



# Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2

**SSD 10448 and SSD 58257960**

Prepared by:

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## Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
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v 1.1	26 August 2024	Sean Wilson	Katherine Wiles	Steve Shoesmith

## Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Mirvac Industrial Developments Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.





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## 1.0 Introduction

This Construction Environmental Management Plan (CEMP) has been prepared by SLR Consulting Australia Pty Ltd (SLR) for the for Mirvac Industrial Developments Pty Ltd (Mircvac) Aspect Industrial Estate (AIE) (see Figure 1). AIE is located at 804-882 Mamre Road, Kemps Creek (Lot 301 and 305 in DP1305254 and Lot 104 and 105 in DP1305965).

A Master Construction Environmental Management Plan (CEMP) (SLR 2024) (Master CEMP) covers the estate-wide earthworks, infrastructure and services of the approved construction works (Stage 1 – BEW and Infrastructure).

This Construction Environmental Management Plan (CEMP) has been prepared to cover the construction of warehouse and distribution centre buildings proposed on AIE Warehouse 2.

### 1.1 Development Overview

AIE is a regional warehouse, distribution and industrial centre located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Mamre Road Precinct located within the Western Sydney Employment Area (WSEA). AIE Warehouse 2 (the site) has a total area of 24,295 m<sup>2</sup>.

### 1.2 SSD 10448

Mircvac obtained the State Significant Development (SSD) Consent SSD 10448 on 24 May 2022 from the Department of Planning, Industry and Housing (DPHI) for the AIE Concept Proposal and Stage 1 Development of the AIE (AIE – Stage 1) (Figure 2). SSD 10448 sets out the conditions for Warehouse 2/Lot 2 as part of the AIE. There have been five modifications (MODs) to SSD 10448 with MOD 2 the most relevant to Warehouse 2, unchanged under MOD 3. A copy of SSD 10448 is attached as Appendix A. In summary, the MODs incorporate:

- MOD 1 was determined on 25 August 2022, an administrative modification to clarify the consent by imposing requirement of a Works Authorisation Deed (WAD) for temporary construction access on Mamre Road.
- MOD 2 was determined on 30 November 2022 and made modifications to the approved Stage 1 development including amendments to layouts of Warehouses 1 and 3 and Access Road 2.
- MOD 3 was determined on 2 March 2023 for reconfiguration of the estate layout south of Access Road 1 and west of Access Road 3, resulting in a reduction of lots and new warehouse footprints with an amendment to Access Road 4.
- MOD 4 was determined on 21 December 2023 for incorporation of the Elizabeth Enterprise Precinct (EEP) site into the AIE concept proposal, and the undeveloped EEP site in the interim stormwater management approach at the AIE to meet the Wianamatta-South Creek stormwater management targets.
- MOD 5 was determined on 12 December 2023, administrative modification for the use of the temporary left-in/left-out construction access on Mamre Road by Warehouse 1 operational vehicles.
- MOD 6 was submitted in November 2023 to DPHI for approval. MOD 6 incorporates the development at Lot 8 for Warehouse 8A and 8B including concept modifications and modification to conditions of consent relating to plan references.
- MOD 7 was determined on 15 July 2024 to allow temporary use of left-in/left-out construction access on Mamre Road by Warehouses 1 and 9 operational vehicles





until the signalised Mamre Road/Access Road 1 intersection is constructed and commissioned.

### 1.3 SSD 58257960

Mirvac obtained SSD 58257960 on 5 July 2024 from DPHI for Stage 3 Development for construction and operation of Warehouse 2 (Figure 3). A copy of SSD 58257960 is attached as Appendix B.

The approved works under SSD 58257960 are as follows:

- Construction of Warehouse 2:
  - 13.7 metres (m) high.
  - 22,595 m<sup>2</sup> warehouse.
  - 1,500 m<sup>2</sup> office space, across two (2) ancillary offices.
  - 200 m<sup>2</sup> loading dock space, across two (2) dock spaces.
- Installation of warehouse racking and office fit outs.
- 138 car parking spaces (63 in the northern car park, 75 in the southern car park).
- On lot landscaping along site frontages and within car parking areas.
- Installation of on-lot infrastructure, including on-lot stormwater and waterway health measures.
- Operation of the warehouse and distribution facility for 24 hours a day, 7 days a week.

A complete list of construction activities and proposed timeframe is provided in Section 2.2 of this CEMP.



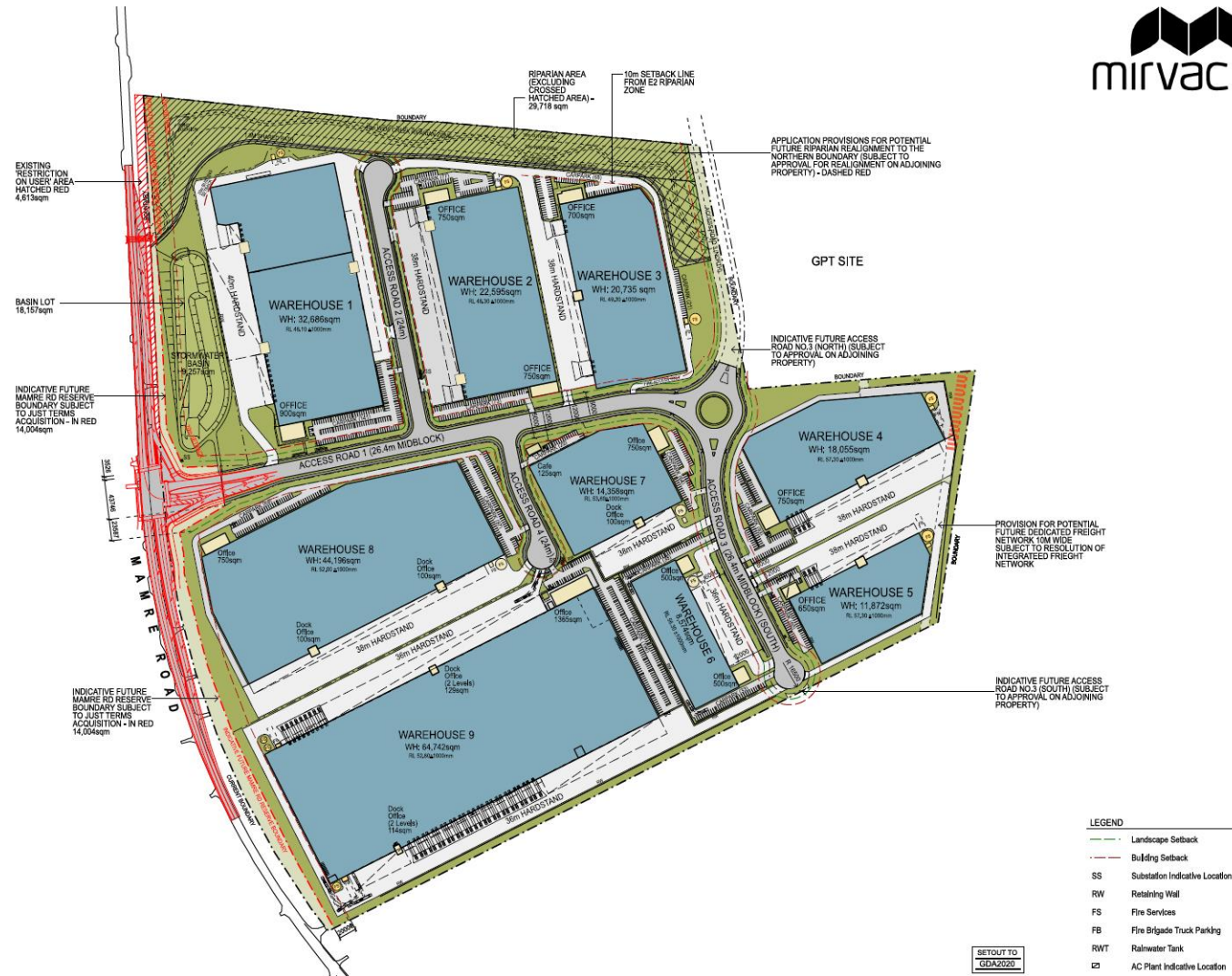


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## Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2

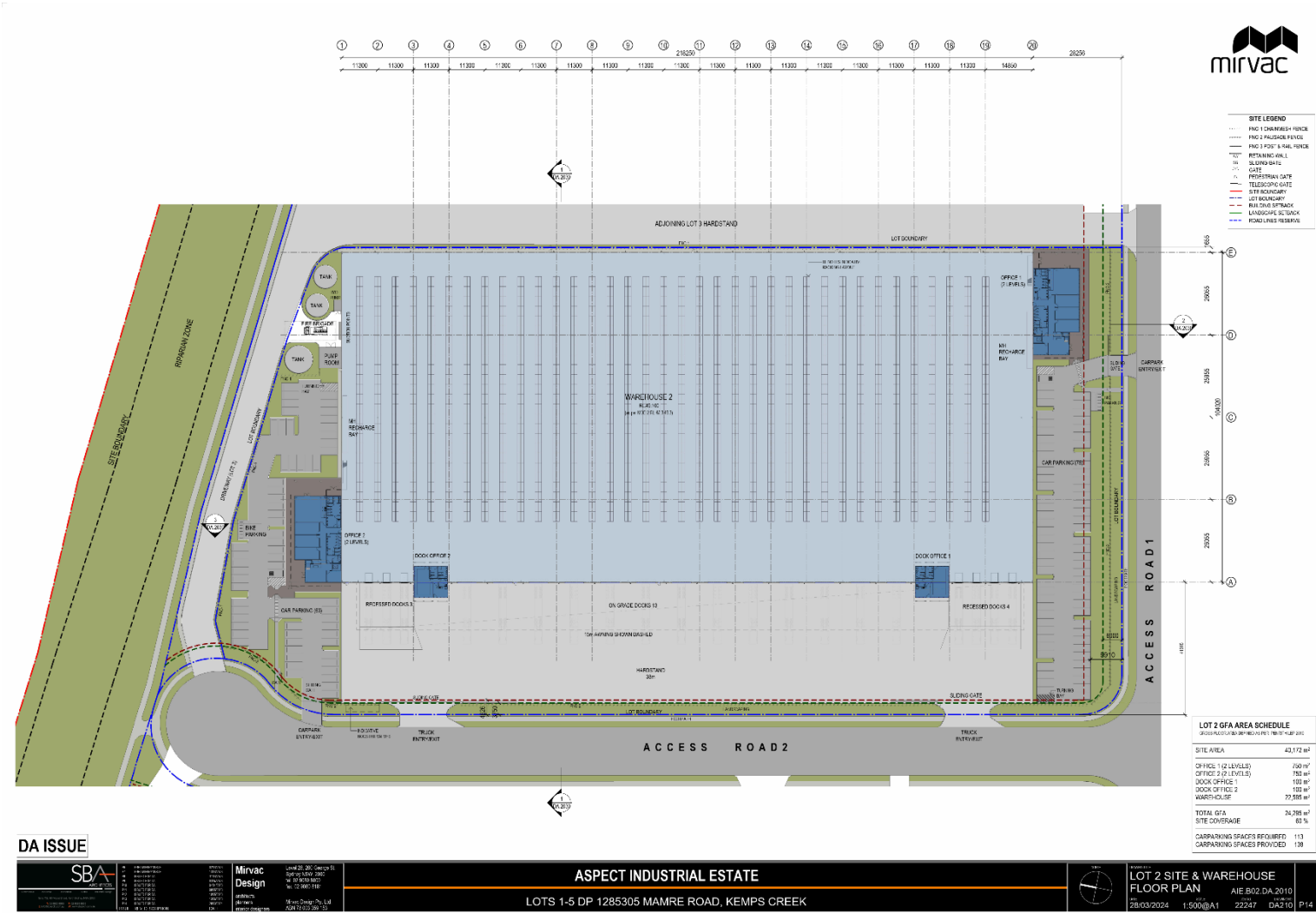
**Figure 2: Staging Plan**





Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2

Figure 3: Warehouse 2 Site and Warehouse Floor Plan





## 1.4 CEMP Context

This CEMP has been prepared to address the specific requirements of SSD 10448 and SSD 58257960 and consideration of the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources 2004).

This CEMP has been prepared to cover only Stage 3 – Building Works for Warehouse 2. This CEMP contains the following key components:

- A description of the construction activities to be undertaken on site, including construction staging and timing.
- Environmental management framework, including key contacts, roles and responsibilities, and regulatory requirements.
- Environmental management commitments and responsibilities.
- Monitoring, inspections and reporting requirements.
- Complaints management strategy.
- Environmental incident management strategy.
- Inclusion of specialist management plans and protocols, listed below:
  - Community Consultation and Complaints Handling Strategy (CCCHS).
  - Construction Noise and Vibration Management Plan (CNVMP).
  - Construction Air Quality Management Plan (CAQMP).
  - Construction Traffic Management Plan (CTMP).
  - Erosion and Sediment Control Plan (ESCP).
  - Salinity Management Plan (SMP).
  - Groundwater Management Plan (GWP).
  - Waste Management Plan (WMP).
  - Vegetation Management Plan (VMP).
  - Flora and Fauna Management Plan (FFMP).
  - Unexpected Finds Protocol – Heritage (UFP – Heritage).
  - Unexpected Finds Protocol – Contamination (UFP – Contamination).
  - Flood Emergency Response Plan (FERP).
  - ESD Report.

The CEMP and specialist management plans will be reviewed, implemented, and monitored together as an integrated suite of documents.

The CEMP has been reviewed by an independent Environmental Representative (ER) to ensure it is consistent with the requirements under the Consent for SSD10448 and SSD 58257960. The ER has made a written statement to this effect before the submission of the CEMP to the Planning Secretary.

### 1.4.1 Scope

This CEMP has been prepared to satisfy Conditions E1, E2, E3 and E4 of SSD 10448 and Conditions C2, C3 and C4 of SSD 58257960. The specific requirements of these consent conditions, along with where these requirements have been addressed within this CEMP,





are listed in Table 1. In addition to this, all conditions of consent relevant to this CEMP are attached at Appendix C, including reference to where they have been addressed.

**Table 1: CEMP Conditions Review**

SSD 10448 Consent Conditions	CEMP Section
E1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
(a) detailed baseline data;	Appended Management Plans
(b) details of:	Section 3.3 Appendix C
(i) the relevant statutory requirements (including any relevant approval, licence, or lease conditions);	
(ii) any relevant limits or performance measures and criteria; and	Appended Management Plans
(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Appended Management Plans
(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4 Appended Management Plans
(d) a program to monitor and report on the:	Section 5 Appended Management Plans
(i) impacts and environmental performance of the development; and	
(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;	
(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.2
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 6
(g) a protocol for managing and reporting any:	Section 3.5 and Section 3.6
(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	
(ii) complaint;	
(iii) failure to comply with statutory requirements; and	
(h) a protocol for periodic review of the plan.	Section 6
Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans	Noted
E2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of condition E1 and to the satisfaction of the Planning Secretary.	This Plan, refer to Condition E1.
E3. As part of the CEMP required under condition E2 of this consent, the Applicant must include the following:	
(a) Construction Traffic Management Plan (see condition D1);	Section 4.4 Appendix J
(b) Erosion and Sediment Control Plan (see condition D25);	Section 4.5 Appendix K
(c) Salinity Management Plan (see condition D33);	Section 4.5 Appendix L
(d) Construction Noise Management Plan (see condition D44);	Section 4.2





SSD 10448 Consent Conditions	CEMP Section
	Appendix H
(e) Construction Air Quality Management Plan (see condition 56);	Section 4.3 Appendix I
(f) Vegetation Management Plan (see Condition 69)	Sections 4.7 Appendix O
(g) Contamination Unexpected finds procedure (see Condition 77);	Section 4.10 Appendix R
(h) Waste Management Plan (see condition 75); and	Section 4.6 Appendix N
(i) Community Consultation and Complaints Handling.	Section 4.12 Appendix G
E4. The Applicant must:	
(a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and	This CEMP and appended management plans will be referred to the Secretary for approval
(b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	Noted
SSD 58257960 Consent Conditions	CEMP Section
C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
(a) detailed baseline data;	Appended Management Plans
(b) details of:	Section 3.3 Appendix C
(i) the relevant statutory requirements (including any relevant approval, licence, or lease conditions);	
(ii) any relevant limits or performance measures and criteria; and	Appended Management Plans
(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Appended Management Plans
(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4 Appended Management Plans
(d) a program to monitor and report on the:	Section 5 Appended Management Plans
(i) impacts and environmental performance of the development; and	
(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;	
(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.2
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 6
(g) a protocol for managing and reporting any:	Section 3.5 and Section 3.6
(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	
(ii) complaint;	





SSD 58257960 Consent Conditions	CEMP Section
(iii) failure to comply with statutory requirements; and	
(h) a protocol for periodic review of the plan. Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans	Section 6
C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	This CEMP and appended management plans will be referred to the Secretary for approval
C3. As part of the CEMP required under condition E2 of this consent, the Applicant must include the following:	
(a) Construction Traffic Management Plan (see condition B1)'	Section 4.4 Appendix J
(b) Erosion and Sediment Control Plan (see condition B17);	Section 4.5 Appendix K
(c) Construction Noise and Vibration Management Plan (see condition B31);	Section 4.2 Appendix H
(d) Construction Air Quality Management Plan (see condition B49); and	Section 4.3 Appendix I
(e) Community Consultation and Complaints Handling.	Section 4.12 Appendix G
E4. The Applicant must:	
(a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and	This CEMP and appended management plans will be referred to the Secretary for approval
(b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	Noted

It is also noted that Mirvac, the construction contractor, and any engaged subcontractors shall at all times operate in compliance with Condition C1 of SSD10448 and Condition A1 of SSD 58257960 which reads:

*In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the Stage 3 Development, and any rehabilitation required under this consent.*

### 1.4.2 Objectives

The objectives of this CEMP are to:

- Establish the framework for managing and mitigating the potential for adverse environmental impacts as a result of the construction of Stage 3 – Building Works for Warehouse 2.
- Clearly and concisely document the commitments made in the EIS, any subsequent responses, amending reports or modifications, with relevant management plans, that are required to be implemented with during construction.
- Demonstrate to DPHI how the applicant proposes to meet all its regulatory obligations including those outlined in the Conditions of Consent.
- Outline the controls to be implemented by the contractor to meet those obligations.





- Clearly and concisely document the conditions imposed by SSD 10448 and SSD 58257960 that are required to be implemented and/or complied with during the construction phase.
- Assist to establish Stage 3 – Building Works for Warehouse 2 in a manner that avoids (where possible) or minimises impact to the surrounding environment and community.

### 1.4.3 Preparation

This CEMP has been prepared by SLR. SLR provides global environmental and advisory solutions from a network of offices in Asia-Pacific, Europe, North America, and Africa. Author qualifications are listed in Table 2 below.

**Table 2: Author Qualifications**

Name, Role and Division	Qualifications	Experience
<b>Alanna Ryan</b> Principal Consultant Environmental Assessment and Management	B Env Sc Grad Cert Community Relations	Alanna is a Principal Environmental Consultant with over 15 years of experience in industry. Experience Alanna has, includes Environmental Management Systems (incorporating risk assessment/management, strategies, management plans, inspections and auditing) and statutory reporting.

### 1.4.4 Consultation

In accordance with SSD 10448 and SSD 58257960, consultation has been undertaken with the applicable stakeholders which is summarised in Table 3, and documentation attached at Appendix D.

**Table 3: Consultation**

SSD 10448 Consent Conditions	CEMP Section
<b>Staging Plan</b> A10. Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The plan shall: <ul style="list-style-type: none"> <li>a) be prepared in consultation with Council, utility and service providers and other relevant stakeholders;</li> </ul>	In accordance with Condition A1, Mirvac developed a staging Plan and has consulted with the relevant parties required under the relevant CEMP sub-management plan conditions. A copy of this consultation including any matters resolved or unresolved is attached at Appendix D.
<b>Evidence of Consultation</b> C8. Where conditions of this consent require consultation with an identified party, the Applicant must: <ul style="list-style-type: none"> <li>(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and</li> <li>(b) provide details of the consultation undertaken including: <ul style="list-style-type: none"> <li>(i) the outcome of that consultation, matters resolved and unresolved; and</li> <li>(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.</li> </ul> </li> </ul>	Consultation required under the conditions of consent will be undertaken by the Applicant or the Applicant's representative and will provide a minimum 10 business day consultation period. Details of this consultation will be provided to the Planning Secretary in accordance with Condition C8(b) prior to submitting any documentation to the Planning Secretary in accordance with Condition C8(a).





SSD 58257960 Consent Conditions	CEMP Section
<p><b>Evidence of Consultation</b></p> <p>A15. Where conditions of this consent require consultation with an identified party, the Applicant must:</p> <ol style="list-style-type: none"> <li>consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and</li> <li>provide details of the consultation undertaken including: <ol style="list-style-type: none"> <li>the outcome of that consultation, matters resolved and unresolved; and</li> <li>details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.</li> </ol> </li> </ol>	<p>Consultation required for specific management plans as required under conditions of consent are appended to the management plans.</p> <p>Consultation required under the conditions of consent will be undertaken by the Applicant or the Applicant's representative and will provide a minimum 10 business day consultation period. Details of this consultation will be provided to the Planning Secretary in accordance with this condition. Consultation as required by specific management plans is appended within each management plan.</p>
<p><b>General Requirements (Utilities, Services and Public Infrastructure)</b></p> <p>A19. Prior to the commencement of construction, the Applicant must:</p> <ol style="list-style-type: none"> <li>consult with the relevant owner and provider of services that are likely to be affected by development or that need to be installed as part of the development, to make suitable arrangements for relevant approvals, access to, diversion, protection, and support of the affected infrastructure;</li> <li>prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters, and footpaths); and</li> <li>submit a copy of the dilapidation report to the Planning Secretary and TfNSW.</li> </ol>	<ol style="list-style-type: none"> <li>The Applicant has undertaken dial before you dig investigations and detailed survey and potholing to confirm any services likely to be affected by the development. The applicant has made suitable arrangements for either access to, diversion of, protection, and support of any affected infrastructure which includes the following: <ul style="list-style-type: none"> <li>Endeavour Energy</li> <li>Telstra / NBN</li> <li>Jemena</li> <li>TfNSW</li> <li>Sydney Water</li> <li>Penrith City Council</li> </ul> </li> <li>A dilapidation report will be prepared in accordance with this condition.</li> <li>A copy of the dilapidation report will be submitted to the Planning Secretary and TfNSW in accordance with this condition.</li> </ol>
<p><b>Sydney Water</b></p> <p>A21. Prior to the commencement of construction of the development, the Applicant must obtain a Building Plan Approval from Sydney Water to determine if sewer, water or stormwater mains or easements will be affected by the development.</p>	<p>The Applicant will provide evidence to the Certifier in accordance with Condition A21.</p>
<p><b>Fibre-Ready Facilities</b></p> <p>A23. Prior to the issue of a Subdivision or Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for:</p> <ol style="list-style-type: none"> <li>the installation of fibre-ready facilities to all individual lots and/or premises in a real estate development project to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and</li> <li>the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier.</li> </ol>	<p>The Applicant will provide evidence to the Certifier in accordance with Condition A23.</p>





SSD 58257960 Consent Conditions	CEMP Section
<b>External Walls and Claddings</b> A27. Prior to the issue of: (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and (b) an Occupation Certificate, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.	The Applicant will provide documented evidence to the Certifier and Planning Secretary in accordance with Conditions A27 and A 28.
A 28. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.	The Applicant will provide documented evidence to the Certifier and Planning Secretary in accordance with Conditions A27 and A 28.
<b>Environmental Representative</b> A34. The Applicant must engage an Environmental Representative (ER) to oversee construction of the Stage 3 Development. Unless otherwise agreed to by the Planning Secretary, construction of the Stage development must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant. ...	This CEMP will be reviewed by the ER and a written statement will be provided to the Planning Secretary in accordance with Condition 34. ER will attend the Mamre Road Precinct Working Group (see Condition A37), as scheduled
<b>Mamre Road Precinct Working Group</b> A37. Within three months of the commencement of construction of the Stage 1 Development and until all components of the Stage 1 development are constructed and operational, the Applicant must establish and participate in a working group with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. ...	A Mamre Road Precinct Working Group has been established to coordinate works throughout the Mamre Road Precinct.
A38. Three (3) months prior to completion of construction of all components of the development, the Applicant is eligible to exit the working group required under condition A36. The Applicant must: a) consult with the Planning Secretary; b) provide confirmation that all components of the development are operational; and c) advise on the date of the proposed exit.	An application to exist the working group under condition A36 will be made three months prior to the completion of all components of the development to leave the Mamre Road Precinct Working Group.
<b>Imported Soil</b> B17. The Applicant must: (a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site; (b) keep accurate records of the volume and type of fill to be used; and (c) make these records available to the Planning Secretary upon request.	ENM/VENM can be used on site. Any additional materials will be approved in writing from the EPA before being brought onto site





## 2.0 Development Description

### 2.1 Location

AIE is located at 804-882 Mamre Road, Kemps Creek, and is legally described as Lot 301 and 305 in DP1305254 and Lot 104 and 105 in DP1305965 in the Mamre Road Precinct within the broader WSEA, which falls within the Penrith LGA. AIE is located approximately 6.5 kilometres (km) north-east of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13.5km south-east of the Penrith Central Business District (CBD) and 40km west of the Sydney CBD.

The AIE has an area of approximately 56.3 hectares (ha) and is in the process of being created in accordance with the Concept Proposal and Stage 1 Development SSD-10448. The site is bound by rural land uses. The site is bound by Mamre Road to the west and agricultural uses to the north, south and east. The historic land uses on the site include rural residential, grazing, dairy farming, poultry farming and horticulture. This land has been rezoned to facilitate future employment with the Mamre Road Precinct. Lot 2 is located in the northern side of the AIE, situated between Lot 1 (north-western corner) and Lot 3 (north-eastern corner).

### 2.2 Construction Staging and Activities

This CEMP relates to Stage 3 as shown in Figure 2. The project phases are shown in Table 4 below. Stage 3 is forecast to commence in September 2024 and forecast to conclude in June 2025.

**Table 4: Project Stages**

Project Phase	Proposed Construction Activities	Forecast Commencement	Forecast Duration	Forecast Completion
Building Works	Construction and fitout of new warehouse	September 2024	10 Months	June 2025

Warehouse 2 construction is scheduled to be completed within approximately 10 months from commencement.

Works undertaken on Warehouse 2 will include the construction of warehouse and associated hardstands, 2 double level office spaces and 2 dock offices of total GFA 24,295 sqm.

The key construction activities involved are as follows:

- 1 Earthworks including cut to fill:
  - a) Delivery of DGB20 via truck and dogs.
  - b) Installation equipment: grader, dump truck, 30t excavators.
  - c) Timeframe: 4 weeks from commencement.
- 2 Footings including detailed excavation, concrete pour and HD bolt installation:
  - a) Delivery of material via semi-trailers and concrete agi.
  - b) Installation equipment: 5t excavator, tip truck.
  - c) Timeframe: 2-3 weeks from commencement.
- 3 Structural steel:
  - a) Delivery via semi-trailers.





- b) Installation equipment: 40t crane, boom lifts.
  - c) Timeframe: 5 weeks from commencement.
- 4 Precast panels:
  - a) Delivery via semi-trailers.
  - b) Installation equipment: 20t franna, boom lifts.
  - c) Timeframe: 1-2 weeks from commencement.
- 5 Roofing and wall cladding:
  - a) Delivery via semi-trailers.
  - b) Installation equipment: 40T crane, boom lifts, scissor lifts.
  - c) Timeframe: 3-4 weeks from commencement.
- 6 Concrete place:
  - a) Delivery via concrete agi trucks.
  - b) Installation equipment: somero, bobcat, ride-on and walk behind finishing machines.
  - c) Timeframe:
    - i. Internal: 4 weeks from commencement.
    - ii. External: 3-4 weeks from commencement.
- 7 Asphalt place:
  - a) Delivery via agi.
  - b) Installation equipment: asphalt machine.
  - c) Timeframe: 1 week from commencement.
- 8 Landscaping:
  - a) Delivery via truck and dogs.
  - b) Installation equipment: backhoe.
  - c) Timeframe: 3-4 weeks from commencement.
- 9 Office fit out:
  - a) Delivery via trucks.
  - b) Installation equipment: boom lifts, scissor lifts.
  - c) Timeframe: 6-8 weeks from commencement.

## 2.3 Construction Hours

Construction hours will be in accordance with SSD 10448 and SSD 58257960, outlined in Table 5.

**Table 5: Hours of Work**

Activity	Day	Time
Earthworks and construction	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm





The construction hours will be provided to all staff and contractors in the induction (see Section 3.4.1). The movements of staff and contractors will be recorded for this project (see Section 5.1).

Changes to construction hours will be agreed in writing with Planning Secretary as required by Conditions B28 and B29 of SSD 58257960 where (a) the works are inaudible at the nearest sensitive receptor, (b) delivery of materials required outside the hours by the NSW Police Force or other authorities for safety reasons and (c) in an emergency to avoid the loss of lives, property or to prevent environmental harm.

## **2.4 Construction Site Access**

Access to AIE will be via the existing temporary Mamre Road Left In Left Out (LILO) access road in the south-west corner of the site until the signalised intersection for Access Road 1 and Mamre Road is constructed and operational.

The temporary LILO access road is approved under the TfNSW Work Authorisation Deed (WAD) (TfNSW reference: WAD DS2022 / 000659).

At no time will construction vehicles be permitted to use Bakers Lane, Aldington Road or Abbots Road when travelling to or from the construction site. This includes site personnel/contractors travelling by light vehicle.

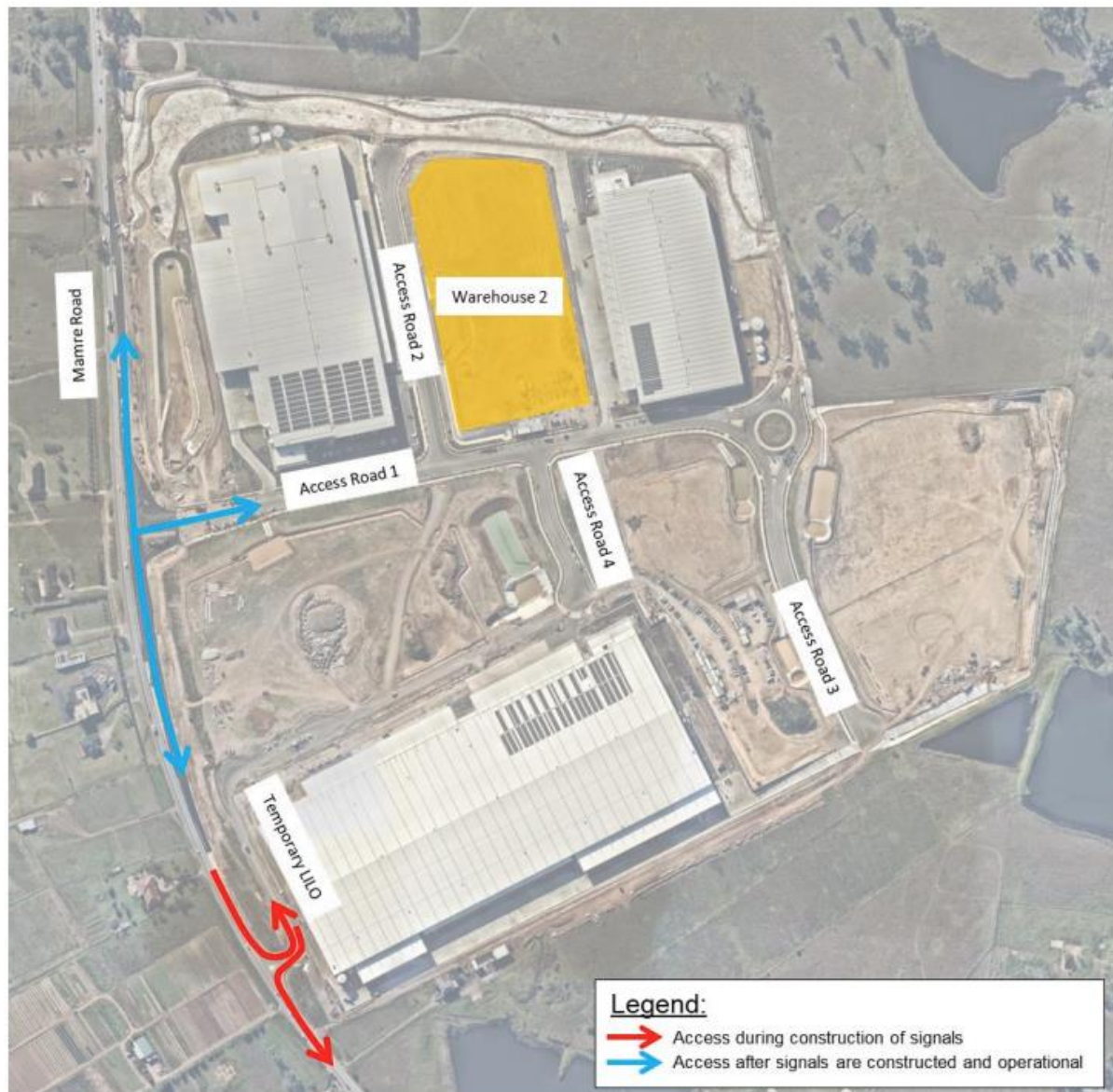
Figure 4 details the layout of the approved access and site entry movement

Emergency vehicle access shall be maintained at all times with a dedicated emergency vehicle parking space identified and unoccupied (unless by an emergency vehicle).





**Figure 4: Site Entry Movements**



## 2.5 Construction Contact Details

Table 6 lists the key contacts during the construction of Stage 3 – Building Works for Warehouse 2.

**Table 6: Construction Contact List**

Role	Name	Company	Contact Details
Project Principal	Meg Horan	Mirvac	0421 843 033 meg.horan@mirvac.com
Contractor's Project Manager	Anne-Kristin Kahra	Texco	0410 986 717 akahra@texco.net.au
Contractor's Environmental Advisor	Andrew Littlewood	Rubicon Enviro Pty Ltd	0429 953 626 andrew@rubiconenviro.com.au





Role	Name	Company	Contact Details
Contractor Work Health and Safety (WHS) Coordinator	Luke Townsend	Texco	0407 469 217 ltownsend@texco.net.au
Project Environmental Representative	Maurice Pignatelli	OptimE Pty Ltd	0407 493 176 maurice@optimenv.com.au
Alternate Project Environmental Representative	Ben Bracken	BBEnviro	0410 409 897 ben.bracken@bbenviro.com.au
Principal's Environmental Consultant (PEC)	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au
Communications and Community Liaison Representative	Alanna Ryan	SLR Consulting	02 4037 3258 aryan@slrconsulting.com





## 3.0 Environmental Management Framework

### 3.1 Environmental Management Framework

Texco (TC), and all sub-contractors engaged by TC, will implement their Environmental Policy throughout the duration of construction. A copy of the Environmental Policy is attached as Appendix E.

### 3.2 Roles and Responsibilities

The Construction Contractor for Stage 3 – Building Works for Warehouse 2 is TC, and all sub-contractors engaged by TC.

The Construction Contractor will review, implement, and monitor this CEMP and specialist management plans together as an integrated suite of documents.

The key personnel responsible for environmental management during construction of Stage 3 – Building Works for Warehouse 2 are listed in Table 7.

**Table 7: Personnel Responsible for Environmental Management**

Role	Responsibilities
Project Principal	<ul style="list-style-type: none"> <li>Environmental reporting responsibility associated with development.</li> <li>Overall responsibility for environmental management and compliance with SSD 10448, SSD 58257960 and relevant legislation.</li> <li>Liaise with the Proponent to keep them informed of the project's progress.</li> <li>Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions.</li> <li>Consult and engage with any subcontractors or interfacing contractors regarding the environmental management of the Site.</li> <li>Attend the Environmental Review Group (ERG) meetings</li> <li>Provide adequate environmental inductions/training to employees and contractors regarding their requirements under this CEMP.</li> <li>Provide Project Environmental Representative (ER) with all documentation requested by the ER in order for the ER to perform their functions specified below and a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).</li> <li>Attend the Mamre Road Precinct Working Group in a representative role in relation to the development.</li> </ul>
Contractor's Project Manager	<ul style="list-style-type: none"> <li>All the responsibilities attributed to the Construction Contractor throughout this CEMP.</li> <li>Environmental reporting responsibility associated with development.</li> <li>ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an incident and/or non-compliance.</li> </ul>
Contractor's Environmental Advisor	<ul style="list-style-type: none"> <li>Assist the contractor to execute the responsibilities attributed to the Construction Contractor throughout this CEMP.</li> <li>Provide guidance and assistance to the Contractor regarding the environmental reporting responsibilities associated with the development.</li> <li>Guide the contractor to ensure that the appropriate management response and handling procedures are instigated and carried through in the event of an incident and/or non-compliance.</li> </ul>
Project Environmental Representative	<ul style="list-style-type: none"> <li>Be a suitably qualified and experienced person who was not involved in the preparation of the EIS and subsequent reports, and any additional</li> </ul>





Role	Responsibilities
	<p>information for the development and is independent from the design and construction personnel for the development.</p> <ul style="list-style-type: none"> <li>• Receive and respond to communication from the Planning Secretary in relation to the environmental performance of the development.</li> <li>• Consider and inform the Planning Secretary on matters specified in the terms of this consent.</li> <li>• Consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community.</li> <li>• Review the CEMP required in Condition C2 of SSD 58257960 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent and if so: <ul style="list-style-type: none"> <li>○ make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary) or</li> <li>○ make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department).</li> </ul> </li> <li>• Regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent.</li> <li>• As may be requested by the Planning Secretary, help plan, attend, or undertake audits of the development commissioned by DPHI including scoping audits, programming audits, briefings, and site visits as required in Condition A35 of SSD 58257960.</li> <li>• As may be requested by the Planning Secretary, assist DPHI in the resolution of community complaints.</li> <li>• Provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the Mamre Road Precinct in relation to construction traffic management, earthworks and sediment control and noise.</li> <li>• Prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Quarterly Report providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Quarterly Reports'. The Environmental Representative Quarterly Report must be submitted within seven calendar days following the end of each quarter for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.</li> <li>• Attend the Mamre Road Precinct Working Group in a consultative role in relation to the environmental performance of the development.</li> </ul>
Contractor's WHS Coordinator	<ul style="list-style-type: none"> <li>• Ensure the legislative and corporate safety, health and environment management measures and controls are implemented and maintained.</li> <li>• Participate in risk and hazard identification and control.</li> <li>• Participate in incident investigations and management.</li> <li>• Participate in health and safety inspections.</li> </ul>
Principal's Environmental Consultant (PEC)	<ul style="list-style-type: none"> <li>• Provide the Principal advice and guidance relating to Environmental reporting responsibilities associated with the development.</li> <li>• Provide the Principal advice and guidance relating to environmental management and compliance with SSD 10448, SSD 58257960 and relevant legislation.</li> <li>• Assist the Principal in providing the Project ER with all documentation requested by the ER in order for the ER to perform their functions.</li> </ul>





Role	Responsibilities
	<ul style="list-style-type: none"> <li>• Provide guidance for the reporting, notification, investigation and response to any environmental incidents and, where necessary, develop and implement corrective actions.</li> <li>• Providing advice to the Principal in relation to any subcontractors or interfacing contractors regarding the environmental management of the Site.</li> </ul>
Communications and Community Liaison Representative	<ul style="list-style-type: none"> <li>• Lead and manage the community involvement activities, including liaison with property owners and key stakeholders.</li> <li>• Be the primary daily contact to the public handling of enquiries / complaints management / interface issues.</li> <li>• Maintain the complaints register and make available the complaints register to the ER on a daily basis.</li> <li>• Be available for contact by local residents and the community at all reasonable times to answer any questions.</li> <li>• Liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the upgrade works.</li> <li>• Lead the delivery of communication and community engagement strategies and plans.</li> <li>• Facilitate meetings, forums and arranging interviews to address concerns from community.</li> <li>• Provide advice and participate with the project teams to improve and enhance the delivery of communication services to the community.</li> <li>• Build, maintain collaborative and consultative working relationships with internal and external stakeholders; and</li> <li>• Be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback.</li> </ul>
All employees, contractors, and subcontractors	<ul style="list-style-type: none"> <li>• Ensure familiarity, implementation and compliance with this CEMP and appended management plans.</li> <li>• Support the Proponent's commitment to sustainability, environmental management, and compliance.</li> <li>• Work in a manner that will not harm the environment or impact on surrounding receptors.</li> <li>• Report all environmental incidents, non-compliances and complaints to the Project Manager without delay.</li> <li>• Immediately notify the Contractor's Project Manager of any hazard or potential hazard that may result in an incident and/or non-compliance, regardless of the nature or scale.</li> <li>• Take immediate action (where it is safe to do so) to prevent, stop, contain and/or minimise any adverse impact associated with an incident and/or non-compliance.</li> <li>• Report any inappropriate construction practices and/or environmental management practices to the Project Manager without delay.</li> </ul>

### 3.3 Statutory Requirements

#### 3.3.1 SSD 10448 and SSD 58257960.

##### Compliance with approval requirements

The Development will be constructed in accordance with Condition C2 of SSD 10448 and Condition A2 of SSD 58257960:

SSD 10448 Condition C2. The Development will be carried out:

- a) in compliance with the conditions of the Development Consent.





- b) in accordance with all written directions of the Planning Secretary;
- c) in accordance with the EIS, the Response to Submissions and Additional Development Report;
- d) in accordance with the Modification Assessments;
- e) in accordance with the Development Layout attached to the Development Consent at Appendix 2; and
- f) in accordance with the management and mitigation measures attached to the Development Consent at Appendix 4.

SSD 58257960 Condition A2. The Development will be carried out:

- a) in compliance with the conditions of this consent;
- b) in accordance with all written directions of the Planning Secretary;
- c) in accordance with the EIS and RTS;
- d) in accordance with the Development Layout in Appendix 1; and
- e) in accordance with the management and mitigation measures in Appendix 2.

#### **Directions of the Planning Secretary**

SSD 10448 Condition C3: In accordance with Condition C3 of SSD 10448 and Condition C3 of SSD 58257960, consistent with the requirements of the Development Consent, the Planning Secretary may make written directions to Mirvac in relation to:

- a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and
- b) the implementation of any actions or measures contained in any such document referred to in condition C2(a) of the Development Consent.

SSD 58257960 Condition A3: Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:

- a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and
- b) the implementation of any actions or measures contained in any such document referred to in condition A3(a).

#### **In event of inconsistency or ambiguity, the most recent document prevails**

In accordance with Condition C4 of SSD 10448, the conditions of the Development consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition C2(c) or C2(f). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition C2(c) or C2(f), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict. The Project Manager will be notified if any inconsistencies are identified.

In accordance with Condition A4 of SSD 58257960, the conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or A2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c)





or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

### Development Consent, Management and Mitigation Measures

SSD 10448 and SSD 58257960 impose a number of environmental performance and management requirements applicable to the construction of Stage 3 – Building Works for Warehouse 2. A copy of the Consent for SSD 10448 is attached at Appendix A, Consent for SSD 58257960 is attached at Appendix B and all conditions of consent relevant to this CEMP are attached at Appendix C.

### 3.3.2 Other Licences, Permits, Approvals and Consents

Table 8 summarises the additional licences, permits, approvals and consents required throughout these works. This information has been summarised from the SSD 10448 and SSD 58257960 Consent Conditions, the EIS's and Statements of Commitments from Mirvac in the EIS. It is the Construction Contractor's responsibility to ensure that any license, permit, approvals listed in (but not limited to) Table 8, has been obtained in the required timeframe.

A current list of licences, permits, approvals and consents, and their status, including any new additions as the project progresses, will be included in the Construction Contractor's monthly report to Mirvac.

It is noted that an Environment Protection Licence (EPL) is not required, although the EPA have advised that if any future tenancies involve a scheduled activity pursuant to the POEO Act, an EPL would be required prior to undertaking the activity.

**Table 8: Other Licences, Permits, Approvals and Consents**

Licence, Permit, Approval, or Consent	Person Responsible	Timing	References/ Notes
All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consent.	Mirvac, Construction Contractor	Ongoing	SSD 10448 and SSD 58257960 Condition AN1
All relevant approvals from utility service providers.	Mirvac, Construction Contractor	Prior to the commencement of construction	SSD 58257960 Conditions A19(a) and A21
Completion of a report where impacts will occur to services or public infrastructure, or that need to be installed as part of the development and submission to the Planning Secretary and TfNSW.	Mirvac, Construction Contractor	Prior to the commencement of construction	SSD 58257960 Condition A19
Agreement from Penrith City Council for the design of the waste storage area.	Mirvac, Construction Contractor	Prior to the commencement of construction.	SSD 58257960 Condition B57

## 3.4 Inductions and Environmental Training

The Contractor's Project Manager will ensure that all employees and contractors involved in the project are appropriately inducted and trained prior to commencing work on site. Training in relation to environmental responsibilities and implementation of this CEMP will take place





initially through the site induction training and then on an ongoing basis through ‘toolbox talks’ (or similar).

All employees, contractors (and their sub-contractors) conducting environmental training and site staff assigning work activities will demonstrate that they are competent and appropriately trained to train and manage construction site specific environmental issues.

Inductions and Training will meet the objectives of Condition C19 of SSD 10448 and Condition A29 of SSD 58257960, which is to ensure that all employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the SSD 10448 and SSD 58257960 Consent Conditions relevant to activities they carry out in respect of the development.

A register of all environmental training carried out, including dates, names of persons trained, and trainer name and qualification details will be established and maintained for the duration of works. See Appendix X for the training register.

### 3.4.1 Environmental Induction Training

The environmental induction training will cover all elements of the CEMP and records of inductions with attendance registers will be maintained. The training will provide an overview of the requirements as outlined below, and instruction on how to access the CEMP and appendices:

**Table 9: Environmental Induction Training**

Inductions and Environmental Training	References/ Notes
Purpose and objectives of the CEMP	Section 1.4.1 Section 1.4.2
Obligation to minimise harm to the environment	Section 1.4.2
Hours of Construction	Section 2.3
Requirements of due diligence and duty of care	Section 3.1
Conditions of any environmental licences, permits and consent approvals	Section 3.3
Reporting, and notification and management requirements for pollution, contamination, and other environmental incidents, and for damage and maintenance to environmental controls	Section 3.5 and 5.1
Location of reuse bins, washing, refuelling and maintenance of vehicles, plant and equipment	Section 4.6
Noise, vibration, and air quality management controls	Section 4.2 and 4.3
Drivers' code of Conduct	Section 4.4
Construction Traffic Management including permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health, and safety (WHS), driver protocols and emergency procedures.	Section 4.4
Sound erosion and sediment control practices, water quality controls and sediment basin management	Section 4.5
Waste minimisation principles	Section 4.6
Stop work protocol in the event of the discovery of Aboriginal or Historic item or object of significance	Section 4.9
Induction requirements as per the UFP – Contamination	Section 4.10
When there is a risk of fire being caused by work such as welding, thermal or oxygen cutting, heating or other fire producing or spark producing operations or when burning off is proposed, training will be provided to all personnel in fire prevention, fire safety	Section 4.11





Inductions and Environmental Training	References/ Notes
and basic firefighting skills.	
Flood Emergency Response	Section 4.11

### 3.4.2 Toolbox Talks

Toolbox talks or similar will be held to identify environmental issues and controls when works commence in a new area of the site or a new activity, as well as when environmental issues arise on site. Records of toolbox talks shall be maintained including topics and attendance registers. The toolbox talk will include but not be limited to:

- A description of the activity and the area.
- Identification of the environmental issues and risks for the area (including fauna or flora).
- Outline the mitigations measures for the works and the area.

## 3.5 Incident and Non-Compliance Response and Handling Procedure

### 3.5.1 Incident Response

The incident and non-compliance response and handling procedure in Figure 5 must be implemented to ensure that any incident and/or non-compliance caused by or relating to construction is effectively responded to, reported accordingly, and any resulting adverse environment and/or human health impact is promptly prevented or effectively managed. An 'Other Environmental Event' would also be managed as in accordance with the incident and non-compliance response and handling procedure in Figure 5.

For the purposes of this CEMP the definitions detailed in Table 10 will be adopted and applied during construction.

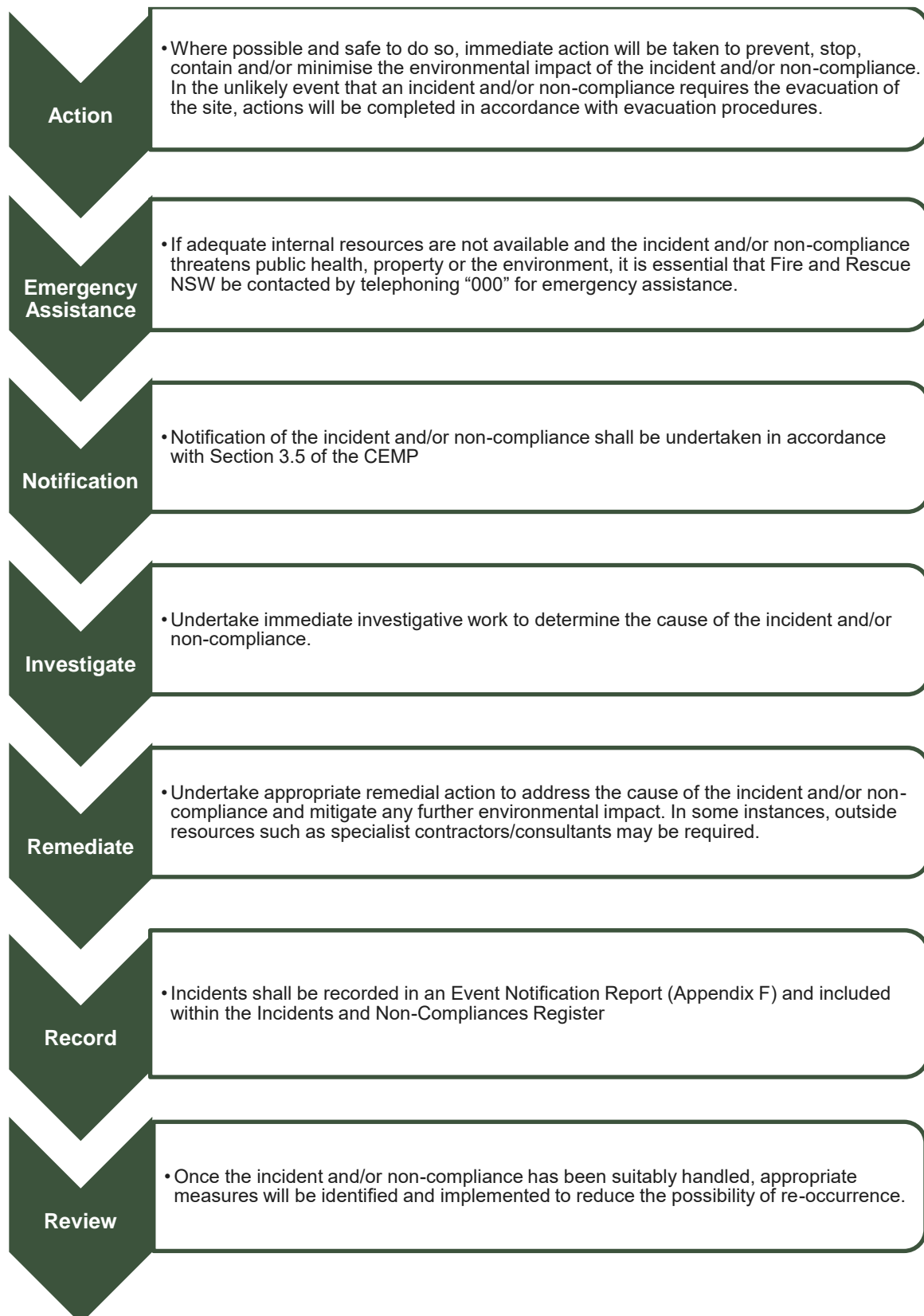
**Table 10: Incident Definitions**

Term	Definition
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.
Material Harm Incident	(a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
Non-Compliance	An occurrence, set of circumstances or development that is a breach of this consent or other statutory requirements.
Other Environmental Event	An incident that is minor where there has been no potential or actual material harm to the environment (see 'material harm' definition above).





