show 5939 l/min @ 1005 kPa is achieved.

AS2118 Table 11.7.2.6(c) allows tyre storage on the floor in portable racks at 3.8m to be covered by the roof sprinkler system if providing a density of 16 mm/min over 186 m2. This equates to approximately 3500 l/min, the existing system provides in excess of this flow.

The crumbed rubber is assumed to be synthetic material which is a category 5 commodity and can be stored in the racks up to 4.6m without in rack sprinkler protection, Table 11.6.4(M) (10.7m maximum roof/ceiling height).

If the required storage height of the crumbed rubber is 7.6m (which is the maximum height allowed) there will need to be 2 levels of in rack sprinklers installed.

We would recommend the insurance company be consulted before any final decisions are made for the tyre storage proposal.

p 1300930682

PO Box 3257
Valentine NSW
2280

Clyde Radford
Project Manager
clyde@radsing.com.au
0402033100

SYDNEY NEWCASTLE CENTRAL COAST MACKAY

elementenvironment.com.au

elementenvironment.com.au