**Figure 5: Incident and Non-Compliance Procedure**





### 3.5.2 Incident and Non-Compliance Notification

In the instance of an incident, the notification protocols outlined in Table 11 will be implemented.

**Table 11: Incident and Non-Compliance Notification**

Notification	Responsible	Timeframe	Reference
<b>Incidents</b>			
Upon awareness of an incident, the Contractors Project Manager shall be notified of and provided with all relevant information pertaining to the potential or actual incident.	Any person engaged as an employee or undertaking an activity regarding Stage 3 – Building Works for Warehouse 2.	Immediately after becoming aware of a potential or actual incident	CEMP 3.5
The Contractor's Project Manager will notify Mirvac of any incident including all relevant information pertaining to the incident.	Contractor's Project Manager	Immediately after becoming aware of a potential or actual incident	CEMP 3.5.
Mirvac will notify DPHI of an incident in writing via the Major Projects Website.	Mirvac	Immediately	CEMP 3.5.3.
An Event Notification Report will be completed and provided to Mirvac. This is attached to this CEMP as Appendix F.	Contractor's Project Manager	Within 24 hours	Appendix F
Mirvac will provide a formal written notification of an incident to DPHI via the Major Projects Website.	Mirvac	Within 7 days after becoming aware of incident	CEMP 3.5.3.
Mirvac will provide DPHI and any relevant public authorities a detailed report on the incident	Mirvac	Within 30 days of the incident occurring or as otherwise agreed to by the Planning Secretary	CEMP 3.5
<b>Non-Compliance</b>			
Provide written notification of the non-compliance to the Major Projects website.	Mirvac	Within 7 days after becoming aware of non-compliance	CEMP 3.5

Under the POEO Act, “relevant authority” means any of the following:

- The appropriate regulatory authority – the Environment Protection Authority (EPA).
- If the EPA is not the appropriate regulatory authority – the local authority for the area in which the pollution incident occurs (i.e., Council).
- NSW Public Health Unit.
- SafeWork NSW.
- Fire and Rescue NSW.

Contact details for these authorities are listed in Table 12. Authorities will be contacted when there is the potential for environmental harm. The person reporting the pollution incident will provide the following key details:

- Location of the pollution incident/emergency.
- Nature of the pollution incident/emergency.
- Their name and contact details.





- Details of any required assistance.

**Table 12: Regulatory Authority Contact List for Material Harm Incident**

Regulatory Authority/ Stakeholders	Key Contact	Contact Details	
<b>Department of Planning, Industry, Housing and Infrastructure</b>	Compliance Unit	Major Projects Portal	
<b>Environment Protection Authority (EPA)</b>	Environment Line	131 555 info@environment.nsw.gov.au	
	Head office (Sydney)	02 9995 5000	
<b>Environment, Energy and Science (EES) Group</b>	Main switchboard	1300 361 967 info@environment.nsw.gov.au	
<b>Penrith City Council</b>	Main switchboard	02 4732 7777 council@penrith.city	
<b>Water NSW</b>	Main switchboard	1300 662 077 environmental.assessments@waternsw.com.au	
	Incident Notification Number – 24 hours	1800 061 069	
<b>NSW Public Health Unit</b>	Sydney Local Health District	Business hours: 1300 066 055 After hours: 02 9515 6111	
<b>SafeWork NSW</b>	Incident Notification Hotline	131 050 Select Option 3 to report a “Serious Incident or Fatality” – this will result in the incident being recorded and the appropriate person being contacted.	
<b>Emergency Services</b>	NSW Police NSW Fire and Rescue NSW Ambulance Service	131 444 1300 729 579 -	In case of emergency – 000

A material harm incident notification will identify the development and the application number for it, the way in which it does not comply and the reasons for the material harm incident (if known) and what actions have been, or will be, undertaken to address the material harm incident.

### 3.5.3 Register

Records of all incidents and non-compliances will be maintained in Mirvac’s incident register system. Details of all incidents and complaints will be retained for at least five years after the event to which they relate.

### 3.5.4 Under the Conditions of SSD 10448 and SSD 58257960

#### Immediate notification

In accordance with Condition E10 of Development Consent SSD 10448 and Condition C10 of SSD 58257960, once Mirvac becomes aware of an incident Mirvac is required to immediately notify the Planning Secretary via the Major Projects website. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident.





### **Details to be included in incident notification**

In accordance with Appendix 6 of Development Consent SSD 10448 and Appendix 4 of SSD 58257960, a written incident notification addressing the requirements of Appendix 6 is required to be provided to the Planning Secretary via the Major Projects website within seven days. The written notification of an incident must:

- Identify the development and application number
- Provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident)
- Identify how the incident was detected
- Identify when the applicant became aware of the incident
- Identify any actual or potential non-compliance with conditions of consent
- Describe what immediate steps were taken in relation to the incident
- Identify further action(s) that will be taken in relation to the incident
- Identify a project contact for further communication regarding the incident.

### **Detailed incident report**

In accordance with Appendix 6 of Development Consent SSD 10448 and Appendix 4 of SSD 58257960, a detailed incident report is then to be provided to the Planning Secretary and any other relevant public authorities within 30 days of the incident. The Incident Report must include:

- Summary of the incident
- Outcomes of an incident investigation, including identification of the cause of the incident
- Details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence
- Details of any communication with other stakeholders regarding the incident.

#### **3.5.4.1 Non-Compliance**

##### **Notification within 7 days of being aware of non-compliance**

In accordance with Condition E11 of SSD 10448 and Condition C11 of SSD 58257960, the Planning Secretary must be notified in writing via the Major Projects website within seven days after the Proponent becomes aware of any non-compliance.

##### **Details to be included in non-compliance notification**

In accordance with Condition E12 of SSD 10448 and Condition C12 SSD 58257960, a non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

##### **When an incident is also a non-compliance, a non-compliance notification is not also required**

In accordance with Condition E13 of SSD 10448 and Condition C13 of SSD 58257960, a non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.





### 3.6 Complaints Response and handling Procedure

All complaints will be handled in accordance with the AIE *Community Consultation and Complaints Handling Strategy* (CCCHS) (SLR, 2024) (see Appendix G) for SSD10448.

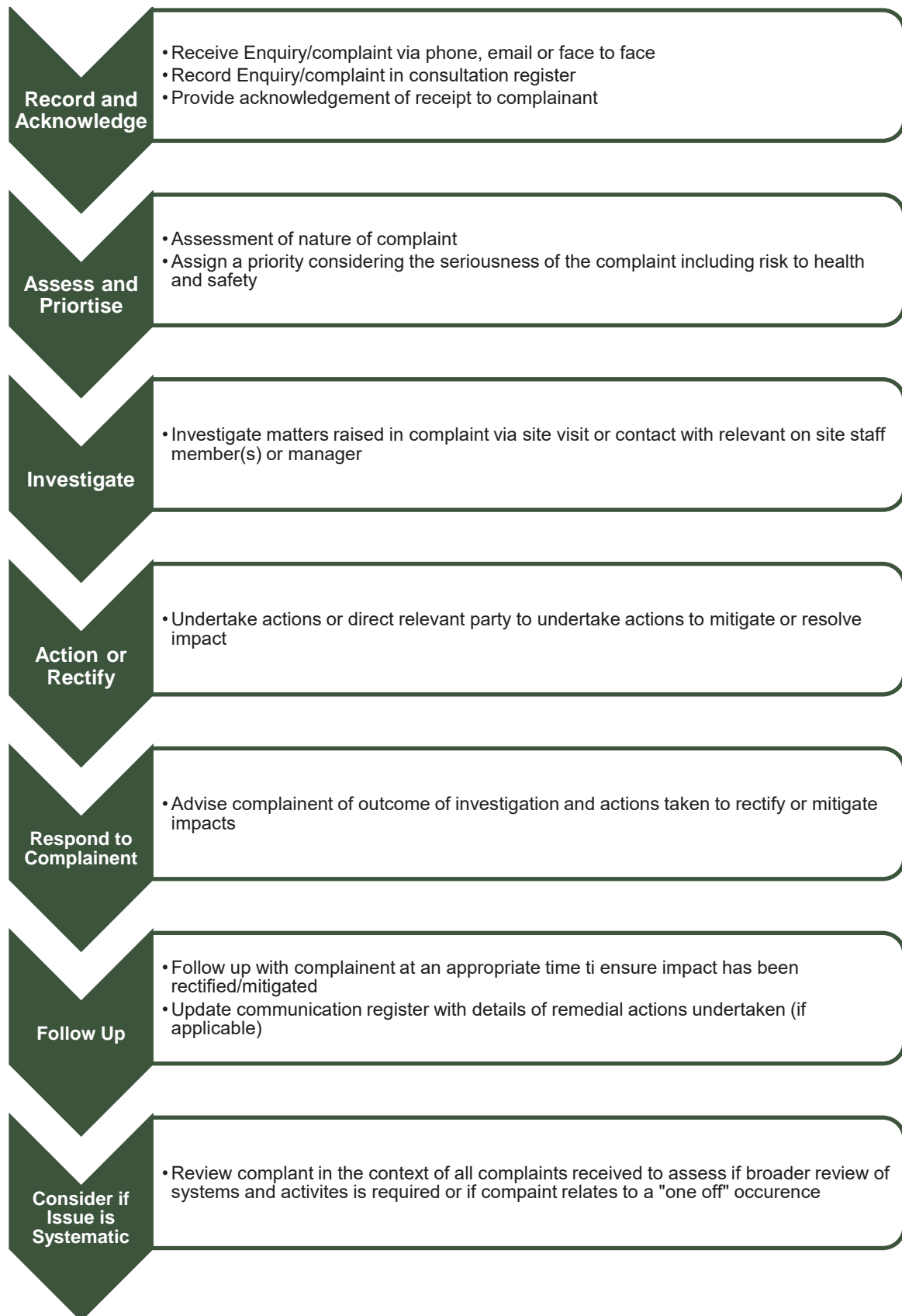
All employees who take receipt of a complaint, either verbal or written, are to take note of the name and contact details of the complainant and the nature of the complaint and immediately notify the Contractor's Project Manager, who will then contact the CCLR to commence investigation.

The following complaints handling procedure is duplicated from the CCCHS for quick reference. For further detail please consult the CCCHS.





**Figure 6: Complaints Handling Procedure**





## **1 Record and Acknowledge**

Any employee who takes receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager who will then contact the Communications and Community Liaison Representative. The Contractor's Project Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works. All relevant contact details are available in Table 6.

In the normal course of events, the first contact for complaints will usually be made in person or by telephone.

The complainant's name, address and contact details, along with the nature of the complaint, will be requested. If the complainant refuses to supply the requested information, a note will be made on the form and complainant advised of this.

## **2 Assess and Prioritise**

The CCLR will prioritise all complaints by considering the seriousness of the complaint including risk to health and safety and will attempt to provide an immediate response via phone or email. This will be undertaken in accordance with the CCCHS (SLR 2024).

## **3 Investigate**

A field investigation will be initiated to confirm details relevant to the complaint and the cause of the problem. Any monitoring information and/or records at and around the time of the complaint will be reviewed for any abnormality or incident that may have resulted in the complaint.

If the complaint is due to an incident, the notification requirements and handling procedures outlined in Section 3.5 will be followed.

## **4 Action or Rectify**

Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact. The Communications and Community Liaison Representative will assess whether the complaint is founded or unfounded and delegate the remediation of the issue to the Contractor's Project Manager for action, as required.

## **5 Respond to Complainant**

The Communications and Community Liaison Representative will oversee the rectification of the issue and respond to the complainant once the issue has been resolved. The complainant will be provided with a follow up verbal response on what action is proposed within two hours during night-time works (between the hours of 6:00 pm and 10:00 pm) and 24 hours at other times. Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant within ten days.

## **6 Record**

It is imperative that an assessment of the situation is carried out and documented to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the Complaints Register (Appendix A of the CCCHS). A copy of the completed form will be maintained for at least five years. The complaint will also be recorded in the Complaints Register, as per Section 3.6.





## **7 Preventative Action**

Once the complaint has been suitably handled, appropriate measures will be identified and implemented to negate the possibility of re-occurrence. The Community Correspondence Register is not finalised until the preventative actions are completed and recorded on the form.

### **3.6.1 Complaints Register**

#### **Maintenance of a complaints register**

A Complaints Register will be maintained during construction and will contain the following:

- A separate reference sheet containing the contact details listed in Table 6.
- Blank hard copies of the Community Correspondence Register.
- Copies of all completed Community Correspondence Register, which are to be maintained for at least five years after the event to which they relate.

#### **Availability of complaints register to ER**

In accordance with Condition C32 of SSD 10448 and Condition A35 of SSD 58257960, the complaints register shall be made available to the appointed ER on a daily basis.





## 4.0 Environmental Management Communities

Environmental aspects with the potential to be impacted through the construction of Stage 3 - Building Works for Warehouse 2 are addressed in the following sub-sections. These issues have specific regulatory requirements imposed by SSD 10448 and SSD 58257960 and/or are considered to have the highest potential to result in a non-compliance with a legislative requirement or generate community complaints.

The tables in this section are a compliance management tool outlining how controls are to be implemented. The Construction Contractor will ensure that the checklists included in their Project Management Plan, including the Daily Observations Checklist and Weekly Environmental Checklist, address all relevant management commitments outlined in the CEMP and appended management plans. Refer to Section 5 for further details on Environmental Monitoring and Reporting.

### 4.1 General

The general environmental controls that will be implemented throughout the construction to minimise the potential for adverse impacts on the local environmental and surrounding receptors are listed in Table 13.

**Table 13: General Construction Environmental Management Controls**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
All reasonable and feasible measures will be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from construction.	Construction Contractor	Ongoing	SSD 10448 Condition C1 SSD 58257960 Condition A1
All licences, permits, approvals and consents as required by law will be obtained and maintained as required for the development. See Section 3.3 of this CEMP.	Mirvac and Construction Contractor	As required	SSD 10448 Condition AN1 SSD 58257960 Condition AN1
Works will not commence until an Environmental Representative (ER) has been approved by the Planning Secretary and engaged by Mirvac.	Mirvac	Prior to commencing construction	SSD 10448 Condition C31 SSD 58257960 Condition A34
All plant and equipment will be maintained in accordance with manufacturers requirements. A Plant and Equipment Maintenance Schedule and record is to be prepared and maintained onsite.  The Plant and Equipment Maintenance Schedule is to be issued to the Superintendent on a quarterly basis.  Plant prestart will be completed to ensure plant is operating as expected with any issues noted for rectification at the earliest possible opportunity.  Noise amelioration will be fitted as per manufacturers requirements. No modifications are to be made to noise amelioration devices.  Only qualified and experienced personnel are to maintain and operate plant and equipment.	Construction Contractor	Ongoing	SSD 10448 Condition C22 SSD 58257960 Condition A31





Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
Construction employees and contractors will be suitably inducted and trained in accordance with Section 3.4 of this CEMP.	Construction Contractor	Prior to commencing construction and ongoing	CEMP Section 3.4
The incidents and complaints will be promptly and effectively addressed in accordance with the management strategies contained within Sections 3.5 and 3.6 of this CEMP.	Construction Contractor	Ongoing	CEMP Sections 3.5 and 3.6
All monitoring records will be maintained to demonstrate compliance with the CEMP, including: <ul style="list-style-type: none"> <li>• Site environmental inspection reports.</li> <li>• Environmental monitoring data.</li> <li>• Internal and external audit reports.</li> <li>• Reports of environmental incidents, environmental, associated actions taken, and follow-up actions.</li> <li>• Minutes of management review meetings.</li> <li>• Induction and training records.</li> </ul>	Construction Contractor	For 5 years after completion date	Best practise
Construction will comply with section 120 of the POEO Act, which prohibits the pollution of waters.	Construction Contractor	Ongoing	SSD 10448 Condition D27 SSD 58257960 Condition B19 CEMP Section 4.6 SWMP Appendix K

## 4.2 Noise and Vibration

Construction noise will be managed in accordance with the Construction Noise and Vibration Management Plan (CNVMP) (SLR 2023), attached as Appendix H. The relevant consent conditions for noise and vibration can be found within the relevant section in Appendix C.

The environmental management controls in Table 14 will be implemented to minimise the potential for adverse noise impacts during construction.

**Table 14: Environmental Management Controls for Noise**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
All listed mitigation and management measures outlined in Section 7.2 of the CNVMP will be implemented throughout construction. These mitigation measures cover the following activities: <ul style="list-style-type: none"> <li>• Project Planning</li> <li>• Scheduling for High Noise or Vibration Generating Works</li> <li>• Site Layout</li> <li>• Training</li> <li>• Plant and Equipment Source Mitigation</li> <li>• Screening</li> </ul>	Construction Contractor	Ongoing	CNVMP Section 7.2





Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<ul style="list-style-type: none"> <li>Community Consultation</li> <li>Monitoring</li> </ul>			

### 4.3 Air Quality

Construction air quality will be managed in accordance with the Construction Air Quality Management Plan (CAQMP) (SLR 2024), attached as Appendix I. The relevant consent conditions for air quality can be found within the relevant section in Appendix C.

The environmental management controls in Table 15 will be implemented to minimise the potential for adverse dust emissions and impacts during construction.

**Table 15: Environmental Management Controls for Air Quality**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<p>All required and highly recommended Dust and Odour Mitigation measures outlined in Section 9 of the AQMP will be implemented throughout construction. These mitigation measures cover the following activities:</p> <ul style="list-style-type: none"> <li>Communications</li> <li>Site Management</li> <li>Preparing and Maintaining the Site</li> <li>Operating Vehicle/Machinery and Sustainable Travel</li> <li>Operations</li> <li>Waste Management</li> <li>Earthworks</li> <li>Construction</li> <li>Track out</li> </ul> <p>Desirable mitigation measures will be considered and implemented where it is a reasonable step to minimise dust generated during work</p>	Construction Contractor	Ongoing	CAQMP Section 9

### 4.4 Traffic

Construction traffic will be managed in accordance with the Construction Traffic Management Plan (CTMP) (Ason 2024), attached as Appendix J. The relevant consent conditions for traffic can be found within the relevant section in Appendix C.

The environmental management controls in Table 16 will be implemented to ensure road safety and network efficiency during construction.

**Table 16: Environmental Management Controls for Traffic**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<p>All management measures relating to proposed works and staging outlined in <b>Section 3</b> of the CTMP will be implemented throughout construction. These measures cover the following activities:</p>	Construction Contractor	Ongoing	CTMP Section 3





Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<ul style="list-style-type: none"> <li>Contractor and Heavy Vehicle Parking Arrangements</li> <li>Pedestrian and Cyclist Management Arrangements</li> <li>Fencing</li> <li>Traffic Guidance</li> <li>Authorised Traffic Controller</li> <li>Drivers Code of Conduct</li> <li>Worker Induction</li> </ul>			

## 4.5 Water and Soil

Erosion and sediment control will be managed in accordance with the Erosion and Sediment Control Plan (ESCP) (Rubicon 2024), included in Appendix K.

Salinity management will be managed in accordance with the Salinity Management Plan (SMP) (PSM 2022) attached as Appendix L.

Groundwater will be managed in accordance with the Groundwater Management Plan – Rev C (GMP) (Arcadis 2023), attached as Appendix M.

The relevant consent conditions for soil and water can be found within the relevant section in Appendix C. The environmental management controls in Table 17 will be implemented to minimise the potential for adverse water and soil impacts during construction.

**Table 17: Environmental Management Controls for Water and Soil**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<b>Erosion and Sediment Control</b>			
All erosion and sediment control measures indicated within the ESCP shall be implemented during construction	Construction Contractor	Ongoing	SWMP and ESCP Section 8
<b>Salinity Management</b>			
All listed mitigation and management measures outlined in Section 6 of the SMP will be implemented throughout construction.	Construction Contractor	Ongoing	SMP Section 6
<b>Groundwater Management</b> All listed mitigation and management measures outlined in GMP will be implemented throughout construction.	Construction Contractor	Ongoing	GMP Section 8

## 4.6 Waste

Waste will be managed in accordance with the Waste Management Plan (WMP) (MRA 2024), attached as Appendix N. The relevant consent conditions for waste can be found within the relevant section in Appendix C.

The environmental management controls in Table 18 will be implemented to minimise the potential for adverse impacts as a result of waste generated during construction.





**Table 18: Environmental Management Controls for Waste**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
All listed mitigation and management measures outlined in Section 3 of the WMP will be implemented throughout construction. These mitigation measures cover the following activities: <ul style="list-style-type: none"> <li>• Demolition waste.</li> <li>• Construction waste.</li> <li>• Waste contractors and facilities.</li> <li>• Site documentation.</li> <li>• Pest and vermin management.</li> </ul>	Construction Contractor	Ongoing	WMP Section 3
Where relevant to construction, the best practise requirements outlined in Section 6.1 of the WMP will be implemented.	Construction Contractor	Ongoing	WMP Section 6.1

## 4.7 Biodiversity

Vegetation management will be managed in accordance with the Vegetation Management Plan (VMP) (Ecological 2021), attached as Appendix O.

Flora and fauna management will be managed in accordance with the Flora and Fauna Management Plan (FFMP) (Ecological 2021), attached as Appendix P.

The relevant consent conditions for biodiversity can be found within the relevant section in Appendix C.

The environmental management controls in Table 19 will be implemented to minimise the potential for adverse biodiversity impacts during construction.

**Table 19: Environmental Management Controls for Biodiversity**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
All construction and management works outlined in Section 4 of the VMP will be implemented throughout construction. These works cover the following activities: <ul style="list-style-type: none"> <li>• Earthworks and the construction of the riparian channel</li> <li>• Temporary fencing consisting of star pickets with highly visible plastic mesh or similar within the clearing limits must be installed.</li> <li>• Temporary informational signage must be installed. The informational signage must identify the works are being undertaken and the final strategy of the site, including: <ul style="list-style-type: none"> <li>○ access points to the site</li> <li>○ riparian area is being managed for conservation purposes</li> </ul> </li> <li>• Installation of Fauna Habitat in the VMP Area</li> <li>• Vegetation management works</li> </ul>	Construction Contractor	Ongoing	VMP Section 4





Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<p>All relevant environmental actions outlined in Section 2.1 of the FFMP will be implemented throughout construction. These actions cover the following objectives:</p> <ul style="list-style-type: none"> <li>• General</li> <li>• Reduce harm to biodiversity</li> <li>• Reduce harm to aquatic biodiversity</li> <li>• Reduce spread of priority weeds</li> <li>• Reduce potential noise impacts to native fauna</li> </ul>	Construction Contractor	Prior to Construction and ongoing	FFMP Section 2.1

## 4.8 Visual Amenity

The environmental management controls outlined Appendix C will be implemented to mitigate any visual amenity impacts. It is the responsibility of the construction contractor to implement these environmental management controls on an ongoing basis. In accordance with SSD 585257960 Condition 43, lighting will be restricted to comply with AS 4282-2019 – Control of the obtrusive effects of outdoor lighting and mounted, directed and screened in such a manner that it does not create a nuisance.

## 4.9 Heritage

The environmental management controls outlined Appendix C and the Unexpected Finds Procedure – Heritage, prepared by Artefact (2022) and attached as Appendix Q will be implemented in the event of the discovery of Aboriginal or Historic item or object of significance. It is the responsibility of the construction contractor to implement these environmental management controls on an ongoing basis.

## 4.10 Hazardous Goods and Contamination

The discovery of unexpected, contaminated material will be managed in accordance with the Unexpected Finds Protocol – Contamination (UFP - Contamination) (Arcadis 2022), attached as Appendix R.

The relevant consent conditions for hazardous goods and contamination can be found within the relevant section in Appendix C.

The environmental controls that will be implemented to minimise the potential for environmental incidents relating to the hazardous goods and contamination are presented in Table 20.

**Table 20: Environmental Management Controls for Dangerous Goods**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<p>The discovery of unexpected, contaminated material will be managed in accordance with the UFP – Contamination, including:</p> <ul style="list-style-type: none"> <li>• Personal Protective Equipment to be worn</li> <li>• Identification of Unexpected Finds</li> <li>• Unexpected Finds Register</li> <li>• Assessment of Unexpected Finds</li> </ul>	Construction Contractor	Ongoing	UFP – Contamination Section 4 and 6 Appendix B Appendix C Appendix D





Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<ul style="list-style-type: none"> <li>Validation of Unexpected Finds</li> <li>Validation of Imported Fill Material</li> </ul>			
Training and Induction requirements outlined in the UFP - Contamination will be implemented throughout construction.	Construction Contractor	Prior to Construction and Ongoing	UFP – Contamination Section 3
Bunding will be used for chemicals, fuels and oils.	Construction Contractor	Prior to Construction and Ongoing	SSD 58257960 Condition 55

## 4.11 Fire Safety and Flood Emergency

The environmental controls that will be implemented to minimise the potential for environmental incidents relating to fire are presented in Table 21.

Fire risks are identified in the Bushfire Hazard Assessment (BHA) (BPAD 2023), provided in Appendix S and the Fire Safety Strategy (FSS) (Core Engineering 2023) provided in Appendix T.

Flood emergency management will be managed in accordance with the Flood Emergency Response Plan (FERP), attached as Appendix U.

The relevant consent conditions for fire safety and flood emergency can be found within the relevant section in Appendix C.

**Table 21: Environmental Management Controls for Fire Safety and Flood Emergency**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
In the event of emergency, the contact details in Table 12 will be contacted.	Construction Contractor	In the event of an emergency	Section 3.5.
Emergency vehicle access to and from the Site will be available at all times during construction.	Construction Contractor	Ongoing	Best practice
The management of bushfire risk will be managed in accordance with the BHA: <ul style="list-style-type: none"> <li>Installation of and Asset Protection Zones.</li> <li>Compliance with Bush Fire Codes.</li> </ul>	Construction Contractor	Ongoing	BHA Section 11
The management of fire risk will be managed in accordance with the FSS: <ul style="list-style-type: none"> <li>Construction Materials.</li> <li>Vehicle Access.</li> <li>Emergency Egress.</li> <li>Emergency Notification.</li> </ul>	Construction Contractor	Ongoing	FSS Section 7
Cutting, welding, grinding or other activities likely to generate fires will not be undertaken in the open on days when a total fire ban is proclaimed, unless an exemption is granted by the relevant Fire Service.	Construction Contractor	Ongoing	Best practice
When there is a risk of fire being caused by work such as welding, thermal or oxygen cutting, heating or other fire producing or spark producing operations or when burning	Construction Contractor	As required	Best practice





Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
off is proposed, training will be provided to all personnel in fire prevention, fire safety and basic firefighting skills.			
Appropriate firefighting equipment will be provided as required for the safety of persons and property.	Construction Contractor	Prior to commencing construction and ongoing	Best practice
Fire extinguishers will be located at work locations where hot work is being undertaken or flammable gases are stored.	Construction Contractor	Ongoing	Best practice
Waste material will not be burnt on site and no fires of any kind will be lit on site.	Construction Contractor	Ongoing	Best practice
Implement management controls outlined in the Flood Emergency Response Plan.	Construction Contractor	Ongoing	FERP

## 4.12 Community

Community consultation and complaints will be managed in accordance with the Community Consultation and Complaints Handling Strategy (CCCHS) (SLR 2024), attached as Appendix G.

The relevant consent conditions for the community can be found within the relevant section in Appendix C.

The community management controls in Table 22 will be implemented to minimise the potential for adverse impacts to the community during construction.

**Table 22: Environmental Management Controls for the Community**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
All listed mitigation and management measures outlined in Section 4 of the CCCHS will be implemented throughout construction. These measures cover the following activities: <ul style="list-style-type: none"> <li>Communication, management, and mitigation tools.</li> <li>Notification procedure.</li> <li>Complaints procedure.</li> </ul>	Construction Contractor	Ongoing	CCCHS Section 4

## 4.13 Sustainability

Sustainability management controls will be implemented per the ESD Report (Stantec 2023), appended as Appendix V. Table 23 will be implemented to improve sustainability performance during construction.

**Table 23: Environmental Management Controls for the Sustainability**

Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
Best practice efficiency measures outlined in Section 4 of the ESD Report will be implemented as relevant to construction, including:	Construction Contractor	Ongoing	ESD Report Section 4





Environmental Management Controls	Person Responsible	Timing/ Frequency	Reference/ Notes
<ul style="list-style-type: none"><li>• Water efficiency.</li><li>• Building management.</li><li>• Waste management.</li></ul>			





## 5.0 Monitoring and Reporting

### 5.1 Environmental Monitoring and Reporting

Table 24 summarises the monitoring and reporting requirements for the construction of Stage 3 – Building Works for Warehouse 2 as set out in SSD 58257960, and relevant management plans. Environmental Monitoring and reporting are inclusive of inspection and audit requirements.

Prior to the commencement of construction, the Construction Contractor will ensure their Project Management Plan includes a detailed Monitoring and Reporting Matrix to clearly document the specific applicable forms, registers or reports that will be used (this might include Supervisor Diary, Weekly Environmental Inspection Checklist (Appendix W), Waste Register, Complaints Register etc). The Construction Contractor will provide a copy of this matrix to Mirvac and the ER.

The Construction Contractor will ensure the checklists included in the Project Management Plan, including the Daily Observations Checklist and Weekly Environmental Checklist (Appendix W), address all relevant monitoring and reporting commitments outlined in the CEMP and appended management plans.

**Table 24: Monitoring and Reporting Requirements**

Aspect	Monitoring/ Reporting Requirements	Person Responsible	Timing/ Frequency	References/ Notes
<b>Daily</b>				
General	Daily observation will be recorded in Supervisor's Diary or similar, including plant and equipment prestart checks that include environmental observations (including weather, erosion, sediment control dust, etc.).	Construction Contractor	Daily	Best practice
General	The Applicant must provide the ER with the complaints register	Construction Contractor	Daily	SSD 58257960 Condition A33
General	Compliance with site rules	Construction Contractor	Daily	Best Practice
Air Quality	Site Hive Logger, odour and visible emissions.	Construction Contractor	Daily	CAQMP Section 11
<b>Weekly</b>				
General	The Weekly Environmental Checklist will be completed as part of general environmental site inspection to ensure all relevant environmental controls listed in this CEMP are in place and any required maintenance and/or remediation works are identified and undertaken.	Construction Contractor	Weekly	Best practice
General	The Construction Contractor will report environmental performance during regular management meetings and/or	Construction Contractor	Weekly	CEMP Section 3.4





Aspect	Monitoring/ Reporting Requirements	Person Responsible	Timing/ Frequency	References/ Notes
	<p>'toolbox talks'. Items to be discussed include:</p> <ul style="list-style-type: none"> <li>Results of any monitoring activities undertaken</li> <li>Any environmental incidents that have occurred during the previous period, including the management / corrective actions taken</li> <li>Any complaints that have been received during the previous period, including any management / corrective actions taken.</li> </ul>			
General	The PEC (or alternative delegate when PEC is unavailable) to attend weekly ER Inspections at the commencement of the project, reducing to fortnightly/monthly on a risk basis.	Mirvac	Weekly at commencement	Best practice
Soil	Inspections will be undertaken of sediment basins weekly and immediately after rainfall events to assess storage capacity and water quality treatment prior to discharge, and clean to requirements.	Principal's Environmental Consultant	Weekly	Best practice
Traffic	Hourly traffic counts will be submitted by the Construction Contractor to Mirvac weekly.	Mirvac and Construction Contractor	Weekly	CTMP Section 4.2
<b>Monthly</b>				
General	<p>The Applicant must provide the ER with all documentation requested by the ER for the ER to perform their functions specified in condition C31 (including preparation of the ER monthly report), as well as:</p> <p>b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).</p>	Mirvac and Construction Contractor	As required by the ER to perform their role under the conditions of consent	SSD 58257960 Condition A35
Air Quality	The Air Quality Monitoring program provided in Section 11 of the CAQMP shall be implemented.	Construction Contractor	Monthly	CAQMP Section 11
Soil	Monthly audits of erosion and sediment controls shall be undertaken by CPESC and kept on record for the duration	Principal's Environmental Consultant	Monthly	SSD 58257960 Condition B18





Aspect	Monitoring/ Reporting Requirements	Person Responsible	Timing/ Frequency	References/ Notes
	of the construction and an additional 12 months following construction works.			
Traffic	Traffic volumes during the period of temporary construction access are monitored, reported to TfNSW and the Planning Secretary monthly.	Mirvac	Monthly	SSD 58257960 Condition B5 CTMP Section 4.2
Community	<p>The following will be monitored:</p> <ul style="list-style-type: none"> <li>Total number of complaints</li> <li>Number of complaints relating to lack of consultation / misinformation / confusion</li> <li>Number of enquiries relating to information previously disseminated</li> <li>Number of complaints / enquiries within defined categories based on theme or subject</li> <li>Close-out actions and follow-up</li> <li>Response timeframes</li> </ul>	Communications and Community Liaison Representative	Monthly	CCCHS Section 5.1
Community	<p>The monthly community consultation summary will be made publicly available on the project web page and shall include:</p> <ul style="list-style-type: none"> <li>A summary of community consultation activities undertaken within the preceding month</li> <li>A summary of all enquiries and complaints received within the preceding month, including details of response and/or remediation activities</li> </ul>	Communications and Community Liaison Representative	Monthly	CCCHS Section 5.2
<b>Event Based</b>				
Incident/ Non-Compliance	In the event of an Incident or Non-Compliance, an Event Notification Report will be completed, as outlined in Table 11 in Section 3.5 of the CEMP.	Project's Construction Manager	In the event of an Incident or Non-Compliance	CEMP Section 3.5
Water	<p>All discharges will be recorded on a discharge permit which will include:</p> <ul style="list-style-type: none"> <li>Volume to be discharged</li> <li>Treatment details (e.g. Coagulant/ flocculant used, dosage,</li> </ul>	Principal's Environmental Consultant	As required	ESCP





Aspect	Monitoring/ Reporting Requirements	Person Responsible	Timing/ Frequency	References/ Notes
	<ul style="list-style-type: none"> <li>duration and treatment date)</li> <li>Water quality monitoring results (including date and time of testing)</li> <li>Discharge water quality results</li> <li>Date and time of discharge</li> </ul>			
Water	Pumped discharge of any water off site will be monitored regularly to ensure that tested water quality meets all applicable criteria.	Principal's Environmental Consultant	As required	ESCP
Noise	<p>Completion of construction and noise monitoring verification through attended monitoring at the start of noise-intensive works.</p> <p>Reporting will be undertaken for each event and include details per Section 7.3.3 of the CNVMP.</p>	Principal's Environmental Consultant	Within three months of the commencement of construction.	CNVMP Section 7.3 SSD 58257960 Condition B34
Vibration	<p>Completion of vibration monitoring will be undertaken in the event vibration intensive works (such as rock breaking, vibratory rolling or plate contacting) are required within the minimum working distances of sensitive receivers' structures (being other warehouses).</p> <p>Reporting will be undertaken for each event and include details per Section 7.3.3 of the CNVMP.</p>	Principal's Environmental Consultant	In event vibration intensive works are undertaken within the minimum working distance of sensitive receiver structures.	CNVMP Section 7.3
<b>Other</b>				
Noise and Vibration	Noise and/or vibration reporting and monitoring will be conducted in accordance with Section 7.3 of the CNVMP	Construction Contractor	Ongoing	CNVMP Section 7.3
Air Quality	All dust and air quality monitoring will be investigated and responded to as per Section 11 of the CAQMP.	Construction Contractor	As required	CAQMP Section 9
Traffic	Monitoring and review of the CTMP and onsite traffic management effectiveness shall be undertaken in accordance with Section 4 of the CTMP	Construction Contractor	Ongoing	CTMP Section 4
Contamination	Any material identified as contaminated will be disposed off-site, with the disposal	Construction Contractor	As required	Section 4.10





Aspect	Monitoring/ Reporting Requirements	Person Responsible	Timing/ Frequency	References/ Notes
	location and results of testing submitted to the Planning Secretary, prior to its removal from the site.			
Waste	A logbook of waste management and collection will be maintained on-site and include the details described in Section 3.4 of the WMP.	Construction Contractor	Ongoing	WMP Section 3.4
Waste	Waste management documentation, logbook and associated dockets and receipts will be made available for inspection by authorised Council Officer at any time during site works.	Construction Contractor	Ongoing	WMP Section 3.4
General	Inspection and maintenance of all plant and equipment items to ensure optimal operating condition.	Construction Contractor	As specified by the manufacturer / supplier	Best practice
General	The Project Manager will be notified if any inconsistencies are identified between the documents listed in Section 3.3 of this CEMP.	Construction Contractor	As required	CEMP Section 3.3
General	Compliance Reports of the Development will be prepared and submitted to DPHI reviewing the environmental performance of the development in accordance with the <i>Compliance Reporting Post Approval Requirements</i> (DPHI 2020) and will: (a) identify any trends in the monitoring data over the life of the development; (b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (c) describe what measures will be implemented over the next year to improve the environmental performance of the development	Mirvac	Within 6 months after the commencement of construction and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary) for the duration of construction works	SSD 58257960 Condition C14
General	Each Compliance Report will be made publicly available.	Mirvac	No later than 60 days after submitting it to the DPHI and notify the DPHI in writing at least 7 days before this is done.	SSD 58257960 Condition C15





Aspect	Monitoring/ Reporting Requirements	Person Responsible	Timing/ Frequency	References/ Notes
General	Access to information shall be facilitated through the publication of environmental performance and monitoring results on the project website, as detailed within the CCCHS	Mirvac	48 hours prior to commencing construction and ongoing	CCCHS Section 4.3.1
General	<p>A copy of all environmental records will be maintained, including:</p> <ul style="list-style-type: none"> <li>• Site environmental inspection reports</li> <li>• Environmental monitoring data</li> <li>• Internal and external audit reports</li> <li>• Reports of environmental incidents, environmental, associated actions taken, and follow-up actions</li> <li>• Minutes of management review meetings</li> <li>• Induction and training records</li> <li>• Register of all complaints and non-compliances.</li> </ul>	Mirvac / Construction Contractor	For at least 5 years after completion	Best practice





## 5.2 Contingency Management Plan

Table 25 lists the actions to be implemented if inspections, monitoring and/or auditing indicate that the mitigation measures listed in Section 4.0 and the specialist management plans are not effective in managing environmental impacts.

**Table 25: Contingency Plan**

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
<b>Noise and Vibration</b>				
Noise impacts at sensitive receiver locations	Trigger	LAeq(15minute) Noise levels do not exceed applicable NMLs	LAeq(15minute) Noise levels exceed applicable NMLs	LAeq(15minute) Noise levels exceed Highly Noise Affected criteria (75 dBA)
	Response	On-going best practice management measures to minimise noise emissions	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts (aiming to achieve NMLs)	Works exceeding the Highly Noise Affected criteria will be managed in accordance with the strategies for high noise generating works determined through community consultation, as detailed in Section 7.1 and 7.2 of the CNVMP
Vibration impacts at sensitive receiver locations	Trigger	Vibration intensive works undertaken outside minimum working distance for the specific equipment in use	Vibration intensive works undertaken within minimum working distance for the specific equipment in use	Vibration levels exceed applicable vibration limits
	Response	On-going best practice management measures to minimise vibration emissions	Undertake vibration monitoring for the duration of the works to confirm vibration levels.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below applicable limits. If vibration levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
<b>Air Quality</b>				
Visible dust leaving the site	Trigger	Daily inspections show that there is no visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site multiple times during a day OR from multiple locations within the site.
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as: <ul style="list-style-type: none"> <li>Deployment of additional water</li> </ul>	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities





Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
			<i>sprays, water trucks etc</i>	
Dust deposition reading of >4g/m <sup>2</sup> /month	Trigger	Dust deposition rates are less than 4 g/m <sup>2</sup> /month at all the dust gauges.	Dust deposition rate greater than 4 g/m <sup>2</sup> /month is recorded by any of the dust gauges	Dust deposition rates greater than 4 g/m <sup>2</sup> /month are recorded by two or more dust gauges for two months in a row.
	Response	Continue monitoring program as normal.	<ul style="list-style-type: none"> <li>AIE Project Manager to analyse data to try to identify the source(s) of dust. Consideration should be given to the differences between the monitoring closer to other construction sites compared to those further away for identification of potential cumulative impacts.</li> <li>Construction Contractor to review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering.</li> </ul>	<ul style="list-style-type: none"> <li>AIE Project Manager to review and investigate construction activities and respective control measures for the monitoring period.</li> <li>If it is concluded that construction activities at AIE were directly responsible for the exceedance (i.e., the exceedance event was not caused due to high regional dust levels or local non-project dust source), Construction Contractor to submit an incident report to government agencies.</li> </ul>
Intense Meteorological Conditions	Trigger	Normal Meteorological Conditions	Forecast winds greater than 5 m/s and dry conditions.	Forecast winds greater than 10 m/s and dry conditions.
	Response	Continue monitoring program as normal.	<ul style="list-style-type: none"> <li>Limit the activities that generate dust within 200 m of downwind sensitive activities.</li> <li>Additional visual inspection of exposed areas and activities.</li> <li>Assess the need for additional controls such as increased water application rates.</li> </ul>	Stop activities that generate dust up to 200 m downwind of the construction activities, until wind eases.





Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Complaints received regarding nuisance dust	Trigger	There are no complaints received during the construction	An air-quality related complaint is received from a nearby resident	Further complaints are received from the same complainant after the additional mitigation measures have been implemented
	Response	Continue monitoring program as normal.	Report the complaint to the regulator, in line with complaints handling procedure (See Section 4.12). Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate. Review timing of the complaint compared to known site activities to identify if particular site activities (or lack of activity in the case of mitigation measures) are contributing to the complaints.	Including real time monitors to measure PM10 and PM2.5. Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing (see Appendix D). The investigation should take into account (but not limited to) regional dust/particulate data, prevailing wind data on the day/time of complaints, onsite activities at the time of complaints and offsite activities at the time of complaints. Conduct real time air quality monitoring at the complaint location (or as near as practicable) including meteorology if required. This monitoring should be conducted in consultation with a suitably qualified air quality professional. Identify the following from any monitoring conducted: Monitoring method; Location, frequency and duration of monitoring; Assessment against compliance with criteria identified in Section 5.2; Recommendations for further mitigation.
<b>Traffic</b>				
Construction movements	Trigger	Both peak hour and daily Construction traffic volumes are in accordance with volume and time constraints as outlined within Section 3.1 (140 LV and 60 HV Movements per day) and Section 3.2.	Construction traffic volumes exceeds programmed Peak volumes but is within permissible daily volume constraints (140 LV and 60 HV Movements per day)	Construction traffic volumes exceeds permissible volume and time constraints (140 LV and 60 HV Movements per day)





Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Continue monitoring program.	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: <ul style="list-style-type: none"> <li>Review CTMP and update where necessary</li> <li>Provide additional training</li> </ul>	As with Condition Amber, plus; <ul style="list-style-type: none"> <li>If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.</li> <li>Stop all transportation into and out of the site.</li> </ul>
Queuing	Trigger	No queuing identified.	Queuing identified within site, but not on to public road	Queuing identified on the public road.
	Response	No response required. Continue monitoring program.	Review the delivery schedule prepared by Mirvac. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Driver Code of Conduct.	As with Condition Amber, plus <ul style="list-style-type: none"> <li>Review and investigate construction activities.</li> <li>If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.</li> <li>Temporary halting of activities and resuming when conditions have improved.</li> <li>Stop all transportation into and out of the site.</li> <li>Review CTMP and update where necessary, provide additional training.</li> </ul>
Traffic noise	Trigger	Noise levels do not exceed imposed noise constraints, as outlined within the Noise Assessment Report (<45dBA), nor has there been a traffic noise related complaint	Noise levels in minor excess (<10dBA) of imposed noise constraints, or receipt of a single noise complaint.	Noise levels greatly in greatly excess (>10dBA) of imposed noise constraints or consistent noise complaints.
	Response	No response required	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	As with Condition Amber. If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
Traffic Guidance Scheme	Trigger	No observable issues (TGS implements according to plan)	Minor inconsistencies with TGS to onsite operations (such as covered signs, missing signs, fallen cones, etc.)	Failure to implement plan effectively (even if there has been no near miss or incident)





Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Continue monitoring TGSs.	Traffic Controller to amend TGS on site and to keep a log of all changes.	Stop work until an investigation has been undertaken into the incident. There are to be changes made to the TGS to ensure that the safety of all workers, students and civilians are catered for.
Traffic Air Quality Impacts	Trigger	No observable dust	Minor quantities of dust in the air and tracking on to the road.	Large quantities of dust in the air and tracking on to the road.
	Response	No response required	<p>Review and investigate construction vehicle movements and activities and respective control measures, where appropriate. Implement additional remedial measures, such as:</p> <ul style="list-style-type: none"> <li>• All drivers of vehicles transporting loose materials will be required to ensure the entire load is covered using a tarpaulin or similar impervious material.</li> <li>• Deployment of additional water sprays</li> <li>• Wheel wash station shall be positioned at the exit point of all gates.</li> <li>• Temporary halting of vehicle movements and activities and resuming when conditions have improved.</li> <li>• The roads will also be cleaned on a regular basis to minimise dust/dirt particles depositing externally from the site.</li> </ul>	<p>As with Condition Amber.</p> <ul style="list-style-type: none"> <li>• If it is concluded that construction activities were directly responsible for the exceedance submit an incident report to government agencies.</li> <li>• Implement relevant responses and undertake immediate review to avoid such occurrence in future.</li> </ul>





Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
<b>Water and Soil</b>				
Soil / dust / mud on public road network	Trigger	No soil / dust / mud tracked onto the public road network.	Evidence of soil / dust / mud at entry but none tracked onto public roads.	Evidence of soil / dust / mud tracked onto the public roads.
	Response	Continue ESCP/CEMP implementation.	Check condition of wheel wash facility to ensure it is functioning correctly.	Check condition of wheel wash facility to ensure it is functioning correctly. Stop work and clean soil / dust / mud off road network (e.g., engage street sweeper).
Erosion	Trigger	No evidence of erosion.	Minor gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.	Significant gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.
	Response	Continue ESCP / CEMP implementation.	A suitably trained person to inspect the site. Review of erosions and sediment structures. Remediate as appropriate.	A suitably trained person to inspect the site. Review of erosion and sediment structures. Remediate as soon as practical.
Water management structures	Trigger	Water management structures have been designed, constructed, and managed in accordance with the Blue Book and the ESCPs.	Inspections indicate that water management structures illustrate minor non-compliance with the Blue Book and the ESCPs.	Inspections indicate a failure of the water management structures.
	Response	Continue ESCP / CEMP implementation.	A suitably trained person to inspect the site. Review of water management structures. Remediate as appropriate.	A suitably trained person to inspect the site. Remediate as soon as practical. Review of engineering design and revise ESCPs.
Water Quality Monitoring	Trigger	Water quality monitoring results are in accordance with Section 5.5 of SMP and approved by the ER.	Water quality monitoring results exceed the criteria listed in Section 5.5 of SMP and not approved by the ER.	Follow up water quality monitoring results exceed the criteria listed Section 5.5 of SMP and not approved by the ER.
	Response	Continue ESCP / CEMP implementation.	Follow up water quality monitoring will be completed to ensure results are just an anomaly and not a trend.	Appropriate measures are implemented. Follow up water quality monitoring is undertaken to ensure they satisfy the criteria in Section 5.5 of SMP and are approved by the ER.
<b>Waste</b>				
Waste	Trigger	Inspections identified no waste outside of dedicated bins and stockpiles.	Inspections identified minimal waste outside of dedicated bins and stockpiles.	Inspections identified large quantities of waste outside of dedicated bins and stockpiles. Complaints received regarding waste.





Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	Continue WMP / CEMP implementation.	The waste is cleaned up immediately.	The waste is cleaned up immediately. The Communications and Community Liaison Representative is also notified and the complaints handling process outlined in <b>Section 3.6</b> and the CCCHS is implemented.
<b>Heritage</b>				
Heritage	Trigger	No unknown heritage items uncovered.	Potential heritage item uncovered.	Potential heritage item uncovered causing significant delays to project.
	Response	Continue CEMP implementation.	Stop work and implement the unexpected finds protocol.	Stop work and implement the unexpected finds protocol. Heritage item to be salvaged and removed from site by a qualified archaeologist.
<b>Hazardous Goods and Contamination</b>				
Unexpected Contamination	Trigger	No contamination uncovered during earthworks.	Areas of possible contamination uncovered.	Areas of contamination uncovered.
	Response	Continue CEMP implementation.	Stop work immediately and the contamination assessed according to the UFP.	Stop work immediately. A validation report is to be prepared following remediation.
<b>Bushfire</b>				
Bushfire	Trigger	No bushfire or bushfire prone weather.	Bushfire prone weather during summer.	Bushfire in the vicinity of the site.
	Response	Continue CEMP implementation.	Ensure grass is kept short and vegetation is minimal at the site. Weather is to be monitored twice daily for chance of bushfire.	Stop work and contact NSW Fire and Rescue on '000'. Evacuate the site as directed by NSW Fire and Rescue.
<b>Community</b>				
Submission	Trigger	General feedback/comment (no complaint or query).	Enquiry made by formal or informal channels.	Complaint made by formal or informal channels.
	Response	Acknowledge receipt and record in Complaints Register. No further response required.	Acknowledge receipt and record in Complaints Register. Direct enquiry to relevant person for actioning and response within 5 days.	Acknowledge receipt and record in Complaints Register. Respond to complaint immediately, if possible, if not direct enquiry to relevant person for actioning and provide complainant with a follow up verbal response on what action is proposed within two hours during construction works (including night and weekend works) and 24 hours at other times.





Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Media	Trigger	Positive story in print, online, radio or television.	Neutral or advisory story in print, online, radio or television.	Negative story in print, online, radio or television.
	Response	Record in Complaints Register and advise the proponent media/marketing team. No further response required.	Record in Complaints Register and advise the proponent media/marketing team. No further response required.	Record in Complaints Register and advise the proponent Project Team for further action and response. Contact relevant person for actioning and response within 48 hours
Unscheduled Event	Trigger	Event occurring outside of plan or schedule without impact or potential impact.	Event occurring outside of plan or schedule with minor impact or potential impact.	Event occurring outside of plan or schedule with major impact or potential impact.
	Response	No response required. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response within 48 hours. Acknowledge in Complaints Register. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response immediately. Acknowledge in Complaints Register. Identify opportunities for improvement to manage potential future events.
Political Interest	Trigger	General or non-specific enquiry by Local, State or Federal political representative.	Enquiry or complaint relating to minor issue by Local, State or Federal political representative.	Enquiry or complaint relating to major issue by Local, State or Federal political representative.
	Response	CCLR in conjunction with The Proponent Project Team to prepare and provide response or assign response task to relevant staff member for comment. Record in Complaints Register.	CCLR in conjunction with the proponent Project Team to prepare and provide response within 48 hours. Record in Complaints Register.	CCLR in conjunction with the proponent Project Team to prepare and provide response within 24 hours. Record in Complaints Register.





## 6.0 Review and Improvement of Environmental Performance

Review and improvement of environmental performance against CEMP will be undertaken at least quarterly and will include participation by the Proponent. The review will comprise, as a minimum, the following:

- Identification of areas of opportunity for improved environmental performance.
- Analysis of the causes of incidents and non-compliances, including those identified in environment inspections and audits (see Section 3.5).
- Verification of the effectiveness of corrective and preventative actions.
- Highlighting any changes in procedures resulting from process improvement.

Condition E8 of SSD 10448 and Condition C8 of SSD 58257960 also states that all strategies, plans, and programs required under SSD 10448 will be reviewed and Planning Secretary notified of the review within three months of:

- the submission of a compliance report.
- the submission of an incident report.
- the approval of any modification of the conditions of this consent.
- the issue of a direction of the Planning Secretary under Condition C.2(b) which requires a review.

This CEMP and all relevant strategies, plans and programs will also be reviewed and, if necessary, revised in the following circumstances:

- Where there is any change to the scope of the construction activities and/or disturbance footprint.
- Where it is identified that the environmental performance is not meeting the objectives of the CEMP.
- At the request of a relevant regulatory authority.

Notwithstanding the review requirements outlined above periodic review of this CEMP and all management plans is required under SSD 10448 and SSD 58257960. The periodic review is to take account of any required changes to procedures, updates or changes to best practice, any non-compliances in the proceeding 6-month period and whether changes can be made to improve the environmental performance of the development.

As per Condition E9 (SSD 10448) and Condition C9 (SSD 58257960) where documents are revised under the above reviews the revised documents will be sent to DPHI within 6 weeks of review which will require DPHI approval. All employees and contractors will be informed of any revisions to the CEMP by the Contractor's Project Manager during toolbox talks.

In accordance with Conditions A19 of SSD 10488 and Condition A16 of SSD 58257960, Mirvac may, at their discretion, seek to stage, combine or update strategies, plans or programs required under SSD 10488 and SSD 58257960.

In accordance with Conditions A20 and A21 of SSD 10488 and Conditions A15 and A16 of SSD 58257960, if the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition of the Development Consent. The most recent approved strategy, plan or program will be implemented in accordance with Condition C4 of SSD 10448 and Condition A17 of SSD 58257960.





## 7.0 References

Arcadis (2022) Unexpected Finds Protocol (UFP - Contamination)

Arcadis (2023) Groundwater Management Plan

Artefact (2022) Unexpected Finds Protocol (UFP – Heritage)

Ason (2024) Construction Traffic Management Plan

BHA (2023) Bushfire Hazard Assessment

Core Engineering (2023) Fire Safety Strategy

Department of Infrastructure, Planning and Natural Resources (2004) Guideline for the Preparation of Environmental Management Plans

Ecological (2021) Flora and Fauna Management Plan (FFMP)

Ecological (2021) Vegetation Management Plan (VMP)

MRA (2024) Waste Management Plan

PSM (2022) Salinity Management Plan

Rubicon (2024) Erosion and Sediment Control Plan

SLR Consulting (2024) Construction Air Quality Management Plan

SLR Consulting (2024) Construction Environmental Management Plan Aspect Industrial Estate (Master CEMP)

SLR Consulting (2024) Construction Noise and Vibration Management Plan

SLR Consulting (2024) Community Consultation and Complaint Handling Strategy

SLR Consulting (2024) Flood Emergency Report Plan

Stantec (2023) ESD Report

Urbis (2020) Aspect Industrial Estate Environmental Impact Statement

Urbis (2021) Aspect Industrial Estate Response to Submissions

Urbis (2022) SSD-10448 Aspect Industrial Estate Amended Development Report

Urbis (2022) Aspect Industrial Estate – MOD 2- Environmental Impact Statement

Urbis (2023) Environmental Impact Statement – Warehouse 2 (SSD-58257960) Aspect Industrial Estate

Urbis (2023) Aspect Industrial Estate Stage 3 Development (SSD-58257960) – Response to Request for Additional Information Warehouse 2







# Appendix A    SSD 10448 Consent

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



# Development Consent

## Section 4.38 of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning under delegation executed on 9 March 2022, I determine:

- a) to grant consent to the Staged Development Application referred to in Schedule 1, subject to the Concept Proposal conditions and Stage 1 Development Application conditions in Schedule 2;
- b) that pursuant to section 4.37 of the *Environmental Planning and Assessment Act 1979* (NSW), any subsequent development under the Concept Proposal is only considered to be State Significant Development should the development meet the relevant criteria in Schedule 1 of State Environmental Planning Policy (Planning Systems) 2021 (or any substituted SEPP).

These conditions are required to:

- prevent, minimise, or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

Chris Ritchie  
Director  
Industry Assessments

Sydney

24 May 2022

*The Department has prepared a consolidated version of the consent which is intended to include all modifications to the original determination instrument.*

*The consolidated version of the consent has been prepared by the Department with all due care. This consolidated version is intended to aid the consent holder by combining all consents relating to the original determination instrument, but it does not relieve a consent holder of its obligation to be aware of and fully comply with all consent obligations as they are set out in the legal instruments, including the original determination instrument and all subsequent modification instruments.*



# CONSOLIDATED CONSENT

## SCHEDULE 1

Application Number:	SSD-10448
Applicant:	Mirvac Projects Pty Ltd
Consent Authority:	Minister for Planning
Site:	<p><u>Aspect Industrial Estate</u></p> <p><del>Lots 54-58 DP 259135</del> <del>Lots 1, 2 and 5 DP 1285305 and Lots 6 and 7 DP 1291562</del></p> <p>Lots 301 and 305 DP 1305254, Lots 104 and 105 DP 1305965</p> <p><del>788-882-788-882</del> Mamre Road, Kemps Creek NSW 2178</p> <p><u>Elizabeth Enterprise Precinct</u></p> <p>Lot 100 DP 1283398 and Lot 741 DP 810111</p> <p>1669A and 1669-1723 Elizabeth Drive, Badgerys Creek NSW 2555</p> <p><del>1669-1723 Elizabeth Drive, Badgerys Creek NSW 2555</del></p>
Development:	<p>The Staged Development Application for the Aspect Industrial Estate comprised of:</p> <ul style="list-style-type: none"><li>• a Concept Proposal for the staged development of an industrial estate comprising of 9 buildings with a total GFA of up to 247,646 square metres (m<sup>2</sup>) for industrial, warehousing and distribution centres, and café uses</li><li>• Stage 1 development comprising site preparation works, vegetation clearing, realignment of the existing creek, construction of access roads and eastern half of Mamre Road/ Access Road 1 intersection works, construction, fit out, and operation of one warehouse and one industrial building with ancillary offices, car parks, landscaping, signage, construction and operation of services and utilities, and subdivision of the site into three lots; and</li><li>• inclusion of the Elizabeth Enterprise Precinct site for stormwater management purposes only.</li></ul>



## CONSOLIDATED CONSENT

### SUMMARY OF MODIFICATIONS

Application Number	Determination Date	Decider	Modification Description
SSD-10448-MOD-1	25 August 2022	Principal Planning Officer, Industry Assessments	Modification to include additional conditions required by TfNSW for SSD-10448
SSD-10448-MOD-2	30 November 2022	Team Leader, Industry Assessments	Modification to Concept Plan and Stage 1 Development layouts
SSD-10448-MOD-3	2 March 2023	Director, Industry Assessments	Modification to Concept Plan and Stage 1 Development
SSD-10448-MOD-5	12 December 2023	Director, Industry Assessments	Use of the temporary left-in/left-out construction access on Mamre Road by Warehouse 1 operational vehicles.
SSD-10448-MOD-4	21 December 2023	Director, Industry Assessments	Modification to amend the Concept Proposal and Stage 1 stormwater management strategy
SSD-10448-MOD-7	15 July 2024	Team Leader, Industry Assessments	Use of the temporary left-in/left-out construction access on Mamre Road by Warehouses 1 and 9 operational vehicles.



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## CONSOLIDATED CONSENT

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## DEFINITIONS

<b>ADR</b>	Amended Development Report titled 'SSD-10448 Aspect Industrial Estate Amended Development Report', prepared by Urbis and dated 5 May 2022
<b>Applicant</b>	Mirvac Projects Pty Ltd, or any person carrying out any development to which this consent applies
<b>BCA</b>	Building Code of Australia
<b>BC Act</b>	<i>Biodiversity Conservation Act 2016</i> (NSW)
<b>Calendar year</b>	A period of 12 months commencing on 1 January
<b>CAQMP</b>	Construction Air Quality Management Plan
<b>Carrier</b>	Operator of a telecommunication network and/ or associated infrastructure, as defined in s 7 of the <i>Telecommunications Act 1997</i> (Cth)
<b>CDWMP</b>	Construction and Demolition Waste Management Plan
<b>Certifier</b>	A council or an accredited certifier (including principal certifiers) who is authorised under s 6.5 of the EP&A Act to issue Part 6 certificates
<b>CEMP</b>	Construction Environmental Management Plan
<b>CNMP</b>	Construction Noise Management Plan
<b>Conditions of this consent</b>	Conditions contained in Schedule 2 of this consent
<b>Concept Proposal</b>	Concept layout of 44 9 buildings and ancillary offices for industrial, warehousing and distribution centres, and café uses, as described in the EIS, Response to Submissions and ADR
<b>Construction</b>	The demolition and removal of buildings or works, the carrying out of works for the purpose of the development, including bulk earthworks and erection of buildings and other infrastructure permitted by this consent
<b>Council</b>	Penrith City Council
<b>Day</b>	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
<b>Decommissioning</b>	The controlled process of safely retiring a facility from service, including decontamination, dismantling, and disposal after the cessation of operations
<b>Demolition</b>	The deconstruction and removal of buildings, sheds, and other structures on the site
<b>Department</b>	Department of Planning and Environment
<b>Development</b>	The development described in Schedule 1, the EIS, Response to Submissions, and ADR, including the construction and operation of 44 9 buildings, ancillary offices and associated infrastructure for industrial, warehousing and distribution centres, and café uses, as shown on the plans in Appendix 1, and as modified by the conditions of this consent
<b>Development layout</b>	The Plans at Appendix 1 of this consent
<b>DPE</b>	Has the same meaning of the Department
<b>Earthworks</b>	Bulk earthworks, site levelling, import and compaction of fill materials, excavation for installation of drainage and services, to prepare the site for construction
<b>EEP</b>	Elizabeth Enterprise Precinct (Lot 100 DP 1283398 and Lot 741 DP 810111), (1669A and 1669-1723 Elizabeth Drive, Badgerys Creek NSW 2555) as described in the Modification Report titled AIE Concept Plan and Stage 1 Modification (SSD-10448 MOD 4) Modification Report, prepared by Urbis, dated September 2023 and shown in Figure 5 in Appendix 2 of this consent
<b>E&amp;H</b>	Environment and Heritage Group, DPE
<b>EIS</b>	The Environmental Impact Statement titled Aspect Industrial Estate Environmental Impact Statement, prepared by Urbis, dated November 2020, submitted with the application for consent for the development
<b>ENM</b>	Excavated Natural Material
<b>Environment</b>	As defined in section 1.4 of the EP&A Act



## CONSOLIDATED CONSENT

<b>EPA</b>	NSW Environment Protection Authority
<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
<b>EP&amp;A Regulation</b>	Environmental Planning and Assessment Regulation 2000 (NSW)
<b>ER</b>	Environmental Representative
<b>Evening</b>	The period from 6 pm to 10 pm
<b>Fibre-ready facility</b>	As defined in s 372W of the <i>Telecommunication Act 1997</i> (Cth)
<b>Heritage</b>	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
<b>Heritage item</b>	An item as defined under the <i>Heritage Act 1977</i> (NSW), and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i> (NSW), the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth), or anything identified as a heritage item under the conditions of this consent
<b>Incident</b>	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance  <i>Note: 'material harm' is defined in this consent</i>
<b>IWCM</b>	Integrated Water Cycle Management
<b>Land</b>	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
<b>Material harm</b>	Is harm that:  (a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or  (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)
<b>Minister</b>	New South Wales Minister for Planning (or delegate)
<b>Mitigation</b>	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
<b>Modification Assessments</b>	<p>The document assessing the environmental impacts of a proposed modification of this consent and any other information submitted with the following modification application made under the EP&amp;A Act:</p> <ul style="list-style-type: none"> <li>a) Section 4.55(1) Application to Amend SSD-10448, Aspect Industrial Estate, prepared by Urbis, dated 19 July 2022.</li> <li>b) Section 4.55(1A) Application to Amend SSD-10448, Aspect Industrial Estate, prepared by Urbis, dated June 2022.</li> <li>c) AIE Concept Plan and Stage 1 Modification (SSD-10448 MOD 3) and Stage 2 Development Application (SSD-46516461) Environmental Impact Statement, prepared by Urbis, dated 21 September 2022.</li> <li>d) AIE Concept Plan and Stage 1 Modification (SSD-10448 MOD 5) Modification Report, prepared by Urbis, dated September 2023.</li> <li>e) AIE Concept Plan and Stage 1 Modification (SSD-10448 MOD 4) Modification Report, prepared by Urbis, dated September 2023.</li> <li>f) AIE Concept Plan, Stage 1 and Stage 2 Modification SSD-10448 MOD 7 SSD-46516461 MOD 2, prepared by Urbis, dated May 2024.</li> </ul>
<b>Modification 5</b>	The temporary use of the left-in/left-out construction access on Mamre Road by Warehouse 1 operational vehicles until the signalised Mamre Road/Access Road 1 intersection is constructed and commissioned as described in AIE Concept Plan and Stage 1 Modification (SSD-10448 MOD 5) Modification Report, prepared by Urbis, dated September 2023
<b>Modification 7</b>	The temporary use of the left-in/left-out construction access on Mamre Road by Warehouses 1 and 9 operational vehicles until the signalised Mamre Road/Access Road 1 intersection is



	constructed and commissioned as described in AIE Concept Plan, Stage 1 and Stage 2 Modification SSD-10448 MOD 7 SSD-46516461 MOD 2, prepared by Urbis, dated May 2024.
<b>Monitoring</b>	Any monitoring required under this consent must be undertaken in accordance with section 9.40 of the EP&A Act
<b>MRP</b>	Mamre Road Precinct
<b>MRP DCP</b>	Mamre Road Precinct Development Control Plan (NSW Government, 2021)
<b>Night</b>	The period from 10 pm to 7 am on Monday to Saturday, an 10 pm to 8 am on Sundays and Public Holidays
<b>Non-compliance</b>	An occurrence, set of circumstances or development that is a breach of this consent
<b>Night</b>	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
<b>NML</b>	Noise Monitoring Locations
<b>Non-compliance</b>	An occurrence, set of circumstances or development that is a breach of this consent
<b>NRAR</b>	Natural Resources Access Regulator, DPE
<b>OEMP</b>	Operational Environmental Management Plan
<b>Operation</b>	The use of warehouse and industrial buildings for storage, distribution or manufacture of goods upon completion of construction as described in the EIS and ADR
<b>PA</b>	Means a planning agreement within the meaning of the term in section 7.4 of the EP&A Act.
<b>Planning Secretary</b>	Planning Secretary under the EP&A Act, or nominee
<b>POEO Act</b>	<i>Protection of the Environment Operations Act 1997</i> (NSW)
<b>Precinct-Wide Stormwater Infrastructure</b>	Refers to future regional stormwater infrastructure for the MRP to be operated by a stormwater management authority
<b>Principal Certifier</b>	The certifier appointed as the principal certifier for the building work under s 6.6(1) of the EP&A Act or for the subdivision work under s 6.12(1) of the EP&A Act
<b>Reasonable</b>	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
<b>Registered Aboriginal Parties</b>	Means the Aboriginal persons identified in accordance with the document entitled ' <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> ' (DECCW)
<b>Registered Surveyor</b>	Means registered surveyor within the meaning of the term in the <i>Surveying and Spatial Information Act 2002</i> (NSW)
<b>Response to Submissions (RtS)</b>	The Applicant's response to issues raised in submissions received in relation to the application for consent for the development under the EP&A Act and includes the document titled Aspect Industrial Estate Response to Submissions SSD-10448, prepared by Urbis, dated 5 March 2021
<b>Roads authority</b>	As defined in dictionary of the <i>Roads Act 2003</i> (NSW)
<b>Sensitive receivers</b>	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office, or public recreational area
<b>Site</b>	The land defined in <a href="#">Schedule 1</a>
<b>Stage 1 development</b>	Sitewide bulk earthworks, retaining walls, estate basin, riparian corridor realignment, construction of access roads and the Mamre Road / Access Road 1 intersection construction and operation of buildings 1 and 3, café, landscaping services and utilities installation and subdivision, as described in the EIS, Response to Submissions and ADR
<b>Stage 1 Phase 1 Road Works</b>	Involves construction and operation of a signalised intersection at Mamre Road, Access Road 1 between Mamre Road and Access Road 2, and Access Road 2 as identified in Figure 1 at Appendix 1
<b>Stage 1 Phase 2 Road Works</b>	Involves construction and operation of a roundabout at Access Roads 1 and 3 intersection, the remaining portion of Access Road 1 between Access Road 2 and the roundabout, and Access Road 3 to the south of the roundabout (excludes Access Road 3 - North)
<b>TfNSW</b>	Transport for New South Wales



## CONSOLIDATED CONSENT

<b>Traffic control facilities</b>	Has the same meaning as the definition of the term in Dictionary of the <i>Roads Act 1993</i> (NSW).
<b>VENM</b>	Virgin Excavated Natural Material
<b>WAD</b>	Works Authorisation Deed
<b>WSUD</b>	Water Sensitive Urban Design

FOR INFORMATION



## SCHEDULE 2

### PART A CONDITIONS FOR CONCEPT PROPOSAL

#### TERMS OF CONSENT

- A1. The development may only be carried out:
- (a) in compliance with the conditions of this consent;
  - (b) in accordance with all written directions of the Planning Secretary;
  - (c) in accordance with the EIS, Response to Submissions (RtS), and Amended Development Report (ADR);
  - (d) in accordance with the Modification Assessments;
  - (e) in accordance with the Development Layout in Appendix 2; and
  - (f) in accordance with the management and mitigation measures in Appendix 5.
- A2. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:
- (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and
  - (b) the implementation of any actions or measures contained in any such document referred to in condition A2(a).
- A3. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A1(c) or A1(f). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A1(c) or A1(f), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

#### FUTURE DEVELOPMENT APPLICATIONS

- A4. In accordance with section 4.22 of the EP&A Act, each subsequent stage of the Concept Proposal (excluding Stage 1 development) is to be subject to future development applications (DAs). Future DAs are to be consistent with the terms of this consent.

#### MODIFICATIONS TO THE CONCEPT PROPOSAL

- A4A. This consent does not approve the concept stormwater management strategy described in:
- Section 3.3 of the AIE Concept Plan and Stage 1 Modification (SSD-10448 MOD 4) Modification Report, prepared by Urbis Ltd, dated September 2023;
  - Section 3.2 of the SSD-10448 MOD 4 Response to Submissions, prepared by Urbis Ltd, dated 6 December 2023; and
  - Section 5.1 of the Aspect Industrial Estate Water and Stormwater Management Plan, prepared by AT&L, dated 6 December 2023.
- A4B. Any development applications for future stages of the AIE must be accompanied with a revised site-wide stormwater management strategy demonstrating compliance with the Integrated Water Cycle Management (IWCM) controls in the MRP DCP in accordance with the *Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets* (NSW Government, 2022).

#### LIMITS OF CONSENT

- A5. This consent lapses five years after the date from which it operates unless the development has physically commenced on the land to which the consent applies before that date.
- A6. The Applicant must ensure any future development of the site is consistent with the *Mamre Road Precinct Development Control Plan 2021* (NSW Government, 2021) (MRP DCP).
- A7. The maximum GFA for future development on the site for the land uses described in **Table 1** must not exceed the limits described in that table.

**Table 1** Maximum GFA of the Concept Proposal

Land Use	Maximum GFA (m <sup>2</sup> )
Warehouse and distribution centres and general industrial	237,813
Ancillary offices	9,708
<b>Total</b>	<b>247,646</b>



- A8. A future road widening corridor along the western boundary must not be developed and must be maintained and preserved for the future Mamre Road widening works as shown in **Figure 1** in **Appendix 1**.
- A9. The largest vehicle permitted to access the site is a 30 m Performance Based Standards (PBS) Level 2 Type B.
- A9A. The maximum height for future development on the site described in Table 1A must not be exceeded.

**Table 1A** Maximum Building Height of the Concept Proposal

Land Use	Height (m)
Warehouse 1	<ul style="list-style-type: none"> <li>16.0 m (excluding rooftop plant)</li> <li>18.4 m (including rooftop plant)</li> </ul>
Warehouse 9	<ul style="list-style-type: none"> <li>14.6 m</li> </ul>
All other warehouses	13.7 m

## Elizabeth Enterprise Precinct

- A9B. Under this consent, the EEP site must only be used for stormwater management purposes as required by Condition A9E until the Precinct-Wide Stormwater Infrastructure becomes available for the AIE to connect into.

*Note: Any future use of the EEP site other than for stormwater management purposes may be considered by the Department as part of a separate future modification and/or application should alternative stormwater management strategies become available.*

- A9C. This consent does not permit the use of the EEP site for any other development or use and must be preserved as undeveloped land for the purposes described in Condition A9E.
- A9D. The conditions in Part B, Schedule 2 of this consent do not apply to the EEP site as described in Schedule 1 of this consent.

## STORMWATER MANAGEMENT

- A9E. The site must achieve compliance with the Integrated Water Cycle Management (IWCM) controls in the MRP DCP in accordance with the *Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets* (NSW Government, 2022).

## STAGING PLAN

- A10. Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The plan shall:
- be prepared in consultation with Council, utility and service providers and other relevant stakeholders;
  - describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;
  - show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;
  - include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and
  - include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades.
- A11. The Applicant must:
- not commence construction of any stage of the Development until the Staging Plan required by Condition A12 is approved by the Planning Secretary; and
  - implement the most recent version of the Staging Plan approved by the Planning Secretary.
- A12. The Planning Secretary may require the Applicant to address certain matters identified in the Staging Plan. The Applicant must comply with any such requirements of the Planning Secretary given as part of the Staging Plan approval.

### Notes:

- The Applicant may amend the Staging Plan as desired, with the approval of the Planning Secretary.
- The Staging Plan is intended to broadly describe the development sequence for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.



## TRAFFIC

- A13. The Applicant must monitor operational traffic for all developments in the concept proposal for a period of 12 months following commencement of operation of each development under the relevant stage. This must include, but not be limited to:
- (a) details of the number and frequency of truck numbers generated by the relevant stage of the Concept Proposal along with any approved developments under the concept proposal;
  - (b) verification of the predicted traffic numbers and level of service against the relevant stage of the Concept Proposal, and analyse the potential cause of any significant discrepancies; and
  - (c) consideration of the current capacity and efficiency of the existing road network including Mamre Road.

## FUTURE INFRASTRUCTURE REQUIREMENTS

- A14. The Applicant must prepare an Infrastructure Review to support each future stage of the Concept Proposal. The Infrastructure Review must demonstrate the surrounding road infrastructure can accommodate the relevant stage and other approved developments in the MRP. The Infrastructure Review must:
- (a) detail traffic volumes from all operating stages of the Concept Proposal;
  - (b) include background traffic volumes from key roads within the MRP, including Mamre Road;
  - (c) assess the operating performance of key intersections in the MRP, including Mamre Road and Access Road 1;
  - (d) detail the current level of approved development within the MRP, including total approved GFA;
  - (e) consider consistency with the latest approved Concept Proposal traffic volumes;
  - (f) demonstrate the road network has sufficient capacity to accommodate the proposed stage of the Concept Proposal, and if the proposed stage would trigger the need for any road upgrades, including those identified in the traffic modelling for the MRP;
  - (g) if road upgrades are required to support the proposed stage, identify the timing and mechanisms to contribute to the delivery of the required road upgrades.
- A15. The outcomes of the Infrastructure Review must be used to inform the Staging Plan required by Condition A10.

## NOISE LIMITS

- A16. The Applicant must:
- (a) ensure the cumulative noise emission of fixed external mechanical plant for each warehouse building do not exceed 90 dB(A) and do not exhibit tonal characteristic or strong low frequency content; and
  - (b) ensure the noise generated by the operation of the Development does not exceed the noise limits in Table 2.

**Table 2** Operational Noise Limits for Concept Proposal dB(A)

Location	Day LAeq (15 minute)	Evening LAeq (15 min)	Night LAeq (15 min)
Residential receivers near Medinah Avenue (Luddenham), Mount Vernon Road (Mont Vernon) and Kerrs Road (Mont Vernon)	39	34	29
BAPS Temple – Outdoor Use Area (Except Car Parking Area)	36 (when in use)		

**Note:**

- Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017) (as may be updated or replaced from time to time). Refer to the plan in Appendix 3 for the location of residential sensitive receivers.

- A16A. Prior to the commencement of operation of any part of the Development, the Applicant must prepare and submit an Operational Noise Management Plan to the satisfaction of the Planning Secretary. The Operational Noise Management Plan must:

- (a) describe the noise performance monitoring method established in accordance with the following guidelines and standards (as may be updated or replaced from time to time) to analyse compliance with the limits specified in condition A16:
  - (i) the Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018);



- (ii) the EPA Approved Methods for the Measurement and Analysis of Environmental Noise in NSW (EPA, 2022);
  - (iii) Section 7 of the Noise Policy for Industry (EPA, 2017);
- (b) identify the allowable noise contribution level of each warehouse at compliance locations identified in Table 2;
- (c) identify the nominated intermediate monitoring locations, reference noise levels at each intermediate location, and noise level relationship between each intermediate location and compliance locations identified in Table 2;
- (d) include:
  - (i) an outline of at-source and transmission path mitigation measures required to ensure compliance with the limits specified in condition A16;
  - (ii) a description of operational procedures to minimise noise, including load dock management practices and driver code of conduct;
  - (iii) a description of contingency measures (including the cessation of non-compliant noise generating activities during the night-time period) in the event mitigation measures and operational procedures are ineffective at reducing operational noise to comply with limits specified in condition A16;
- (e) be updated within three months of the approval of any modification of the Development Layout or determination of future DAs.

## MAMRE ROAD PRECINCT WORKING GROUP

- A17. For the duration of construction works for each development under the Concept Proposal, and until all components of the development under the Concept Proposal are operational, the Applicant must participate in the Mamre Road Precinct Working Group with relevant consent holders in the MRP to the satisfaction of the Planning Secretary (see Condition C34 in Schedule 2).

## EVIDENCE OF CONSULTATION

- A18. Where conditions of this consent require consultation with an identified party, the Applicant must:
- (a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and
  - (b) provide details of the consultation undertaken including:
    - (i) the outcome of that consultation, matters resolved and unresolved; and
    - (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

## STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

- A19. With the approval of the Planning Secretary, the Applicant may:
- (a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);
  - (b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and
  - (c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).
- A20. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.
- A21. If approved by the Planning Secretary, updated strategies, plans, or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan, or program.

## ADVISORY NOTES

- AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consent.



**PART B CONDITIONS FOR FUTURE DEVELOPMENT APPLICATIONS****TRAFFIC AND ACCESS****Traffic Impact Assessment**

- B1. Future DAs shall be accompanied by a traffic impact assessment (TIA). The TIA must:
- (a) assess the impacts on the safety and capacity of the surrounding road network and access points during construction and operation of the relevant stage in accordance with relevant TfNSW guidelines;
  - (b) include traffic monitoring data collected under Condition D3 and incorporate the relevant findings into this assessment;
  - (c) demonstrate internal roads and car parking complies with relevant Australian Standards and the car parking rates in Condition B2;
  - (d) demonstrate the Mamre Road/Access Road 1 intersection can accommodate operational traffic associated with the relevant stage;
  - (e) detail the scope and timing of any required road or intersection upgrades to service the relevant stage if the assessment under sub-clause (d) identifies that additional upgrades are required; and
  - (f) detail measures to promote non-car travel modes, including a Sustainable Travel Plan identifying pedestrian and cyclist facilities to service the relevant stage of the development.

**Car Parking**

- B2. Car parking must be provided in accordance with the RMS Guide to Traffic Generating Developments and at the following rates:
- warehouse and distribution centre: 1 space per 300 m<sup>2</sup>
  - office: 1 space per 40 m<sup>2</sup>
  - café: 1 space per 10 m<sup>2</sup>.

**Access**

- B3. Future developments on the site must meet the following requirements:
- (a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of Australian Standards *AS 1428.1 Design for Access and Mobility - General Requirements for Access - New Building Work*, AS 2890.1, AS 2890.2 and AS 2890.6;
  - (b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant Austroads guidelines;
  - (c) vehicles must not queue on the public road network;
  - (d) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site;
  - (e) all vehicles are wholly contained on site before being required to stop;
  - (f) all loading and unloading of materials is carried out on-site;
  - (g) all vehicles enter and exit the site in a forward direction;
  - (h) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network; and
  - (i) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.

**Bicycle Parking and End-of-Trip Facilities**

- B4. Bicycle parking and end-of-trip facilities is to be provided with suitable pedestrian connections linking these facilities with the offices/ warehouses in accordance with relevant guidelines and standards.

**FUTURE FREIGHT NETWORK**

- B5. Future DAs must make appropriate provision for the freight network identified in the MRP DCP, including the alignment and width of the corridor and access to the network within the site, to the satisfaction of TfNSW.

**STORMWATER MANAGEMENT**

- B6. Future development on the site must achieve compliance with the Integrated Water Cycle Management (IWCM) controls in the MRP DCP in accordance with the *Draft Technical Guidance for achieving Wianamatta South Creek*



*Stormwater Management Targets* (NSW Government, 2022). The Applicant must ensure sufficient land is reserved for stormwater management purposes, unless the Applicant provides evidence that an agreement is in place to demonstrate that the development is integrated into the regional stormwater system.

- B7. Development application for each future stage must include a Stormwater Management Strategy (SMS) incorporating the relevant stage and all preceding stages of the AIE. The Strategy must:
- (a) be prepared by a suitably qualified chartered professional engineer with experience in modelling, design, and supervision of WSUD systems in consultation with the relevant stormwater management authority;
  - (b) consider the approved or as modified stormwater management system for preceding stages of the development, including compliance of this system with the IWCM controls of the MRP DCP (refer to Condition D30);
  - (c) outline any stormwater infrastructure required to be upgraded, installed, or removed consistent with the site-wide stormwater management strategy for the AIE as required by Condition A4B;
  - (d) demonstrate the relevant stage can comply with the IWCM controls of the MRP DCP;
  - (e) include an assessment of any impacts on salinity and sodic soils from the future development including any proposed WSUD infrastructure; and
  - (f) detail what infrastructure may be required to connect to a precinct-wide stormwater management system for the relevant stage.

### DEVELOPMENT CONTRIBUTIONS

- B8. Prior to the issue of a Construction Certificate (or at a time otherwise permitted by the contributions plan or agreed by Council) for any future stage of the Development, the Applicant must pay contributions to Council as required in accordance with the Penrith City Mamre Road Precinct Development Contributions Plan 2022, or any other contributions plan as in force when the later consent takes effect.

*Note: Subject to agreement between Council and the Applicant, local contributions may be satisfied by a planning agreement or works-in-kind agreement between Council and the Applicant.*

- B9. *The Environmental Planning and Assessment (Special Infrastructure Contribution – Western Sydney Aerotropolis) Determination 2022* requires special infrastructure contributions to be made for development on rezoned land within the Western Sydney Aerotropolis Special Infrastructure Contributions Area (within the meaning of that Determination). Accordingly, any special infrastructure contribution imposed by a condition of consent to a subsequent development application in relation to the site to which this consent applies is to be determined in accordance with that Determination, or any subsequent determination of the Minister under section 7.23 of the *Environmental Planning and Assessment Act 1979* (NSW), as in force when the later consent takes effect.

### NOISE AND VIBRATION

- B10. Future DAs must be accompanied by a Noise and Vibration Impact Assessment. The assessment must:
- (a) identify the noise and vibration impacts during construction and operation;
  - (b) demonstrate compliance with the noise limits in Condition A16;
  - (c) provide an analysis of all external plant and equipment, including but not limited to, forklifts, air conditioners and refrigeration systems and on-site vehicle movements;
  - (d) incorporate noise mitigation measures, such as increased building setbacks, building insulation, noise barriers, layout of truck loading areas or source controls, to demonstrate the noise limits in Condition A16 can be achieved;
  - (e) recommend mitigation and management measures (excluding measures at receivers) to be implemented to minimise noise during construction and operation.

### VISUAL AMENITY

#### Landscaping

- B11. Landscaping design for future developments must comply with the relevant requirements under the MRP DCP.
- B12. Future development must be accompanied by a Landscape Plan consistent with the key principles and plant species described in the Landscape Plans titled *Aspect Industrial Estate, Mamre Road, Kemps Creek Landscape Masterplan*, Dated October 2020.

#### Outdoor Lighting

- B13. Future development must ensure compliance with Australian Standards *AS/NZS 1158.3.1:2005 Pedestrian Area (Category P) Lighting* and *AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting*.



**Signage**

- B14. Future development must include details of any external advertising signage and demonstrate compliance with the requirements of Condition D40 and Chapter 3 of the State Environmental Planning Policy (Industry and Employment) 2021 (or any substituted SEPP).

**Glazing**

- B15. The visible light reflectivity from building materials used in façades along Mamre Road and the internal road frontages must meet the minimum requirements of the MRP DCP.

**BUSHFIRE PROTECTION**

- B16. The Applicant shall ensure future DAs comply with:
- (a) the relevant provisions of *Planning for Bushfire Protection* (NSW RFS, 2019);
  - (b) the construction standards and asset protection zone requirements recommended in the Bushfire Assessment for the Proposed Aspect Industrial Estate, prepared by Australian Bushfire Protection Planners Pty Limited, dated 6 October 2020; and
  - (c) Australian Standard *AS2419.1-2005 Fire hydrant installations System design, installation, and commissioning*.

**ENDEAVOUR ENERGY**

- B17. The Applicant must obtain relevant approvals from Endeavour Energy, or relevant service provider, prior to the construction of any electricity utility works to service each stage of the development.

**SYDNEY WATER**

- B18. Before the commencement of operation of any future developments, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the *Sydney Water Act 1994* (NSW).

**EXTERNAL WALLS AND CLADDING**

- B19. The external walls of all future buildings must comply with the relevant requirements of the BCA.
- B20. Future development involving the construction of external walls must ensure that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.

*Note: Documentary evidence that these comply with the BCA will need to be provided to the Certifier prior to the issue of any construction certificate for these works and prior to the Occupation Certificate. A copy of the documentation given to the Certifier will also be required to be provided to the Planning Secretary within seven days after the Certifier accepts it.*



## PART C STAGE 1 DEVELOPMENT GENERAL CONDITIONS

### OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

- C1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the Stage 1 Development, and any rehabilitation required under this consent.

### TERMS OF CONSENT

- C2. The Stage 1 development may only be carried out:
- (a) in compliance with the conditions of this consent;
  - (b) in accordance with all written directions of the Planning Secretary;
  - (c) in accordance with the EIS, RtS, and ADR;
  - (d) in accordance with the Modification Assessments;
  - (e) in accordance with the Development Layout in Appendix 3; and
  - (f) in accordance with the management and mitigation measures in Appendix 5.
- C3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:
- (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and
  - (b) the implementation of any actions or measures contained in any such document referred to in condition C2(a).
- C4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition C2(c) or C2(f). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition C2(c) or C2(f), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

### LIMITS OF CONSENT

#### Lapsing

- C5. This consent lapses five years after the date from which it operates unless the Stage 1 Development has physically commenced on the land to which the consent applies before that date.

#### Maximum GFA

- C6. The maximum GFA for the Stage 1 Development must not exceed the limits described in **Table 3**.

**Table 3** Maximum GFA for the Stage 1 Development

Land Use	Maximum GFA (m <sup>2</sup> )
<b>Warehouse 1</b>	
Warehouse and distribution centres and general industrial	32,686
Ancillary offices	1,200
<b>Subtotal</b>	<b>33,886</b>
<b>Warehouse 3</b>	
Warehouse and distribution centres and general industrial	20,735
Ancillary offices	800
<b>Subtotal</b>	<b>21,535</b>
<b>Total</b>	<b>55,421</b>

#### Stage 1 Development Operational Vehicles

- C6A. The Applicant must ensure no vehicles associated with the operation of Stage 1 accesses Bakers Lane, Aldington Road, and Abbots Road.

*Note: Any future use of Bakers Lane, Aldington Road, and Abbots Road may be considered by the Department as part of a separate future application should future road infrastructure upgrades become available*



## NOTIFICATION OF COMMENCEMENT

- C7. The date of commencement of each of the following phases of the Stage 1 Development must be notified to the Department in writing, at least one month before that date:
- (a) construction; and
  - (b) operation.

## EVIDENCE OF CONSULTATION

- C8. Where conditions of this consent require consultation with an identified party, the Applicant must:
- (a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and
  - (b) provide details of the consultation undertaken including:
    - (i) the outcome of that consultation, matters resolved and unresolved; and
    - (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

## STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

- C9. With the approval of the Planning Secretary, the Applicant may:
- (a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);
  - (b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and
  - (c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).
- C10. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.
- C11. If approved by the Planning Secretary, updated strategies, plans, or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.

## PROTECTION OF PUBLIC INFRASTRUCTURE

- C12. Before the commencement of construction, the Applicant must:
- (a) consult with the relevant owner and provider of services that are likely to be affected by the Stage 1 Development to make suitable arrangements for access to, diversion, protection, and support of the affected infrastructure;
  - (b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters, and footpaths); and
  - (c) submit a copy of the dilapidation report to the Planning Secretary and TfNSW.
- C13. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:
- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and
  - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

## DEMOLITION

- C14. All demolition must be carried out in accordance with *Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).

## STRUCTURAL ADEQUACY

- C15. All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the Building Code of Australia (BCA).

### Note:

- Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.



- Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.

## SUBDIVISION

- C16. Prior to the issuing of a Subdivision Certificate for any stage of the development, detailed work-as-executed drawings shall be prepared and signed by a Registered Surveyor, which show the finished surface levels of the access road, internal roads, drainage, and any areas of fill, carried out under this consent. The work-as-executed drawing must be submitted to the Certifier and Council prior to the issue of a Subdivision Certificate.
- C17. Prior to the issuing of a Subdivision Certificate for any stage of the development, the Applicant must provide to the Certifier evidence that all matters required to be registered on title, including easements, have been lodged for registration or registered at the Land Registry Services.
- C18. Prior to the issuing of a Subdivision Certificates for any stage of the development, a certificate from an electricity and telecommunications provider must be submitted to the Certifier certifying that satisfactory service arrangements to the site have been established.

## COMPLIANCE

- C19. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

## DEVELOPMENT CONTRIBUTIONS

- C20. Prior to the issue of a Construction Certificate (or at a time otherwise permitted by the contributions plan or otherwise agreed by Council) for any building in the Stage 1 Development, the Applicant must pay contributions to Council in accordance with the Penrith City Mamre Road Precinct Development Contributions Plan 2022.

*Note: subject to agreement between Council and the Applicant, local contributions may be satisfied by a planning agreement or works-in-kind agreement between Council and the Applicant.*

- C21. A special infrastructure contribution must be made in accordance with the Environmental Planning and Assessment (Special Infrastructure Contribution – Western Sydney Aerotropolis) Determination 2022 (2022 Determination) as in force when this development consent takes effect, for the first stage of development to which this consent applies.

A person may not apply for a subdivision certificate or construction certificate (as the case may require, having regard to the 2022 Determination) in relation to the first stage of development unless the person provides, with the application, written evidence from the Department of Planning and Environment that the special infrastructure contribution for the first stage of development (or that part of the development for which the certificate is sought) has been made or that arrangements are in force with respect to the making of the contribution.

A special infrastructure contribution may also be required to be made for further development that consists of, or involves, development on rezoned land within the meaning of the 2022 Determination on the site to which this consent applies.

Any special infrastructure contribution imposed by a condition of consent to a subsequent development application is to be determined in accordance with the 2022 Determination, or any subsequent determination of the Minister under section 7.23 of the Environmental Planning and Assessment Act 1979, as in force when that later consent takes effect.

### More information

*A request for assessment by the Department of Planning and Environment of the amount of the contribution that is required under this condition can be made through the NSW planning portal (<https://www.planningportal.nsw.gov.au/development-assessment/contributions/sic-online-service>). Please refer enquiries to [SIContributions@planning.nsw.gov.au](mailto:SIContributions@planning.nsw.gov.au).*

## OPERATION OF PLANT AND EQUIPMENT

- C22. All plant and equipment used on site, or to monitor the performance of the Stage 1 Development, must be:
- (a) maintained in a proper and efficient condition;
  - (b) noise amelioration featured; and
  - (c) operated in a proper and efficient manner.

## EXTERNAL WALLS AND CLADDING

- C23. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.
- C24. Prior to the issue of:
- (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and



- (b) an Occupation Certificate, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.
- C25. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.

### UTILITIES AND SERVICES

- C26. Before the construction of any utility works associated with the Stage 1 Development, the Applicant must obtain relevant approvals from service providers.
- C27. Before the commencement of operation of the development, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the *Sydney Water Act 1994* (NSW).
- C28. Before the issue of a Subdivision or Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for:
- (a) the installation of fibre-ready facilities to all individual lots and/or premises in a real estate development project to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and
  - (b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in a real estate development project demonstrated through an agreement with a carrier.
- C29. Before the issue of the final Occupation Certificate the Applicant must demonstrate that the carrier has confirmed in writing they are satisfied that the fibre ready facilities are fit for purpose.

### WORKS AS EXECUTED PLANS

- C30. Before the issue of the final Occupation Certificate, works-as-executed drawings signed by a registered surveyor demonstrating that the stormwater drainage and finished ground levels have been constructed as approved, must be submitted to the Principal Certifier.

### ENVIRONMENTAL REPRESENTATIVE

- C31. The Applicant must engage an Environmental Representative (ER) to oversee construction of the Stage 1 Development. Unless otherwise agreed to by the Planning Secretary, construction of the Stage 1 development must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant. The approved ER must:
- (a) be a suitably qualified and experienced person who was not involved in the preparation of the EIS, RtS, ADR, and any additional information for the Stage 1 Development and is independent from the design and construction personnel for the Stage 1 Development;
  - (b) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the Stage 1 development;
  - (c) consider and inform the Planning Secretary on matters specified in the terms of this consent;
  - (d) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community;
  - (e) review the CEMP required in Condition E2 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent and if so:
    - (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or
    - (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department);
  - (f) regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent;
  - (g) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings, and site visits;
  - (h) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints;
  - (i) provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the Mamre Road Precinct in relation to construction traffic management, earthworks and sediment control and noise;



- (j) attend the Mamre Road Precinct Working Group (see Condition C34) in a consultative role in relation to the environmental performance of the Stage 1 development; and
  - (k) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an **Environmental Representative Quarterly Report** providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Quarterly Reports'. The **Environmental Representative Quarterly Report** must be submitted within seven calendar days following the end of each quarter for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.
- C32. The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in condition C31 (including preparation of the ER monthly report), as well as:
- (a) the complaints register (to be provided on a daily basis); and
  - (b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).
- C33. The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under condition E16. The Applicant must:
- (a) facilitate and assist the Planning Secretary in any such audit; and
  - (b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit.

### MAMRE ROAD PRECINCT WORKING GROUP

- C34. Within three months of the commencement of construction of the Stage 1 Development and until all components of the Stage 1 development are constructed and operational, the Applicant must establish and participate in a working group with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. The working group must:
- (a) comprise at least one representative of the Applicant, the Applicant's ER, and relevant consent holders in the MRP;
  - (b) meet periodically throughout the year to discuss, formulate and implement measures or strategies to improve monitoring, coordination of the approved industrial developments in the MRP;
  - (c) regularly inform Council, TfNSW, Sydney Water and the Planning Secretary of the outcomes of these meetings and actions to be undertaken by the working group;
  - (d) review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP;
  - (e) review community concerns or complaints with respect to environmental management;
  - (f) identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP; and
  - (g) provide the Planning Secretary with an update and strategies, if a review under subclause (d) and (e) identifies additional measures and processes are required to be implemented by the working group.
- C35. Three (3) months prior to completion of construction of all components of the Stage 1 development, the Applicant is eligible to exit the working group required under condition C34. The Applicant must:
- (a) consult with the Planning Secretary;
  - (b) provide confirmation that all components of the Stage 1 development are operational; and
  - (c) advise on the date of the proposed exit.

### APPLICABILITY OF GUIDELINES

- C36. References in the conditions of this consent to any guideline, protocol, Australian Standard, or policy are to such guidelines, protocols, standards, or policies in the form they are in as at the date of this consent.
- C37. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

### ADVISORY NOTES



## CONSOLIDATED CONSENT

AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

FOR INFORMATION



**PART D STAGE 1 DEVELOPMENT SPECIFIC ENVIRONMENTAL CONDITIONS****TRAFFIC AND ACCESS****Construction Traffic Management Plan**

- D1. Prior to the commencement of construction of the Stage 1 Development, the Applicant must prepare a Construction Traffic Management Plan (CTMP) for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition E2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
  - (b) be prepared in consultation with Council and TfNSW;
  - (c) detail the traffic management and contingency measures that are to be implemented for the site, particularly during the construction works for the Mamre Road/Access Road 1 intersection, to ensure access to the site and road safety and network efficiency is maintained, including interim traffic safety controls and management measures;
  - (d) detail heavy vehicle routes, access, and parking arrangements;
  - (e) include a Driver Code of Conduct to:
    - (i) minimise the impacts of earthworks and construction on the local and regional road network;
    - (ii) minimise conflicts with other road users;
    - (iii) minimise road traffic noise; and
    - (iv) ensure truck drivers use specified routes;
  - (f) include a program to monitor the effectiveness of these measures; and
  - (g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.
- D2. The Applicant must:
- (a) not commence construction until the CTMP required by condition D1 is approved by the Planning Secretary; and
  - (b) implement the most recent version of the CTMP approved by the Planning Secretary for the duration of construction.

**Operational Traffic Monitoring Program**

- D3. Prior to commencement of operation of Building 1 or 3 and for a minimum period of 12 months of operation, the Applicant must establish an Operational Traffic Monitoring Program. The program must verify light and heavy vehicle traffic numbers, including the heavy vehicle volumes limited by Condition D3A, against the prediction in the Aspect Industrial Estate, Mamre Road Precinct – Modification 2 to State Significant Development Application (SSD-10448) Traffic Impact Assessment prepared by Ason Group, dated 25 July 2022. The Program must also monitor the effectiveness of the traffic management measures to the satisfaction of the Planning Secretary and include but not be limited to the following:
- (a) detail the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;
  - (b) queue monitoring at the Mamre Road/Access Road 1 intersection and background travel counts on Mamre Road;
  - (c) verify the predicted traffic numbers and level of service against the actual impacts of the Stage 1 Development, and analyse the potential cause of any significant discrepancies;
  - (d) consider the current capacity and efficiency of the existing road network including Mamre Road; and
  - (e) include procedures for the reporting and monitoring of results to evaluate the traffic performance of the Stage 1 Development.
- D3A. The Applicant must ensure the total number of hourly heavy vehicles entering Warehouse 1 from Access Road 1 does not exceed 22 or is in line with Part 6 of Austroads Standards Guide to Traffic Management, whichever is lesser.

**Internal Access Roads**

- D4. Prior to the commencement of any construction works for Building 1 or 3 (excluding site-wide bulk earthworks) as described in the ADR, the Applicant must:
- (a) prepare a concept design of the Stage 1 Phase 2 road works in accordance with the design requirements in the MRP DCP and in consultation with the relevant roads authority, to the satisfaction of the Planning Secretary; and



- (b) consult with the relevant roads authority concerning the processes for dedication of the lands for the internal Access Roads 1 and 3 (North and South) including the roundabout shown in Figure 1: in Appendix 1.
- D5. Within one month of registration of lot(s) for internal Access Roads 1 and 3 including the roundabout at the Land Registry Services, the Applicant must notify the Planning Secretary that the lands for the internal Access Roads 1 and 3 (North and South) has been dedicated.
- D6. Prior to issue of an Occupation Certificate for Building 3, the Applicant must construct and operate the Stage 1 Phase 1 road works shown in **Figure 4** in Appendix 3 to the satisfaction of relevant road authority.
- D6A. Within six months of the issuing of an Occupation Certificate for Warehouse 9 and prior to the issuing of an Occupation Certificate for Warehouse 3, the Applicant must construct and operate the Stage 1 Phases 1 and 2 road works, including completing construction of Mamre Road/Access Road 1 intersection and the installation of the traffic signals to the satisfaction of TfNSW.
- D7. Within six months of the approval of this consent or as otherwise agreed by the Planning Secretary, the Applicant must prepare and submit the following plans to facilitate the construction and delivery of Access Road 3 – North, in consultation with Council and landowner of 784-786 Mamre Road, Kemps Creek (Lot 59 DP259135), and to the satisfaction of the Planning Secretary:
  - (a) a Staging Plan for the riparian corridor realignment works and Access Road 3 – North construction, including:
    - i. details of the scope of works to be undertaken on the site and the adjoining site at 784-786 Mamre Road, Kemps Creek (Lot 59 DP259135) (see **Figure 4**);
    - ii. details of how the further riparian corridor realignment and road construction works at the junction between the site and 784-786 Mamre Road, Kemps Creek (Lot 59 DP259135) will be coordinated and delivered;
    - iii. an arrangement on timing of the works; and
  - (b) a detailed design plan of Access Road 3 – North prepared in accordance with the design requirements under the MRP DCP.

*Note: The detailed design of Access Road 3 - North and any changes to the approved riparian corridor alignment may require modification(s) to SSD-10448 or separate DA(s).*
- D8. Prior to issue of an Occupation Certificate for any other buildings or warehouses in the Development, the Applicant must ensure the Stage 1 Phase 2 road works are constructed and operational.
- D9. The Applicant must ensure that the portion of Access Road 3 – North to be located on the site is constructed and operational in accordance with the design plans required under Condition D7.

## Access Arrangements

- D10. Prior to the commencement of construction of any works (excluding bulk earthworks) for Buildings 1 or 3, the Applicant must submit design plans to the satisfaction of the relevant roads authority, which demonstrates the proposed accesses to the development are designed to accommodate the turning path of a 30 m PBS Level 2 vehicle.
- D11. Prior to the commencement of any construction works (excluding bulk earthworks) for Warehouse 1 as described in the EIS, the Applicant must prepare and submit design plans in consultation with TfNSW, FRNSW, and Council, and to the satisfaction of the Planning Secretary, demonstrating access to the development from Access Road 1 complies with relevant FRNSW and TfNSW access requirements.
- D11A. The Applicant must ensure:
  - (a) Warehouse 1 driveway on Access Road 1 is used by inbound heavy vehicles only;
  - (b) Warehouse 3 driveway on Access Road 1 adjacent Warehouse 2 is used by inbound heavy vehicles only;
  - (c) Warehouse 3 driveway on Access Road 1 opposite Warehouse 8 car park driveway is used by fire engines only; and
  - (d) Warehouse 3 driveway on Access Road 2 is used by outbound heavy vehicles, inbound and outbound light vehicles.
- D11B. Prior to the commencement of operation of Warehouse 3, the Applicant must:
  - (a) install stop signs at Warehouse 3 where the loading area adjoins the private driveway to the north of the Warehouse 3 building; and
  - (b) finish line-marking of the private driveway to the north of the Warehouse 3 building.
- D11C. Prior to the Mamre Road/Access Road 1 intersection being completed and commissioned, the Applicant must ensure only vehicles associated with Warehouses 1 and 9 operations are permitted to use the temporary left-in/left-out construction access on Mamre Road shown in Figure 6: and Figure 7: as described in Modification 5 in addition to vehicles relating to construction activities.



- D11D. Prior to the commencement of operation of Warehouse 1, the Applicant must submit details of all traffic control facilities including but not limited to line-marking and safety control for Stages 1 and 2 temporary access roads shown in purple in **Figure 6** and **Figure 7** in Appendix 3. These traffic control facilities are to be prepared in consultation with Council and to the satisfaction of the Planning Secretary.
- D11E. Prior to the commencement of operation of Warehouse 1, the Applicant must submit a pre-opening Road Safety Audit (RSA) prepared by an accredited Road Safety Auditor for the Stages 1 and 2 temporary access roads shown in purple in **Figure 6** and **Figure 7** in Appendix 3. The RSA is to be prepared in consultation with Council and to the satisfaction of the Planning Secretary and must outline any recommendations for road safety improvements and demonstrate the improvements have been implemented.
- D11F. Prior to the commencement of operation of Warehouse 1, the Applicant must install all traffic control facilities shown in **Figure 8** to **Figure 12** in Appendix 3, including any amendments to the facilities made following consultation with Council.
- D11G. The Applicant must remove the Stage 1 temporary access road shown in **Figure 6** in Appendix 3 and all temporary traffic control facilities for that road at the completion and commissioning of Access Road 4.
- D11H. Prior to the commissioning of Access Road 4, the Applicant must install all traffic control facilities shown in **Figure 13** to **Figure 17** in Appendix 3, including any amendments to the facilities made following consultation with Council.
- D11I. The Applicant must remove the Stage 2 temporary construction access roads shown in **Figure 7**, **Figure 12**, **Figure 13**, **Figure 15**, and **Figure 17** in Appendix 3 and all temporary traffic control facilities at the completion and commissioning of Mamre Road/Access Road 1 intersection.
- D11J. The Applicant must ensure all vehicles including those associated with the operation of Stage 1 development utilise the washdown area shown in **Figure 6** and **Figure 7** to ensure all vehicles do not track dirt onto the public road network before leaving the site as required by Condition D21(g).
- D11K. The Applicant must monitor construction and operational traffic volumes using the temporary left-in/left-out access off Mamre Road for the period that the temporary construction access is being used. Traffic volumes must be reported to TfNSW and the Planning Secretary on a monthly basis.
- D11L. Within three months of approval of Modification 7, the Applicant must install a 60 kilometre per hour (km/hr) road works speed limit on Mamre Road between Bakers Lane and Abbots Road to the satisfaction of TfNSW. The road works speed limit must remain in operation 24 hours a day, seven days a week, unless otherwise instructed by TfNSW.

### **Mamre Road/Access Road 1 intersection works**

- D12. Prior to the Applicant entering into a Works Authorisation Deed (WAD) required by condition D13, or otherwise agreed by the Planning Secretary, the Applicant must:
- (a) obtain landowners consent and enter into an agreement with the owner(s) of 833B Mamre Road, Kemps Creek (Lot 28, DP258414) to relocate or remove an existing gated driveway on that property outside of the footprint of the Mamre Road/Access Road 1 intersection signals to the satisfaction of Council and the Planning Secretary;
  - (b) provide a copy of the landowner's consent and signed agreement described under condition D12(a) to TfNSW and the Planning Secretary; and
  - (c) remove and relocate the driveway in accordance with the agreement.
- D13. The Applicant must enter into a Works Authorisation Deed for the **Mamre Road/Access Road 1** intersection works with TfNSW. The WAD must be executed prior to the submission of the detailed design required by condition D12 to TfNSW for approval.
- D13A. The Applicant must enter into a WAD with TfNSW for establishing a temporary left in/left out construction access and left-turn lane on Mamre Road to be used by vehicles during Stage 1 construction. The WAD must:
- (a) include details of the removal of the temporary left in/left out construction access and left-turn lane on Mamre Road; and
  - (b) be executed prior to commencement of construction of the temporary left in/left out construction access and left-turn lane on Mare Road.
- D13B. The Applicant must:
- (a) ensure the temporary left in/left out construction access and left-turn lane are maintained at no cost to TfNSW;
  - (b) remove the temporary left in/left out construction access and left-turn lane at the completion and commissioning of the Mamre Road/Access Road 1 intersection, at no cost to TfNSW; and
  - (c) reinstate shoulder along Mamre Road within three months of satisfying Condition D6, at cost to TfNSW.



- D14. Prior to the issue of a construction certificate for the Mamre Road/Access Road 1 intersection (the intersection) construction, the Applicant must finalise and submit the detailed design of the intersection works, including an endorsed Traffic Signal Plan (TSP) to TfNSW for approval. The TSP must:
- (a) demonstrate the proposed traffic control light at the intersection is designed in accordance with Austroads Guide to Road Design, RMS Signal Design Manual, and Australian Codes of Practice; and
  - (b) be approved and endorsed by a suitably qualified practitioner.
- D15. The Applicant must obtain a Road Occupancy Licence (ROL) from TfNSW Transport Management Centre for any works that may impact on traffic flows on Mamre Road during construction.

### Redundant Driveways on Mamre Road

- D16. The Applicant must remove redundant driveways on Mamre Road within the site's boundaries and replace with kerb and gutter to match existing in accordance with TfNSW requirements. Detailed design plans of the proposed kerb and gutter are to be submitted to TfNSW for approval prior to the issue of a Construction Certificate and commencement of any road works within Mamre Road.

### Structural integrity of road infrastructure

- D17. Prior to commencement of any works on Mamre Road, the Applicant must prepare and submit detailed design plans and hydraulic calculations of any changes to the stormwater drainage system to TfNSW for approval.
- D18. At least six weeks prior to commencement of bulk earthworks within Mamre Road, the Applicant must submit design drawings and documents relating to the excavation of the site and support structures in accordance with TfNSW Technical Direction GTD2012/001.
- D19. Should the Applicant propose to excavate below the level of the base of the footings of the adjoining roads and driveways, at least seven days prior to commencement of excavation, the Applicant must provide notice of the intention to excavate below the base of the footings to owner(s) of that roads and driveways. The notice must include complete details of the proposed excavation including but not limited to the extent and duration of works.

### Parking

- D20. The Applicant must provide sufficient parking facilities on-site, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.

### Operating Conditions

- D21. The Applicant must ensure:
- (a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of AS 2890.1:2004 *Parking facilities Off-street car parking* (Standards Australia, 2004) and AS 2890.2:2002 *Parking facilities Off-street commercial vehicle facilities* (Standards Australia, 2002);
  - (b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guidelines;
  - (c) the development does not result in any vehicles queuing on the public road network;
  - (d) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site;
  - (e) all vehicles are wholly contained on site before being required to stop;
  - (f) all loading and unloading of materials is carried out on-site;
  - (g) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network; and
  - (h) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.

### Workplace Travel Plan

- D22. Prior to the commencement of operation of any part of the development, the Applicant must prepare a Workplace Travel Plan and submit a copy to the Planning Secretary. The Workplace Travel Plan must form part of the OEMP required by condition E5 and must:
- (a) be prepared in consultation with TfNSW and Council;
  - (b) outline facilities and measures to promote public transport usage, such as car share schemes and employee incentives; and
  - (c) describe pedestrian and bicycle linkages and end of trip facilities available on-site.



D23. The Applicant must implement the most recent version of the Workplace Travel Plan for the duration of the development.

## SOILS, WATER QUALITY AND HYDROLOGY

### Imported Soil

D24. The Applicant must:

- (a) ensure that only VENM, ENM, or other material approved in writing by the EPA is brought onto the site;
- (b) keep accurate records of the volume and type of fill to be used; and
- (c) make these records available to the Planning Secretary upon request.

### Erosion and Sediment Control

D25. Prior to the commencement of any construction or other surface disturbance, the Applicant must design and detail the erosion and sediment control measures for the site to ensure the construction phase IWCM controls in the MRP DCP are achieved. Detailed Erosion and Sediment Control Plans (ESCP) and drawings must:

- (a) be prepared by a Chartered Professional Erosion and Sediment Control (CPESC) specialist;
- (b) be prepared in accordance with *Managing Urban Stormwater: Soils and Construction – Volume 1: Blue Book* (Landcom, 2004) and with the WSUD design principles set out in the *Draft Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets* (NSW Government, 2022);
- (c) demonstrate the construction approach and timing to ensure the construction phase stormwater quality targets can be met; and
- (d) be included in the CEMP required by condition E2.

D26. The Applicant must ensure delivery and operation of all construction phase erosion and sediment controls on the site is supervised and certified by a CPESC. Monthly audits are to be completed by CPESC and kept on record for the duration of the construction and an additional 12 months following completion of construction works. Discharge Limits

### Discharge Limits

D27. The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.

### Stormwater Management System

D28. Prior to the commencement of operation of the development, the Applicant must implement the Stormwater Management System described in the ADR amended by Modification Assessments and as shown in [Figure 2 Figures 5 and 5A in Appendix 2](#). The design and subsequent construction and establishment of the WSUD systems must be supervised and certified by a suitably qualified chartered professional engineer with experience in modelling, design, and supervision of WSUD systems.

D29. All stormwater infrastructure, including bio-retention basins, shall remain under the ownership, control, and care of the registered proprietor of the lots. Upstream drainage catchment pipes are to be located outside of the public road reserve and remain in private ownership, in accordance with Council requirements.

### Stormwater Management Plan

D30. Within three (3) months prior to the commencement of operation of either Building 1 or 3 of the Stage 1 Development, the Applicant must prepare a Stormwater Management Plan (SMP) to the satisfaction of the Planning Secretary. The SMP must:

- (a) be prepared by a suitably qualified chartered professional engineer with experience in modelling, design, and supervision of WSUD systems whose appointment has been endorsed by the Planning Secretary;
- (b) be prepared in consultation with the Environment and Heritage, Sydney Water, DPE, and Council;
- (c) [address the requirements under the heading 'Water and Stormwater Management Plan' outlined in the Environment and Heritage's letter dated 18 December 2023;](#)
- (d) describe the baseline soil, surface water and groundwater conditions at the site;
- (e) detail a monitoring program to monitor:
  - (i) surface water flows and quality;
  - (ii) surface water storage and use;
  - (iii) sediment basin operation;
  - (iv) the performance of the Stage 1 stormwater management system to demonstrate compliance with the IWCM controls in the MRP DCP;



- (f) detail a stormwater management strategy and designs of each WSUD system, including:
  - (i) description of how the requirements and objectives of the IWCM controls of the DCP will be achieved, including provisions for how stormwater will be managed and monitored;
  - (ii) details of how the Stage 1 Development will be designed and developed so it can potentially connect to precinct-wide stormwater infrastructure, if required
  - (iii) engineering drawings completed and certified by a chartered professional engineer with experience in modelling, design, and supervision of WSUD systems that detail the WSUD measures;
  - (iv) landscape drawings that include planting and hardscape details of the WSUD systems;
- (g) include a protocol for investigation of any non-compliances of the IWCM controls in the MRP DCP controls described in condition D30(f) and contingency measures that would be implemented should issues arise;
- (h) include evidence that the design and mix of WSUD infrastructure has considered ongoing operation and maintenance, including a detailed lifecycle cost assessment (including capital, operation/maintenance, and renewal costs over 30 years); and
- (i) include a Maintenance Plan for WSUD measures.

D31. The Applicant must:

- (a) not commence the operation of the development until the SMP required by condition D30 is approved by the Planning Secretary;
- (b) implement the most recent version of the SMP approved by the Planning Secretary for the duration of the development; and
- (c) ensure all WSUD systems are constructed under the supervision of a suitably qualified chartered professional engineer with experience in modelling, design, and supervision of WSUD systems.

### Easements and Maintenance

D32. Prior to the issue of any Occupation Certificate, a restriction on the use of land and positive covenant relating to the:

- (a) stormwater management system (including on-site detention and water sensitive urban design)
- (b) trunk drainage

shall be registered on the title of the property. The restriction on the use of land and positive covenant shall be in Council's standard wording as detailed in Council's Stormwater Specification for Building Developments - Appendix F, available on Council's Website.

D33. The stormwater management system must continue to be operated and maintained in perpetuity for the life of the development in accordance with the final operation and maintenance management plan. Regular inspection records are required to be maintained and made available Council on request. All necessary improvements are required to be made immediately upon awareness of any deficiencies in the stormwater management systems.

### Dam Decommissioning Strategy

D34. Prior to commencement of construction of the Stage 1 Development, the Applicant must implement the Dam Decommissioning Strategy included in the EIS. The Applicant must implement the most recent version of the Dam Decommissioning Strategy for the duration of construction.

### Groundwater Management Plan

D35. Prior to commencement construction of the Stage 1 Development, the Applicant must implement the Groundwater Management Plan included in the EIS. The Applicant must implement the most recent revision of the Groundwater Management Plan for the duration of the development.

### Salinity Management

D36. The Applicant must prepare a Salinity Management Plan, which must form part of the CEMP in accordance with Condition E2, that addresses all aspects of the Stage 1 development. The Applicant must implement the most recent revision of the Salinity Management Plan for the duration of construction.

### VISUAL AMENITY

#### Landscaping

D37. Prior to the commencement of operation, the Applicant must prepare a Landscape Management Plan to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The plan must form part of an OEMP in accordance with condition E5. The plan must:

- (a) detail the species to be planted on-site;



- (b) demonstrate the species are suitable in relation to wildlife management in proximity to the future Western Sydney Airport;
- (c) describe the monitoring and maintenance measures to manage revegetation and landscaping works; and
- (d) be consistent with the Applicant's Management and Mitigation Measures detailed at Appendix 6.

D38. The Applicant must:

- (a) not commence operation until the Landscape Management Plan is approved by the Planning Secretary.
- (b) must implement the most recent version of the Landscape Management Plan approved by the Planning Secretary; and
- (c) maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by condition D37 for the life of the development.

**D38A. The Applicant must ensure street trees on all Access Roads are planted at a spacing of 10 m or less.**

#### **Lighting**

D39. The Applicant must ensure the lighting associated with the development:

- (a) complies with the latest version of AS 4282-1997 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); and
- (b) is mounted, screened, and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

#### **Signage and Fencing**

D40. All signage and fencing must be erected in accordance with the development plans included in the ADR.

**Note:** This condition does not apply to temporary construction and safety related signage and fencing.

#### **NOISE**

##### **Hours of Work**

D41. The Applicant must comply with the hours detailed in **Table 4**, unless otherwise agreed in writing by the Planning Secretary.

**Table 4** Hours of Work

Activity	Day	Time
Earthworks and construction	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
Operation	Monday – Sunday	24 hours

D42. Works outside of the hours identified in condition D41 may be undertaken in the following circumstances:

- (a) works that are inaudible at the nearest sensitive receivers;
- (b) works agreed to in writing by the Planning Secretary;
- (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

#### **Construction Noise Limits**

D43. The development must be constructed to achieve the construction noise management levels detailed in *the Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures in the Appendix 5.

#### **Construction Noise Management Plan**

D44. The Applicant must prepare a Construction Noise Management Plan (CNMP) for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition E2 and must:

- (a) be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;



- (b) be approved by the Planning Secretary prior to the commencement of construction of each phase of the development;
- (c) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time);
- (d) describe the measures to be implemented to manage high noise generating works, in close proximity to sensitive receivers, particularly for noise mitigation eligible receivers shown in **Figure 19**: in Appendix 5, including but not limited to the following:
  - (i) details of a real-time noise monitoring system to identify occurrence of highly noise affected levels as defined in the *Interim Construction Noise Guideline*; and
  - (ii) describe procedures for implementing respite periods and temporary relocation following identification of highly noise affected levels.
- (e) include a complaints management system that would be implemented for the duration of the development.

D45. The Applicant must:

- (a) not commence construction of any relevant stage until the CNMP required by condition D44 is approved by the Planning Secretary; and
- (b) implement the most recent version of the CNMP approved by the Planning Secretary for the duration of construction.

## Noise Agreement

- D46. Prior to the commencement of operation of the Stage 1 development an, the Applicant must enter into an agreement with the noise mitigation eligible receivers shown in **Figure 19**: in Appendix 5.
- D47. Prior to the commencement of operation of the Stage 1 development, the Applicant must submit copies of the noise agreements required under Condition D46 to the Planning Secretary.
- D48. The noise agreement required under Condition D46 must be in force until the existing residential use ceases on the land subject to the agreement or a development application for general industrial or other employment uses applies to the land, whichever is the sooner.

## Vibration Criteria

- D49. Vibration caused by construction at any residence or structure outside the site must be limited to:
  - (a) for structural damage, the criteria set in the latest version of *DIN 4150-3:2016-12 Vibration in Buildings – Part 3: Effects on Structures* (German Institute for Standardisation, 2016); and
  - (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: a technical guideline* (DEC, 2006) (as may be updated or replaced from time to time).
- D50. The Applicant must offer and, if the offer is accepted, implement monitoring of vibration levels during construction at 884-902 Mamre Road (Lot 53 DP259135), to the satisfaction of the Planning Secretary. Any vibration monitoring must be undertaken during the entirety of the construction period. If the criteria in Condition D49 are exceeded, management and mitigation measures must be developed and implemented to address any exceedances.

## Dilapidation Reporting

- D51. Prior to commencement of construction, the Applicant must offer and prepare (if the offer is accepted) a pre-construction dilapidation report at 884-902 Mamre Road (Lot 53 DP259135). The report must be submitted to the Planning Secretary and the relevant property owner(s) prior to construction works commencing on the site.

## Operational Noise Limits

D52. The Applicant must:

- (a) establish intermediate noise monitoring locations in accordance with the Operational Noise Management Plan (refer to condition A16A) prior to commencement of operation of the Stage 1 Development;
- (b) ensure the cumulative noise emission of fixed external mechanical plant for each warehouse building do not exceed 90 dB(A) and do not exhibit tonal characteristics or strong low frequency content; and
- (c) ensure the noise generated by operation of the Stage 1 Development does not exceed the noise limits in condition A16.

## Noise Verification Report

- D53. Within three months of the commencement of operation of the Stage 1 Development, the Applicant must submit a noise verification report to the satisfaction of the Planning Secretary. The report must be prepared by a suitably qualified and experienced acoustic consultant and include:
  - (a) an analysis of compliance with noise limits specified in condition D52;



- (b) an outline of mitigation and management measures to reduce any exceedances of the limits specified in condition D52 (excluding measures to be implemented at the receivers); and
- (c) a description of contingency measures in the event management actions are not effective in reducing noise levels to an acceptable level.

### AIR QUALITY

#### Dust Minimisation

- D54. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.
- D55. During construction, the Applicant must ensure that:
- (a) exposed surfaces and stockpiles are suppressed by regular watering;
  - (b) all trucks entering or leaving the site with loads have their loads covered;
  - (c) trucks associated with the development do not track dirt onto the public road network;
  - (d) public roads used by these trucks are kept clean; and
  - (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

#### Construction Air Quality Management Plan

- D56. Prior to the commencement of construction, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by condition E2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
  - (b) detail and rank all emissions from all sources during construction of the development, including particulate emissions;
  - (c) describe a program that is capable of evaluating the performance of the construction and determining compliance with key performance indicators;
  - (d) identify the control measures that will be implemented for each emission source; and
  - (e) nominate the following for each of the proposed controls:
    - (i) key performance indicator;
    - (ii) monitoring method;
    - (iii) location, frequency, and duration of monitoring;
    - (iv) record keeping;
    - (v) complaints register;
    - (vi) response procedures; and
    - (vii) compliance monitoring.
- D57. The Applicant must:
- (a) not commence construction until the CAQMP required by condition D56 is approved by the Planning Secretary; and
  - (b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of the development.

#### Odour Management

- D58. The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

### ABORIGINAL HERITAGE

#### Statutory Requirements

- D59. Prior to the commencement of construction of Stage 1 development, the Applicant must register identified Aboriginal items or objects on the Heritage NSW Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register.



## Archaeological Salvage

- D60. Prior to the commencement of construction of Stage 1, the Applicant must engage a suitably qualified and experienced expert to undertake an archaeological salvage excavation of the MAM AS 1901. The Applicant must undertake the salvage excavation in accordance with the requirements of Heritage NSW, and must:
- (a) implement the methodology for the reburial of all salvaged Aboriginal objects within the site detailed in the Reburial Methodology, prepared by artefact, dated 26 February 2021; and
  - (b) provide the Registered Aboriginal Parties (RAPs) an opportunity to collect Aboriginal objects across the site.
- D61. The Applicant must prepare an archaeological report of the salvage excavation undertaken in accordance with Condition D60. An interim report of the salvage excavation must be provided to the satisfaction of the Planning Secretary within one month of completion of the salvage work and a final report provided within 12 months of completion of the salvage work.

## Unexpected Finds Protocol

- D62. If any item or object of Aboriginal heritage significance is identified on site:
- (a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;
  - (b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and
  - (c) Heritage NSW must be contacted immediately.
- D63. Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974* (NSW).

## HISTORIC HERITAGE

### Unexpected Finds Protocol

- D64. If any archaeological relics are uncovered during the course of the work, then all works must cease immediately in that area. Unexpected finds must be evaluated and recorded in accordance with the requirements of Heritage NSW and details included in the salvage excavation report required under Condition D60(b).

## BIODIVERSITY

- D65. Prior to any clearing or construction works the Applicant must purchase and retire 1 ecosystem credit to offset the removal of *Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion* and 3 species credits to offset the removal of *Myotis macropus* at the site. The ecosystem and species credits must be retired in accordance with the requirements of the E&H Group's Biodiversity Offsets Scheme and the *Biodiversity Conservation Act 2016* (NSW).
- D66. The requirement to retire ecosystem and species credits (see Condition D65) may be satisfied by payment to the Biodiversity Conservation Fund of an amount equivalent to the number and classes of ecosystem and species credits, as calculated by the E&H Group's Biodiversity Offsets Payment Calculator.
- D67. The Applicant must provide the Planning Secretary with evidence that:
- (a) the retirement of ecosystem credits has been completed (see Condition D65); or
  - (b) a payment has been made to the Biodiversity Conservation Fund (see Condition D66),
- prior to undertaking any clearing of native vegetation and *Myotis macropus* habitat.
- D68. Prior to commencement of dam dewatering and construction of the Stage 1 Development, the Applicant must implement the Flora and Fauna Management Plan included in the RtS. The Applicant must implement the most recent revision of the Flora and Fauna Management Plan for the duration of construction works.

## Vegetation Management Plan – Riparian Corridor

- D69. Within six (6) months of the commencement of operation, the Applicant must complete the revegetation of the realigned riparian corridor in accordance with the Vegetation Management Plan (VMP) included in the RTS and ensure that the realigned riparian corridor provides for a full hierarchy of appropriate ground cover, shrubs and trees. The Applicant must implement the most recent version of the VMP for a maintenance period of up to five years following the completion of the establishment phase of the VMP.

## HAZARDS AND RISK

### Dangerous Goods

- D70. The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department of *Planning's Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* at all times.



**Bunding**

- D71. The Applicant must store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual* (Department of Environment and Climate Change, 2007).

**WASTE MANAGEMENT**

**Pests, Vermin and Noxious Weed Management**

- D72. The Applicant must:

- (a) implement suitable measures to manage pests, vermin and declared noxious weeds on the site; and
- (b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.

*Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Biosecurity Act 2015 (NSW).*

**Waste Storage and Processing**

- D73. Prior to the commencement of construction of Building 1 and 2, the Applicant must obtain agreement from Council for the design of the waste storage area for each warehouse.
- D74. Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.

**Waste Management Plan**

- D75. The Applicant must implement the Waste Management Plan (WMP) prepared by MRA Consulting Group, dated 30 September 2020 in the EIS for the duration and construction and operation of Stage 1 of the development.

**Statutory Requirements**

- D76. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

**Unexpected Finds**

- D77. Prior to the commencement of earthworks, the Applicant must prepare an unexpected contamination procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the of the CEMP in accordance with condition E2 and must ensure any material identified as contaminated and is required to be removed from the site must be disposed off-site, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal.



**PART E STAGE 1 DEVELOPMENT ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING**

**ENVIRONMENTAL MANAGEMENT**

**Management Plan Requirements**

- E1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:
- (a) detailed baseline data;
  - (b) details of:
    - (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);
    - (ii) any relevant limits or performance measures and criteria; and
    - (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
  - (c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;
  - (d) a program to monitor and report on the:
    - (i) impacts and environmental performance of the development; and
    - (ii) effectiveness of the management measures set out pursuant to paragraph (c) above;
  - (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
  - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
  - (g) a protocol for managing and reporting any:
    - (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);
    - (ii) complaint;
    - (iii) failure to comply with statutory requirements; and
  - (h) a protocol for periodic review of the plan.

**Note:** the Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans

**CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN**

- E2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of condition E1 and to the satisfaction of the Planning Secretary.
- E3. As part of the CEMP required under condition E2 of this consent, the Applicant must include the following:
- (a) Construction Traffic Management Plan (see condition D1);
  - (b) Erosion and Sediment Control Plan (see condition D25);
  - (c) Salinity Management Plan (see condition D33);
  - (d) Construction Noise Management Plan (see condition D44);
  - (e) Construction Air Quality Management Plan (see condition D56);
  - (f) Vegetation Management Plan (see Condition D69);
  - (g) Contamination Unexpected finds procedure (see Condition D77);
  - (h) Waste Management Plan (see condition D75); and
  - (i) Community Consultation and Complaints Handling.
- E4. The Applicant must:
- (a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and
  - (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.



## OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

- E5. The Applicant must prepare an Operational Environmental Management Plan (OEMP) in accordance with the requirements of condition E1 and to the satisfaction of the Planning Secretary.
- E6. As part of the OEMP required under condition E5 of this consent, the Applicant must include the following:
- (a) describe the role, responsibility, authority, and accountability of all key personnel involved in the environmental management of the development;
  - (b) describe the procedures that would be implemented to:
    - (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;
    - (ii) receive, handle, respond to, and record complaints;
    - (iii) resolve any disputes that may arise;
    - (iv) respond to any non-compliance;
    - (v) respond to emergencies; and
  - (c) include the following environmental management plans:
    - (i) [Operational Noise Management Plan \(see condition A16A\)](#);
    - (ii) Operational Traffic Monitoring Program (see condition D3);
    - (iii) Workplace Travel Plan (see condition D22);
    - (iv) Landscape Management Plan (see condition D37);
    - (v) Stormwater Management Plan (see condition D30);
    - (vi) Vegetation Management Plan (see Condition D69); and
    - (vii) Waste Management Plan (see condition D75).
- E7. The Applicant must:
- (a) not commence operation until the OEMP is approved by the Planning Secretary; and
  - (b) operate the development in accordance with the OEMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).

## REVISION OF STRATEGIES, PLANS AND PROGRAMS

- E8. Within three months of:
- (a) the submission of a Compliance Report under condition E14;
  - (b) the submission of an incident report under condition E10;
  - (c) the approval of any modification of the conditions of this consent; or
  - (d) the issue of a direction of the Planning Secretary under condition C2(b) which requires a review,
- the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing that a review is being carried out.
- E9. If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.

**Note:** *This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.*

## REPORTING AND AUDITING

### Incident Notification, Reporting and Response

- E10. The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 7.



## Non-Compliance Notification

- E11. The Planning Secretary must be notified in writing to the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.
- E12. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.
- E13. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

## Compliance Reporting

- E14. Within three months after the commencement of construction of the Stage 1 Development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary) for the duration of construction works, the Applicant must submit a Compliance Report to the Department reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also:
- (a) identify any trends in the monitoring data over the life of the development;
  - (b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
  - (c) describe what measures will be implemented over the next year to improve the environmental performance of the development.
- E15. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.

## Monitoring and Environmental Audits

- E16. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing.

**Note:** For the purposes of this condition, as set out in the EP&A Act, “monitoring” is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an “environmental audit” is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.

## ACCESS TO INFORMATION

- E17. At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must:
- (a) make the following information and documents (as they are obtained or approved) publicly available on its website:
    - (i) the documents referred to in condition C2 of this consent;
    - (ii) all current statutory approvals for the development;
    - (iii) all approved strategies, plans and programs required under the conditions of this consent;
    - (iv) the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged;
    - (v) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
    - (vi) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
    - (vii) a summary of the current stage and progress of the development;
    - (viii) contact details to enquire about the development or to make a complaint;
    - (ix) a complaints register, updated monthly;
    - (x) the Compliance Report of the development;
    - (xi) audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report;
    - (xii) any other matter required by the Planning Secretary; and
  - (b) keep such information up to date, to the satisfaction of the Planning Secretary.



## APPENDIX 1 CONCEPT PROPOSAL

**Table 5** *Schedule of Approved Plans – Concept Proposal*

Drawing No	Title	Issue	Date
<b>Architectural Plan prepared by SBA Architects</b>			
MP3-02	Aspect Industrial Estate Lots 54-58 (DP 259135) Mamre Road, Kemps Creek – SSDA-MOD 3 Estate Masterplan	F	07/02/2023
<b>Landscape Plan prepared by Site Image Landscape Architects</b>			
003	Aspect Industrial Estate Kemps Creek Landscape Masterplan MOD 3	G	20/12/2022
<b>Tree Canopy Plan prepared by Site Image Landscape Architects</b>			
MOD3_SK001	Kemps Creek Lots 54-58 DP259135 Mamre Road Kemps Creek NSW Tree Canopy Plan	I	13/12/2022



OVERALL DEVELOPMENT DATA

Total Site Area	558,323 m <sup>2</sup>
Mamre Rd Reserve Area	14,004 m <sup>2</sup>
Rev. Boundary Site Area	544,319 m <sup>2</sup>
Access Roads Area	39,876 m <sup>2</sup>
Future Roads Area	3,570 m <sup>2</sup>
Creek Riparian Area	29,718 m <sup>2</sup>
Retained Riparian Area	4,042 m <sup>2</sup>
Basin Lot Area	18,157 m <sup>2</sup>
Total Developable Area	448,956 m <sup>2</sup>
Total Office Area (not dock off)	9,708 m <sup>2</sup>
Total Warehouse Area	237,413 m <sup>2</sup>
Cafe	125 m <sup>2</sup>
Total Building Area	247,846 m <sup>2</sup>
Restriction on User Area	4,613 m <sup>2</sup>

WAREHOUSE 1

Site Area	61,170 m <sup>2</sup>
Offices	900 m <sup>2</sup>
Warehouse	32,686 m <sup>2</sup>
Dock Office	300 m <sup>2</sup>
Total GFA	33,886 m <sup>2</sup>
Carpark Provided	141

WAREHOUSE 2

Site Area	40,172 m <sup>2</sup>
Offices	1,500 m <sup>2</sup>
Warehouse	22,356 m <sup>2</sup>
Dock Office	200 m <sup>2</sup>
Total GFA	24,256 m <sup>2</sup>
Carpark Provided	150

WAREHOUSE 3

Site Area	42,755 m <sup>2</sup>
Offices	700 m <sup>2</sup>
Warehouse	20,735 m <sup>2</sup>
Dock Office	100 m <sup>2</sup>
Total GFA	21,535 m <sup>2</sup>
Carpark Provided	89

WAREHOUSE 4

Site Area	41,365 m <sup>2</sup>
Offices	750 m <sup>2</sup>
Warehouse	18,055 m <sup>2</sup>
Dock Office	100 m <sup>2</sup>
Total GFA	18,905 m <sup>2</sup>
Carpark Provided	93

WAREHOUSE 5

Site Area	28,160 m <sup>2</sup>
Offices	650 m <sup>2</sup>
Warehouse	11,872 m <sup>2</sup>
Dock Office	100 m <sup>2</sup>
Total GFA	12,622 m <sup>2</sup>
Carpark Provided	60

WAREHOUSE 6

Site Area	19,439 m <sup>2</sup>
Offices	1,000 m <sup>2</sup>
Warehouse	8,574 m <sup>2</sup>
Total GFA	9,574 m <sup>2</sup>
Carpark Provided	71

WAREHOUSE 7

Site Area	27,120 m <sup>2</sup>
Offices	750 m <sup>2</sup>
Warehouse	14,356 m <sup>2</sup>
Dock Office	100 m <sup>2</sup>
Cafe	125 m <sup>2</sup>
Total GFA	15,333 m <sup>2</sup>
Carpark Provided	84

WAREHOUSE 8

Site Area	75,710 m <sup>2</sup>
Offices	750 m <sup>2</sup>
Warehouse	44,146 m <sup>2</sup>
Dock Office	200 m <sup>2</sup>
Total GFA	45,146 m <sup>2</sup>
Carpark Provided	166

WAREHOUSE 9

Site Area	113,082 m <sup>2</sup>
Offices	1,365 m <sup>2</sup>
Warehouse	64,742 m <sup>2</sup>
Dock Office	243 m <sup>2</sup>
Total GFA	66,350 m <sup>2</sup>
Carpark Provided	257

\*Areas are measured to future Mamre Rd boundary in red  
 \*\*All areas subject to survey



LEGEND

---	Landscape Setback
---	Building Setback
SS	Substation Indicative Location
RW	Retaining Wall
FS	Fire Services
FB	Fire Brigade Truck Parking
RWT	Rainwater Tank
□	AC Plant Indicative Location

DATE: 10/01/2023  
 DRAWN BY: SBA  
 CHECKED BY: SBA  
 APPROVED BY: SBA

ASPECT INDUSTRIAL ESTATE

LOTS 54-58 (DP259135) MAMRE ROAD, KEMPS CREEK

SETOUT TO GDA2020

SSDA-MOD 3 ESTATE MASTERPLAN

DATE: 07.02.2023 1:4000 @ A3 21250 MP3-02 F

Figure 1: Concept Proposal





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The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

I	Revised For Comment	JW	NM	13.12.2022
H	Revised For Comment	JW	NM	12.12.2022
G	Revised For Comment	JW	NM	06.12.2022
F	Revised For Comment	JW	NM	24.11.2022
E	Revised For Comment	JW	NM	08.11.2022
D	Response to Comment	RH	NM	01.11.2022
C	MOD3 Tree Canopy Areas	RH	NM	01.08.2022
B	For Comment	RH	NM	14.07.2022
A	MOD3 Tree Canopy Areas	RH	NM	22.06.2022
Issue	Revision Description	Drawn	Check	Date

Client:  
Mirvac

Project:  
Kemps Creek  
Lots 54-58 DP259135 Mamre Road  
Kemps Creek NSW

**SITE IMAGE**  
Level 1, 5/5 Bayview Street  
Parramatta NSW 2150  
Australia  
Tel: (61 2) 8332 8600  
Fax: (61 2) 4968 2677  
www.siteimage.com.au  
Site Image (NSW) Pty Ltd  
ABN 44 801 252 385  
Landscape Architects

**PRELIMINARY**  
Drawing Name:  
Tree Canopy Plan

Scale: 1:2000 @ A1  
Job Number:  
SS19-4178  
Drawing Number:  
MOD3\_SK001  
Issue: 1

Figure 1A: Tree Canopy Plan



## APPENDIX 2 STAGE 1 DA PLANS

**Table 6** Schedule of Approved Plans – Stage 1 DA Plans

Drawing No	Title	Issue	Date
<b>Architectural Plan prepared by SBA Architects</b>			
DA100	Aspect Industrial Estate Lots 54-58 (DP 259135) Mamre Road, Kemps Creek – Overall Site Plan	W	30/11/2022
DA101	Aspect Industrial Estate Lots 54-58 (DP 259135) Mamre Road, Kemps Creek – Signage Plan	G	05/08/2022
DA110	Aspect Industrial Estate Lots 54-58 (DP 259135) Mamre Road, Kemps Creek – Lot 1 Site & Warehouse Floor Plan	DD	19/10/2022
DA310	Aspect Industrial Estate Lots 54-58 (DP 259135) Mamre Road, Kemps Creek – Lot 3 Site & Warehouse Floor Plan	M	19/10/2022





Figure 2: Stage 1 Plan



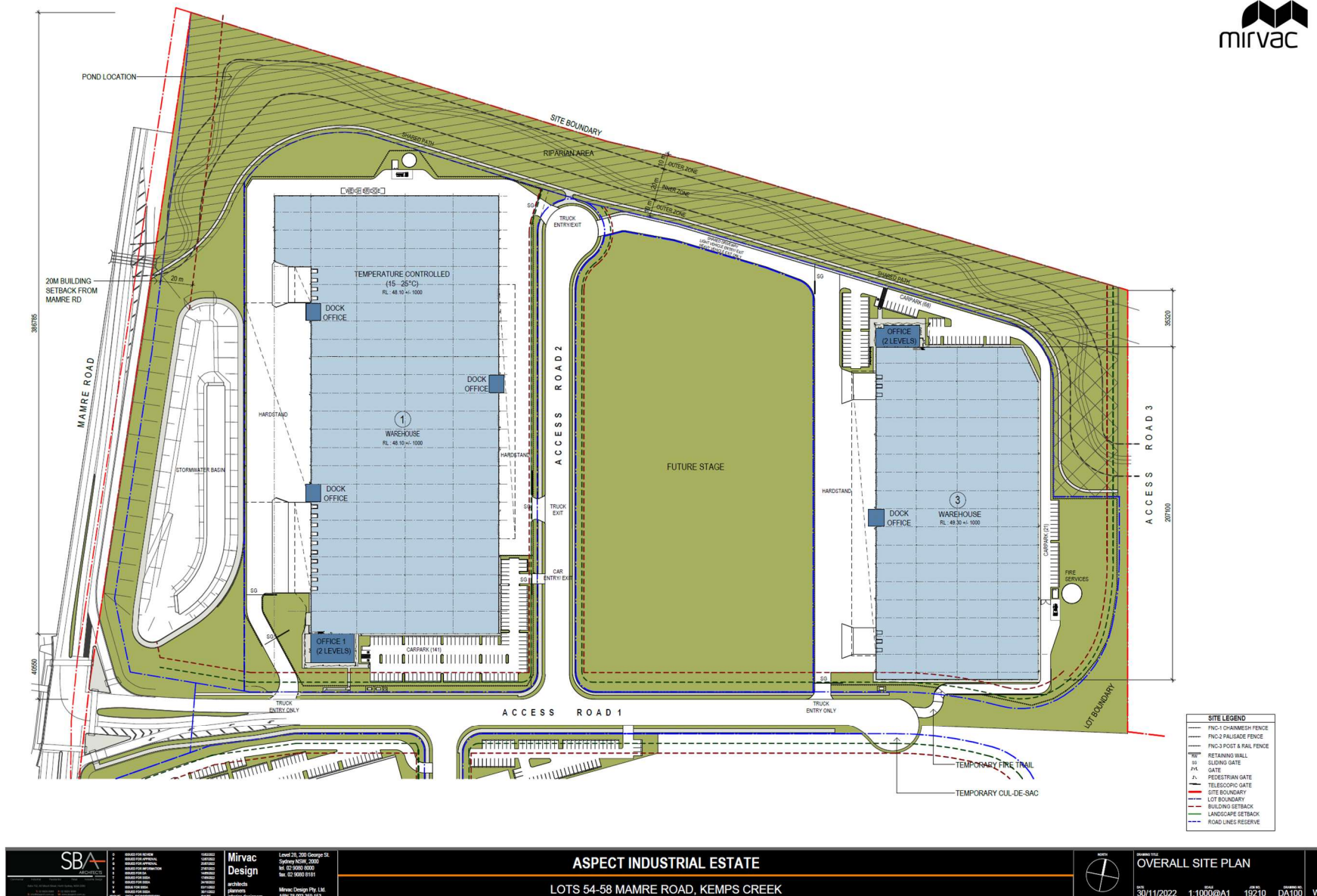


Figure 2A: Stage 1 Phase 1 Plan



## Landscape Concept Masterplan Stage 1



### Aspect Industrial Estate Kemp's Creek | Landscape Masterplan MOD2

Drawing Number	004
Issue	E
Date	25.07.2022

Figure 3: Stage 1 Landscape Plan



OVERALL DEVELOPMENT DATA	
Total Site Area	558,323 m <sup>2</sup>
Mamre Rd Reserve Area	14,004 m <sup>2</sup>
Rev. Boundary Site Area	544,319 m <sup>2</sup>
Access Roads Area	39,876 m <sup>2</sup>
Future Roads Area	3,570 m <sup>2</sup>
Creek Riparian Area	29,718 m <sup>2</sup>
Retained Riparian Area	4,042 m <sup>2</sup>
Basin Lot Area	18,157 m <sup>2</sup>
Total Developable Area	448,956 m <sup>2</sup>
Total Office Area (net dock off)	1,634 m <sup>2</sup>
Total Warehouse Area	64,973 m <sup>2</sup>
Total Building Area	66,612 m <sup>2</sup>

WAREHOUSE 9	
Site Area	113,082 m <sup>2</sup>
Office	1,365 m <sup>2</sup>
Warehouse	64,742 m <sup>2</sup>
Dock Office	243 m <sup>2</sup>
Total GFA	66,380 m <sup>2</sup>
Carpark Provided	257

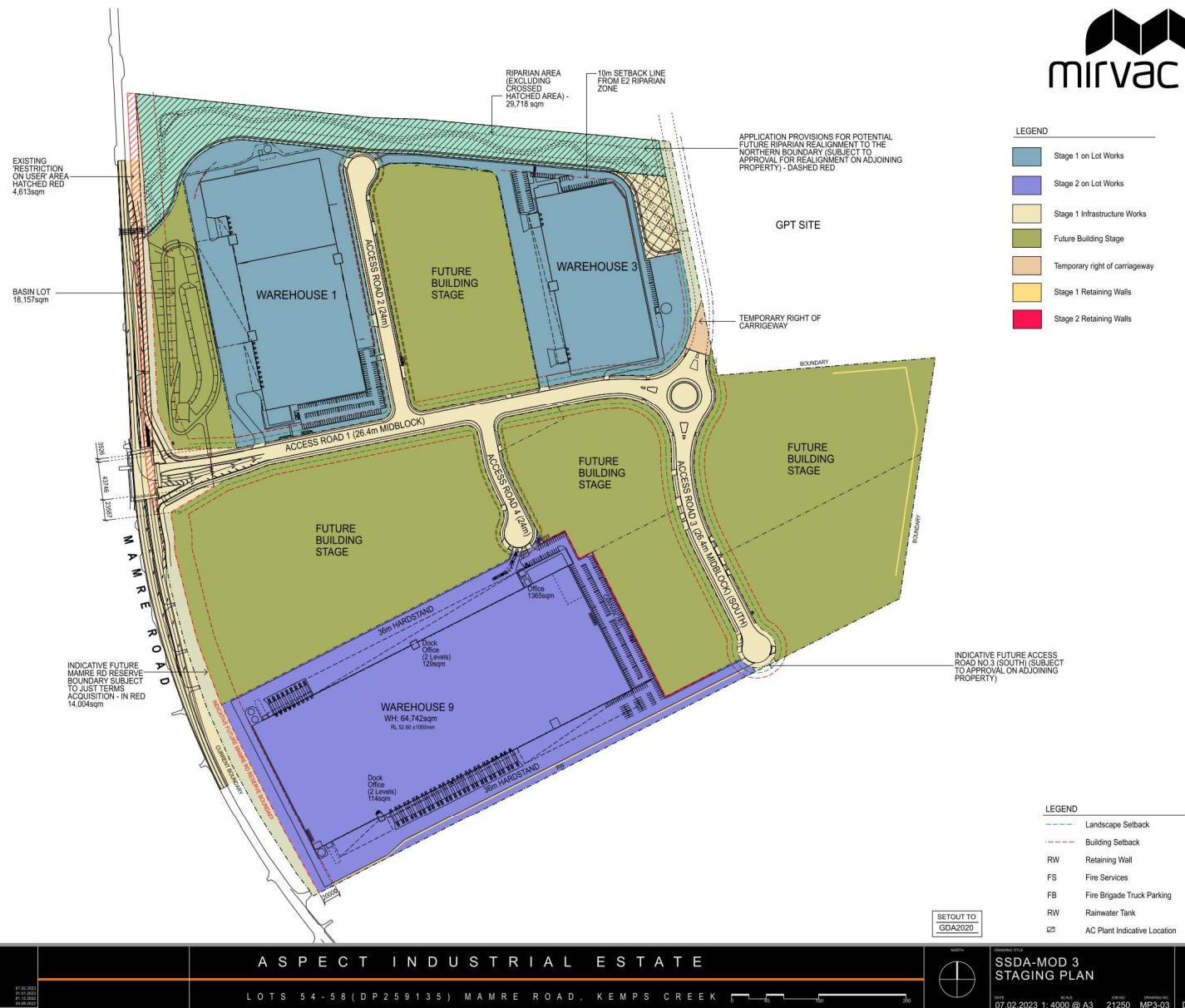


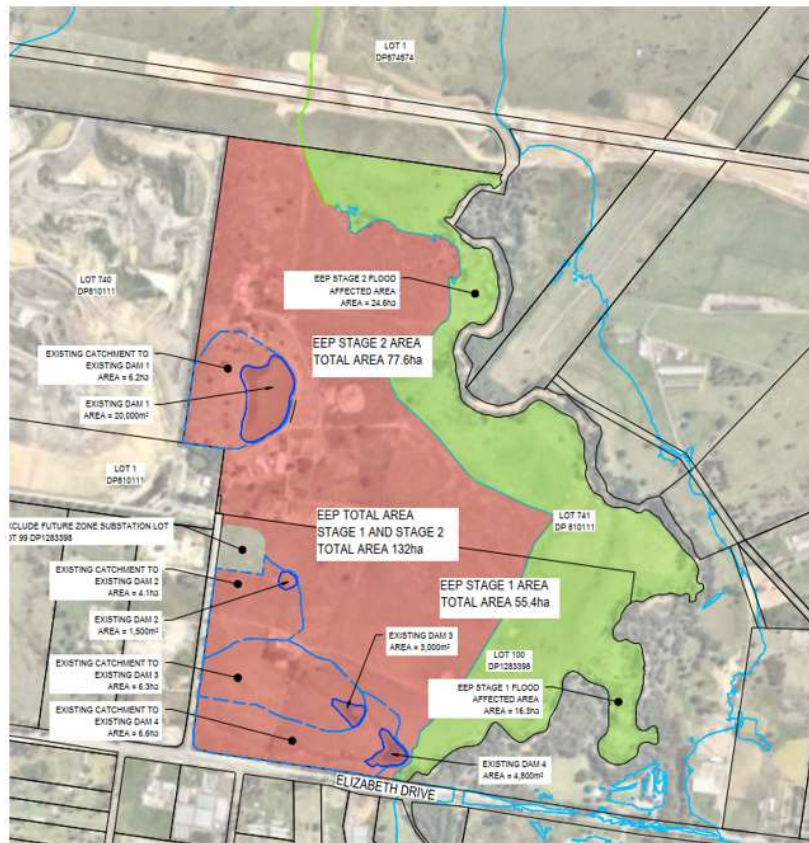
Figure 4: Stage 1 Development Road Works Phasing Plan



## Aspect Amended Stormwater Management Strategy (Stage 1 Development Phase 1)

### EEP Stormwater Measures

### AIE Stormwater Measures



+

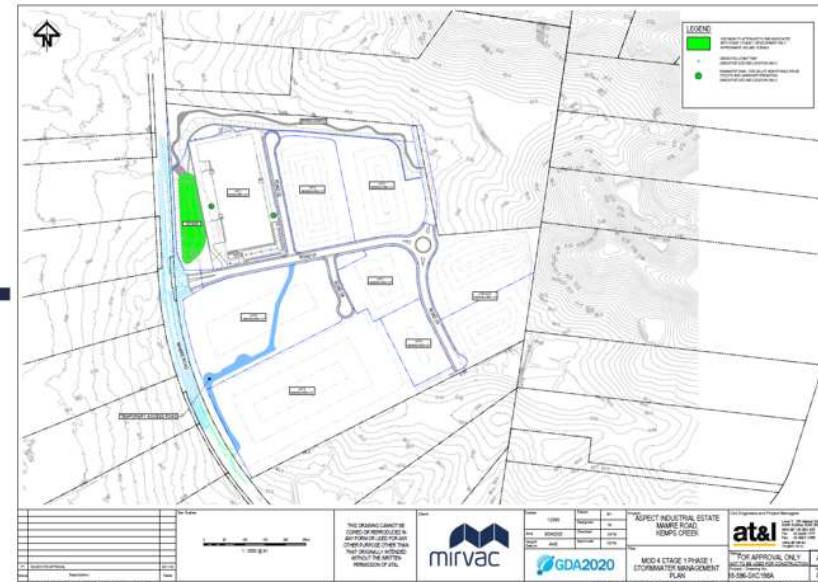
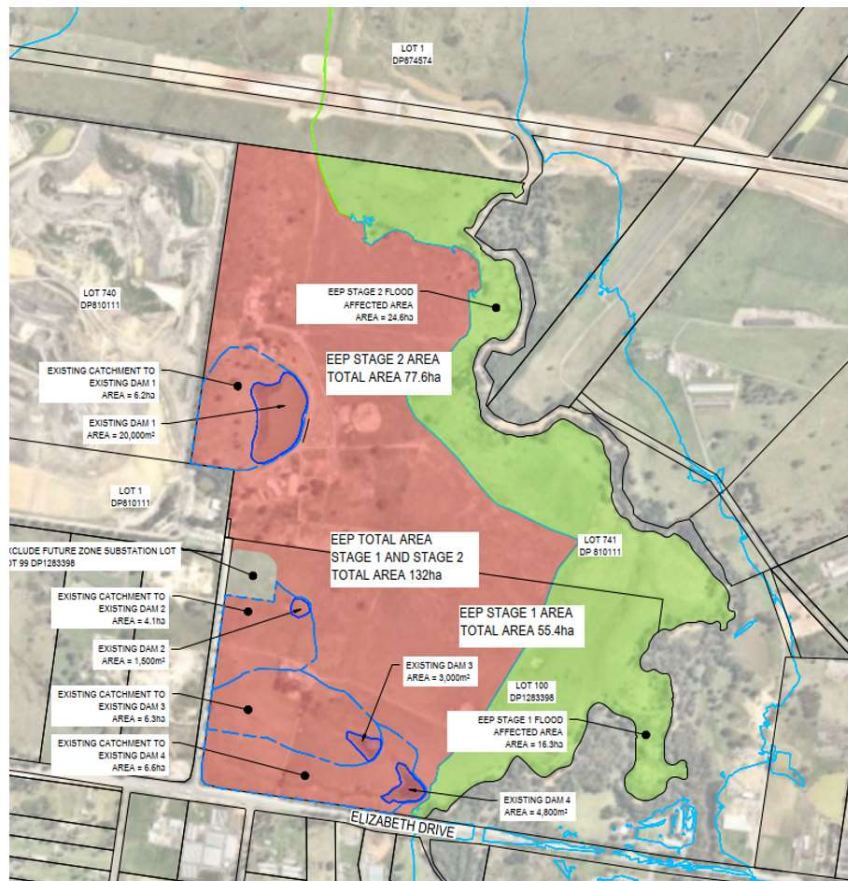


Figure 5: Stage 1 Development, Phase 1 Stormwater Management Plan



## Aspect Amended Stormwater Management Strategy (Stage 1 Development) EEP Stormwater Measures

## AIE Stormwater Measures



+

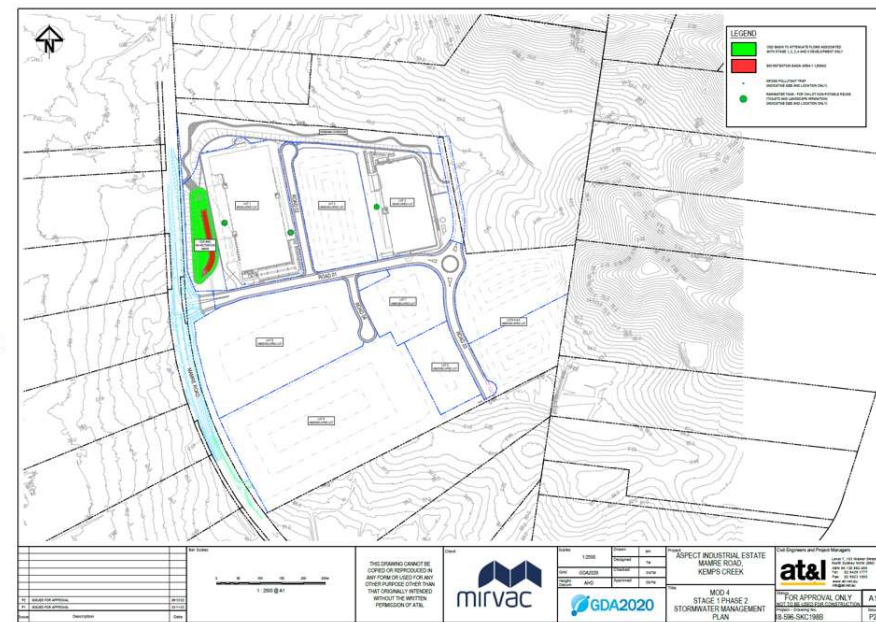
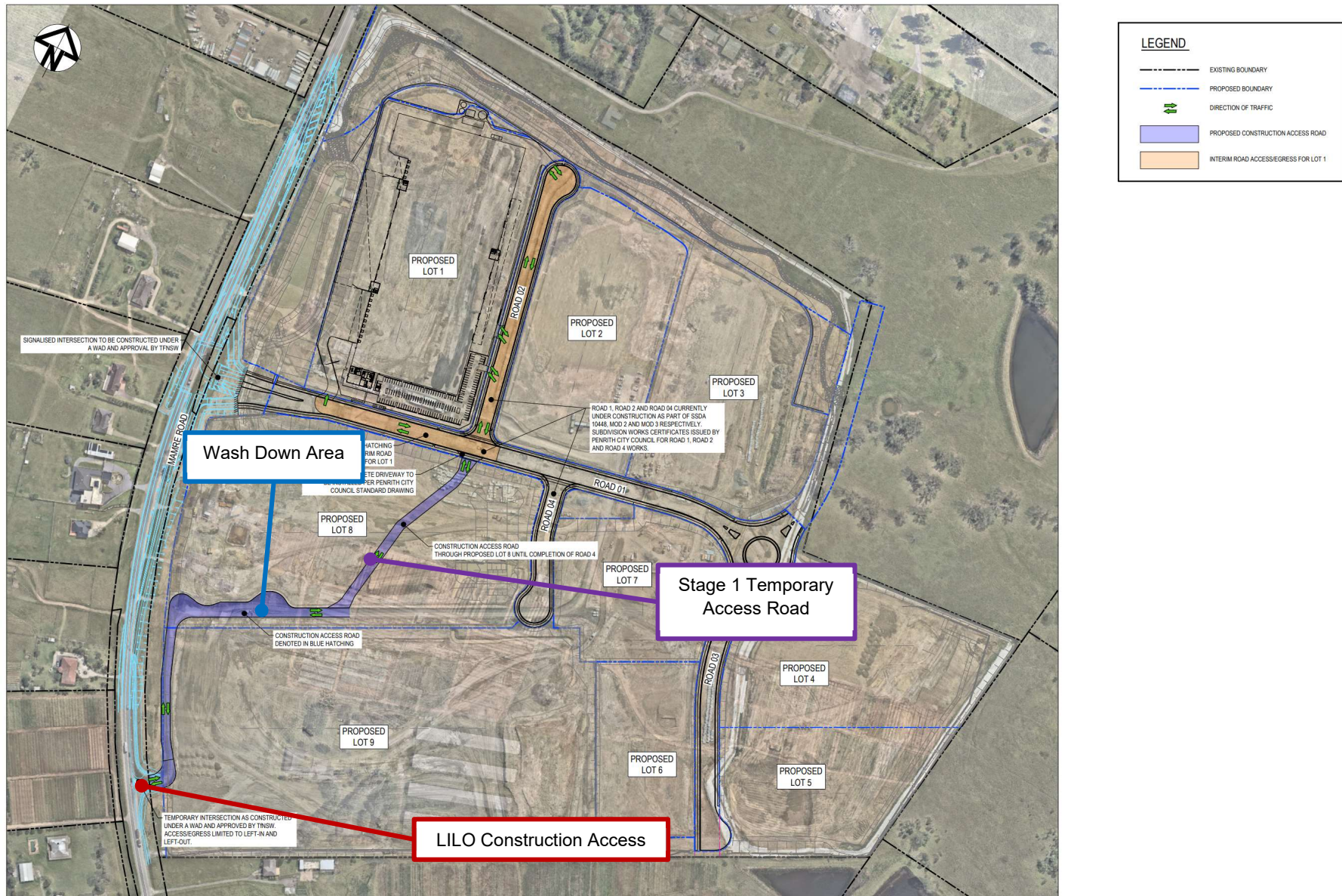


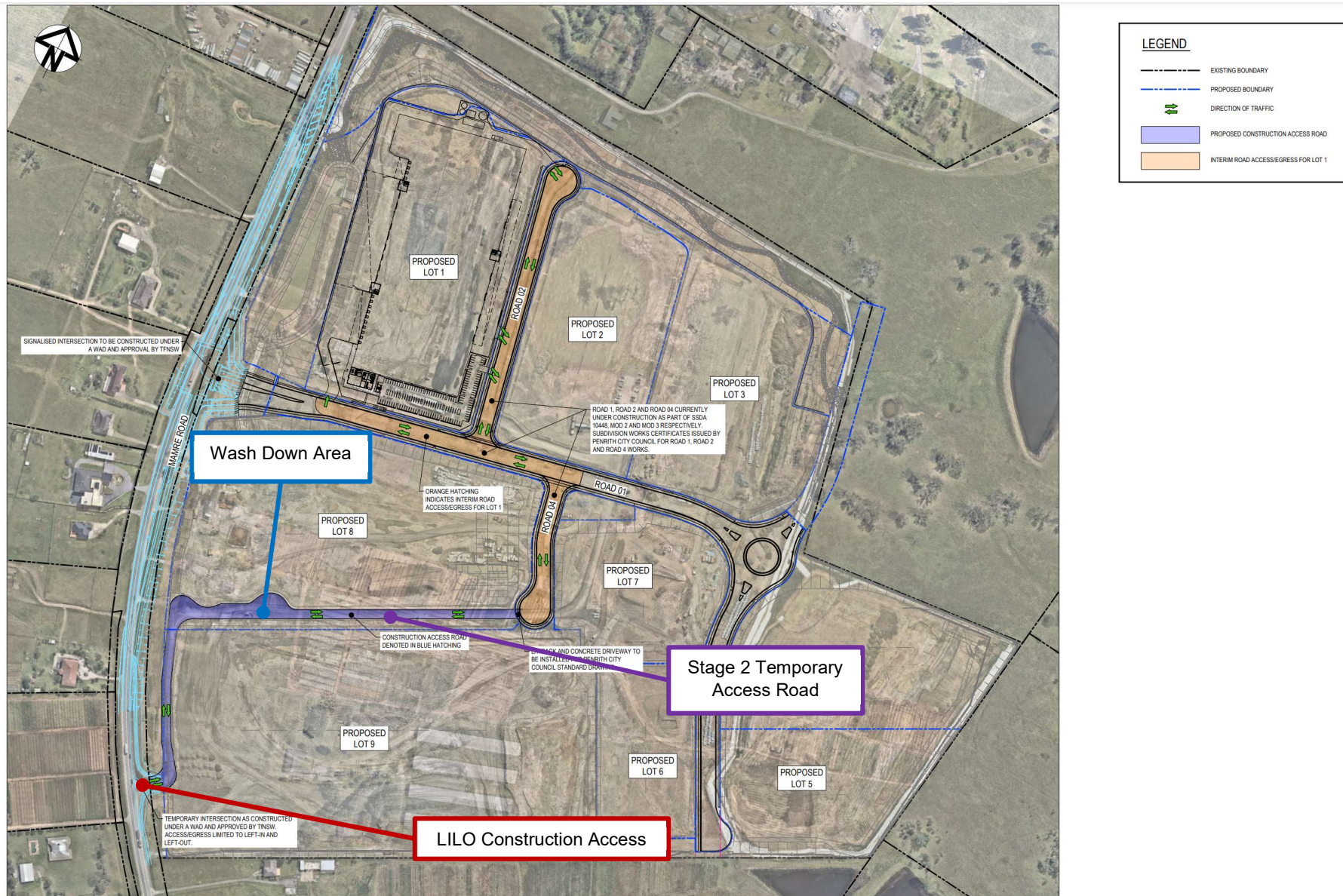
Figure 5A: Stage 1 Development, Phase 2 Stormwater Management Plan





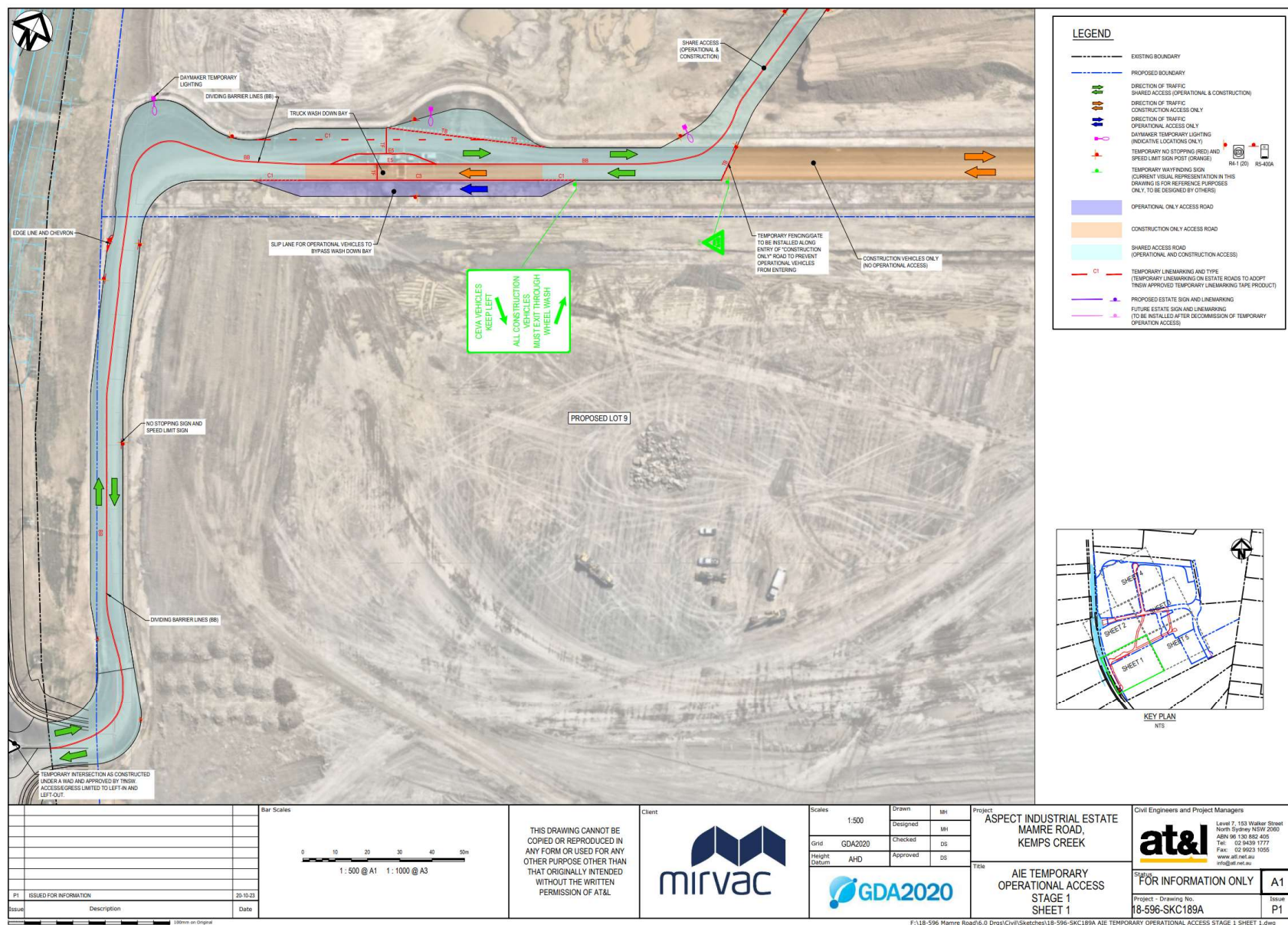
**Figure 6: AIE Stage 1 Development Temporary Operational Access Arrangement Phase 1**





**Figure 7: AIE Stage 1 Development Temporary Operational Access Arrangement Phase 2**







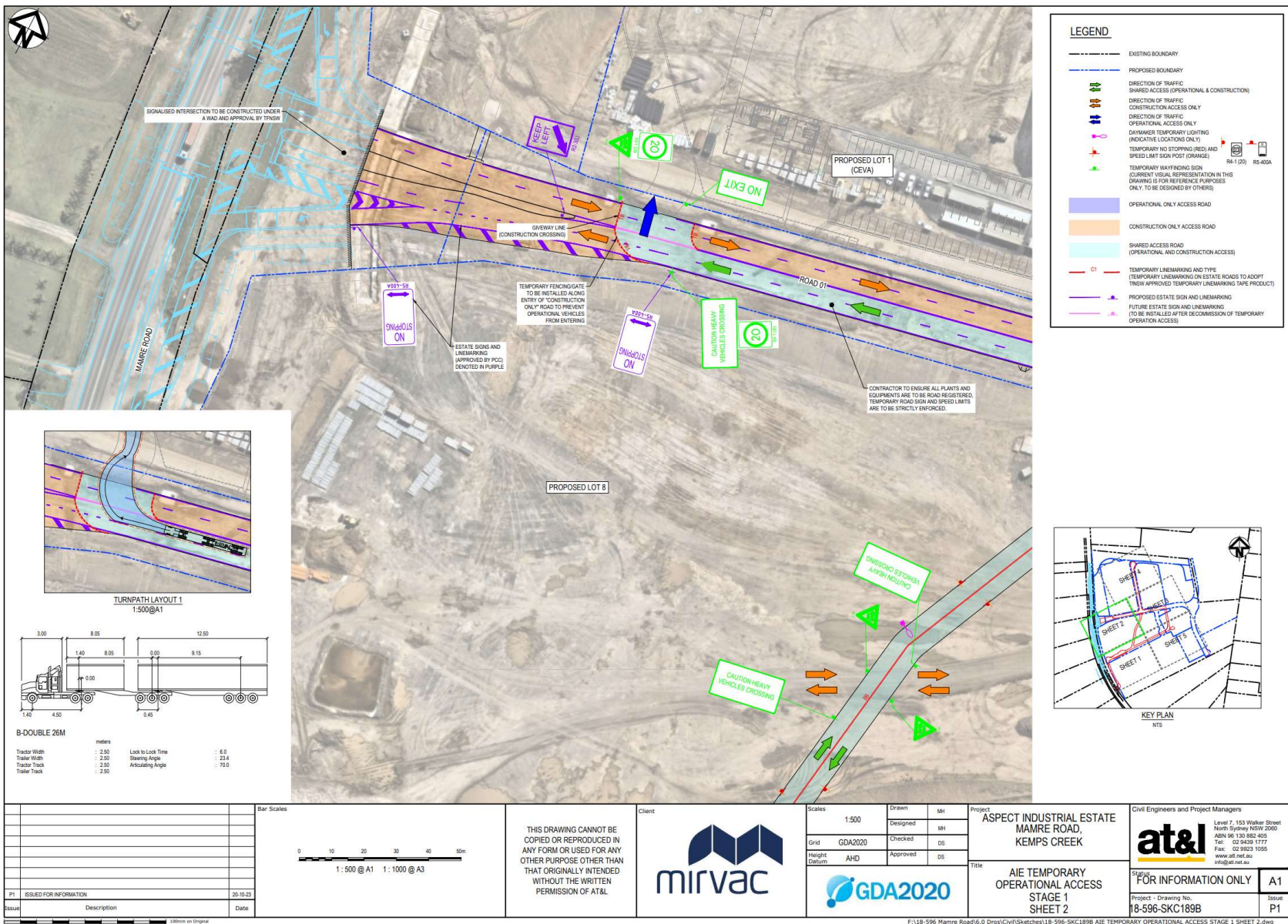


Figure 9: AIE Temporary Operational Access Stage 1 Sheet 2



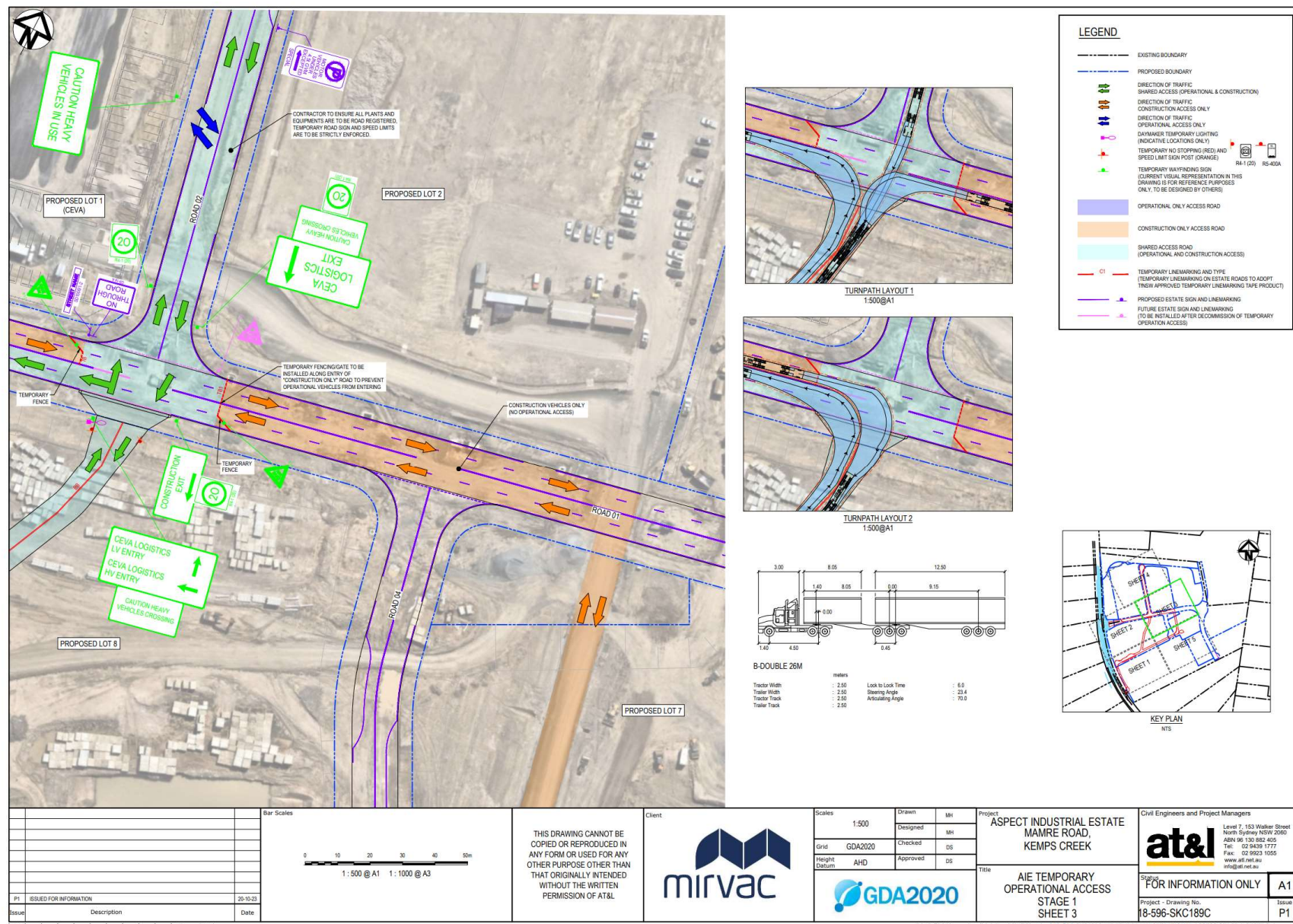


Figure 10: AIE Temporary Operational Access Stage 1 Sheet 3



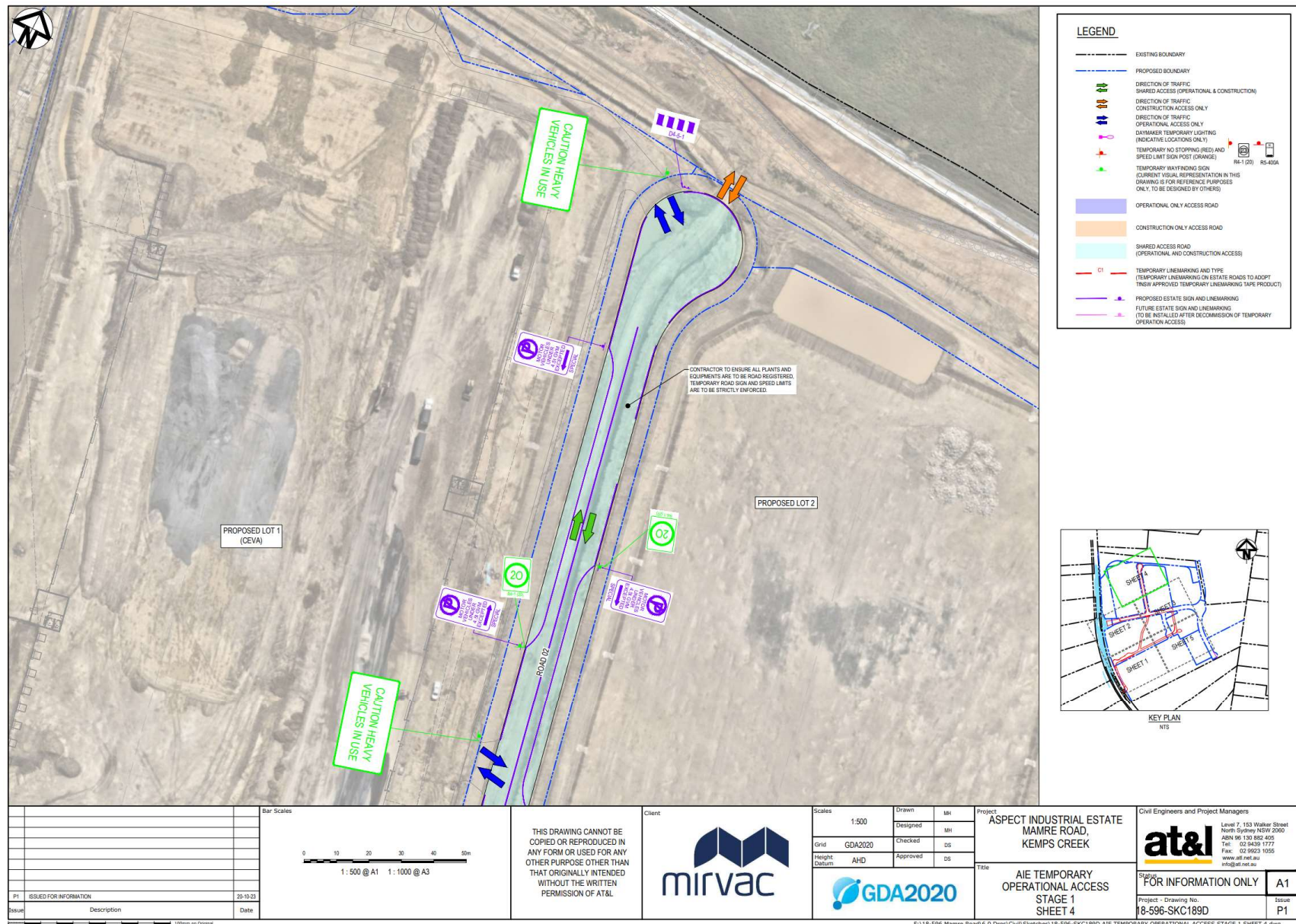


Figure 11: AIE Temporary Operational Access Stage 1 Sheet 4



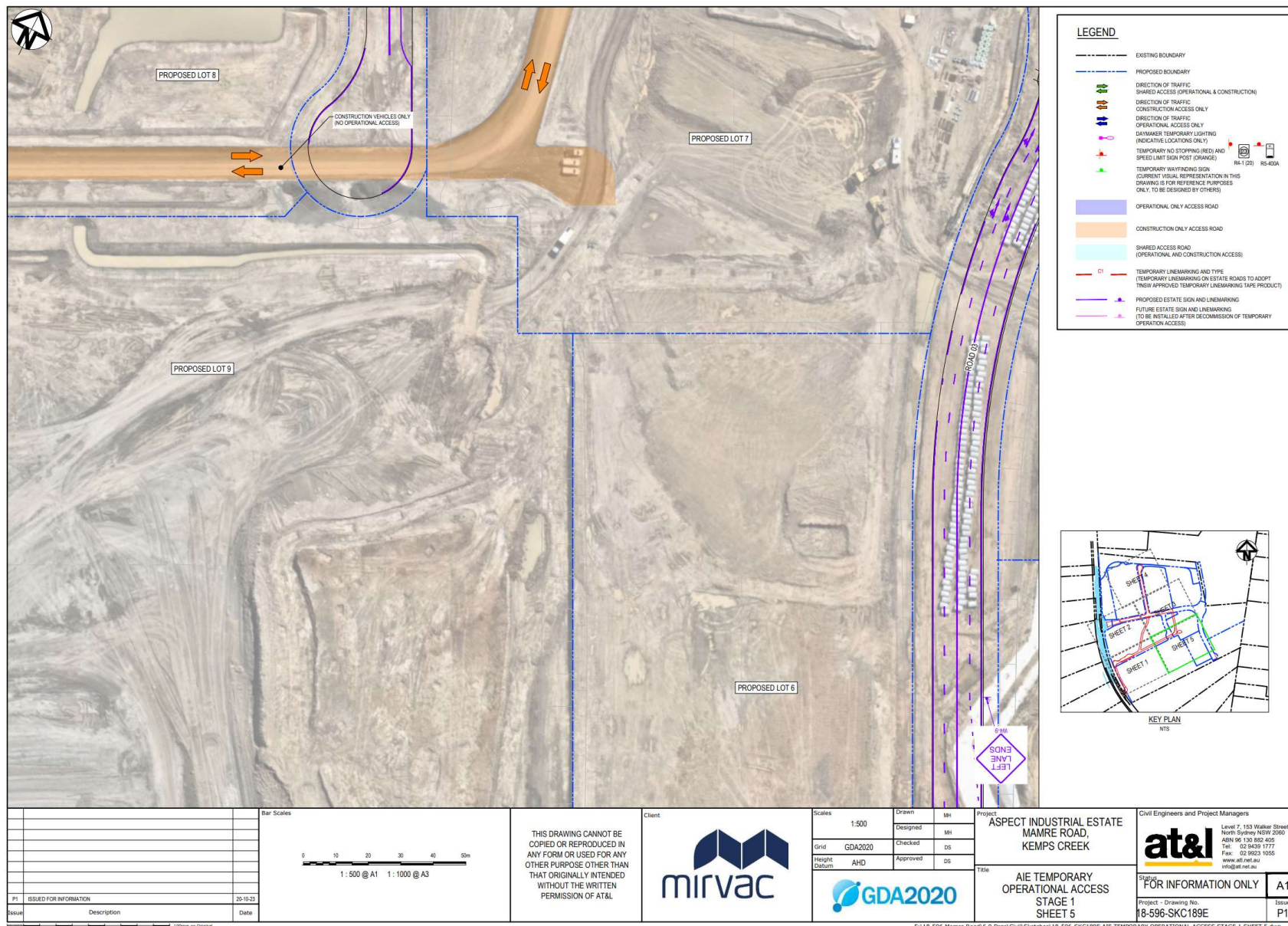


Figure 12: AIE Temporary Operational Access Stage 1 Sheet 5



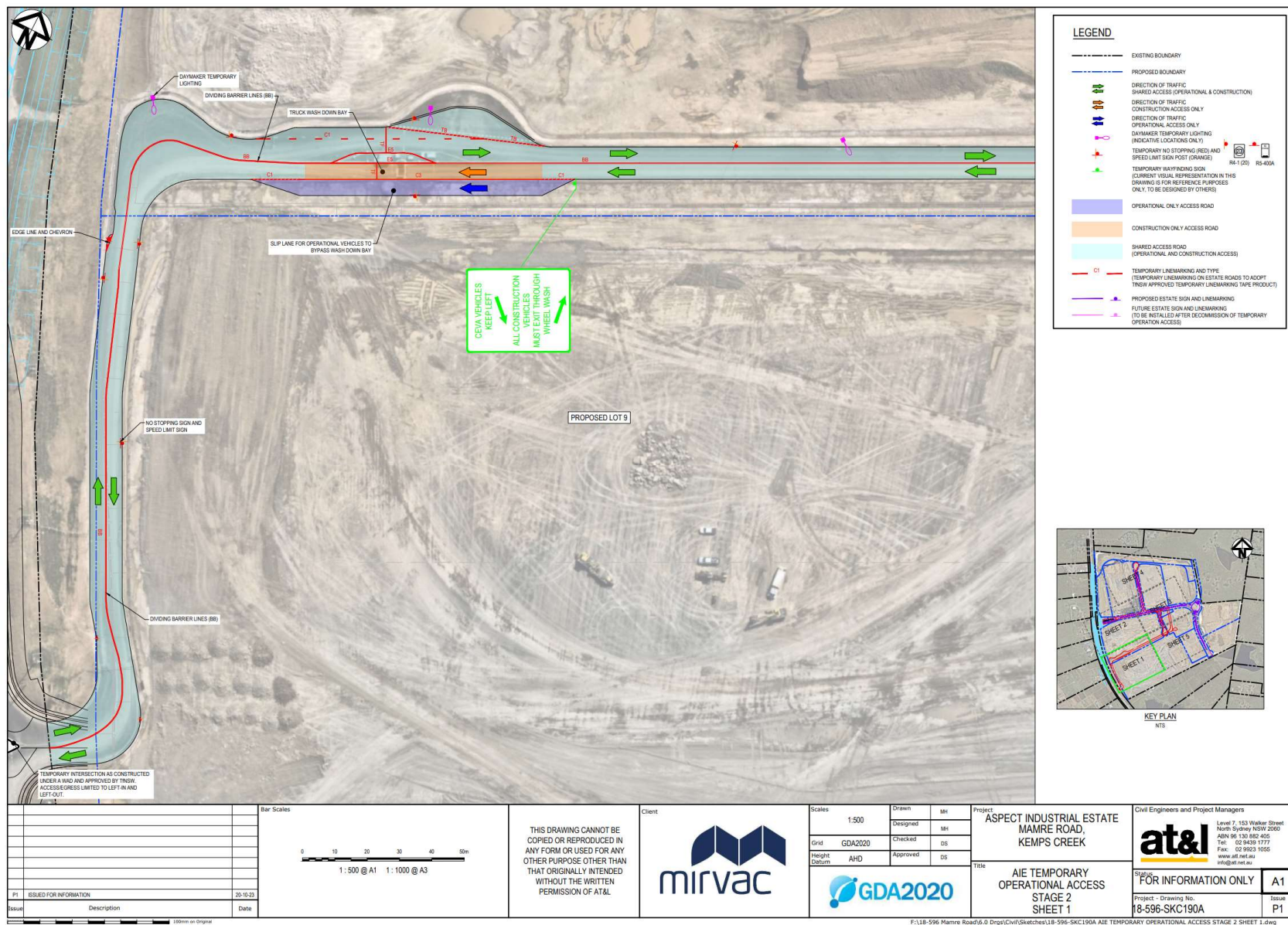


Figure 13: AIE Temporary Operational Access Stage 2 Sheet 1







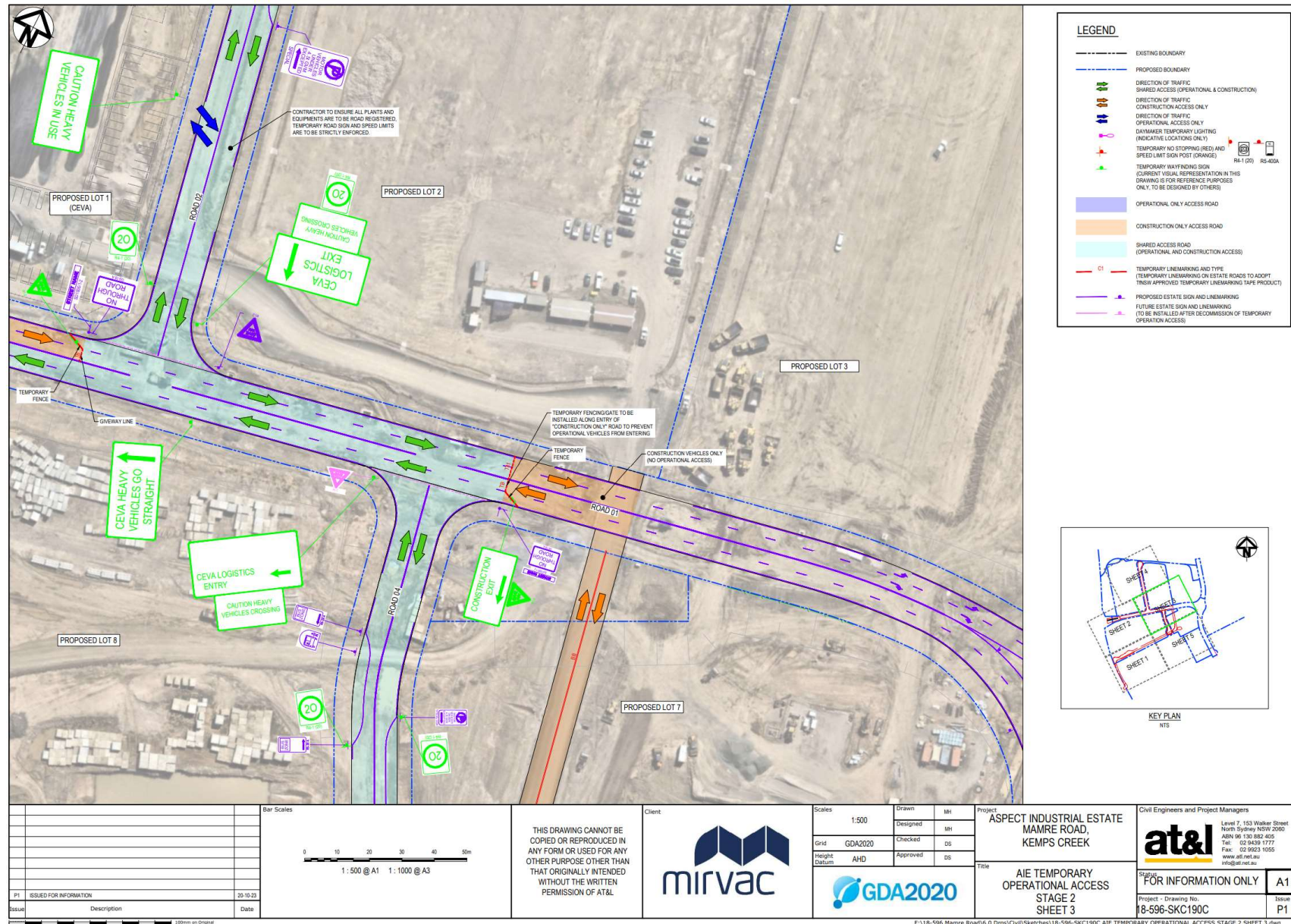
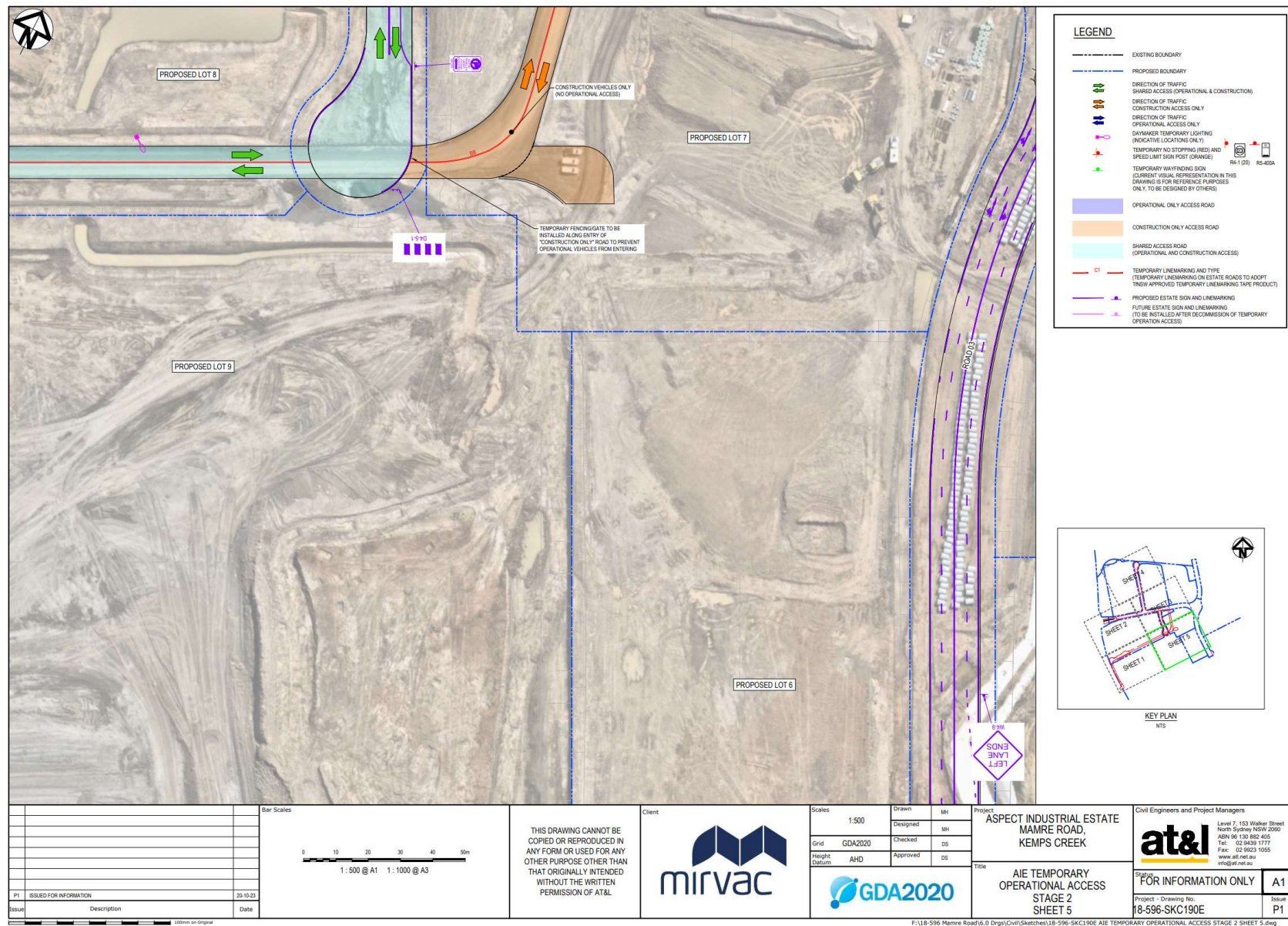


Figure 15: AIE Temporary Operational Access Stage 2 Sheet 3



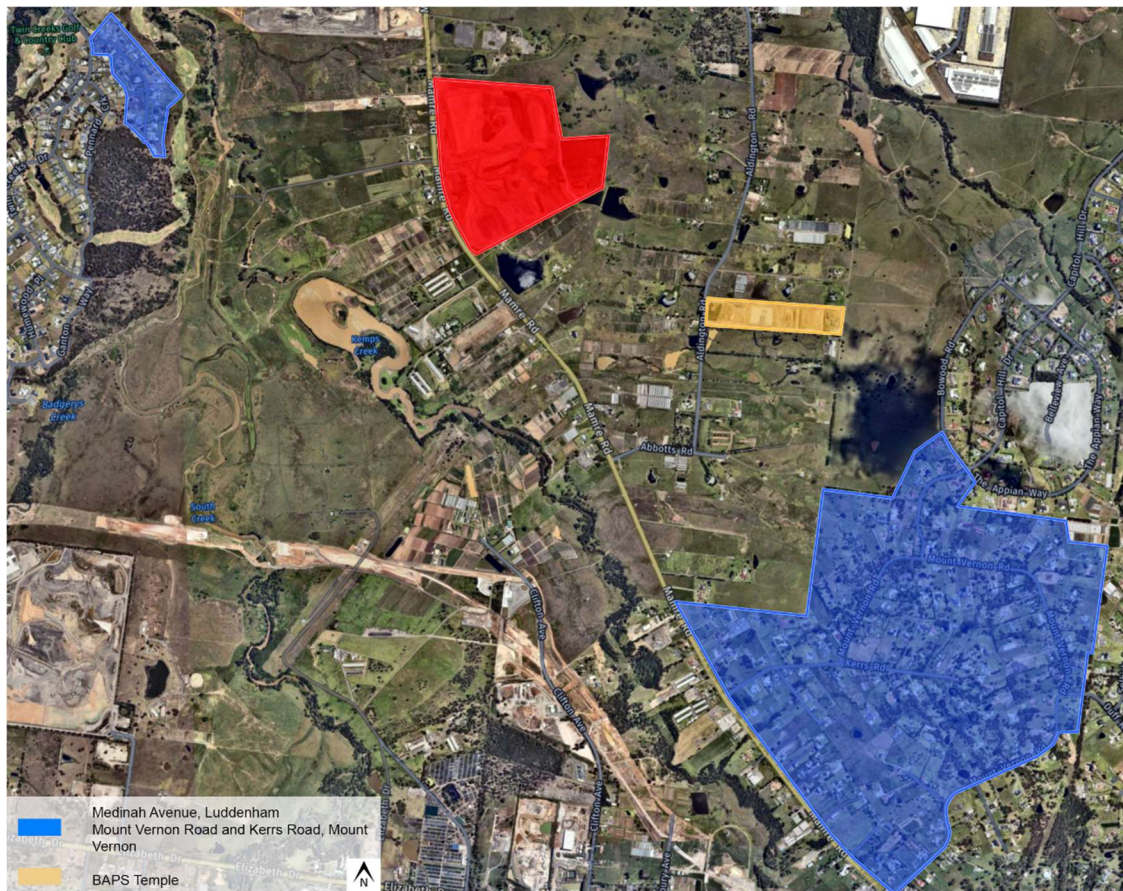








### APPENDIX 3 NOISE MONITORING LOCATIONS



**Figure 18:** Noise Monitoring Locations Plan



#### APPENDIX 4 NOISE MITIGATION ELIGIBLE RECEIVERS LOCATIONS



**Figure 19:** Noise mitigation eligible receivers to the west of Mamre Road



## APPENDIX 5 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES

Issue	SSD DA Component	Mitigation and Management
<b>Construction Management</b>		
General Construction Management	Stage 1 Development	<ul style="list-style-type: none"> <li>▪ A CEMP to be prepared for the AIE Stage 1 Development capturing standard and specific management and mitigation measures as described in the SSD DA, EIS and supporting technical documents.</li> </ul>
<b>Operational Management</b>		
General Operational Management	Concept Masterplan Stage 1 Development	<ul style="list-style-type: none"> <li>▪ An OEMP to be prepared for the AIE capturing standard and specific operational management and mitigation measures as described in the SSD DA, EIS and supporting technical documents.</li> </ul>
<b>Transport</b>		
Construction Traffic	Stage 1 Development	<ul style="list-style-type: none"> <li>▪ Preparation of a CTMP to form part of the CEMP addressing issues such as:               <ul style="list-style-type: none"> <li>– Track haul routes, delivery schedules and curfews;</li> <li>– Protocols for the management of construction traffic moving onto and off the site.</li> </ul> </li> </ul>
<b>Urban Design and Visual</b>		
Site Layout and Design	Concept Masterplan	<ul style="list-style-type: none"> <li>▪ Future development of the AIE to proceed in accordance with the approved Concept Proposal and DCP.</li> </ul>
Development Controls	Concept Masterplan	<ul style="list-style-type: none"> <li>▪ Design and development controls to be established for</li> </ul>



Issue	SSD DA Component	Mitigation and Management
		the AIE in the form of a DCP to guide future development on the site.
Visual Impact	Concept Masterplan Stage 1 Development	<ul style="list-style-type: none"> <li>Design and development controls to be established for the AIE in the form of a DCP to guide future development on the site.</li> <li>Landscaping of key interfaces including western boundary to minimise visual impact.</li> </ul>
<b>Soils and Water</b>		
Water Usage	Stage 1 Development	<ul style="list-style-type: none"> <li>Rainwater tanks to be provided for each development site with size determined in accordance with the Penrith City Council DCP requirements.</li> <li>Irrigation and toilet flushing for development to be plumbed to rainwater tanks.</li> <li>Consideration to be given to other possible rainwater reuse opportunities such as truck washing.</li> <li>Measures and considerations for the minimisation of water use during construction and operation to be incorporated into CEMP and OEMP as relevant.</li> </ul>
Soils	Stage 1 Development	<ul style="list-style-type: none"> <li>Mitigation measures inherent to the civil design of the proposal.</li> <li>Sediment and erosion control measures are proposed as detailed in <b>Appendix F</b> and <b>Appendix G</b>.</li> </ul>
Salinity	Stage 1 Development	<ul style="list-style-type: none"> <li>A Salinity Management Plan to be prepared for the proposed development.</li> </ul>



Issue	SSD DA Component	Mitigation and Management
Contamination	Stage 1 Development	<ul style="list-style-type: none"> <li>Management measures described in the Salinity Management Plan to be adopted in the CEMP and OEMP as relevant.</li> </ul>
Earthworks	Stage 1 Development	<ul style="list-style-type: none"> <li>Identified areas of potential contamination to be subject to further investigation prior to the development of affected land.</li> <li>Adoption of unexpected finds procedure for hazardous and contaminated materials management and removal during demolition and excavation.</li> </ul>
Mineral Resources	Concept Masterplan	<ul style="list-style-type: none"> <li>Civil design achieves appropriate site levels with minimal impact on hydrology.</li> <li>Import of fill to be managed in accordance with CEMP.</li> <li>Erosion and sediment control measures included in SSD DA package (<b>Appendix F</b> and <b>Appendix G</b>).</li> </ul>
Surface Water	Stage 1 Development	<ul style="list-style-type: none"> <li>No mitigation required. Proposed development does not impact existing mining leases in the area.</li> </ul>
		<ul style="list-style-type: none"> <li>Stormwater issues addressed through design measures incorporated into proposed development.</li> <li>Stormwater management system designed to meet the requirements of Penrith City Council's Engineering Works and WSUD guidelines, and relevant NOW guidelines.</li> <li>Detailed on-lot stormwater for future stages of the AIE to be</li> </ul>



Issue	SSD DA Component	Mitigation and Management
Groundwater	Stage 1 Development	<p>designed and assessed under future applications.</p> <ul style="list-style-type: none"> <li>Methods and management of any required dam dewatering required, as outlined in <b>Appendix W</b>, during construction works to be detailed in the CEMP.</li> </ul>
Flooding	Stage 1 Development	<ul style="list-style-type: none"> <li>OSD designed to ensure that development does not increase stormwater peak flows in downstream areas for events up to and including 1:100 year ARI.</li> <li>OSD designed to mitigate post-development flows to pre-development flows for peak ARI events.</li> <li>Finished floor levels to have a minimum 500mm freeboard to 100 year overland flows.</li> </ul>
Water Quality	Stage 1 Development	<ul style="list-style-type: none"> <li>Erosion and sediment controls as detailed in <b>Appendix F</b> and <b>Appendix G</b> to be implemented through CEMP.</li> <li>Stormwater to be treated to compliant levels prior to discharge.</li> <li>Gross Pollutant Trap (GPT) to be installed within each development site on the final downstream stormwater pit prior to discharge.</li> <li>WSUD measures adopted to achieve target reductions for the AIE: <ul style="list-style-type: none"> <li>85% Total Suspended Solids</li> <li>60% Total Phosphorus</li> <li>45% Total Nitrogen</li> <li>90% Gross Pollutants</li> </ul> </li> </ul>



Issue	SSD DA Component	Mitigation and Management
<b>Infrastructure</b>		
Capacity and Upgrades	Concept Masterplan	<ul style="list-style-type: none"> <li>Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in <b>Section 2.5.6</b> of the EIS.</li> </ul>
Delivery and Staging	Concept Masterplan Stage 1 Development	<ul style="list-style-type: none"> <li>Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in <b>Sections 2.4.7</b> and <b>2.5.6</b>.</li> <li>Staging of development of the AIE would be aligned with infrastructure and services delivery.</li> </ul>
<b>Other Environmental Issues</b>		
Flora and Fauna	Concept Masterplan Stage 1 Development	<ul style="list-style-type: none"> <li>Implementation of the Biodiversity Offset Strategy for the site.</li> <li>Preparation of a Biodiversity Management Plan for the site to inform the CEMP and OEMP as relevant to manage potential impacts to biodiversity during construction and operation.</li> <li>Restoration of retained areas of vegetation including riparian corridors and the Biodiversity Offset Area;</li> <li>Native grassland restoration to other areas of the site including road batters and outside batters of bio-retention basins; and</li> <li>Ongoing maintenance and management of these areas in accordance with the provisions of the Biodiversity Offset Strategy.</li> </ul>



Issue	SSD DA Component	Mitigation and Management
Waterways and Riparian Lands	Concept Masterplan Stage 1 Development	<ul style="list-style-type: none"> <li>▪ Realignment of creek to occur in accordance with design and management measures described in <b>Appendix P</b> including:               <ul style="list-style-type: none"> <li>– Revegetation to use appropriate native aquatic macrophyte and River-flat Eucalypt-forest species within the riparian area.</li> <li>– Ongoing management of riparian lands on the site to be in accordance with the Vegetation Management Plan (<b>Appendix P</b>).</li> </ul> </li> </ul>
Construction Noise	Stage 1 Development	<ul style="list-style-type: none"> <li>▪ Construction hours to be limited to 7:00am – 6:00pm Monday to Friday and 8:00am – 1:00pm Saturdays.</li> <li>▪ Where construction noise levels are predicted to be above the NMLs, all feasible and reasonable work practices are investigated to minimise noise emissions.</li> <li>▪ If construction noise levels are still predicted to exceed the NMLs, potential noise impacts would be managed via site specific construction noise management plans.</li> <li>▪ Construction works should be conducted during standard construction hours, with OOHW minimised as far as reasonable and feasible.</li> <li>▪ Locations for vibration intensive equipment should be reviewed during the preparation of the site specific Construction Noise and Vibration Management Plans (CNVMP) for construction works adjacent to sensitive receivers.</li> </ul>



Issue	SSD DA Component	Mitigation and Management
Operational Noise	Stage 1 Development	<ul style="list-style-type: none"> <li>Further noise management measures to be incorporated into the CEMP as appropriate.</li> </ul>
Air Quality and Odour – Construction	Stage 1 Development	<ul style="list-style-type: none"> <li>CEMP to include standard air quality control measures, contingency plans and response procedure and suitable reporting and performance monitoring procedures.</li> <li>CEMP to include standard odour mitigation measures for construction including keeping excavation surfaces moist, covering excavation faces and/or stockpiles, use of soil vapour extraction systems and regular monitoring of discharges as appropriate.</li> </ul>
Air Quality and Odour – Operational	Stage 1 Development	<ul style="list-style-type: none"> <li>Further assessment of potential air quality impacts to be undertaken in respect of any specific operations proposed within the AIE with an atypical air emissions profile.</li> <li>Specific operations proposed within the AIE with the potential for generation of odour would be subject to further assessment.</li> </ul>
Indigenous Heritage	Stage 1 Development	<ul style="list-style-type: none"> <li>Archaeological salvage excavation and monitoring to be undertaken in the presence of relevant Aboriginal stakeholders prior to ground disturbance and</li> </ul>



Issue	SSD DA Component	Mitigation and Management
		<p>excavation work in identified areas.</p> <ul style="list-style-type: none"> <li>▪ Result of detailed archaeological excavation and any suitable salvaged materials to be managed in accordance with the NPW Act and direction from relevant Aboriginal stakeholders.</li> <li>▪ Implementation of Unexpected Finds Protocol.</li> </ul>
Non-Indigenous Heritage	Stage 1 Development	<ul style="list-style-type: none"> <li>▪ Constructions works to cease should artefacts be uncovered during ground disturbance and DPC-Heritage notified.</li> <li>▪ Implementation of Unexpected Finds Protocol.</li> </ul>
Greenhouse Gas and Energy Efficiency	Stage 1 Development	<ul style="list-style-type: none"> <li>▪ Future stages of development within the AIE would be subject to assessment in relation to energy efficiency and greenhouse gas emissions.</li> </ul>
Waste Management – Construction	Stage 1 Development	<ul style="list-style-type: none"> <li>▪ Detailed construction waste minimisation and management measures to be included in the CEMP as described in <b>Appendix Y</b>.</li> </ul>
Waste Management – Operations	Stage 1 Development	<ul style="list-style-type: none"> <li>▪ Detailed construction waste minimisation and management measures to be included in the OEMP as described in <b>Appendix Y</b>.</li> </ul>



## **APPENDIX 6 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS**

### **WRITTEN INCIDENT NOTIFICATION REQUIREMENTS**

1. A written incident notification addressing the requirements set out below must be submitted to the Planning Secretary via the Major Projects website within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under condition E10 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
  - a. identify the development and application number;
  - b. provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
  - c. identify how the incident was detected;
  - d. identify when the applicant became aware of the incident;
  - e. identify any actual or potential non-compliance with conditions of consent;
  - f. describe what immediate steps were taken in relation to the incident;
  - g. identify further action(s) that will be taken in relation to the incident; and
  - h. identify a project contact for further communication regarding the incident.

### **INCIDENT REPORT REQUIREMENTS**

3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
  - a. a summary of the incident;
  - b. outcomes of an incident investigation, including identification of the cause of the incident;
  - c. details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
  - d. details of any communication with other stakeholders regarding the incident.





# **Appendix B    SSD 58257960 Consent**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



# Development Consent

## Section 4.38 of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning and Public Spaces under delegation executed on 9 March 2022, I approve the Development Application referred to in Schedule 1, subject to the conditions specified in Schedule 2.

These conditions are required to:

- prevent, minimise, or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development



Chris Ritchie  
**Director**  
**Industry Assessments**

Sydney

5 July 2024

File: SSD 58257960

### SCHEDULE 1

<b>Application Number:</b>	SSD-58257960
<b>Applicant:</b>	Mirvac Projects Pty Ltd
<b>Consent Authority:</b>	Minister for Planning and Public Spaces
<b>Site:</b>	<u>Aspect Industrial Estate</u> Lot 301 on DP 1305254 788 – 882 Mamre Road, Kemps Creek NSW 2178 <u>Elizabeth Enterprise Precinct</u> Lot 100 DP 1283398 and Lot 741 DP 810111 1669A and 1669-1723 Elizabeth Drive, Badgerys Creek NSW 2555
<b>Development:</b>	Stage 3 of the Aspect Industrial Estate including: <ul style="list-style-type: none"><li>• construction and operation of a warehouse and distribution facility (Warehouse 2) with loading docks, hardstand and ancillary office space</li><li>• minor on lot earthworks</li><li>• installation of services and utilities</li><li>• landscaping</li><li>• construction of light and heavy vehicle access driveways and parking</li><li>• inclusion of the Elizabeth Enterprise Precinct site for stormwater management purposes only.</li></ul>



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## DEFINITIONS

<b>AIE</b>	Aspect Industrial Estate (SSD-10448 as modified) which includes a Concept Proposal for the staged development of an industrial estate including industrial, warehousing and distribution centres, approved on 24 May 2022
<b>Applicant</b>	Mirvac Projects Pty Ltd, or any person carrying out any development to which this consent applies
<b>BCA</b>	Building Code of Australia
<b>Carrier</b>	Operator of a telecommunication network and/ or associated infrastructure, as defined in section 7 of the <i>Telecommunications Act 1997</i> (Cth)
<b>Certifier</b>	A council or an accredited certifier (including principal certifiers) who is authorised under section 6.5 of the EP&A Act to issue Part 6 certificates
<b>CEMP</b>	Construction Environmental Management Plan
<b>Conditions of this consent</b>	Conditions contained in Schedule 2 of this document
<b>Construction</b>	Construction of buildings, hardstands, offices, roads, stormwater infrastructure and landscaping
<b>Council</b>	Penrith City Council
<b>Day</b>	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
<b>Department</b>	NSW Department of Planning, Housing and Infrastructure
<b>Development</b>	The development described in Schedule 1, the EIS and RTS, including minor on-lot earthworks, construction, fit-out and operation of one warehouse building (warehouse 2), ancillary office space, hardstands, parking landscaping, utilities and stormwater infrastructure, as modified by the conditions of this consent
<b>Development layout</b>	The plans at Appendix 1 of this consent
<b>DPHI</b>	Department of Planning, Housing and Infrastructure
<b>EEP</b>	Elizabeth Enterprise Precinct (Lot 100 DP 1283398 and Lot 741 DP 810111), 1669A and 1669-1723 Elizabeth Drive, Badgerys Creek NSW 2555, as described in the Response to Submissions Report prepared by Urbis dated 15 March 2024 and SSD-10448 MOD 4
<b>EHG</b>	Environment and Heritage Group of the Department of Climate Change, Energy, the Environment and Water
<b>EIS</b>	The Environmental Impact Statement titled <i>Environmental Impact Statement – Warehouse 2 (SSD 58257960)</i> , prepared by Urbis dated November 2023, submitted with the application for consent for the development
<b>ENM</b>	Excavated Natural Material
<b>Environment</b>	As defined in section 1.4 of the EP&A Act
<b>Environmental Representative Protocol</b>	The document of the same title published by the Department
<b>EPA</b>	NSW Environment Protection Authority
<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979</i>
<b>EP&amp;A Regulation</b>	Environmental Planning and Assessment Regulation 2021
<b>Evening</b>	The period from 6 pm to 10 pm
<b>Fibre-ready facility</b>	As defined in section 372W of the <i>Telecommunications Act 1997</i> (Cth)
<b>GFA</b>	Gross Floor Area
<b>Heritage</b>	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
<b>Heritage item</b>	An item as defined under the <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i> , the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the



*Environment Protection and Biodiversity Conservation Act 1999* (Cth), or anything identified as a heritage item under the conditions of this consent

<b>Incident</b>	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance Note: "material harm" is defined in this consent
<b>IWCM</b>	Integrated Water Cycle Management
<b>Land</b>	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
<b>Mamre Road / Access Road 1 intersection</b>	The signalised intersection of Mamre Road and Access Road 1 approved as part of State Significant Development (SSD-10448) for the AIE (as modified)
<b>Material harm</b>	Is harm that: <ul style="list-style-type: none"> <li>a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or</li> <li>b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)</li> </ul>
<b>Minister</b>	NSW Minister for Planning and Public Spaces (or delegate)
<b>Mitigation</b>	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
<b>MRP</b>	Mamre Road Precinct
<b>MRP DCP</b>	Mamre Road Precinct Development Control Plan 2021
<b>NCC</b>	National Construction Code
<b>Night</b>	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
<b>Non-compliance</b>	An occurrence, set of circumstances or development that is a breach of this consent
<b>OEMP</b>	Operational Environmental Management Plan
<b>Operation</b>	The use of warehouse 2 for storage and distribution purposes as described in the EIS and RTS
<b>PA</b>	Means a planning agreement within the meaning of the term in section 7.4 of the EP&A Act
<b>Principal Certifier</b>	The certifier appointed as the principal certifier for the building work under section 6.6(1) of the EP&A Act or for the subdivision work under section 6.12(1) of the EP&A Act
<b>Planning Secretary</b>	Secretary of the Department, or delegate
<b>POEO Act</b>	<i>Protection of the Environment Operations Act 1997</i>
<b>Reasonable</b>	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
<b>Regional Stormwater Scheme</b>	Regional stormwater infrastructure as shown on the MRP Stormwater Scheme Plan, May 2024 prepared by Sydney Water
<b>Registered Aboriginal Parties</b>	Means the Aboriginal persons identified in accordance with the document entitled " <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> " (DECCW)
<b>Relevant Roads Authority</b>	The authority responsible for ownership and maintenance of the applicable road (either Council or TfNSW)
<b>Response to Submissions (RTS)</b>	The Applicant's response to issues raised in submissions received in relation to the application for consent for the development under the EP&A Act and includes the document titled <i>Submissions Report SSDA-58257960 WH2 Aspect Industrial Estate</i> , prepared by Urbis and dated 15 March 2024 and Additional Information included in the document titled <i>Aspect Industrial Estate Stage 3 Development (SSD-58257960) – Response to Request for Additional Information Warehouse 2</i> prepared by Urbis and dated 28 May 2024



<b>Sensitive receivers</b>	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area
<b>Site</b>	The land defined in Schedule 1
<b>SSD-10448</b>	State Significant Development SSD-10448 approved by the Director, Industry Assessments as delegate of the Minister administering the EP&A Act on 24 May 2022 and all subsequent modifications
<b>State Emergency Service</b>	Has the same meaning as the definition of the term in section 3 of the <i>State Emergency Service Act 1989</i> (NSW)
<b>Technical Guidance</b>	<i>Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets</i> (NSW Government, 2022)
<b>TfNSW</b>	Transport for New South Wales
<b>VENM</b>	Virgin Excavated Natural Material
<b>Waste</b>	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
<b>WSUD</b>	Water Sensitive Urban Design
<b>Year</b>	A period of 12 consecutive months



## SCHEDULE 2

### PART A ADMINISTRATIVE CONDITIONS

#### OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

- A1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.

#### TERMS OF CONSENT

- A2. The development may only be carried out:
- (a) in compliance with the conditions of this consent;
  - (b) in accordance with all written directions of the Planning Secretary;
  - (c) in accordance with the EIS and RTS;
  - (d) in accordance with the Development Layout in Appendix 1; and
  - (e) in accordance with the management and mitigation measures in Appendix 2.
- A3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:
- (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and
  - (b) the implementation of any actions or measures contained in any such document referred to in condition A3(a).
- A4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or A2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

#### LIMITS OF CONSENT

##### Lapsing

- A5. This consent lapses five years after the date from which it operates, unless the development has physically commenced on the land to which the consent applies before that date.

##### Development Area

- A6. The maximum GFA for the development must not exceed the limits described in **Table 1**.

**Table 1** Maximum GFA for the Development

Land Use	Maximum GFA (m <sup>2</sup> )
Warehouse and distribution centres	22,595
Office	1,500
Dock Offices	200
<b>Total</b>	<b>24,295</b>

##### Access and Traffic

- A7. The Applicant must not operate the development until the Mamre Road / Access Road 1 intersection is completed to the satisfaction of the relevant roads authority, in accordance with Condition B6.
- A8. The largest vehicle permitted to access the site is a 30 metre Performance Based Standards (PBS) Level 2 Type B.
- A9. The Applicant must ensure all vehicles associated with construction and operation of the development do not use Bakers Lane, Aldington Road and Abbotts Road.

##### Stormwater Management

- A10. The site must achieve compliance with the Integrated Water Cycle Management (IWCM) controls in the MRP DCP in accordance with the *Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets* (NSW Government, 2022).
- A11. Under this consent, the Elizabeth Enterprise Precinct (EEP) site must only be used for stormwater management purposes as required by Condition A10 until the Regional Stormwater Scheme becomes available for the AIE to connect into.



*Note: Any future use of the EEP site other than for stormwater management purposes may be considered by the Department as part of a separate future modification and/or application should alternative stormwater management strategies become available.*

- A12. This consent does not permit the use of the EEP site for any other development or use and must be preserved as undeveloped land for the purposes described in Condition A10.

#### **NOTIFICATION OF COMMENCEMENT**

- A13. The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary:
- (a) construction; and
  - (b) operation.
- A14. If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing, at least one month before the commencement of each stage (or other timeframe agreed with the Planning Secretary), of the date of commencement and the development to be carried out in that stage.

#### **EVIDENCE OF CONSULTATION**

- A15. Where conditions of this consent require consultation with an identified party, the Applicant must:
- (a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and
  - (b) provide details of the consultation undertaken including:
    - (i) the outcome of that consultation, matters resolved and unresolved; and
    - (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

#### **STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS**

- A16. With the approval of the Planning Secretary, the Applicant may:
- (a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);
  - (b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and
  - (c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).
- A17. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.
- A18. If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.

#### **UTILITIES, SERVICES AND PUBLIC INFRASTRUCTURE**

##### **General Requirements**

- A19. Prior to the commencement of construction of the development, the Applicant must:
- (a) consult with the relevant owner and provider of services or public infrastructure that are likely to be affected by the development or that need to be installed as part of the development, to make suitable arrangements for relevant approvals, access to, diversion, protection and support of the affected services or infrastructure;
  - (b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
  - (c) submit a copy of the dilapidation report to the Planning Secretary and TfNSW.
- A20. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:
- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and
  - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.



## Sydney Water

- A21. Prior to the commencement of construction of the development, the Applicant must obtain a Building Plan Approval from Sydney Water to determine if sewer, water or stormwater mains or easements will be affected by the development.
- A22. Prior to the commencement of operation of the development, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the *Sydney Water Act 1994*.

## Fibre-Ready Facilities

- A23. Prior to the issue of a Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for:
- (a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and
  - (b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier.
- A24. Prior to the issue of the Occupation Certificate for the development the Applicant must demonstrate that the carrier has confirmed in writing it is satisfied that the fibre-ready facilities are fit-for-purpose.

## STRUCTURAL ADEQUACY

- A25. All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the NCC.

### Note:

- Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.
- The EP&A (Development Certification and Fire Safety) Regulation 2021 sets out the requirements for the certification of the development.

## EXTERNAL WALLS AND CLADDING

- A26. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.
- A27. Prior to the issue of:
- (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and
  - (b) an Occupation Certificate,
- the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.
- A28. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.

## COMPLIANCE

- A29. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

## DEVELOPMENT CONTRIBUTIONS

- A30. Prior to the issue of a Construction Certificate for the development (or at a time otherwise permitted by the contributions plan or otherwise agreed by Council), the Applicant must pay contributions to Council as required in accordance with the Penrith City Mamre Road Precinct Development Contributions Plan 2022.

**Note:** subject to agreement between Council and the Applicant, local contributions may be satisfied by a planning agreement or works-in-kind agreement between Council and the Applicant.

- A31. A special infrastructure contribution must be made in accordance with the Environmental Planning and Assessment (Special Infrastructure Contribution – Western Sydney Aerotropolis) Determination 2022 (as in force when this development consent takes effect).

A person may not apply for a Subdivision Certificate or Construction Certificate (as the case may require, having regard to the Determination) in relation to development the subject of this development consent unless the person provides, with the application, written evidence from the Department of Planning, Housing and Infrastructure that the special infrastructure contribution for the development (or that part of the development for which the certificate is sought) has been made or that arrangements are in force with respect to the making of the contribution.



### **More information**

*A request for assessment by the Department of Planning, Housing and Infrastructure of the amount of the contribution that is required under this condition can be made through the NSW planning portal (<https://www.planningportal.nsw.gov.au/development-assessment/contributions/sic-online-service>). Please refer enquiries to [SIContributions@planning.nsw.gov.au](mailto:SIContributions@planning.nsw.gov.au).*

### **OPERATION OF PLANT AND EQUIPMENT**

A32. All plant and equipment used on site, or to monitor the performance of the development, must be:

- (a) maintained in a proper and efficient condition; and
- (b) operated in a proper and efficient manner.

### **WORK AS EXECUTED PLANS**

A33. Prior to the issue of the Occupation Certificate for the development, work-as-executed drawings signed by a registered surveyor demonstrating that the stormwater drainage and finished ground levels have been constructed as approved, must be submitted to the Principal Certifier.

### **ENVIRONMENTAL REPRESENTATIVE**

A34. The Applicant must engage an Environmental Representative (ER) to oversee construction of the development. Unless otherwise agreed to by the Planning Secretary, construction of the development must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant. The approved ER must:

- (a) be a suitably qualified and experienced person who was not involved in the preparation of the EIS and RTS and any additional information for the development and is independent from the design and construction personnel for the development;
- (b) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the development;
- (c) consider and inform the Planning Secretary on matters specified in the terms of this consent;
- (d) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community;
- (e) review the CEMP required in Condition C2 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent and if so:
  - (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or
  - (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department);
- (f) regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent;
- (g) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings, and site visits;
- (h) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints;
- (i) provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the Mamre Road Precinct in relation to construction traffic management, sediment control, noise and dust;
- (j) attend the Mamre Road Precinct Working Group (see Condition A37) in a consultative role in relation to the environmental performance of the development; and
- (k) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an **Environmental Representative Monthly Report** providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Monthly Reports'. The **Environmental Representative Monthly Report** must be submitted within seven calendar days following the end of each month for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.

**Note:** *Subject to the Planning Secretary's approval, the Applicant may elect to nominate the ER approved to oversee the Stage 1 Development (SSD-10448) for the purposes of satisfying Condition A34 of this consent.*

A35. The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in condition A34 (including preparation of the ER monthly report), as well as:

- (a) the complaints register (to be provided on a daily basis); and



- (b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).
- A36. The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under condition A34. The Applicant must:
- (a) facilitate and assist the Planning Secretary in any such audit; and
  - (b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit.

#### **MAMRE ROAD PRECINCT WORKING GROUP**

- A37. Prior to the commencement of construction of the development and until all components of the development are constructed and operational, the Applicant must participate in a working group with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. The working group must:
- (a) comprise at least one representative of the Applicant, the Applicant's ER, and relevant consent holders in the MRP;
  - (b) meet periodically throughout the year to discuss, formulate and implement measures or strategies to improve monitoring, coordination of the approved industrial developments in the MRP;
  - (c) regularly inform Council, TfNSW, Sydney Water and the Planning Secretary of the outcomes of these meetings and actions to be undertaken by the working group;
  - (d) review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP;
  - (e) review community concerns or complaints with respect to environmental management;
  - (f) identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP; and
  - (g) provide the Planning Secretary with an update and strategies, if a review under subclause (d) and (e) identifies additional measures and processes are required to be implemented by the working group.

**Note:** *Subject to the Planning Secretary's approval, the Applicant may satisfy Condition A37 through utilising the Working Group established under Condition C34, Schedule 2 of SSD-10448.*

- A38. Three (3) months prior to completion of construction of all components of the development, the Applicant is eligible to exit the working group required under condition A37. The Applicant must:
- (a) consult with the Planning Secretary;
  - (b) provide confirmation that all components of the development are operational; and
  - (c) advise on the date of the proposed exit.

#### **APPLICABILITY OF GUIDELINES**

- A39. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.
- A40. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

#### **ADVISORY NOTES**

- AN1.** All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.



## **PART B SPECIFIC ENVIRONMENTAL CONDITIONS**

### **TRAFFIC AND ACCESS**

#### **Construction Traffic Management Plan**

- B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
  - (b) be prepared in consultation with Council and TfNSW;
  - (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
  - (d) detail proposed work zones, heavy vehicle routes, access and parking arrangements;
  - (e) detail the number of construction vehicle movements and demonstrate how the movements will be managed in the context of road changes in the vicinity of the site;
  - (f) include a Driver Code of Conduct to:
    - (i) minimise the impacts of construction on the local and regional road network;
    - (ii) minimise conflicts with other road users;
    - (iii) minimise road traffic noise;
    - (iv) inform truck drivers of the site access arrangements, turning restrictions and use of specified routes;
    - (v) include a program to monitor the effectiveness of these measures; and
    - (vi) detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions.
  - (g) include the location of any crane(s) and a crane movement plan;
  - (h) include a consultation strategy for liaising with and managing the cumulative impacts of other developments in the MRP including the Mamre Road and Elizabeth Drive Upgrade Projects;
  - (i) include a program to monitor the effectiveness of these measures; and
  - (j) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.
- B2. The Applicant must:
- (a) not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and
  - (b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.

#### **Construction Access**

- B3. For construction traffic associated with the development, the Applicant must:
- (a) not use the Mamre Road / Access Road 1 intersection for construction vehicles associated with the development, until the intersection is fully completed to the satisfaction of the relevant roads authority;
  - (b) use the temporary left-in/left-out access off Mamre Road (constructed in accordance with condition D13A of Schedule 2 of SSD-10448) for construction vehicles, until the Mamre Road / Access Road 1 intersection is fully operational;
  - (c) not use the temporary left-in/left-out access off Mamre Road for construction vehicles, once the Mamre Road / Access Road 1 intersection is operational.
- B4. Prior to the commencement of construction, the Applicant must install a 60 kilometre per hour (km/hr) road works speed limit on Mamre Road between Bakers Lane and Abbotts Road for the duration of construction and to the satisfaction of TfNSW. The road works speed limit must remain in operation 24 hours a day, seven days a week, unless otherwise instructed by TfNSW.
- B5. The Applicant must monitor construction and operational traffic volumes using the temporary left-in/left-out access off Mamre Road (constructed in accordance with condition D13A of Schedule 2 of SSD-10448) for the period that the temporary construction access is being used. Traffic volumes must be reported to TfNSW and the Planning Secretary on a monthly basis.

#### **Operational Access**

- B6. The Applicant must not commence operation of the development until the Mamre Road / Access Road 1 intersection is completed to the satisfaction of the relevant roads authority.



- B7. Vehicle movements from the car park onto Access Road 1 must be restricted to left-in/left-out only. The movement restriction must be incorporated into the design of the car park access road, to the satisfaction of the relevant roads authority.

### **Parking**

- B8. The Applicant must provide sufficient parking facilities on site in accordance with the MRP DCP, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.
- B9. Bicycle parking and end-of-trip facilities must be provided with suitable pedestrian connections linking these facilities with the offices and warehouse buildings in accordance with relevant guidelines and standards and the MRP DCP.
- B10. A minimum of 5% of parking bays for each warehouse building must provide for electric vehicle charging, with a further 5% constructed as readily adaptable.

### **Operational Traffic Monitoring Program**

- B11. At the commencement of operation of the development and for a minimum period of 12 months of operation, the Applicant must establish an Operational Traffic Monitoring Program to verify light and heavy vehicle traffic numbers against the predictions in the EIS. The Program must also monitor the effectiveness of the traffic management measures to the satisfaction of the Planning Secretary and include but not be limited to the following:
- (a) detail the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;
  - (b) queue monitoring at the Mamre Road / Access Road 1 intersection and background traffic counts on Mamre Road;
  - (c) verify the predicted traffic numbers and level of service against the actual impacts of the development, and analyse the potential cause of any significant discrepancies;
  - (d) consider the current capacity and efficiency of the existing road network including Mamre Road; and
  - (e) include procedures for the reporting and monitoring of results to evaluate the traffic performance of the development.
- Note:** *The Applicant may update an existing Operational Traffic Monitoring Program for the site to include the development to satisfy the requirements of the condition.*
- B12. The results of the Operational Traffic Monitoring Program must be reported to the Planning Secretary and TfNSW on a quarterly basis for a minimum period of 12 months of operation.

### **Operating Conditions**

- B13. The Applicant must ensure:
- (a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of *AS 2890.1:2004 Parking facilities Off-street car parking* (Standards Australia, 2004), *AS 2890.2:2018 Parking facilities Off-street Commercial Vehicle Facilities* (Standards Australia, 2018) and *AS 2890.6:2009 Parking facilities Off-street parking for people with disabilities* (Standards Australia, 2009)
  - (b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guidelines;
  - (c) the development does not result in any vehicles queuing on the public road network;
  - (d) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site;
  - (e) all vehicles are wholly contained on site before being required to stop;
  - (f) all loading and unloading of materials is carried out on site;
  - (g) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network; and
  - (h) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.

### **Work Place Travel Plan**

- B14. Prior to the commencement of operation of the development, the Applicant must prepare a Work Place Travel Plan to the satisfaction of the Planning Secretary. The Work Place Travel Plan must:
- (a) be prepared in consultation with Council;
  - (b) outline facilities and measures to promote public transport usage, such as car share schemes and employee incentives; and
  - (c) describe pedestrian and bicycle linkages and end of trip facilities available on site.



- B15. The Applicant must implement the most recent version of the Work Place Travel Plan for the duration of the development.

## **SOILS, WATER QUALITY AND HYDROLOGY**

### **Imported Soil**

- B16. The Applicant must:
- (a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site;
  - (b) keep accurate records of the volume and type of fill to be used; and
  - (c) make these records available to the Planning Secretary upon request.

### **Erosion and Sediment Control**

- B17. Prior to the commencement of construction of the development, the Applicant must design and detail the erosion and sediment control measures for the site to ensure the construction phase IWCM controls of the MRP DCP are achieved. Detailed Erosion and Sediment Control Plans (ESCP) and drawings must:
- (a) be prepared by a CPESC specialist whose appointment has been approved by the Planning Secretary;
  - (b) comply with the detailed technical specifications in the Technical Guidance or its latest version and the 'Blue Book - Managing Urban Stormwater: Soils and Construction' (Landcom 2004);
  - (c) comply with section 4.4.2 of the MRP DCP;
  - (d) demonstrate the construction approach and timing to ensure the construction phase stormwater quality targets can be met;
  - (e) outline the current construction and erosion and sediment control occurring on the AIE site and the additional measures which will be adopted for the development;
  - (f) be independently reviewed and verified by the ER prior to submission to the Planning Secretary;
  - (g) be included in the CEMP required by Condition C2.
- B18. The Applicant must ensure delivery and operation of all construction phase erosion and sediment controls on the site is supervised and certified by a CPESC. Monthly audits are to be completed by the CPESC and kept on record for the duration of the construction and an additional 12 months following completion of construction works to ensure the controls remain effective in achieving the construction phase stormwater quality targets in the Technical Guidance. Monthly audit reports must be reviewed and verified by the ER and submitted to the Planning Secretary within 7 days of completing the audit.

### **Discharge Limits**

- B19. The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an Environment Protection Licence.

### **Stormwater Management System**

- B20. Prior to the commencement of operation of the development, the Applicant must implement the Stormwater Management System described in the RTS. The design and subsequent construction and establishment of the WSUD systems must be supervised and certified by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems.
- B21. All stormwater infrastructure, including bio-retention basins, shall remain under the ownership, control and care of the registered proprietor of the lots. Upstream drainage catchment pipes are to be located outside of the public road reserve and remain in private ownership, in accordance with Council requirements.
- B22. The Applicant must maintain the stormwater management system installed on the site under condition B20 for the duration of the development.

### **Water and Stormwater Management Plan**

- B23. Prior to the commencement of operation, the Applicant must update the Water and Stormwater Management Plan described in the RTS, for the development to the satisfaction of the Planning Secretary. The updated plan must:
- (a) ensure the catchments and stormwater treatment systems are consistent across figures, tables and the MUSIC model; and
  - (b) detail how the development will ultimately connect to the Regional Stormwater Scheme and how the interim measures will be decommissioned once the development is connected to the Regional Stormwater Scheme.

### **Flood Management**

- B24. Prior to the commencement of construction of the development, the Applicant must prepare a Flood Emergency Response Plan (FERP). The Plan must:
- (a) be prepared by a suitably qualified and experienced person(s);



- (b) be prepared in consultation with the NSW State Emergency Services (SES);
- (c) address the provisions of the *Flood Risk Management Manual* (DPE, 2023) and *Support for emergency management planning* (DPE, 2023); and
- (d) include details of:
  - (i) the flood emergency responses for both construction and operation phases of the development;
  - (ii) measures to eliminate or reduce downstream flood impact on properties to the west of Mamre Road for all flooding events;
  - (iii) predicted flood levels;
  - (iv) flood warning time and flood notification;
  - (v) assembly points and evacuation routes;
  - (vi) evacuation and refuge protocols; and
  - (vii) awareness training for employees and contractors.

B25. The Applicant must implement the FERP for the duration of construction and operation of the development.

B26. All floor levels must be no lower than the 1% Annual Exceedance Probability flood plus 500 mm of freeboard.

B27. Any structures below the 1% Annual Exceedance Probability plus 500 mm of freeboard must be constructed from flood compatible building components.

## NOISE

### Hours of Work

B28. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary.

**Table 2** Hours of Work

Activity	Day	Time
Construction	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
Operation	Monday – Sunday	24 hours

B29. Works outside of the hours identified in condition B28 may be undertaken in the following circumstances:

- (a) works that are inaudible at the nearest sensitive receivers;
- (b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- (c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

### Construction Noise Limits

B30. The development must be constructed to achieve the construction noise management levels detailed in *the Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan approved under condition B31.

### Construction Noise and Vibration Management Plan

B31. The Applicant must prepare a Construction Noise and Vibration Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must:

- (a) be prepared by a suitably qualified and experienced noise expert(s);
- (b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time);
- (c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;
- (d) include strategies that have been developed with the community for managing high noise generating works; and
- (e) describe the community consultation undertaken to develop the strategies in condition B31(d).
- (f) include a complaints management system that would be implemented for the duration of the development.

B32. The Applicant must:



- (a) not commence construction of the development until the Construction Noise and Vibration Management Plan required by condition B31 is approved by the Planning Secretary; and
- (b) implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of construction.

### Operational Noise Limits

B33. The Applicant must ensure that noise generated by the operation of the development does not exceed the noise limits in Table 3.

**Table 3** Noise Limits (dB(A))

Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night LAeq(15 minute)
Residential receivers near Medinah Avenue (Luddenham), Mount Vernon Road (Mount Vernon) and Kerrs Road (Mount Vernon)	39	34	29
BAPS Temple – Outdoor Use Area (Except Car Parking Area)	36 (When in use)		

**Note** Noise generated by the development is to be measured in accordance with the relevant monitoring performance procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017) (as may be updated or replaced from time to time). Refer to the plan in Appendix 3 for the location of residential sensitive receivers.

### Noise Verification Report

B34. Within three months of the commencement of construction of the development, the Applicant must prepare and submit a Noise Verification Report for the development to the satisfaction of the Planning Secretary. The Noise Verification Report must:

- (a) be prepared by a suitably qualified and experienced noise consultant;
- (b) identify and justify the design noise emission scenario including a schedule of all noise generating sources on the site;
- (c) provide updated noise modelling to verify the performance of the development under all relevant meteorological conditions, including:
  - (i) an analysis of compliance with noise limits specified in condition B33;
  - (ii) an outline of at-source and transmission path mitigation measures required to ensure compliance with the limits specified in condition B33;
  - (iii) a description of contingency measures in the event management actions are not effective in reducing noise levels to an acceptable level; and
- (d) include an operational noise monitoring program in accordance with Section 7 of the *Noise Policy for Industry*, 2017.

## VIBRATION

### Vibration Criteria

B35. Vibration caused by construction at any residence or structure outside the site must be limited to:

- (a) for structural damage, the latest version of *DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures* (German Institute for Standardisation, 2016); and
- (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: a technical guideline* (DEC, 2006) (as may be updated or replaced from time to time).

B36. Vibratory compactors must not be used closer than 30 metres from residential or commercial buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B35.

B37. The limits in conditions B35 and B36 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition C2 of this consent.

## VISUAL AMENITY

### Landscaping

B38. Prior to the commencement of operation of the development, the Applicant must prepare a Landscape Management Plan to manage the landscaping works on site, to the satisfaction of the Planning Secretary. The plan must form part of an OEMP in accordance with condition C5. The plan must:

- (a) detail the species to be planted on site; and
- (b) describe the monitoring and maintenance measures for on-going management of the landscaping works.



B39. The Applicant must:

- (a) not commence operation until the Landscape Management Plan is approved by the Planning Secretary.
- (b) must implement the most recent version of the Landscape Management Plan approved by the Planning Secretary; and
- (c) maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by condition B38 for the life of the development.

#### **Lighting**

B40. The Applicant must ensure the lighting associated with the development:

- (a) complies with the latest version of AS 4282-2019 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 2019); and
- (b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

#### **Signage and Fencing**

B41. Prior to the commencement of operation of the development, the Applicant must prepare a Final Signage Strategy to the satisfaction of the Planning Secretary. The strategy must be consistent with Chapter 3 of *State Environmental Planning Policy (Industry and Employment) 2021* and section 4.2.8 of the MRP DCP, including limiting illumination of signage and measures to control lighting impacts from illuminated signage.

B42. All signage and fencing must be erected in accordance with the approved Final Signage Strategy required by Condition B41.

**Note:** This condition does not apply to temporary construction and safety related signage and fencing.

#### **SUSTAINABLE BUILDINGS**

B43. Prior to the commencement of construction of the development, the Applicant must submit to the satisfaction of the Planning Secretary, an Agreement to Rate for energy and water that has been duly signed by the National Australian Built Environment Rating System (NABERS).

#### **BUSHFIRE PROTECTION**

B44. The Applicant shall ensure the development complies with:

- (a) the relevant provisions of *Planning for Bushfire Protection* (NSW RFS, 2019);
- (b) the construction standards and asset protection zone requirements recommended in the *Bushfire Hazard Assessment for SSD – 58257960 (Warehouse 2) Aspect Industrial Estate* prepared by Blackash Bushfire Consulting and dated 22 June 2023; and
- (c) Australian Standard AS2419.1-2005 *Fire hydrant installations System design, installation, and commissioning*.

#### **FIRE SAFETY**

B45. Prior to operation of the development, the Applicant must demonstrate the development complies with the recommendations detailed in the *Fire Safety Strategy WH2 Lots 1-5 DP 1285305 Mamre, Road, Kemps Creek*, prepared by Core Engineering Group and dated 22 June 2023, including but not limited to the conditions for perimeter fire access, to the satisfaction of the Planning Secretary

B46. Prior to the issue of any Subdivision Certificate for Warehouse 2 and Warehouse 3 in the AIE, the Applicant must register a Restriction-on-use, or Section 88b instrument under the *Conveyancing Act, 1919* for the western hardstand of Warehouse 3 in the AIE. This requirement is to be listed on the fire safety schedule for both Warehouse 2 and Warehouse 3 and shall ensure no storage occurs for a minimum width of 6 metres for the full extent along the western hardstand to facilitate the forward movement of brigade appliances.

#### **AIR QUALITY**

##### **Dust Minimisation**

B47. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

B48. During construction of the development, the Applicant must ensure that:

- (a) exposed surfaces and stockpiles are suppressed by regular watering or other alternative suppression method;
- (b) all trucks entering or leaving the site with loads have their loads covered;
- (c) trucks associated with the development do not track dirt onto the public road network;
- (d) public roads used by these trucks are kept clean; and
- (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.



## Construction Air Quality Management Plan

B49. Prior to the commencement of construction, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) for the development, to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by condition C2. The CAQMP must:

- (a) be prepared by a suitably qualified and experienced person(s);
- (b) detail and rank all emissions from all sources of the development, including particulate emissions;
- (c) describe a program that is capable of evaluating the performance of construction works and determining compliance with key performance indicators;
- (d) identify the control measures that will be implemented for each emission source; and
- (e) nominate the following for each of the proposed controls:
  - (i) key performance indicator;
  - (ii) monitoring method;
  - (iii) location, frequency and duration of monitoring;
  - (iv) record keeping;
- (f) include a complaints register, response procedures and compliance monitoring.

B50. The Applicant must:

- (a) not commence construction until the CAQMP required by condition B49 is approved by the Planning Secretary; and
- (b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of the development.

**Note:** *The Applicant may update an existing and approved CAQMP for the site to include the development to satisfy the requirements of Condition B49. Any updated CAQMP must be to the satisfaction of the Planning Secretary.*

## Odour Management

B51. The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

## HAZARDS AND RISK

### Dangerous Goods

B52. The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department's *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* at all times.

B53. Dangerous goods, as defined by the Australian Dangerous Goods Code, must be stored and handled strictly in accordance with:

- (a) all relevant Australian Standards; and
- (b) for liquids, the NSW EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual*.

B54. In the event of an inconsistency between the requirements of conditions B53(a) and B53(b), the most stringent requirement must prevail to the extent of the inconsistency.

## Bunding

B55. The Applicant must store all chemicals, fuels and oils used on site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual* (Department of Environment and Climate Change, 2007).

## WASTE MANAGEMENT

### Statutory Requirements

B56. The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) and dispose of all wastes to a waste management facility or premises lawfully permitted to accept the waste.

### Waste Storage

B57. Prior to the commencement of construction of the development, the Applicant must obtain agreement from Council for the design of the waste storage area for the development.

B58. Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.



## **Waste Management Plan**

B59. Prior to the commencement of operation of the development, the Applicant must update the Waste Management Plan included in the EIS for the development. The Waste Management Plan must form part of the OEMP and be prepared in accordance with condition C5. The Plan must:

- (a) detail the type and quantity of waste to be generated during operation of the development;
- (b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the *Protection of the Environment Operations Act 1997*, *Protection of the Environment Operations (Waste) Regulation 2014* and the *Waste Classification Guideline* (Environment Protection Authority, 2014); and
- (c) detail the materials to be reused or recycled, either on or off site.

B60. The Applicant must implement the most recent version of the Waste Management Plan for the duration of operation.

## **Pests, Vermin and Priority Weed Management**

B61. The Applicant must:

- (a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and
- (b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.

**Note:** For the purposes of this condition, priority weed has the same definition of the term in the Biosecurity Act 2015.



## PART C ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

### ENVIRONMENTAL MANAGEMENT

#### Management Plan Requirements

- C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:
- (a) detailed baseline data;
  - (b) details of:
    - (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);
    - (ii) any relevant limits or performance measures and criteria; and
    - (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
  - (c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;
  - (d) a program to monitor and report on the:
    - (i) impacts and environmental performance of the development; and
    - (ii) effectiveness of the management measures set out pursuant to paragraph (c) above;
  - (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
  - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
  - (g) a protocol for managing and reporting any:
    - (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);
    - (ii) complaint;
    - (iii) failure to comply with statutory requirements; and
  - (h) a protocol for periodic review of the plan.

**Note:** *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans*

#### CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

- C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.
- C3. As part of the CEMP required under condition C2 of this consent, the Applicant must include the following:
- (a) Construction Traffic Management Plan (see condition B1);
  - (b) Erosion and Sediment Control Plan (see condition B17);
  - (c) Construction Noise and Vibration Management Plan (see condition B31);
  - (d) Construction Air Quality Management Plan (see condition B49); and
  - (e) Community Consultation and Complaints Handling.
- C4. The Applicant must:
- (a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and
  - (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

#### OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

- C5. The Applicant must prepare an Operational Environmental Management Plan (OEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.
- C6. As part of the OEMP required under condition C5 of this consent, the Applicant must include the following:
- (a) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
  - (b) describe the procedures that would be implemented to:
    - (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;
    - (ii) receive, handle, respond to, and record complaints;



- (iii) resolve any disputes that may arise;
- (iv) respond to any non-compliance;
- (v) respond to emergencies; and
- (c) include the following environmental management plans:
  - (i) Operational Traffic Monitoring (see condition B11);
  - (ii) Landscape Management (see condition B38); and
  - (iii) Waste Management (see condition B59).

C7. The Applicant must:

- (a) not commence operation until the OEMP is approved by the Planning Secretary; and
- (b) operate the development in accordance with the OEMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).

## REVISION OF STRATEGIES, PLANS AND PROGRAMS

C8. Within three months of:

- (a) the submission of a Compliance Report under condition C14;
- (b) the submission of an incident report under condition C10;
- (c) the approval of any modification of the conditions of this consent; or
- (d) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review,

the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing of the outcomes of any review.

C9. If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review required under condition C8, or such other timing as agreed by the Planning Secretary.

***Note:** This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.*

## REPORTING AND AUDITING

### Incident Notification, Reporting and Response

C10. The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in **Appendix 3**.

### Non-Compliance Notification

C11. The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.

C12. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

C13. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

### Compliance Reporting

C14. Within six months after the commencement of construction of the development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary), the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also:

- (a) identify any trends in the monitoring data over the life of the development;
- (b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- (c) describe what measures will be implemented over the next year to improve the environmental performance of the development.

C15. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done.



## Monitoring and Environmental Audits

- C16. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing.

**Note:** *For the purposes of this condition, as set out in the EP&A Act, “monitoring” is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an “environmental audit” is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.*

## ACCESS TO INFORMATION

- C17. At least 48 hours before the commencement of construction of the development and for the life of the development, the Applicant must:
- (a) make the following information and documents (as they are obtained or approved) publicly available on its website:
    - (i) the documents referred to in condition A2 of this consent;
    - (ii) all current statutory approvals for the development;
    - (iii) all approved strategies, plans and programs required under the conditions of this consent;
    - (iv) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
    - (v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs, including the Environmental Representatives Monthly Reports;
    - (vi) a summary of the current stage and progress of the development;
    - (vii) contact details to enquire about the development or to make a complaint;
    - (viii) a complaints register, updated monthly;
    - (ix) the Compliance Report of the development;
    - (x) any other matter required by the Planning Secretary; and
  - (b) keep such information up to date, to the satisfaction of the Planning Secretary.

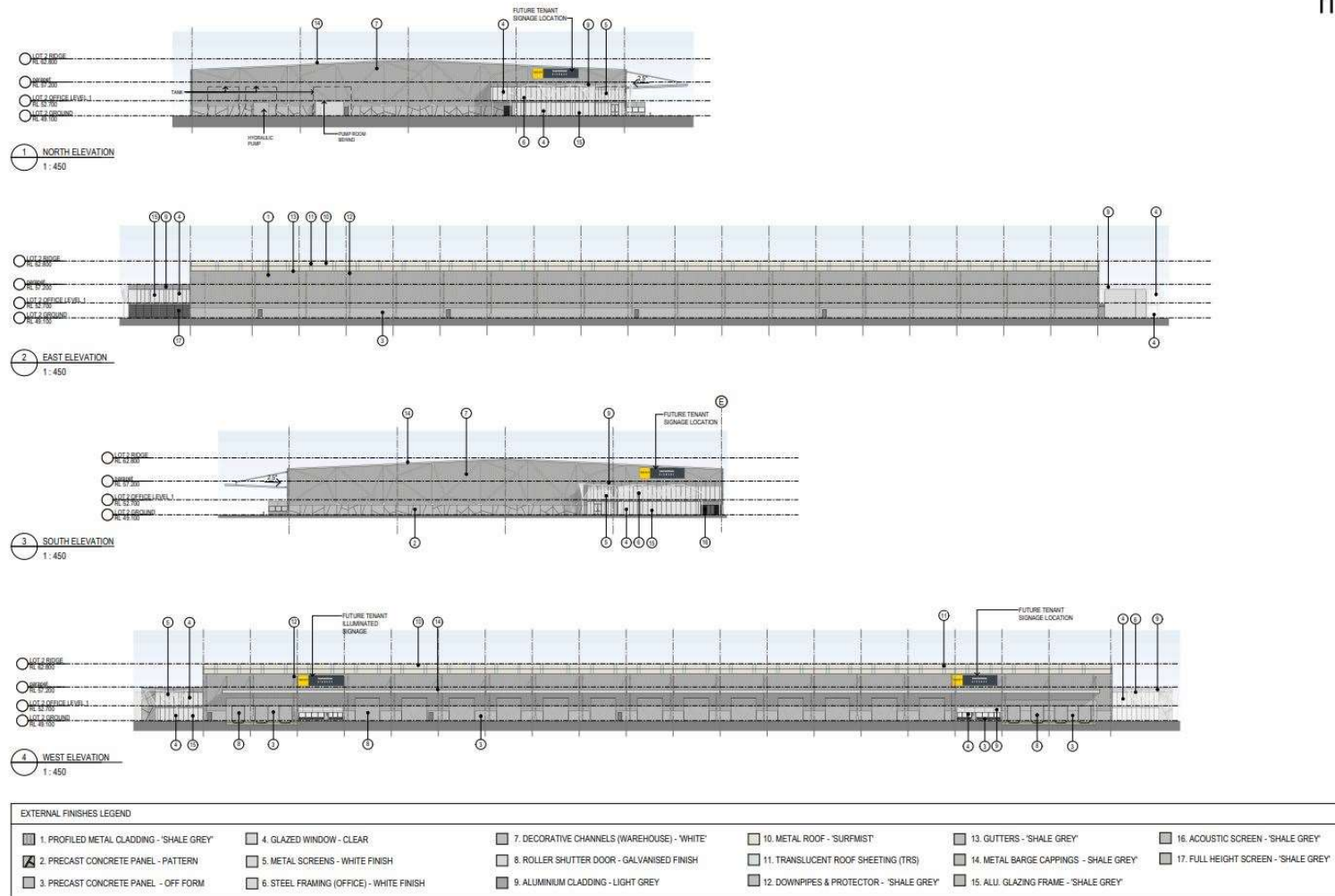


APPENDIX 1 DEVELOPMENT LAYOUT PLANS



Figure 1: Site Plan





**DA ISSUE**

	<b>Mirvac Design</b> Level 25, 200 George St Sydney NSW 2000 Tel: (02) 9060 8000 Fax: (02) 9060 8100 mirvacdesign@mirvac.com.au www.mirvacdesign.com.au	<b>ASPECT INDUSTRIAL ESTATE</b> LOTS 1-5 DP 1285305 MAMRE ROAD, KEMPS CREEK	<b>LOT 2 ELEVATIONS</b> A/E: B02.DA.2020 DATE: 27/03/2024 SCALE: 1:250@A1 SHEET: 22247 DRAWN: DA220 CHECKED: E
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**Figure 2: Elevations**



**Table 4** Schedule of Approved Plans

Drawing No	Title	Issue	Date
<b>Architectural Plan prepared by SBA Architects</b>			
DA210	Aspect Industrial Estate Lots 1-5, DP 1285305 Mamre Road, Kemps Creek – Lot 2 Site and Warehouse Floor Plan	P14	28/03/2024
DA220	Aspect Industrial Estate Lots 1-5, DP 1285305 Mamre Road, Kemps Creek – Lot 2 Elevations	E	27/03/2024
DA230	Aspect Industrial Estate Lots 1-5, DP 1285305 Mamre Road, Kemps Creek – Lot 2 Sections	C	08/05/2023
DA240	Aspect Industrial Estate Lots 1-5, DP 1285305 Mamre Road, Kemps Creek – Lot 2 Office 1 Elevations	E	27/03/2024
DA241	Aspect Industrial Estate Lots 1-5, DP 1285305 Mamre Road, Kemps Creek – Lot 2 Office 2 Elevations	E	27/03/2024



## APPENDIX 2 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES

### CONSOLIDATED MITIGATION MEASURES FOR SSD-58257960

The following table outlines the recommended mitigation measures in response to potential impacts identified in Section 7 of this EIS. The structure of mitigation measures is based on the DPIE's hierarchy of approaches for managing impacts identified in the *Draft Environmental Impact Assessment Guidance Series* released by DPE in June 2017, as:

- **Performance based measure** – *identify performance criteria that must be complied with to achieve an appropriate environmental outcome but do not specify how the outcome is to be achieved.*
- **Prescriptive measure** – *require action to be taken or specify something that must not be done.*
- **Management based measure** – *identify one or more management objectives that must be achieved through the implementation of a management plan.*

Following the implementation of appropriate mitigation measures as recommended, it is determined that the proposal will not result in any significant adverse impacts on the surrounding environment.

A consolidated set of mitigation measures required for each of the environmental and social impacts identified in Section 7 of the EIS are outlined below. The mitigation measures directly respond to each impact and are based upon the range of technical and specialist consultant reports appended to the EIS. The type of mitigation measure as noted within the table below are as follows:

- *'Pe' – performance based mitigation measure. or*
- *'Pr' – prescriptive based mitigation measure, or*
- *'Ma' – management based mitigation measure.*



Issue	Potential Impacts	Mitigation Measures	Type of Measure (Pe/Pr/Ma)
Acoustic	<p>Acoustic impacts to nearby sensitive receivers resulting from the updated vehicle parking locations, travel paths and operations.</p> <p>The proposal will not the proposed Warehouse 2 operations will not result in any additional, operational noise impacts beyond those assessed and approved within the AIE and remain within the acceptable limits identified in NPfl and Condition 16A of SSD-10448.</p>	<p>Potential mitigation measures include are typical noise management measures, consistent with the established measures under SSD-10448:</p> <ul style="list-style-type: none"> <li>▪ Preparation of a Construction Noise and Vibration Management Plan (CNVMP) and use of standard mitigation measures to mitigate construction noise and vibration impacts.</li> <li>▪ Optimising site layout to minimise noise emissions from the site.</li> <li>▪ Encourage broadband and/or ambient sensing alarms on forklifts and trucks where they are required to reverse during the night-time.</li> <li>▪ An operational noise management plan will be prepared for the AIE, as required by the Development Consent.</li> <li>▪ Appropriate design of site layout to minimise the need for trucks to stop or brake outside of loading docks with line of sight to residential receivers.</li> <li>▪ Verification monitoring would be completed within three months of commencement of operation, as per the requirements of the Development Consent.</li> </ul>	Pe
Water and Energy Usage	<p>Proposed warehouse may result in impacts to the water and energy usage of the development. The Warehouse 2 development is to be delivered in accordance with the ESD principles committed to as part of concept approval, SSD-10448. No additional adverse impacts are anticipated.</p>	<p>The development will establish the appropriate ecologically sustainable design elements to mitigate any adverse impacts to water and energy usage. Such elements include rainwater harvesting, natural ventilation, efficient HVAC performance etc.</p>	Ma
Air Quality	<p>Dust, air quality and odour impacts generated by the Warehouse 2 construction.</p>	<p>The Warehouse 2 development mitigation measures will be consistent with the measures established under the approved, estate wide concept</p>	Pe



Issue	Potential Impacts	Mitigation Measures	Type of Measure (Pe/Pr/Ma)
	The development construction and operations will see negligible change from the approved estate concept approval (SSD-10448) with consideration of the nearest sensitive receivers.	<p>approval (SSD-10448). No additional mitigation measures are required beyond those established under SSD-10448 approval.</p> <p>The proposal will be supported by:</p> <ul style="list-style-type: none"> <li>▪ standard air quality control measures</li> <li>▪ standard dust minimisation measures</li> <li>▪ standard odour mitigation measures for construction</li> </ul>	
Visual Impact Assessment	<p>Visual impacts onto the nearby residential receivers and viewpoints.</p> <p>The proposed Warehouse 2 construction will not result in any change in visual impact ratings from the established, estate wide concept proposal.</p>	The Warehouse 2 development mitigation measures will be consistent with the measures established under the estate wide concept approval (SSD-10448). No additional mitigation measures are required for the development beyond those established under SSD-10448 approval. The proposed warehouse will be supported by the appropriate landscape screening in accordance with the updated landscape plans.	Ma
Stormwater and Drainage	Potential impacts to water quantity, quality and flow due to the Warehouse 2 development.	<p>The Warehouse 2 development is to feature the appropriate stormwater quantity and quality management measures including in accordance with MOD 4 Water and Stormwater Management Plan:</p> <ul style="list-style-type: none"> <li>▪ two points of discharge will be delivered from Lot/Warehouse 2 to the estate drainage network: <ul style="list-style-type: none"> <li>– To Access Road 1, located on the south side of Lot/Warehouse 2.</li> <li>– To Access Road 2, located at the north-western corner of Lot/Warehouse 2.</li> </ul> </li> <li>▪ Rainwater tank (or tanks) with a total capacity of 120 kL to capture roof runoff for non-potable reuse at Lot/Warehouse 2 (to meet 80% of the estimated demand for non-potable water)</li> </ul>	Pr



Issue	Potential Impacts	Mitigation Measures	Type of Measure (Pe/Pr/Ma)
		<ul style="list-style-type: none"> <li>Gross pollutant traps (GPTs) at the points of discharge from the internal stormwater drainage network to the stormwater reuse tank</li> </ul>	
Traffic, Transport and Parking	An assessment of the proposed GFA, parking, access arrangements and traffic impacts identifies potential impacts to the surrounding traffic levels. The traffic assessment also reviews any potential impact the access arrangements across the site.	<p>No mitigation measures are required beyond those established under the approved, estate wide concept approval (SSD-10448) with regard to any potential traffic impacts.</p> <p>With regard to the intended access arrangements, should DPHI wish to impose a Condition of Consent, the Access driveway to the Office 1 parking area can be restricted to left-in, left-out. This could be implemented by way of signage to be shown on the detail drawings for construction and to the satisfaction of the relevant authority (being Penrith Council).</p> <p>Otherwise, a site specific condition could be imposed for the Warehouse 2 development, where movements of the Office 1 car park access can be specifically monitored over a 12 month period and reported to authorities through an Operational Traffic Monitoring Program.</p>	Pr
Flood Impacts	The site is affected by 100-year overland flows. Potential impacts to flood flows and runoff into the existing water management infrastructure.	<p>Mitigation measures established under the approved Stage 1 and Concept Approval (SSD-10448) will manage the potential flooding impacts generated by the Warehouse 2 development. Accordingly, the following mitigation measures will be adequate in managing the relevant flood impacts generated by the AIE Masterplan as well as the level of affectation at Warehouse 2:</p> <ul style="list-style-type: none"> <li><i>A Flood Emergency Response Plan (FERP) has been established for the for the construction phase of the AIE which establishes:</i> <ul style="list-style-type: none"> <li>Flood behaviour on the site in floods up to a Probable Maximum Flood (PMF) at different stages of the site development,</li> <li>A Flood Emergency Response Plan for the construction phase, including:</li> </ul> </li> </ul>	Pr



Issue	Potential Impacts	Mitigation Measures	Type of Measure (Pe/Pr/Ma)
		<ul style="list-style-type: none"> <li>Flood risks both on the project site and external to the project site;</li> <li>Evacuation strategy, measures, procedures and plan; and</li> <li>A FloodSafe Plan</li> </ul> <ul style="list-style-type: none"> <li><i>The Warehouse 2 development layout and platform levels has been designed in response to the flood risk at the site. The finished floor levels shall be at 0.5m above the 1% AEP flood.</i></li> <li><i>Stormwater flow targets will be achieved in accordance with the WSMP prepared by AT&amp;L for the AIE site (as sought under MOD 4).</i></li> </ul>	
Groundwater	Health and environmental impacts generated by the existing groundwater during groundwater dewatering and construction works.	Conduct works in accordance with the established Groundwater Management Plan (prepared for the AIE by Arcadis in 2022) including management measures, groundwater quality guidelines and the appropriate treatment or reuse.	Ma
Contamination	Health and environmental impacts generated by contaminants, dam sediments, water pollution, groundwater with moderate EC and ACM. These potential impacts are to be mitigated and addressed during the proposed construction works.	Remediation and validation works and procedures to be undertaken in accordance with the remediation action plan established for the AIE under the approved Stage 1 works (SSD-10448).	Pr
Bushfire	The AIE site is identified as being bushfire prone with category 2 vegetation and Lot 2 is located within the Asset Protection Zones (APZ). development has been assessed and deemed to comply with the requirements of Planning for Bushfire Protection 2019 and is considered generally consistent with the previous bushfire report, prepared by Australian Bushfire Protection Planners Pty Ltd, dated 17 October 2019.	<ul style="list-style-type: none"> <li>The APZ shall be established and maintained as an inner protection area as outlined within Planning for Bushfire Protection 2019 and the NSW RFS document 'Standards for Asset Protection Zones'.</li> <li>Fire hydrants are provided in accordance with Building Code of Australia E1.3, AS2419.1:2005.</li> <li>The construction shall comply with the National Construction Code (2019), Australian Standard AS 3959:2018, Construction of buildings in bush fire-prone areas and/or NASH Standard (1.7.14 updated), National Standard Steel Framed Construction in Bushfire Areas –</li> </ul>	Pr



Issue	Potential Impacts	Mitigation Measures	Type of Measure (Pe/Pr/Ma)
		<p>2014, and Section 7.5 of Planning for Bush Fire Protection 2019 on a prescriptive (deemed to satisfy and/or acceptable solution) basis and/or performance basis.</p> <p>Vehicular perimeter access for emergency vehicles is to be provide around the whole of the building along the southern and northern sides of the Lot 2 and with use of the Lot 3 hardstand. To facilitate the relevant vehicular perimeter access in support of Warehouse 2, the following measures should be provided as part of a performance solution:</p> <ul style="list-style-type: none"> <li>▪ Gates in the security line around Warehouse 2 should be provided to enable access to the egress doors and fire hydrants directly from the Warehouse 3 hardstand.</li> <li>▪ The load-bearing capacity and vehicle swept path of the vehicular access path and southern carpark must be compatible with fire brigade vehicle requirements in accordance with FRNSW's Guideline.</li> <li>▪ An area of no less than 6 m wide on the western portion of Warehouse 3 must be maintained free of obstructions and combustibles and is to provide the required vehicular access pathway for fire brigade appliances.</li> <li>▪ Sprinkler booster suction connection must be designed with a dedicated hardstand (6 m x 18 m) in which a fire truck can connect, whilst still allowing additional appliances to pass by.</li> <li>▪ All gates, security fencing, and boom gates should be readily openable by the fire authorities.</li> </ul>	



### APPENDIX 3 LOCATION OF NOISE SENSITIVE RECEIVERS





## **APPENDIX 4 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS**

### **WRITTEN INCIDENT NOTIFICATION REQUIREMENTS**

1. A written incident notification addressing the requirements set out below must be submitted to the Planning Secretary via the Major Projects website within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under condition C10 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
  - (a) identify the development and application number;
  - (b) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
  - (c) identify how the incident was detected;
  - (d) identify when the applicant became aware of the incident;
  - (e) identify any actual or potential non-compliance with conditions of consent;
  - (f) describe what immediate steps were taken in relation to the incident;
  - (g) identify further action(s) that will be taken in relation to the incident; and
  - (h) identify a project contact for further communication regarding the incident.

### **INCIDENT REPORT REQUIREMENTS**

3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
  - (a) a summary of the incident;
  - (b) outcomes of an incident investigation, including identification of the cause of the incident;
  - (c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
  - (d) details of any communication with other stakeholders regarding the incident.





# **Appendix C    Relevant Conditions of Consents**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



Relevant Consent Conditions SSD 10448	Where Addressed in CEMP
<b>PART A – CONDITIONS FOR CONCEPT PROPOSAL</b>	
<b>Terms of Consent</b>	
<p>A1. The development may only be carried out:</p> <ul style="list-style-type: none"> <li>a) in compliance with the conditions of this consent;</li> <li>b) in accordance with all written directions of the Planning Secretary;</li> <li>c) in accordance with the EIS, Response to Submissions (RtS), and Amended Development Report (ADR);</li> <li>d) in accordance with the Modification Assessments’;</li> <li>e) In accordance with the Development Layout in Appendix 2; and</li> <li>f) in accordance with the management and mitigation measures in Appendix 5.</li> </ul>	This CEMP has been prepared in accordance with these documents
<p>A2. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:</p> <ul style="list-style-type: none"> <li>a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and</li> <li>b) the implementation of any actions or measures contained in any such document referred to in condition A2(a).</li> </ul>	Section 3.3
<p>A3. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A1(c) or A1(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A1(c) or A1(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.</p>	Section 3.3
<b>Staging Plan</b>	
<p>A10. Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The plan shall:</p> <ul style="list-style-type: none"> <li>a) be prepared in consultation with Council, utility and service providers and other relevant stakeholders;</li> <li>b) describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;</li> <li>c) show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;</li> <li>d) include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and</li> <li>e) include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades.</li> </ul>	Section 1.4
<p>A11. The Applicant must:</p> <ul style="list-style-type: none"> <li>a) not commence construction of any stage of the Development until the Staging Plan required by Condition A12 is approved by the Planning Secretary; and</li> <li>b) implement the most recent version of the Staging Plan approved by the Planning Secretary.</li> </ul>	Table 1



Relevant Consent Conditions SSD 10448	Where Addressed in CEMP
<p>A12. The Planning Secretary may require the Applicant to address certain matters identified in the Staging Plan. The Applicant must comply with any such requirements of the Planning Secretary given as part of the Staging Plan approval.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>• <i>The Applicant may amend the Staging Plan as desired, with the approval of the Planning Secretary.</i></li> <li>• <i>The Staging Plan is intended to broadly describe the development sequence for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.</i></li> </ul>	Noted
<b>Evidence of Consultation</b>	
<p>A18. Where conditions of this consent require consultation with an identified party, the Applicant must:</p> <ol style="list-style-type: none"> <li>consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and</li> <li>provide details of the consultation undertaken including: <ol style="list-style-type: none"> <li>the outcome of that consultation, matters resolved and unresolved; and</li> <li>details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.</li> </ol> </li> </ol>	Section 1.2.4
<b>Staging, Combining and Updating Strategies, Plans or Programs</b>	
<p>A19. With the approval of the Planning Secretary, the Applicant may:</p> <ol style="list-style-type: none"> <li>prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);</li> <li>combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and</li> <li>update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).</li> </ol>	Table 3
A20. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.	Section 6
A21. If approved by the Planning Secretary, updated strategies, plans, or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan, or program.	Section 6
<b>Advisory Notes</b>	
AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consent.	Section 3.3
<b>Obligation to Minimise Harm to the Environment</b>	
C1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the Stage 1 Development, and any rehabilitation required under this consent.	Section 1.4.1 Section 4.1



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP
<b>Part A – Administrative Conditions</b>		
<b>Obligation to Minimise Harm to the Environment</b>		
A1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.		Section 1.4.1 Section 4.1
<b>Terms of Consent</b>		
A2. The development may only be carried out: a) in compliance with the conditions of this consent; b) in accordance with all written directions of the Planning Secretary; c) in accordance with the EIS and RTS; d) in accordance with the Development Layout in Appendix 1; and e) in accordance with the management and mitigation measures in Appendix 2.		This CEMP has been prepared in accordance with these documents
A3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to: a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and b) the implementation of any actions or measures contained in any such document referred to in condition A3(a).		Section 3.3.1
A4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or A2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.		Section 3.3.1
A8. The largest vehicle permitted to access the site is a 30 m Performance Based Standards (PBS) Level 2 Type B.		CTMP
A9. The Applicant must ensure all vehicles associated with construction and operation of the development do not use Bakers Lane, Aldington Road and Abbotts Road.		CTMP
<b>Evidence of Consultation</b>		
A15. Where conditions of this consent require consultation with an identified party, the Applicant must: a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and b) provide details of the consultation undertaken including: i. the outcome of that consultation, matters resolved and unresolved; and ii. details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.		Appended management plans
<b>Staging, Combining and Updating Strategies, Plans or Programs</b>		
A16. With the approval of the Planning Secretary, the Applicant may: a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program); b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).		Section 6



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP
A17. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.		Section 6
A18. If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.		Section 6
Utilities, Services and Public Infrastructure		
General Requirements		
A19. Prior to the commencement of construction of the development, the Applicant must: a) consult with the relevant owner and provider of services or public infrastructure that are likely to be affected by the development or that need to be installed as part of the development, to make suitable arrangements for relevant approvals, access to, diversion, protection and support of the affected services or infrastructure; b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and c) submit a copy of the dilapidation report to the Planning Secretary and TfNSW.		Section 1.4.4 Section 3.3.2
Sydney Water		
A21. Prior to the commencement of construction of the development, the Applicant must obtain a Building Plan Approval from Sydney Water to determine if sewer, water or stormwater mains or easements will be affected by the development.		Section 1.4.4
A22. Prior to the commencement of operation of the development, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the Sydney Water Act 1994.		Section 3.3.2
Fibre-Ready Facilities		
A23. Prior to the issue of a Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for: a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier.		Section 1.4.4 Section 3.3.2
External and Claddings		
A27. Prior to the issue of: (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and (b) an Occupation Certificate, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.		Section 1.4.4
A 28. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.		Section 1.4.4
Compliance		
A29. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.		Section 3.4
Operation of Plant and Equipment		



CONSOLIDATED CONSENT SSD 58257960	Where Addressed in CEMP
<p>A32. All plant and equipment used on site, or to monitor the performance of the development, must be:</p> <ul style="list-style-type: none"> <li>a) maintained in a proper and efficient condition; and</li> <li>b) operated in a proper and efficient manner.</li> </ul>	Section 4.1
<b>Environmental Representative</b>	
<p>A34. The Applicant must engage an Environmental Representative (ER) to oversee construction of the development. Unless otherwise agreed to by the Planning Secretary, construction of the development must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant. The approved ER must:</p> <ul style="list-style-type: none"> <li>a) be a suitably qualified and experienced person who was not involved in the preparation of the EIS and RTS and any additional information for the development and is independent from the design and construction personnel for the development;</li> <li>b) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the development;</li> <li>c) consider and inform the Planning Secretary on matters specified in the terms of this consent;</li> <li>d) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community;</li> <li>e) review the CEMP required in Condition C2 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent and if so: <ul style="list-style-type: none"> <li>i. make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or</li> <li>ii. make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department);</li> </ul> </li> <li>f) regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent;</li> <li>g) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings, and site visits;</li> <li>h) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints;</li> <li>i) provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the Mamre Road Precinct in relation to construction traffic management, sediment control, noise and dust;</li> <li>j) attend the Mamre Road Precinct Working Group (see Condition A36) in a consultative role in relation to the environmental performance of the development; and</li> <li>k) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Monthly Report providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Monthly Reports'. The Environmental Representative Monthly Report must be submitted within seven calendar days following the end of each month for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.</li> </ul> <p><i>Note: Subject to the Planning Secretary's approval, the Applicant may elect to nominate the ER approved to oversee the Stage 1 Development (SSD-10448) for the purposes of satisfying Condition A33 of this consent.</i></p>	Section 3.4



<b>CONSOLIDATED CONSENT SSD 58257960</b>		<b>Where Addressed in CEMP</b>
<p>A35. The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in condition A33 (including preparation of the ER monthly report), as well as:</p> <ul style="list-style-type: none"> <li>a) the complaints register (to be provided on a daily basis); and</li> <li>b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).</li> </ul>		<p>Section 3.6.1</p> <p>Section 5.1</p>
<p>A36. The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under condition A33. The Applicant must:</p> <ul style="list-style-type: none"> <li>a) facilitate and assist the Planning Secretary in any such audit; and</li> <li>b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit.</li> </ul>		Section 3.2
<b>Mamre Road Precinct Working Group</b>		
<p>A37. Prior to the commencement of construction of the development and until all components of the development are constructed and operational, the Applicant must participate in a working group with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. The working group must:</p> <ul style="list-style-type: none"> <li>a) comprise at least one representative of the Applicant, the Applicant's ER, and relevant consent holders in the MRP;</li> <li>b) meet periodically throughout the year to discuss, formulate and implement measures or strategies to improve monitoring, coordination of the approved industrial developments in the MRP;</li> <li>c) regularly inform Council, TfNSW, Sydney Water and the Planning Secretary of the outcomes of these meetings and actions to be undertaken by the working group;</li> <li>d) review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP;</li> <li>e) review community concerns or complaints with respect to environmental management;</li> <li>f) identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP; and</li> <li>g) provide the Planning Secretary with an update and strategies, if a review under subclause (d) and (e) identifies additional measures and processes are required to be implemented by the working group.</li> </ul> <p><i>Note: Subject to the Planning Secretary's approval, the Applicant may satisfy Condition A36 through utilising the Working Group established under Condition C34, Schedule 2 of SSD-10448.</i></p>		Section 1.4.4
<p>A38. Three (3) months prior to completion of construction of all components of the development, the Applicant is eligible to exit the working group required under condition A36. The Applicant must:</p> <ul style="list-style-type: none"> <li>a) consult with the Planning Secretary;</li> <li>b) provide confirmation that all components of the development are operational; and</li> <li>c) advise on the date of the proposed exit.</li> </ul>		Section 1.4.4
<b>Applicability of Guidelines</b>		
<p>A39. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.</p>		Noted
<p>A40. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance</p>		Noted



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP
with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.		
<b>Advisory Notes</b>		
AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.		Section 3.3 Section 4.1
<b>PART B – SPECIFIC ENVIRONMENTAL CONDITIONS</b>		
<b>Traffic and Access</b>		
<b>Construction Traffic Management Plan</b>		
B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:		CTMP
<ul style="list-style-type: none"> <li>a) be prepared by a suitably qualified and experienced person(s);</li> <li>b) be prepared in consultation with Council and TfNSW;</li> <li>c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;</li> <li>d) detail proposed work zones, heavy vehicle routes, access and parking arrangements;</li> <li>e) detail the number of construction vehicle movements and demonstrate how the movements will be managed in the context of road changes in the vicinity of the site;</li> <li>f) include a Driver Code of Conduct to: <ul style="list-style-type: none"> <li>i. minimise the impacts of construction on the local and regional road network;</li> <li>ii. minimise conflicts with other road users;</li> <li>iii. minimise road traffic noise; and</li> <li>iv. inform truck drivers of the site access arrangements, turning restrictions and use of specified routes;</li> <li>v. include a program to monitor the effectiveness of these measures; and</li> <li>vi. detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions.</li> </ul> </li> <li>g) include the location of any crane(s) and a crane movement plan;</li> <li>h) include a consultation strategy for liaising with and managing the cumulative impacts of other developments in the MRP including the Mamre Road and Elizabeth Drive Upgrade Projects;</li> <li>i) include a program to monitor the effectiveness of these measures; and</li> <li>j) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.</li> </ul>		
B2. The Applicant must:		CTMP
<ul style="list-style-type: none"> <li>a) not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and</li> <li>b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.</li> </ul>		
<b>Construction Access</b>		
B3. The Applicant must:		CTMP
<ul style="list-style-type: none"> <li>a) not use the Mamre Road / Access Road 1 intersection for construction vehicles associated with the development, until the intersection is completed to the satisfaction of the relevant roads authority;</li> <li>b) use the temporary left-in/left-out access off Mamre Road (constructed in accordance with condition D13A of Schedule 2 of SSD-10448) for construction vehicles, until the Mamre Road / Access Road 1 intersection is operational;</li> <li>c) not use the temporary left-in/left-out access off Mamre Road for construction vehicles, once the Mamre Road / Access Road 1 intersection is operational.</li> </ul>		



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP
B4. The Applicant must install a 60 kilometre per hour (km/hr) road works speed limit on Mamre Road between Bakers Lane and Abbots Road for the duration of construction. The road works speed limit must remain in operation 24 hours a day, seven days a week, unless otherwise instructed by TfNSW.		
B5. The Applicant must monitor construction and operational traffic volumes using the temporary left-in/left-out access off Mamre Road (constructed in accordance with condition D13A of Schedule 2 of SSD-10448) for the period that the temporary construction access is being used. Traffic volumes must be reported to TfNSW and the Planning Secretary on a monthly basis.		CTMP
Soils, Water Quality and Hydrology		
Imported Soil		
B16. The Applicant must:		Section 1.4.4
a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site;		
b) keep accurate records of the volume and type of fill to be used; and		
c) make these records available to the Planning Secretary upon request.		
Erosion and Sediment Control		
B17. Prior to the commencement of construction of the development, the Applicant must design and detail the erosion and sediment control measures for the site to ensure the construction phase IWCM controls of the MRP DCP are achieved. Detailed Erosion and Sediment Control Plans (ESCP) and drawings must:		ESCP
a) be prepared by a CPESC specialist whose appointment has been approved by the Planning Secretary;		
b) comply with the detailed technical specifications in the Technical Guidance or its latest version and the 'Blue Book' - Managing Urban Stormwater: Soils and Construction (Landcom 2004);		
c) comply with section 4.4.2 of the MRP DCP;		ESCP
d) demonstrate the construction approach and timing to ensure the construction phase stormwater quality targets can be met;		
e) outline the current construction and erosion and sediment control occurring on the AIE site and the additional measures which will be adopted for the development;		
f) be independently reviewed and verified by the ER prior to submission to the Planning Secretary;		ESCP
g) be included in the CEMP required by Condition C2.		
B18. The Applicant must ensure delivery and operation of all construction phase erosion and sediment controls on the site is supervised and certified by a CPESC. Monthly audits are to be completed by the CPESC and kept on record for the duration of the construction and an additional 12 months following completion of construction works to ensure the controls remain effective in achieving the construction phase stormwater quality targets in the Technical Guidance. Monthly audit reports must be reviewed and verified by the ER and submitted to the Planning Secretary within 7 days of completing the audit.		
Discharge Limits		
B19. The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an Environment Protection Licence.		Section 4.1
Flood Management		



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP											
<p>B24. Prior to the commencement of construction of the development, the Applicant must prepare a Flood Emergency Response Plan (FERP) to the satisfaction of the Planning Secretary. The Plan must form part of the CEMP and OEMP required by conditions C2 and C5 and must:</p> <ul style="list-style-type: none"> <li>(a) be prepared by a suitably qualified and experienced person(s);</li> <li>(b) be prepared in consultation with the NSW State Emergency Services (SES);</li> <li>(c) address the provisions of the Flood Risk Management Manual (DPE, 2023) and Support for emergency management planning (DPE, 2023); and</li> <li>(d) include details of: <ul style="list-style-type: none"> <li>i. the flood emergency responses for both construction and operation phases of the development;</li> <li>ii. measures to eliminate or reduce downstream flood impact on properties to the west of Mamre Road for all flooding events;</li> <li>iii. predicted flood levels;</li> <li>iv. flood warning time and flood notification;</li> <li>v. assembly points and evacuation routes;</li> <li>vi. evacuation and refuge protocols; and</li> <li>vii. awareness training for employees and contractors.</li> </ul> </li> </ul>		FERP											
B25. The Applicant must implement the FERP for the duration of construction and operation of the development.		FERP											
B26. All floor levels must be no lower than the 1% Annual Exceedance Probability flood plus 500 mm of freeboard.		FERP											
B27. Any structures below the 1% Annual Exceedance Probability plus 500 mm of freeboard must be constructed from flood compatible building components.		FERP											
Noise													
Hours of Work													
<p>B28. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary.</p> <p><i>Table 2: Hours of Work</i></p> <table border="1"> <thead> <tr> <th>Activity</th><th>Day</th><th>Time</th></tr> </thead> <tbody> <tr> <td rowspan="2">Construction</td><td>Monday – Friday</td><td>7 am to 6 pm</td></tr> <tr> <td>Saturday</td><td>8 am to 1 pm</td></tr> <tr> <td>Operation</td><td>Monday - Sunday</td><td>24 hours</td></tr> </tbody> </table>		Activity	Day	Time	Construction	Monday – Friday	7 am to 6 pm	Saturday	8 am to 1 pm	Operation	Monday - Sunday	24 hours	Section 2.3
Activity	Day	Time											
Construction	Monday – Friday	7 am to 6 pm											
	Saturday	8 am to 1 pm											
Operation	Monday - Sunday	24 hours											
<p>B29. Works outside of the hours identified in condition B28 may be undertaken in the following circumstances:</p> <ul style="list-style-type: none"> <li>a) works that are inaudible at the nearest sensitive receivers;</li> <li>b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or</li> <li>c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.</li> </ul>		Section 2.3											
Construction Noise Limits													
B30. The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan approved under condition B31.		CNVMP											
Construction Noise and Vibration Management Plan													



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP
<p>B31. The Applicant must prepare a Construction Noise and Vibration Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must</p> <ul style="list-style-type: none"> <li>a) be prepared by a suitably qualified and experienced noise expert(s);</li> <li>b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);</li> <li>c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;</li> <li>d) include strategies that have been developed with the community for managing high noise generating works; and</li> <li>e) describe the community consultation undertaken to develop the strategies in condition B31(d).</li> <li>f) include a complaints management system that would be implemented for the duration of the development.</li> </ul>		CNVMP
<p>B32. The Applicant must:</p> <ul style="list-style-type: none"> <li>a) not commence construction of the development until the Construction Noise and Vibration Management Plan required by condition B31 is approved by the Planning Secretary; and</li> <li>b) implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of construction.</li> </ul>		CNVMP
<b>Vibration</b>		
Vibration Criteria		
<p>B35. Vibration caused by construction at any residence or structure outside the site must be limited to:</p> <ul style="list-style-type: none"> <li>a) for structural damage, the latest version of DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures (German Institute for Standardisation, 2016); and</li> <li>b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).</li> </ul>		CNVMP
<p>B36. Vibratory compactors must not be used closer than 30 metres from residential or commercial buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B35.</p>		CNVMP
<p>B37. The limits in conditions B35 and B36 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition C2 of this consent</p>		CNVMP
<b>Lighting</b>		
<p>B43. The Applicant must ensure the lighting associated with the development:</p> <ul style="list-style-type: none"> <li>a) complies with the latest version of AS 4282-2019 - Control of the obtrusive effects of outdoor lighting (Standards Australia, 2019); and</li> <li>b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.</li> </ul>		Section 4.8
<b>Bushfire Protection</b>		
<p>B44. The Applicant shall ensure the development complies with:</p> <ul style="list-style-type: none"> <li>a) the relevant provisions of Planning for Bushfire Protection (NSW RFS, 2019);</li> <li>b) the construction standards and asset protection zone requirements recommended in the Bushfire Hazard Assessment for SSD – 58257960 (Warehouse 2) Aspect Industrial Estate prepared by Blackash Bushfire Consulting and dated 22 June 2023; and</li> <li>c) Australian Standard AS2419.1-2005 Fire hydrant installations System design, installation, and commissioning.</li> </ul>		BHA
<b>Fire Safety</b>		
<p>B45. The Applicant must ensure the development complies with the recommendations detailed in the Fire Safety Strategy WH2 Lots 1-5 DP 1285305 Mamre, Road, Kemps Creek, prepared by Core Engineering Group and dated 22 June 2023.</p>		FSS



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP
<b>Air Quality</b>		
<b>Dust Minimisation</b>		
B47. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.		CAQMP
B48. During construction of the development, the Applicant must ensure that: a) exposed surfaces and stockpiles are suppressed by regular watering or other alternative suppression method; b) all trucks entering or leaving the site with loads have their loads covered; c) trucks associated with the development do not track dirt onto the public road network; d) public roads used by these trucks are kept clean; and e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.		CAQMP
<b>Construction Air Quality Management Plan</b>		
B49. Prior to the commencement of construction, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) for the development, to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by condition C2. The CAQMP must: a) be prepared by a suitably qualified and experienced person(s); b) detail and rank all emissions from all sources of the development, including particulate emissions; c) describe a program that is capable of evaluating the performance of construction works and determining compliance with key performance indicators; d) identify the control measures that will be implemented for each emission source; and e) nominate the following for each of the proposed controls: i. key performance indicator; ii. monitoring method; iii. location, frequency and duration of monitoring; iv. record keeping; f) include a complaints register, response procedures and compliance monitoring.		CAQMP
B50. The Applicant must: a) not commence construction until the CAQMP required by condition B48 is approved by the Planning Secretary; and b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of the development.  <i>Note: The Applicant may update an existing and approved CAQMP for the site to include the development to satisfy the requirements of Condition B48. Any updated CAQMP must be to the satisfaction of the Planning Secretary.</i>		CAQMP
<b>Odour Management</b>		
B51. The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).		CAQMP
<b>Hazards and Risk</b>		
<b>Bunding</b>		
B55. The Applicant must store all chemicals, fuels and oils used on site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's Storing and Handling of Liquids: Environmental Protection – Participants Manual (Department of Environment and Climate Change, 2007).		Section 4.10
<b>Waste Management</b>		
<b>Statutory Requirements</b>		
B56. The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) and dispose of all wastes to a waste management facility or premises lawfully permitted to accept the waste.		WMP
<b>Waste Storage</b>		



CONSOLIDATED CONSENT SSD 58257960		Where Addressed in CEMP
B57. Prior to the commencement of construction of the development, the Applicant must obtain agreement from Council for the design of the waste storage area for the development.		Section 3.3.2
B58. Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.		WMP
Waste Management Plan		
B60. The Applicant must implement the most recent version of the Waste Management Plan for the duration of operation.		Noted
Pests, Vermin and Priority Weed Management		
<p>B61. The Applicant must:</p> <ul style="list-style-type: none"> <li>a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and</li> <li>b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.</li> </ul> <p><i>Note: For the purposes of this condition, priority weed has the same definition of the term in the Biosecurity Act 2015.</i></p>		WMP
<b>PART C – ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING</b>		
<b>Environmental Management</b>		
Management Plan Requirements		
<p>C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> <li>a) detailed baseline data;</li> <li>b) details of: <ul style="list-style-type: none"> <li>i. the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>ii. any relevant limits or performance measures and criteria; and</li> <li>iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul> </li> <li>c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</li> <li>d) a program to monitor and report on the: <ul style="list-style-type: none"> <li>i. impacts and environmental performance of the development; and</li> <li>ii. effectiveness of the management measures set out pursuant to paragraph (c) above;</li> </ul> </li> <li>e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</li> <li>f) a program to investigate and implement ways to improve the environmental performance of the development over time;</li> <li>g) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);</li> <li>ii. complaint;</li> <li>iii. failure to comply with statutory requirements; and</li> </ul> </li> <li>h) a protocol for periodic review of the plan.</li> </ul> <p>Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans</p>		Table 1
Construction Environmental Management Plan		



CONSOLIDATED CONSENT SSD 58257960	Where Addressed in CEMP
C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	Table 1
C3. As part of the CEMP required under condition C2 of this consent, the Applicant must include the following: a) Construction Traffic Management Plan (see condition B1); b) Erosion and Sediment Control Plan (see condition B17); c) Construction Noise and Vibration Management Plan (see condition B31); d) Construction Air Quality Management Plan (see condition B49); and e) Community Consultation and Complaints Handling.	Table 1
C4. The Applicant must: a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	Table 1
<b>Revision of Strategies, Plans and Programs</b>	
C8. Within three months of: a) the submission of a Compliance Report under condition C14; b) the submission of an incident report under condition C10; c) the approval of any modification of the conditions of this consent; or d) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review, the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing of the outcomes of any review.	Section 6
C9. If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review required under condition C8, or such other timing as agreed by the Planning Secretary.  <i>Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.</i>	Section 6
<b>Reporting and Auditing</b>	
<b>Incident Notification, Reporting and Response</b>	
C10. The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3.	Section 3.5.4
<b>Non-Compliance Notification</b>	
C11. The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.	Section 3.5
C12. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	Section 3.5



CONSOLIDATED CONSENT SSD 58257960	Where Addressed in CEMP
C13. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	Section 3.5
Compliance Reporting	
C14. Within six months after the commencement of construction of the development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary), the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also: a) identify any trends in the monitoring data over the life of the development; b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and c) describe what measures will be implemented over the next year to improve the environmental performance of the development.	Section 5.1
C15. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done.	Section 5.1





# Appendix D Consultation

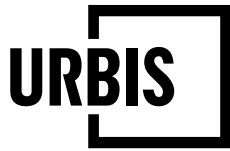
## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





**ANGEL PLACE  
LEVEL 8, 123 PITT STREET  
SYDNEY NSW 2000**

URBIS.COM.AU  
Urbis Pty Ltd  
ABN 50 105 256 228

03 April 2023

Chris Ritchie  
Director – Industry Assessments  
NSW Department of Planning and Environment  
4 Parramatta Square, 12 Darcy Street  
Parramatta NSW 2150

Dear Chris,

## **ASPECT INDUSTRIAL ESTATE | 788-882 MAMRE ROAD, KEMPS CREEK | SSD-10448 MODIFICATION 3 | STAGING PLAN**

I refer to the Department of Planning and Environment's (DPE) approval of the Aspect Industrial Estate SSD-10448. The development consent for SSD-10448 requests at Condition A10, A11, A12 & A19, the submission of a Staging Plan where the development is proposed to be staged.

Pursuant to Conditions A10, A11, A12, A19, Mirvac Projects Pty Ltd hereby requests approval for the staging of SSD-10448 development. This letter and the accompanying Building and Utilities Staging Plans set out the timing and phasing proposed for the site including both infrastructure and warehouse buildings within Aspect Industrial Estate reflecting the recently approved SSD 10448 MOD 3.

The staging of this development will allow the Planning Secretary to review and approve relevant documents on a staged basis, as they apply to each relevant stage.

This letter is accompanied by the following:

- Indicative Building Staging Plan prepared by Mirvac Design (**Appendix A**).
- Indicative Utilities Staging (**Appendix B**).
- Copies of authority, landowner and utility correspondence (**Appendix C**).



## 1. CONDITIONS OF CONSENT | STAGING

The following conditions of the SSD-10448 application permit construction are to be undertaken on a staged basis:

### Condition A10

Table 1 - A10 conditions

Condition	Response
<i>Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The plan shall:</i>	
<i>(a) be prepared in consultation with Council, utility and service providers and other relevant stakeholders;</i>	<p>Relevant stakeholders including Penrith Council, TfNSW, surrounding neighbours (GPT and Altis) and other stakeholders have previously been consulted in respect of the staged works under a previous iteration this Staging Plan.</p> <p>The proposed staging as part of this update remains generally consistent with what was previously proposed, meaning that no further consultation with Council, utility and service providers is required.</p> <p>Copies of previous correspondence to these landowners and agencies is attached to this letter at <b>Appendix C</b>. No comments in response have been received to date. Also contained in <b>Appendix C</b> is the status of key applications where authority correspondence has not been provided.</p>
<i>(b) describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;</i>	Table 3 below provides the staging and timing of the proposed works approved in the Concept Consent.
<i>(c) show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;</i>	Table 3 below provides the sequence of future DAs that will be lodged to develop the site. An estimated timing of each Stage and identification of overlapping construction activities is detailed, however it is noted that timing may be subject to variation. Should a



Condition	Response
	variation occur, an amended program would be submitted to DPE for review.
<i>(d) include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and</i>	<p>Stage 1 includes the riparian realignment and basin infrastructure works along the northern boundary. It also incorporates vegetation of the riparian corridor as required by the Vegetation Management Plan.</p> <p>The landscaping works approved under the Stage 1 consent including within Lots 1 and 3, and along the frontages of Access Road 1 and Mamre Road will be delivered.</p> <p>The landscaping works approved under the Stage 2 consent (including within Lot 9) will also be delivered.</p>
<i>(e) include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades.</i>	<p>Stage 1 includes:</p> <ul style="list-style-type: none"> <li>▪ The delivery of stormwater infrastructure, trunk service connections, utility infrastructure.</li> <li>▪ Boundary stormwater management, fencing and landscaping.</li> <li>▪ Construction and dedication of internal road network to Penrith City Council.</li> <li>▪ Construction and operation of a signalised intersection with Mamre Road.</li> </ul> <p>The proposed infrastructure services are detailed on the Utilities Staging Plan at <b>Appendix B</b>.</p>



### Condition A11

Table 2 - A11 conditions

Condition	Response
<i>The Applicant must:</i>	
<i>(a) not commence construction of any stage of the Development until the Staging Plan required by Condition A12 is approved by the Planning Secretary; and</i>	Noted. The Staging Plan must be approved prior to the commencement of any construction works. Previous iterations of this Staging Plan have already been approved. However, this has been updated to reflect the outcome of Modification 3 with the relocation of Access Road 4 and the realignment of the Lot boundaries. This does not impact the overall staged works.
<i>(b) implement the most recent version of the Staging Plan approved by the Planning Secretary.</i>	Noted. The more recent version of the staging plan as approved by the Planning Secretary will be implemented.

### Condition A12

*The Planning Secretary may require the Applicant to address certain matters identified in the Staging Plan. The Applicant must comply with any such requirements of the Planning Secretary given as part of the Staging Plan approval.*

Notes:

- *The Applicant may amend the Staging Plan as desired, with the approval of the Planning Secretary.*
- *The Staging Plan is intended to broadly describe the development sequence for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.*

### **Response:**

Noted. The Applicant will address and comply with any matters identified in the Staging Plan by the Planning Secretary.

### Condition A19

Condition	Response
With the approval of the Planning Secretary, the Applicant may:	
<i>(a) prepare and submit any strategy, plan or program required by this consent on a staged</i>	Mirvac's strategy for staging the works is detailed in Table 3 and Figure 1. The Staging



Condition	Response
<i>basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);</i>	<p>Plan will be subject to change following future modifications to the SSD-10448.</p> <p>Mirvac is proposing to complete Stage 1 Bulk Earthworks and Infrastructure (Stages 1 to 3 in Table 3) (approved under SSD 10448) as the initial stage of works. This is also reflected in the Construction Environmental Management Plan (CEMP) that has been submitted to the Planning Secretary.</p> <p>Future stages of the Estate, including approved buildings on Lots 1,3 and 9 (Stages 6, 7 and 8 in Table 3) (approved under SSD 10448), and subsequent development applications, will require updates to the CEMP and Staging Plan.</p> <p>Approved SSD-10448 CEMPs and Staging Plans will be submitted to the Planning Secretary for approval.</p> <p>This update to the staging plan includes works approved for Warehouse 9 on Lot 9 under SSD-46516461.</p>
<i>(b) implement the most recent version of the Staging Plan approved by the Planning Secretary.</i>	Noted
<i>(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).</i>	The Staging Plan will be updated following approval of any subsequent modifications.



## 2. CONSULTATION WITH ADJOINING LANDOWNERS AND AUTHORITIES

Correspondence was issued to the following agencies and landowners on the stated dates, setting out the intended staged implementation of the Concept Proposal under SSD 10448.

Agencies:

- Penrith Council – 23 June 2022.
- Sydney Water – 23 June.
- Transport for NSW – 23 June 2022.

Adjoining Landowners

- GPT – 27 June 2022.
- Altis – 27 June 2022.

The email correspondence provided details of the staging and timing of the works approved in the Concept Plan for AIE and the indicative sequence of future DAs that will be lodged to develop the site. An estimated timing of each Stage and identification of overlapping construction activities was also detailed, however it was noted that timing may be subject to variation. The email included a copy of the Building Staging Plan.

The letter concluded seeking that the agency or adjoining landowner advise of any questions or concerns with the intended approach. A response was sought by Mirvac by Friday 8<sup>th</sup> July 2022.

No response was received from any authority or adjoining landowner.

## 3. STAGING PLAN

The following Table details how the Aspect Industrial Estate will be developed and serviced.

It is noted that future modifications to estate layout will be lodged but will be subject to separate approvals. As approvals are granted for future modifications or development applications the Staging Plan will be updated to reflect the intended staged delivery of the estate.

Extracts of the Building Staging Plan and Utilities Staging Plan are included for reference at Figures 1 and 2 below.

Table 3 - Proposed staging of works

Stage	Description	Planning Status	Anticipated Construction Commencement	Anticipated construction completion
1a	Stage 1 Riparian realignment work	Approved as part of Stage 1 works under	Commenced August 2022	Within 6-12 months of commencement of construction

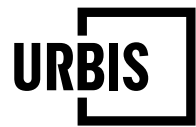


Stage	Description	Planning Status	Anticipated Construction Commencement	Anticipated construction completion
1b	Stage 1 Bulk Earthworks	initial SSD-10448.	Commenced August 2022	Completion of last DA 2026
1c	Stage 1 Riparian revegetation works	Determined: 1 June 2022	Q1 2023	Within six (6) months of the commencement of operation of first warehouse on AIE.
2	Stage 1 Phase 1 Road Infrastructure Works		Q4 2022	Prior to Occupation of first Warehouse on Aspect Industrial Estate
3	Stage 1 Phase 2 Road Infrastructure Works		Q1-Q4 2023	Prior to Occupation of second Warehouse on the Aspect Industrial Estate.
4	Stage 1 – Phase 3 Road Infrastructure Works (Road No.4)	Approved in SSD 10448 MOD 3. Determined 2 March 2023	Q1-Q4 2023	Prior to Occupation of any warehouse which requires direct connection to it
5	Stage 2 – Road Infrastructure Works (Road No.3 North) and riparian realignment.	Approval pathway to be confirmed.	Subject to reaching an arrangement on timing of works with the Planning Secretary and neighbouring landowner.	Within 12-18 months from commencement of construction
6	Stage 1 Building Works (Warehouse 1)	Approved as part of initial SSD-10448 and SSD-	Q1 2023	Within 12-18 months from commencement of construction



Stage	Description	Planning Status	Anticipated Construction Commencement	Anticipated construction completion
		10448 - MOD 2		Within 12-18 months from commencement of construction
7	Stage 2 Building Works (Warehouse 9)	Approved as part of initial SSD-10448 MOD 3 and SSD - 46516461	Q2 2023	
8	Stage 3 Building Works (Warehouse 3)	Approved as part of initial SSD-10448 MOD 2.	Q1 2023	
9	Stage 4 Buildings Works (Warehouse 8)	Subject to separate detailed consent.  Target lodgement: March 2023	Q4 2023 – Q1 2024	
10	Stage 5 Building Works (Warehouse 2)		Q4 2023 – Q1 2024	
11	Stage 6 Building Works (Warehouse 4)	Development application to be submitted	Q1 2024	
12	Stage 7 Building Works (Warehouse 5)		Q1 2024	
13	Stage 8 Building Works (Warehouse 6)		2024-26	

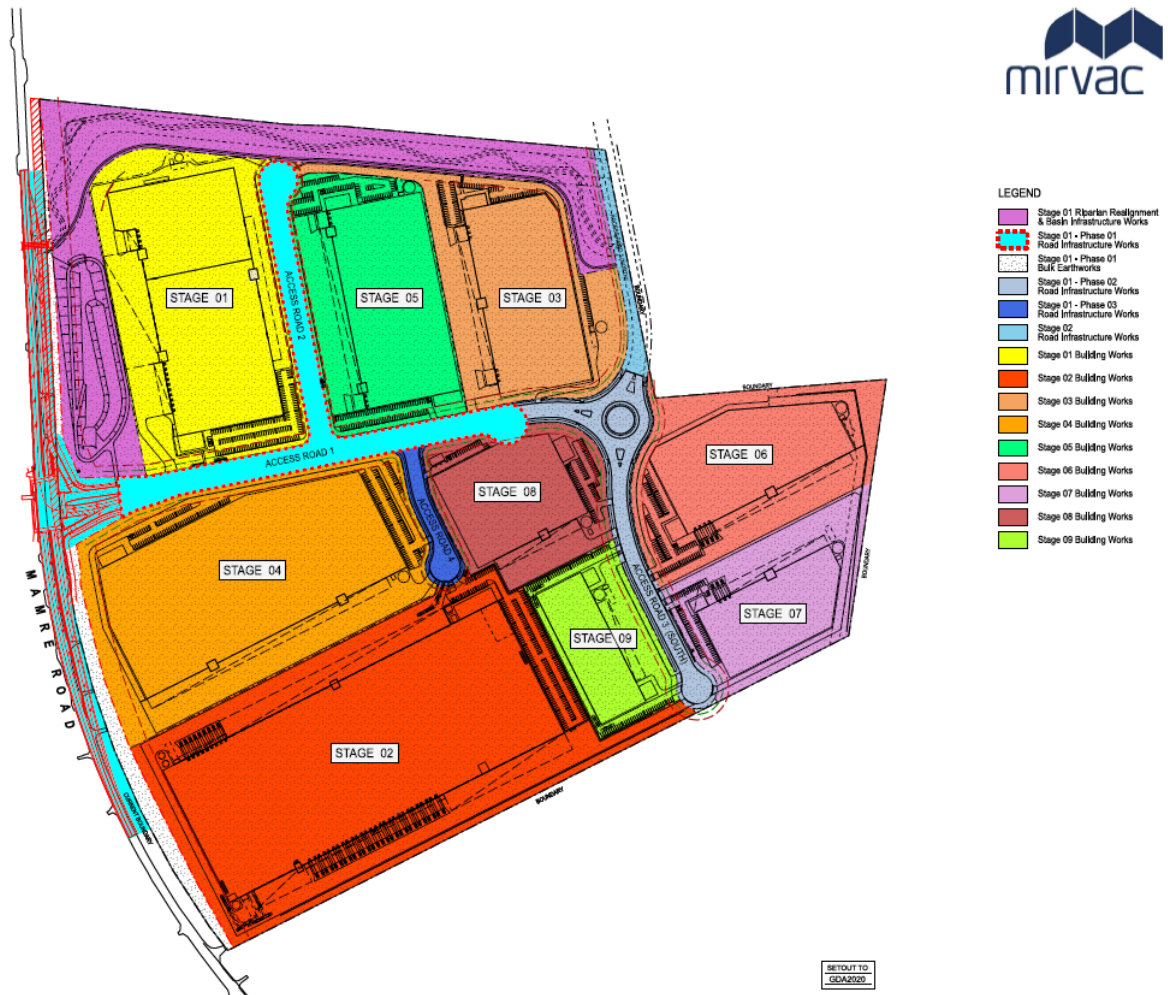




Stage	Description	Planning Status	Anticipated Construction Commencement	Anticipated construction completion
14	Stage 9 Building Works (Warehouse 7)		2024-26	Within 12-18 months from commencement of construction



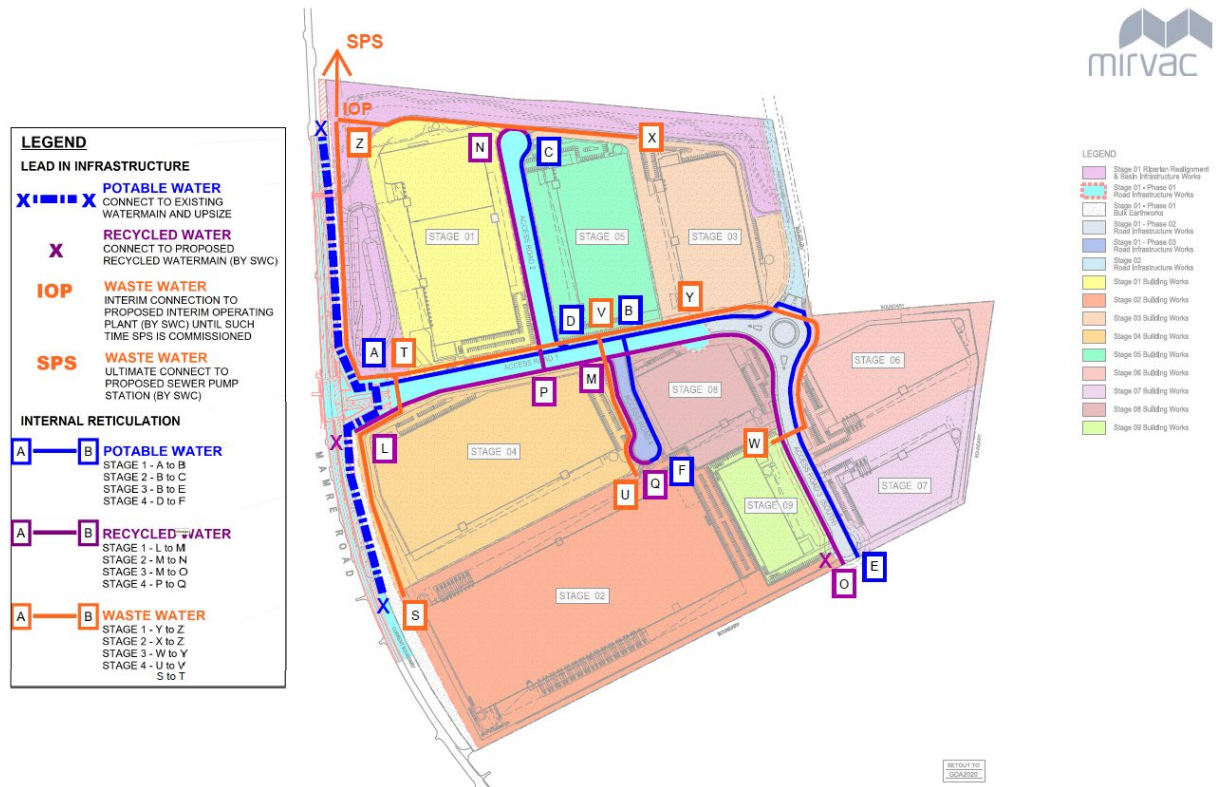
Figure 1 Proposed Staging Plan



Source: SBA Architects



Figure 2 Utilities Staging Plan



Source: Mirvac



## **4. SSD-10448 | STAGE 1 DEVELOPMENT & SSD-46516461 | STAGE 2 DEVELOPMENT OF “WAREHOUSE 9”**

The Stage 1 works, as approved under SSD- 10448 as amended under Modification 3 and a new DA (SSD-46516461) for the Stage 2 development of ‘Warehouse 9’ include the following:

- A Concept Masterplan for AIE comprising:
  - The staged development of an industrial estate comprising of 9 buildings with a total GFA of up to 247,646 square metres (m2) for industrial, warehousing and distribution centres, and café uses; and
- A Detailed Stage 1 development of AIE comprising:
  - Site preparation works
  - Vegetation clearing
  - Realignment of the existing creek
  - Construction of access roads and eastern half of Mamre Road/ Access Road 1
  - Intersection works
  - Construction, fit out, and operation of one warehouse (Warehouse 1) and one industrial building with ancillary offices (Warehouse 3)
  - Car parks
  - Landscaping
  - Signage
  - Construction and operation of services and utilities; and
  - Subdivision of the site into three lots.
- A Detailed Stage 2 development of AIE comprising:
  - Civil works including cut/fill and benching to set the Lot 9 pad levels. The updated building levels will be facilitated by updated the retaining wall located between Lot 9, and Lots 6 and 7
  - Construction, fitout and operation of one warehouse (Warehouse 9)
  - Construction of vehicular crossovers from Lot 9 to Access Road 4 (egress) and Access Road 3 (ingress)
  - On lot landscaping
  - On lot stormwater management

### **4.1. APPROVED STAGE 1 ESTATE WIDE INFRASTRUCTURE WORKS**

Infrastructure works approved as part of Stage 1 will form part of the Stage 1b construction works associated with bulk earth works and road / civil works construction across the estate.



It is anticipated that these civil works will be undertaken from Q3 2022 – end 2026 at the completion of the last warehouse construction on site.

## 4.2. APPROVED ON LOT BUILDING WORKS

Approved on lot warehouse construction for Lot 1, Lot 3 and Lot 9 are proposed to be undertaken in three stages as follows:

Table 4 Approved Stage 1 Building Works

Stage	Description	Anticipated Construction Timeframe
6	Warehouse / Lot 1	Q1 2023 for a period of 12-18 months
7	Warehouse / Lot 9	Q2 2023 for a period of 12-18 months
8	Warehouse / Lot 3	Q2 2023 for a period of 12-18 months

## 5. MODIFICATIONS TO THIS STAGING PLAN

As a result of further Estate wide modifications to SSD 10448, the delivery stages of the estate may change in the future. At that time, an updated Staging Plan will be provided to the Department of Planning and Environment for the satisfaction of the Secretary prior to commencing that phase of work.



## 6. CONCLUSION

Strategies, plans or programs required to be prepared by SSD-10448 (as modified) will be undertaken in a staged manner in accordance with this Staging Plan. Approvals for such documentation will only be sought for the relevant scope of works contained within each construction stage.

Mirvac seeks endorsement of this updated Staging Plan in accordance with condition A10 of SSD 10448 (as modified) so that it can continue to inform construction on site.

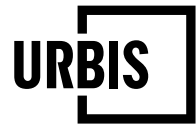
Should you have any questions regarding this application, please do not hesitate to contact Russell Hogan, Senior Development Manager, Mirvac on [russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com) / 02 9080 8154 or the undersigned.

Yours sincerely,

A handwritten signature in black ink, appearing to read "JParker", with a stylized flourish at the end.

Jacqueline Parker  
Director  
+61 2 8233 9969  
[jparker@urbis.com.au](mailto:jparker@urbis.com.au)

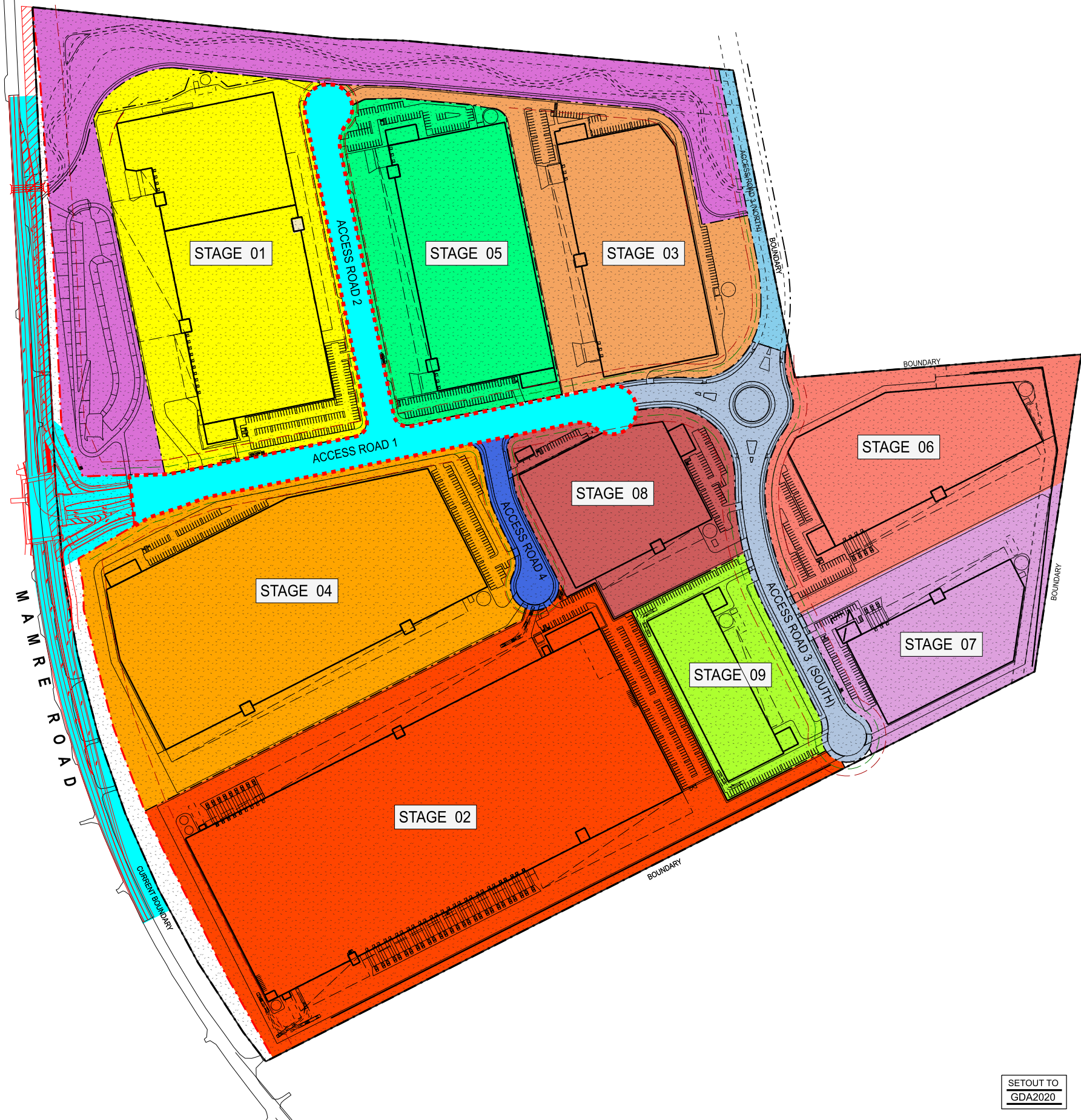




## **APPENDIX A**

## **BUILDING STAGING PLAN**

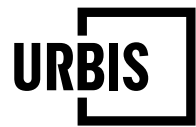




- LEGEND
- Stage 01 Riparian Realignment & Basin Infrastructure Works
  - Stage 01 - Phase 01 Road Infrastructure Works
  - Stage 01 - Phase 01 Bulk Earthworks
  - Stage 01 - Phase 02 Road Infrastructure Works
  - Stage 01 - Phase 03 Road Infrastructure Works
  - Stage 02 Road Infrastructure Works
  - Stage 01 Building Works
  - Stage 02 Building Works
  - Stage 03 Building Works
  - Stage 04 Building Works
  - Stage 05 Building Works
  - Stage 06 Building Works
  - Stage 07 Building Works
  - Stage 08 Building Works
  - Stage 09 Building Works

SETOUT TO  
GDA2020





## **APPENDIX B**

## **UTILITIES STAGING PLAN**



LEGEND

LEAD IN INFRASTRUCTURE

POTABLE WATER

CONNECT TO EXISTING WATERMAIN AND UPSIZE

RECYCLED WATER

CONNECT TO PROPOSED RECYCLED WATERMAIN (BY SWC)

WASTE WATER

INTERIM CONNECTION TO PROPOSED INTERIM OPERATING PLANT (BY SWC) UNTIL SUCH TIME SPS IS COMMISSIONED

WASTE WATER

ULTIMATE CONNECT TO PROPOSED SEWER PUMP STATION (BY SWC)

INTERNAL RETICULATION

POTABLE WATER

STAGE 1 - A to B  
STAGE 2 - B to C  
STAGE 3 - B to E  
STAGE 4 - D to F

RECYCLED WATER

STAGE 1 - L to M  
STAGE 2 - M to N  
STAGE 3 - M to O  
STAGE 4 - P to Q

WASTE WATER

STAGE 1 - Y to Z  
STAGE 2 - X to Z  
STAGE 3 - W to Y  
STAGE 4 - U to V  
S to T

LEGEND

Stage 01 Riparian Realignment & Basin Infrastructure Works

Stage 01 - Phase 01 Road Infrastructure Works

Stage 01 - Phase 01 Bulk Earthworks

Stage 01 - Phase 02 Road Infrastructure Works

Stage 01 - Phase 03 Road Infrastructure Works

Stage 02 Road Infrastructure Works

Stage 01 Building Works

Stage 02 Building Works

Stage 03 Building Works

Stage 04 Building Works

Stage 05 Building Works

Stage 06 Building Works

Stage 07 Building Works

Stage 08 Building Works

Stage 09 Building Works

SBA ARCHITECTS

Commercial Industrial Residential Retail Master Planning

Suite 702, 83 Mount Street, North Sydney NSW 2060

T 02 9529 9588 F 02 9529 9899

E info@sbaarch.com.au W www.sbaarch.com.au

FOR INFORMATION

29.03.2023

DATE

KEMPS CREEK ESTATE

LOTS 54 - 58, MAMRE ROAD, KEMPS CREEK

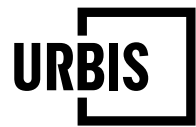
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NORTH

INDICATIVE MOD 3 BUILDING STAGING P[AN

DATE 29.03.2023 SCALE 1:4000 @ A3 JOB NO. 21250 DRAWING NO. SK 34 A





## **APPENDIX C**

## **AUTHORITY, LANDOWNER AND UTILITY CORRESPONDENCE**



**From:** [Russell Hogan](#)  
**To:** [Gavin.Cherry@penrith.city](#); [council@penrith.city](#)  
**Cc:** [Daniel.Brook](#); [Kym.Dracopoulos](#); [Alexandra.Chung](#); [Adam.Heinrich](#)  
**Subject:** AIE - SSD-10448 - Condition A10 - Staging Plan - Consultation with Council  
**Date:** Thursday, 23 June 2022 11:52:24 PM  
**Attachments:** [19210\\_SK-103\\_C - Building Staging Plan.pdf](#)  
[image001.jpg](#)

Dear Gavin,

**RE: AIE - SSD-10448 - Condition A10 - Staging Plan**

Condition A10 of the Aspect Industrial Estate (AIE) SSD-10448 requires that *prior to the commencement of construction* a Staging Plan is prepared in consultation with Council, utility and service providers and other relevant stakeholders to the satisfaction of the Planning Secretary.

This email seeks to describe how the implementation of the Concept Proposal under SSD10448, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts.

Condition	Consent Timing	To enable issue to Planning Secretary - we are seeking comments by
Condition A10 – Staging Plan	Prior to the commencement of construction of any stage of the Concept Proposal	<b>Friday 8 July</b>

The table below provides the staging and timing of the works approved in the Concept Plan and the indicative sequence of future DAs that will be lodged to develop the site. An estimated timing of each Stage and identification of overlapping construction activities is detailed, however it is noted that timing may be subject to variation. Should a variation occur, an amended program would be reviewed.

The attached Indicative Staging Building Plan corresponds to the AIE Concept Masterplan as approved within the SSD10448.  
 Link to the AIE Major Projects Portal <https://www.planningportal.nsw.gov.au/major-projects/projects/aspect-industrial-estate>

Relevant Condition extract for ease of reference:

<p><b>STAGING PLAN</b>  <b>A10</b>            Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The Plan shall:</p> <ol style="list-style-type: none"> <li>Be prepared in consultation with Council, utility and service providers and other relevant stakeholders;</li> <li>Describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;</li> <li>Show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;</li> <li>Include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and</li> <li>Include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades</li> </ol> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>The Staging Plan is intended to broadly describe the development sequences for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.</li> </ul>
---

Table – Proposed staging of works

Stage	Description	Planning Status	Anticipated Construction Commencement
1a	Stage 1 Riparian Realignment work & basin infrastructure works	Approved as part of Stage 1 works under initial SSD-10448.  Determined: 1 June 2022	Q3 2022
1b	Stage 1 Phase 1 Road Infrastructure Works		Q3 2022
2	Stage 1 Phase 1 Bulk Earthworks		Q3 2022
1c	Stage 1 Riparian revegetation works (shown as pink hatch on plan.		Q2 2023
3	Stage 1 Phase 02 Road Infrastructure Works		Q1-Q4 2023
4	Stage 1 – Phase 03 Road Infrastructure Works (Road No.4)	Subject to separate DA. Target lodgement: June 2022	Q1-Q4 2023
5	Stage 2 – Road Infrastructure	Approval pathway to be confirmed.	Subject to reaching an arrangement on timing of



	Works (Road No.3 North) and riparian realignment.		works with the Planning Secretary and neighbouring landowner.
6	Stage 1 Building Works	Warehouse / Lot 1.  Approved as part of initial SSD-10448.  Though subject to modification to suit customer requirements.  SSD-10448 - MOD 1  Target lodgement: June 2022	Q3-Q4 2022
7	Stage 2 Building Works	Warehouse / Lot 3  Approved as part of initial SSD-10448.	Q4 2022 - Q1 2023
8	Stage 3 Building Works	Warehouse 9  Subject to separate detailed consent.  Target Lodgement June 2022	Q4 2022 – Q1 2023
8	Stage 4 Buildings Works	Warehouse 4&5 / Lot 4&5  Subject to separate detailed consent.  Target lodgement: July 2022	Q1-Q3 2024
9	Stage 5 Building Works		Q1-Q3 2024
10	Stage 6 Building Works	Development application to be submitted	2024-26
11	Stage 7 Building Works		2024-26
12	Stage 8 Building Works		2024-26
13	Stage 9 Building Works		2024-26
14	Stage 10 Building Works		2024-26
15	Stage 11 Building Works		2024-26

Should you have any questions regarding the above, please advise.

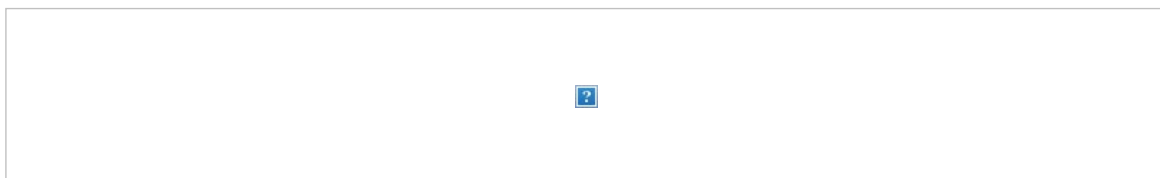
Kind Regards,

**Russell Hogan**

Senior Development Manager  
Integrated Investment Portfolio

**T** +61 2 9080 8154 **M** +61 424441231  
Level 28, 200 George Street Sydney NSW 2000 Australia

[Electronic Data Transmission Disclaimer](#)



Mirvac acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Owners of the lands and waters of Australia, and we offer our respect to their Elders.



**From:** [Russell Hogan](#)  
**To:** [Laura Van putten](#); [Development Sydney](#)  
**Cc:** [Daniel Brook](#); [Kym Dracopoulos](#); [Alexandra Chung](#); [Adam Heinrich](#)  
**Subject:** AIE - SSD-10448 - Condition A10 - Staging Plan - Consultation with TfNSW  
**Date:** Thursday, 23 June 2022 11:57:08 PM  
**Attachments:** [19210\\_SK-103\\_C - Building Staging Plan.pdf](#)  
[image001.jpg](#)

Dear TfNSW,

**RE: AIE - SSD-10448 - Condition A10 - Staging Plan**

Condition A10 of the Aspect Industrial Estate (AIE) SSD-10448 requires that *prior to the commencement of construction* a Staging Plan is prepared in consultation with Council, utility and service providers and other relevant stakeholders to the satisfaction of the Planning Secretary.

This email seeks to describe how the implementation of the Concept Proposal under SSD10448, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts.

Condition	Consent Timing	To enable issue to Planning Secretary - we are seeking comments by
Condition A10 – Staging Plan	Prior to the commencement of construction of any stage of the Concept Proposal	<b>Friday 8 July</b>

The table below provides the staging and timing of the works approved in the Concept Plan and the indicative sequence of future DAs that will be lodged to develop the site. An estimated timing of each Stage and identification of overlapping construction activities is detailed, however it is noted that timing may be subject to variation. Should a variation occur, an amended program would be reviewed.

The attached Indicative Staging Building Plan corresponds to the AIE Concept Masterplan as approved within the SSD10448.

Link to the AIE Major Projects Portal <https://www.planningportal.nsw.gov.au/major-projects/projects/aspect-industrial-estate>

Relevant Condition extract for ease of reference:

**STAGING PLAN**

**A10**

Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The Plan shall:

- Be prepared in consultation with Council, utility and service providers and other relevant stakeholders;
- Describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;
- Show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;
- Include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and
- Include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades

**Notes:**

- The Staging Plan is intended to broadly describe the development sequences for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.*

Table – Proposed staging of works

Stage	Description	Planning Status	Anticipated Construction Commencement
1a	Stage 1 Riparian Realignment work & basin infrastructure works	Approved as part of Stage 1 works under initial SSD-10448.  Determined: 1 June 2022	Q3 2022
1b	Stage 1 Phase 1 Road Infrastructure Works		Q3 2022
2	Stage 1 Phase 1 Bulk Earthworks		Q3 2022
1c	Stage 1 Riparian revegetation works (shown as pink hatch on plan.		Q2 2023
3	Stage 1 Phase 02 Road Infrastructure Works		Q1-Q4 2023
4	Stage 1 – Phase 03 Road Infrastructure Works (Road No.4)	Subject to separate DA.  Target lodgement: June 2022	Q1-Q4 2023
5	Stage 2 – Road Infrastructure	Approval pathway to be confirmed.	Subject to reaching an arrangement on timing of



	Works (Road No.3 North) and riparian realignment.		works with the Planning Secretary and neighbouring landowner.
6	Stage 1 Building Works	Warehouse / Lot 1.  Approved as part of initial SSD-10448.  Though subject to modification to suit customer requirements.  SSD-10448 - MOD 1  Target lodgement: June 2022	Q3-Q4 2022
7	Stage 2 Building Works	Warehouse / Lot 3  Approved as part of initial SSD-10448.	Q4 2022 - Q1 2023
8	Stage 3 Building Works	Warehouse 9  Subject to separate detailed consent.  Target Lodgement June 2022	Q4 2022 – Q1 2023
8	Stage 4 Buildings Works	Warehouse 4&5 / Lot 4&5  Subject to separate detailed consent.  Target lodgement: July 2022	Q1-Q3 2024
9	Stage 5 Building Works		Q1-Q3 2024
10	Stage 6 Building Works	Development application to be submitted	2024-26
11	Stage 7 Building Works		2024-26
12	Stage 8 Building Works		2024-26
13	Stage 9 Building Works		2024-26
14	Stage 10 Building Works		2024-26
15	Stage 11 Building Works		2024-26

Should you have any questions regarding the above, please advise.

Kind Regards,

**Russell Hogan**

Senior Development Manager  
Integrated Investment Portfolio

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Level 28, 200 George Street Sydney NSW 2000 Australia

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Mirvac acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Owners of the lands and waters of Australia, and we offer our respect to their Elders.



**From:** [Russell Hogan](#)  
**To:** [THALIB, LUBNA](#); [TANOAI, ARRON](#); [MCNALLY, CHRISTIAN](#)  
**Cc:** [Alexandra Chung](#); [Kym Dracopoulos](#); [Adam Heinrich](#); [Daniel Brook](#)  
**Subject:** AIE - SSD-10448 - Condition A10 - Staging Plan - Consultation with Sydney Water  
**Date:** Thursday, 23 June 2022 11:58:45 PM  
**Attachments:** [19210\\_SK-103\\_C - Building Staging Plan.pdf](#)  
[image001.jpg](#)

Dear Sydney Water,

**RE: AIE - SSD-10448 - Condition A10 - Staging Plan**

Condition A10 of the Aspect Industrial Estate (AIE) SSD-10448 requires that *prior to the commencement of construction* a Staging Plan is prepared in consultation with Council, utility and service providers and other relevant stakeholders to the satisfaction of the Planning Secretary.

This email seeks to describe how the implementation of the Concept Proposal under SSD10448, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts.

Condition	Consent Timing	To enable issue to Planning Secretary - we are seeking comments by
Condition A10 – Staging Plan	Prior to the commencement of construction of any stage of the Concept Proposal	<b>Friday 8 July</b>

The table below provides the staging and timing of the works approved in the Concept Plan and the indicative sequence of future DAs that will be lodged to develop the site. An estimated timing of each Stage and identification of overlapping construction activities is detailed, however it is noted that timing may be subject to variation. Should a variation occur, an amended program would be reviewed.

The attached Indicative Staging Building Plan corresponds to the AIE Concept Masterplan as approved within the SSD10448.

Link to the AIE Major Projects Portal <https://www.planningportal.nsw.gov.au/major-projects/projects/aspect-industrial-estate>

Relevant Condition extract for ease of reference:

<p><b>STAGING PLAN</b></p> <p><b>A10</b></p> <p>Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The Plan shall:</p> <ol style="list-style-type: none"> <li>Be prepared in consultation with Council, utility and service providers and other relevant stakeholders;</li> <li>Describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;</li> <li>Show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;</li> <li>Include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and</li> <li>Include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades</li> </ol> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>The Staging Plan is intended to broadly describe the development sequences for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.</li> </ul>
---

Table – Proposed staging of works

Stage	Description	Planning Status	Anticipated Construction Commencement
1a	Stage 1 Riparian Realignment work & basin infrastructure works	Approved as part of Stage 1 works under initial SSD-10448.  Determined: 1 June 2022	Q3 2022
1b	Stage 1 Phase 1 Road Infrastructure Works		Q3 2022
2	Stage 1 Phase 1 Bulk Earthworks		Q3 2022
1c	Stage 1 Riparian revegetation works (shown as pink hatch on plan.		Q2 2023
3	Stage 1 Phase 02 Road Infrastructure Works		Q1-Q4 2023
4	Stage 1 – Phase 03 Road Infrastructure Works (Road No.4)	Subject to separate DA. Target lodgement: June 2022	Q1-Q4 2023
5	Stage 2 – Road Infrastructure	Approval pathway to be confirmed.	Subject to reaching an arrangement on timing of



	Works (Road No.3 North) and riparian realignment.		works with the Planning Secretary and neighbouring landowner.
6	Stage 1 Building Works	Warehouse / Lot 1.  Approved as part of initial SSD-10448.  Though subject to modification to suit customer requirements.  SSD-10448 - MOD 1  Target lodgement: June 2022	Q3-Q4 2022
7	Stage 2 Building Works	Warehouse / Lot 3  Approved as part of initial SSD-10448.	Q4 2022 - Q1 2023
8	Stage 3 Building Works	Warehouse 9  Subject to separate detailed consent.  Target Lodgement June 2022	Q4 2022 – Q1 2023
8	Stage 4 Buildings Works	Warehouse 4&5 / Lot 4&5  Subject to separate detailed consent.  Target lodgement: July 2022	Q1-Q3 2024
9	Stage 5 Building Works		Q1-Q3 2024
10	Stage 6 Building Works	Development application to be submitted	2024-26
11	Stage 7 Building Works		2024-26
12	Stage 8 Building Works		2024-26
13	Stage 9 Building Works		2024-26
14	Stage 10 Building Works		2024-26
15	Stage 11 Building Works		2024-26

Should you have any questions regarding the above, please advise.

Kind Regards,

**Russell Hogan**

Senior Development Manager  
Integrated Investment Portfolio

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Level 28, 200 George Street Sydney NSW 2000 Australia

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**From:** [Russell Hogan](#)  
**To:** [Stephen O'Connor \(stephen.oconnor@altisproperty.com.au\)](#); [Philip Grech](#)  
**Cc:** [Daniel Brook](#); [Kym Dracopoulos](#)  
**Subject:** AIE - SSD-10448 - Condition A10 - Staging Plan - Consultation with Altis  
**Date:** Monday, 27 June 2022 6:17:27 PM  
**Attachments:** [19210\\_SK-103\\_C - Building Staging Plan.pdf](#)  
[image001.jpg](#)

Hi Steve / Phil,

**RE: AIE - SSD-10448 - Condition A10 - Staging Plan – Consultation with Altis**

Condition A10 of the Aspect Industrial Estate (AIE) SSD-10448 requires that *prior to the commencement of construction* a Staging Plan is prepared in consultation with Council, utility and service providers and other relevant stakeholders to the satisfaction of the Planning Secretary.

This email seeks to describe how the implementation of the Concept Proposal under SSD10448, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts.

Condition	Consent Timing	To enable issue to Planning Secretary - please provide any comments prior to
Condition A10 – Staging Plan	Prior to the commencement of construction of any stage of the Concept Proposal	<b>Friday 8 July</b>

The table below provides the staging and timing of the works approved in the Concept Plan and the indicative sequence of future DAs that will be lodged to develop the site. An estimated timing of each Stage and identification of overlapping construction activities is detailed, however it is noted that timing may be subject to variation. Should a variation occur, an amended program would be reviewed.

The attached Indicative Staging Building Plan corresponds to the AIE Concept Masterplan as approved within the SSD10448.  
Link to the AIE Major Projects Portal <https://www.planningportal.nsw.gov.au/major-projects/projects/aspect-industrial-estate>

Relevant Condition extract for ease of reference:

<p><b>STAGING PLAN</b></p> <p><b>A10</b></p> <p>Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The Plan shall:</p> <ol style="list-style-type: none"> <li>Be prepared in consultation with Council, utility and service providers and other relevant stakeholders;</li> <li>Describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;</li> <li>Show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;</li> <li>Include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and</li> <li>Include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades</li> </ol> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>The Staging Plan is intended to broadly describe the development sequences for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.</li> </ul>
---

See below Table outlining the proposed staging of works. The items in blue are as per the AIE SSD10448 conditions of consent.

Stage	Description	Planning Status	Anticipated Construction Commencement	Anticipated construction completion
1a	Stage 1 Riparian realignment work	Approved as part of Stage 1 works under initial SSD-10448.  Determined: 1 June 2022	Q3 2022	Within 6-12 months of commencement of construction
1b	Stage 1 Bulk Earthworks		Q3 2022	Completion of last DA 2026
2	Stage 1 Phase 1 Road Infrastructure Works		Q3 2022	Prior to Occupation of first Warehouse on the Aspect Industrial Estate as per Condition D6 of SSD10448.
1c	Stage 1 Riparian revegetation works		Q2 2023	Within six (6) months of the commencement of operation of first warehouse on AIE as per Condition D69 of SSD10448.
3	Stage 1 Phase 2 Road Infrastructure Works		Q1-Q4 2023	Prior to Occupation of second Warehouse on the AIE as per Condition



				D8 of SSD10448.
4	Stage 1 – Phase 3 Road Infrastructure Works (Road No.4)	Subject to separate DA. Target lodgement: June 2022	Q1-Q4 2023	Prior to Occupation of any warehouse which requires direct connection to it.
5	Stage 2 – Road Infrastructure Works (Road No.3 North) and riparian realignment.	Approval pathway to be confirmed.	Subject to reaching an arrangement on timing of works with the Planning Secretary and neighbouring landowner.	Within 12-18 months from commencement of construction
6	Stage 1 Building Works	Warehouse / Lot 1. Approved as part of initial SSD-10448.  Though subject to modification to suit customer requirements.  SSD-10448 - MOD 1  Target lodgement: June 2022	Q3-Q4 2022	Within 12-18 months from commencement of construction
7	Stage 2 Building Works	Warehouse / Lot 3 Approved as part of initial SSD-10448.  Though subject to modification to suit customer requirements.  SSD-10448 - MOD 3. Target lodgement: June 2022	Q4 2022 - Q1 2023	
8	Stage 3 Building Works	Warehouse 9 Subject to separate detailed consent.  Target Lodgement June 2022	Q4 2022 – Q1 2023	
8	Stage 4 Buildings Works	Warehouse 4&5 / Lot 4&5 Subject to separate detailed consent.  Target lodgement: July 2022	Q1-Q3 2024	
9	Stage 5 Building Works		Q1-Q3 2024	
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Kind Regards

**Russell Hogan**  
Senior Development Manager  
Integrated Investment Portfolio

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Level 28, 200 George Street Sydney NSW 2000 Australia



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**From:** [Russell Hogan](#)  
**To:** [Matt Jordan](#); [Tom Falconer](#)  
**Cc:** [Daniel Brook](#); [Kym Dracopoulos](#)  
**Subject:** AIE - SSD-10448 - Condition A10 - Staging Plan - Consultation with GPT  
**Date:** Monday, 27 June 2022 6:43:43 PM  
**Attachments:** [19210\\_SK-103\\_C - Building Staging Plan.pdf](#)  
[image001.jpg](#)

Hi Matt / Tom,

**RE: AIE - SSD-10448 - Condition A10 - Staging Plan – Consultation with GPT**

Condition A10 of the Aspect Industrial Estate (AIE) SSD-10448 requires that *prior to the commencement of construction* a Staging Plan is prepared in consultation with Council, utility and service providers and other relevant stakeholders to the satisfaction of the Planning Secretary.

This email seeks to describe how the implementation of the Concept Proposal under SSD10448, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts.

Condition	Consent Timing	To enable issue to Planning Secretary - please provide any comments prior to
Condition A10 – Staging Plan	Prior to the commencement of construction of any stage of the Concept Proposal	<b>Friday 8 July</b>

The table below provides the staging and timing of the works approved in the Concept Plan and the indicative sequence of future DAs that will be lodged to develop the site. An estimated timing of each Stage and identification of overlapping construction activities is detailed, however it is noted that timing may be subject to variation. Should a variation occur, an amended program would be reviewed.

The attached Indicative Staging Building Plan corresponds to the AIE Concept Masterplan as approved within the SSD10448.  
 Link to the AIE Major Projects Portal <https://www.planningportal.nsw.gov.au/major-projects/projects/aspect-industrial-estate>

Relevant Condition extract for ease of reference:

<p><b>STAGING PLAN</b>  <b>A10</b>            Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The Plan shall:</p> <ol style="list-style-type: none"> <li>Be prepared in consultation with Council, utility and service providers and other relevant stakeholders;</li> <li>Describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts;</li> <li>Show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;</li> <li>Include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and</li> <li>Include conceptual design for the provision of services, utilities and infrastructure to the Site, including stormwater management infrastructure and any future road upgrades</li> </ol> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>The Staging Plan is intended to broadly describe the development sequences for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.</li> </ul>
---

See below Table outlining the proposed staging of works. The items in blue are as per the AIE SSD10448 conditions of consent.

Stage	Description	Planning Status	Anticipated Construction Commencement	Anticipated construction completion
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1b	Stage 1 Bulk Earthworks		Q3 2022	Completion of last DA 2026
2	Stage 1 Phase 1 Road Infrastructure Works		Q3 2022	Prior to Occupation of first Warehouse on the Aspect Industrial Estate as per Condition D6 of SSD10448.
1c	Stage 1 Riparian revegetation works		Q2 2023	Within six (6) months of the commencement of operation of first warehouse on AIE as per Condition D69 of SSD10448.
3	Stage 1 Phase 2 Road Infrastructure Works		Q1-Q4 2023	Prior to Occupation of second Warehouse on the AIE as per Condition



				D8 of SSD10448.
4	Stage 1 – Phase 3 Road Infrastructure Works (Road No.4)	Subject to separate DA. Target lodgement: June 2022	Q1-Q4 2023	Prior to Occupation of any warehouse which requires direct connection to it.
5	Stage 2 – Road Infrastructure Works (Road No.3 North) and riparian realignment.	Approval pathway to be confirmed.	Subject to reaching an arrangement on timing of works with the Planning Secretary and neighbouring landowner.	Within 12-18 months from commencement of construction
6	Stage 1 Building Works	Warehouse / Lot 1. Approved as part of initial SSD-10448.  Though subject to modification to suit customer requirements.  SSD-10448 - MOD 1  Target lodgement: June 2022	Q3-Q4 2022	Within 12-18 months from commencement of construction
7	Stage 2 Building Works	Warehouse / Lot 3 Approved as part of initial SSD-10448.  Though subject to modification to suit customer requirements.  SSD-10448 - MOD 3. Target lodgement: June 2022	Q4 2022 - Q1 2023	
8	Stage 3 Building Works	Warehouse 9 Subject to separate detailed consent.  Target Lodgement June 2022	Q4 2022 – Q1 2023	
8	Stage 4 Buildings Works	Warehouse 4&5 / Lot 4&5 Subject to separate detailed consent.  Target lodgement: July 2022	Q1-Q3 2024	
9	Stage 5 Building Works		Q1-Q3 2024	
10	Stage 6 Building Works	Development application to be submitted	2024-26	
11	Stage 7 Building Works		2024-26	
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13	Stage 9 Building Works		2024-26	
14	Stage 10 Building Works		2024-26	
15	Stage 11 Building Works		2024-26	

Kind Regards

**Russell Hogan**  
Senior Development Manager  
Integrated Investment Portfolio

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**Subject:** FW: AIE Staging Plan

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**From:** Stephen Allan <steve@edgewaterconnections.com.au>  
**Sent:** Monday, 11 July 2022 3:10 PM  
**To:** Alexandra Chung <alexandra.chung@mirvac.com>  
**Cc:** Daniel Brook <daniel.brook@mirvac.com>; Matthew Pittas <matthew@edgewaterconnections.com.au>  
**Subject:** RE: AIE Staging Plan

Hi Alex,

Currently we have approval with Endeavour Energy staging and sequencing of the Aspect Estate. We currently have the following staged applications with Endeavour Energy:-

1. **Stage 1A UIS0882, this project is certified and ready for construction.**  
This design brings in 1 x 22kV Feeder from South Erskine Park Zone Substation and will supply most of the site, it also installs the required intersection works and lighting as well as substations for Warehouse 1.
2. **Stage 1B ARP5041 Endeavour has issued their Design Brief,** and we have lodged the design for certification  
This design is for Street Lighting and undergrounding the Mamre Road frontage South of the proposed intersection.
3. **Stage 2 UIS0950, Endeavour has issued their Design Brief,** and we have lodged the design for certification  
This design is for a subdivision to provide Street Lighting and HV Capacity into stage 2.
4. **Stage 3 UIS0978, Endeavour has issued their Design Brief,** the design is being finalised and will be lodged for certification by approx. 20<sup>th</sup> July.  
This design is for a subdivision to provide Street Lighting and HV Capacity into stage 3.
5. **Stage 4 UIS0979, Endeavour has issued their Design Brief,** and we have lodged the design for certification  
This design is for a subdivision to provide Street Lighting and HV Capacity into stage 4 as well as the required substation for Warehouse 9.

Currently we have approval with NBN for staging and sequencing of the Aspect Estate. We currently have the following staged applications with Endeavour Energy:-

1. **Stage 1 STG-M000088563, this project is certified and ready for construction.**  
This design connects to the upstream works NBN has already constructed to the North of the Aspect Estate and supplies in stage 1.
2. **Stage 2 STG-M000088564, NBN,** designs are complete and co-ordinated with electrical will be lodged for approval by approx. 20<sup>th</sup> July 2022.  
This design is for a subdivision to provide Pit and Pipe into stage 2 and lead in conduits for future buildings.
3. **Stage 3 STG-M000088565, NBN,** designs are complete and co-ordinated with electrical will be lodged for approval by approx. 20<sup>th</sup> July 2022.  
This design is for a subdivision to provide Pit and Pipe into stage 3 and lead in conduits for future buildings.
4. **Stage 4 STG-M0001018105, NBN,** designs are complete and co-ordinated with electrical will be lodged for approval by approx. 20<sup>th</sup> July 2022.  
This design is for a subdivision to provide Pit and Pipe into stage 4 and lead in conduits for future buildings.



Please let me know if you need anything further.

Regards  
Steve



Stephen Allan

Director

P: 02 8814 1299

E [steve@edgewaterconnections.com.au](mailto:steve@edgewaterconnections.com.au)

Qld office: PO Box 1663 Mooloolaba Qld 4557

Head office: PO Box 8114 Norwest NSW 2153

[www.edgewaterconnections.com.au](http://www.edgewaterconnections.com.au)

---

**From:** Alexandra Chung <[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>

**Sent:** Monday, 11 July 2022 1:02 PM

**To:** Stephen Allan <[steve@edgewaterconnections.com.au](mailto:steve@edgewaterconnections.com.au)>

**Cc:** Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>

**Subject:** FW: AIE Staging Plan

Hi Steve,

As discussed earlier, could you please prepare a statement which outlines Endeavour Energy and NBN's understanding of the utility staging? Please use the attached Staging plan (page 2) for reference.

Thank you.

Regards,  
Alex

---





# Appendix E   Environmental Policy

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



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## ENVIRONMENTAL

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Texco Construction believes the protection and management of our physical and social environment is an integral part of our organisation's daily operations.

Texco is committed to protecting and preserving the environment in all circumstances, including the prevention of pollution, to assist in the provision of a sustainable lifestyle for both present and future generations. We are committed to continual improvement across all our industrial and commercial design and construction activities, with a goal of meeting or exceeding our client's expectations.

To achieve our commitment, we will:

- ✗ develop and implement a systematic approach to the management of environmental aspects and impacts;
- ✗ ensure this policy is documented, implemented, maintained and communicated to all employees, subcontractors, clients, and the public as required;
- ✗ fulfil our compliance obligations in regard to all relevant federal, state and local laws, regulations and other requirements;
- ✗ establish measurable objectives and targets to improve our environmental performance;
- ✗ communicate our environmental management strategies to all staff, contractors and relevant third parties including the public;
- ✗ procure products and services on the basis of minimising pollution and waste and promoting recycling principles wherever possible;
- ✗ conduct regular training and awareness programs for all management, staff and contractors;
- ✗ monitor and audit our environmental processes and management system with a view to continually improving our environmental management system to enhance environmental performance.

Texco, through the nature of its operational activities, accepts that it must share and promote the responsibility of Environmental Sustainability and will therefore act in a morally responsible manner at all times.



**Matthew Barker**

Director

Date: 1st September 2022



**Tom Bull**

Director

Date: 1st September 2022





# **Appendix F    Event Notification Report (Incidents and Non-Compliance)**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



## EVENT NOTIFICATION REPORT

Plant Vehicle Property	Non work Related Motor Vehicle Accidents	Service Strike	Environmental	Injury	Break-in Theft	Conduct
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Date & Time Event Occurred	Event Reported by	Notification Form Completed by	Date Completed
Project Team	Names	Project Name	WHS Site Representative
Project Manager			
Site Supervisor			
Engineers			
Leading Hand/s			

<b>1. DETAILS</b>					
Event Description (Describe event using key words)					
Event first reported to		Date reported		Time reported	
Event details (below) Details specific names, dates, times, equipment, organisation/s, etc.					
What activity was being undertaken? Who was involved, time & duration of activity in progress					
Location on site					
<b>INSERT OR ATTACH MAP / SKETCH &amp; PHOTOS TO NOTIFICATION</b> <small>(Show location in relations to site and key areas – intersections, plant, activity, services, pot hole locations, survey pegs, chainages)</small>					

2. PERSONS INVOLVED / & or near VICINITY					
Names of Directly involved & Witnesses	Organisation	Position Title	Capacity of involvement (Direct / in-direct witness)	Contact No.	Statement Taken
					Y <input type="checkbox"/>
					Y <input type="checkbox"/>
					Y <input type="checkbox"/>
					Y <input type="checkbox"/>

3. IMMEDIATE ACTION TAKEN						
Tick items to signify the action taken immediately following the event occurring						
<input type="checkbox"/>	Secure area / isolate	<input type="checkbox"/>	Subcontractor Workers retained on site	<input type="checkbox"/>	Medical Centre Ambulance	Other:
<input type="checkbox"/>	Contacted Emergency services	<input type="checkbox"/>	Photos of scene / area	<input type="checkbox"/>	Spill control	
<input type="checkbox"/>	Notified asset owner	<input type="checkbox"/>	D & A testing	<input type="checkbox"/>	Statements	



6. EXTERNAL NOTIFICATIONS made at time of Event Occurrence					
Agency	Notified	Date / time notified	Agency	Notified	Date / time notified
SafeWork NSW (WHS Co-ord responsible)	<input type="checkbox"/>		Subcontractor PM responsible	<input type="checkbox"/>	
EPA / DPIE (ER responsible)	<input type="checkbox"/>		Police / Fire / Amb	<input type="checkbox"/>	
Asset Owner PM responsible	<input type="checkbox"/>		Police Event No. (if applicable)	<input type="checkbox"/>	
Client (Org) PM responsible	<input type="checkbox"/>		Other (Name)	<input type="checkbox"/>	

7. FACTORS CONTRIBUTING TO THE INCIDENT					
<b>Environment</b>			<b>Equipment / materials</b>		
<input type="checkbox"/>	Noise	<input type="checkbox"/>	Surface gradient / conditions	<input type="checkbox"/>	Tampering of plant / equipment
<input type="checkbox"/>	Lighting	<input type="checkbox"/>	Dust / fume	<input type="checkbox"/>	Plant or equipment failure
<input type="checkbox"/>	Vibration	<input type="checkbox"/>	Slip / trip hazard	<input type="checkbox"/>	Inadequate maintenance
<input type="checkbox"/>	Weather	<input type="checkbox"/>	Time production pressures	<input type="checkbox"/>	Inadequate guarding
			<input type="checkbox"/> Other:		
<b>Work systems</b>			<b>People</b>		
<input type="checkbox"/>	Hazard no identified	<input type="checkbox"/>	No / inadequate risk assessment conducted	<input type="checkbox"/>	No / Not followed Procedure
<input type="checkbox"/>	Hazard not reported	<input type="checkbox"/>	No / inadequate controls implemented	<input type="checkbox"/>	Drugs / alcohol
<input type="checkbox"/>	No/inadequate safe work procedure	<input type="checkbox"/>	Inadequate training / supervision	<input type="checkbox"/>	Fatigue
<input type="checkbox"/>	Inadequate planning	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Change of routine
			<input type="checkbox"/> Lack of communication		
<b>Comment on selection</b>					

8. CORRECTIVE ACTIONS				
Actions	Assigned to	Completion date	Date complete	Verified by

9. PM AND ER TO COMPLETE				
Matter has been reviewed, recorded, and correctly notified?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
PM Signature:		ER Signature:		
Date:		Date:		





# **Appendix G    Community Communication and Complaints Handling Strategy**

**Aspect Industrial Estate Construction Environmental  
Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





# Aspect Industrial Estate

## Community Consultation and Complaints Handling Strategy

### Mirvac Projects Pty Ltd

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## Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Mirvac Projects Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.





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## 1.0 Introduction

### 1.1 Background

Aspect Industrial Estate (AIE) is a regional warehouse, distribution and industrial centre located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Mamre Road Precinct located within the Western Sydney Employment Area (WSEA) (see Figure 1).

Mirvac Property Services (Aust) Pty Ltd (Mirvac) lodged State Significant Development application SSD-10448 to the Department of Planning, Industry and Environment (DPIE) for the AIE Concept Masterplan and Stage 1 Development estate-wide earthworks, infrastructure and services, and construction and use of warehouse and distribution centre buildings proposed in Lots 1 and 3. Development consent for SSD-10448 was granted on 24 May 2022. There have been 7 modifications:

- MOD 1 was determined on 25 August 2022, an administrative modification to clarify the consent by imposing requirement of a Works Authorisation Deed (WAD) for temporary construction access on Mamre Road.
- MOD 2 was determined on 30 November 2022 and made modifications to the approved Stage 1 development including amendments to layouts of Warehouses 1 and 3 and Access Road 2.
- MOD 3 was determined on 2 March 2023 for reconfiguration of the estate layout south of Access Road 1 and west of Access Road 3, resulting in a reduction of lots and new warehouse footprints with an amendment to Access Road 4.
- MOD 4 was determined on 21 December 2023 for incorporation of the Elizabeth Enterprise Precinct (EEP) site into the AIE concept proposal, and the undeveloped EEP site in the interim stormwater management approach at the AIE to meet the Wianamatta-South Creek stormwater management targets.
- MOD 5 was determined on 12 December 2023, administrative modification for the use of the temporary left-in/left-out construction access on Mamre Road by Warehouse 1 operational vehicles.
- MOD 6 was submitted in November 2023 to DPHI for approval. MOD 6 incorporates the development at Lot 8 for Warehouse 8A and 8B including concept modifications and modification to conditions of consent relating to plan references.
- MOD 7 was submitted in May 2024 to DPHI for approval. MOD 7 incorporates operational vehicle access for Warehouses 1 and 9 for use of the left in and left out intersection at Mamre Road with Access Road 1.

This Community Consultation and Complaints Handling Strategy (CCCHS) has been prepared on behalf of the Proponent. Specifically, it details how the Proponent and their contractors will engage and interact with relevant stakeholders and the community. The CCCHS integrates with the Construction Environmental Management Plan (CEMP) and associated suite of documents to provide a comprehensive guide and benchmark for the construction process that aligns with the Development Consent conditions.

### 1.2 Purpose

The CCCHS includes the following key aspects:

- Identification of consultation triggers and methods with adjacent landowners and residents, key stakeholders, relevant agencies, and the wider community





- The tools and actions to be undertaken throughout the construction program to disseminate information through notification of relevant stakeholders
- Enquiry and Complaint management protocols; and
- Monitoring and feedback mechanisms.

The CCCHS will be updated as the Project progresses to account for variations in the construction program and methodology and modifications to SSD-10448, along with changes in stakeholder situation that impacts on stakeholder interests, with these articulated through the feedback mechanisms.

SSD-10448 contains the following conditions of relevance to this CCCHS used to benchmark the contents:

- E17 – Access to Information
- C32 – Environmental Representative
- E3 – Construction Environmental Management Plan

The details of these conditions are identified within Table 1 below, along with a cross reference to the relevant section of this CCCHS.

**Table 1: Relevant Conditions of Consent**

Condition Number	Condition Details	Report Reference
C1	<p>C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> <li>(a) detailed baseline data;</li> <li>(b) details of: <ul style="list-style-type: none"> <li>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>(ii) any relevant limits or performance measures and criteria; and</li> <li>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul> </li> <li>(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</li> <li>(d) a program to monitor and report on the: <ul style="list-style-type: none"> <li>(i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to paragraph (c) above;</li> </ul> </li> <li>(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</li> <li>(f) a program to investigate and implement ways to improve the environmental performance of the development over time;</li> <li>(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);</li> <li>(ii) complaint;</li> <li>(iii) failure to comply with statutory requirements; and (h) a protocol for periodic review of the plan.</li> </ul> </li> </ul>	This Report
E3	<p>As part of the CEMP required under condition E2 of this consent, the Applicant must include the following:</p>	This Report





Condition Number	Condition Details	Report Reference
	... (i) Community Consultation and Complaints Handling.	
C32	The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in condition C31 (including preparation of the ER monthly report), as well as: (a) the complaints register (to be provided on a daily basis); and ...	Section 5.2
E17	At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must: (a) make the following information and documents (as they are obtained or approved) publicly available on its website: (i) the documents referred to in condition C2 of this consent; (ii) all current statutory approvals for the development; (iii) all approved strategies, plans and programs required under the conditions of this consent; (iv) the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged; (v) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; (vi) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; (vii) a summary of the current stage and progress of the development; (viii) contact details to enquire about the development or to make a complaint; (ix) a complaints register, updated monthly; (x) the Compliance Report of the development; (xi) audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report; (xii) any other matter required by the Planning Secretary; and (b) keep such information up to date, to the satisfaction of the Planning Secretary.	Section 4.3.1

### 1.3 Community Communications and Complaints Handling Strategy Scope

The CCCHS applies to works undertaken by the Proponent and their engaged contractors. This CCCHS outlines the method, triggers and timing of consultation, notification and complaints and queries handling required in the course of the construction of the development and arising from the requirements of the relevant consent conditions outlined in Table 1.

### 1.4 Project Description

SSD-10448 was approved on 24 May 2022, granting approval for the Aspect Industrial Estate comprising 11 industrial lots and Stage 1 works for site preparation, construction and use of two warehouse and distribution buildings, stormwater and associated works, internal road network, and signage. The development, as approved under SSD-10448 is outlined in Table 2 below.





**Table 2: Approved Development**

Application Number	Development Description
SSD-10448	<p>Aspect Industrial Estate including:</p> <ul style="list-style-type: none"><li>• a Concept Proposal for the staged development of an industrial estate comprising of 11 buildings with a total GFA of up to 247,990 square metres (m2) for industrial, warehousing and distribution centres, and café uses; and</li><li>• Stage 1 development comprising site preparation works, vegetation clearing, realignment of the existing creek, construction of access roads and eastern half of Mamre Road/ Access Road 1 intersection works, construction, fitout and operation of one warehouse and one industrial building with ancillary offices, car parks, landscaping, signage and a café, construction and operation of services and utilities, and subdivision of the site into three lots.</li></ul>

This CCCHS has been prepared to address all works approved under SSD 10448 including earthworks, infrastructure and built form. All contractors and sub-contractors involved in delivering the project will be required to comply with the approved CCCHS.





Figure 1 below identifies the site masterplan.

**Figure 1: Site Masterplan**





## 2.0 Key Stakeholders and Potential Issues

### 2.1 Key Stakeholders

The key stakeholders likely to require consultation, notification and or likely to raise comment or complaint in the course of the construction of the project include (but are not limited to):

- Adjacent or nearby property owners or occupiers
- Local Council (Penrith City Council)
- State Government Departments, Offices or Agencies, including:
  - Environmental Protection Authority
  - Fire and Rescue NSW
  - NSW Rural Fire Service
  - Transport for New South Wales, including the former Roads and Maritime Services
  - Western Parkland City Authority
  - Western Sydney Airport
  - Western Sydney Planning Partnership
  - Department of Planning and Environment, specifically the:
    - Greater Sydney, Place and Infrastructure, Central Western Team
    - Industry Assessment
    - Environment, Energy and Science Group
    - Natural Resource Access Regulators and Water Group
  - Transport for NSW
  - NSW Rural Fire Service
  - Western City and Aerotropolis Authority
  - Western Sydney Airport
  - Western Sydney Planning Partnership
- Utility and Services Providers, including:
  - TransGrid
  - WaterNSW
  - Endeavour Energy
  - Sydney Water; and
- Other Interested Parties.

### 2.2 Previous Consultation

The Proponent and their representatives have previously undertaken consultation with agencies, the community and stakeholders during the development of the Project.

In response to public notification of the proposal, a total of 18 submissions were received, including one submission from the general public, five submissions from businesses or





organisations, and 12 submissions from government or public authorities. In response to the issues raised, the Proponent revised several plans and consultant reports, which informed a Response to Submissions Report (Urbis, 2021) and Amended Development Report (Urbis, 2022).

For more information, refer to the Department of Planning and Environment's Major Project Assessments webpage at: <https://www.planningportal.nsw.gov.au/major-projects/project/10448>.

Consultation has also been undertaken to date with relevant stakeholders to satisfy conditions of SSD-10448 and to inform the preparation of management plans required under the Consent. Record of this consultation, where relevant is included within the management plans located within the Project CEMP.

## 2.3 Potential Issues and Strategies

The Proponent is committed to ongoing proactive consultation with the community and stakeholders while understanding the importance of addressing potential issues and minimising construction related impacts. Table 3 outlines potential project issues that are likely or known to be of interest or concern to the community and stakeholders. The table also details communications related measures and strategies that the Proponent will undertake to manage and mitigate impacts.

Where an incident or non-compliance arises relating to environmental management and beyond the scope of matters relating to consultation, the CEMP identifies management and mitigation measures to address those matters, with reference to be made to Section 3.5 of the CEMP outlining Incident and Non-Compliance Response and Handling Procedure.

**Table 3: Issue Identification and Mitigation**

Potential Issue	Potential Key Impacts	Mitigation Strategy
Noise, Vibration, and Air Quality	Truck, machinery, and light vehicle movements within, to and from the site, along with civil works have potential to result in negative impacts associated with noise, vibration, and dust.	Sensitive receivers and affected stakeholders will be consulted prior to actions likely to generate high levels of noise or vibration in accordance with Section 4 of this Strategy. Up to date information on current works will be accessible to stakeholders and the wider public on the project web page. Additionally, should any works be likely to generate impacts beyond those identified within the approval's documentation consultation would be undertaken with the applicable managing agency. The CEMP, along with the supporting Construction Noise and Vibration Management Plan and Construction Air Quality Management Plan contain specific measures to manage these impacts. These management plans have been informed by commitments contained within the SSD approvals package, EPA standards and guidelines.
Construction Traffic	A temporary increase in traffic movements may be experienced associated with the import of fill material, the movement of construction machinery to and from the site and the movement of workers light vehicles.	The CEMP and supporting Construction Traffic Management Plan identify specific mechanisms to manage and mitigate these impacts including the development and implementation of a Driver Code of Conduct to be adhered to by all vehicle operators undertaking works in relation to the Site.





Potential Issue	Potential Key Impacts	Mitigation Strategy
Stormwater, Sediment Control, Erosion, Water Quality	High rainfall events could result in localised flooding. Construction could result in impacts to local water quality, associated with sediment laden runoff.	Surrounding sensitive receivers will be consulted with in relation to adjacent works regarding flooding and water quality issues, with these items discussed as they arise via the construction phoneline, in accordance with Section 4 of this Strategy.  The CEMP, along with the supporting Erosion and Sediment Control Plan identify specific mechanisms to manage and mitigate these impacts in accordance with the relevant Penrith City Council standards and commitments within the SSD approvals package.
Waste Management	Earthworks, demolition, and construction waste present at the site during works.	The CEMP and supporting Waste Management Plan identify specific mechanisms to manage and mitigate these impacts.
Removal of Flora and Fauna	The project approval requires the removal of native and exotic flora and fauna to facilitate the development, with the associated potential for impacts on safety of immediately adjacent receivers, along with biodiversity and visual amenity.	Potentially affected receivers would be advised of works with the potential for impact via letter box drop and phone contact (if appropriate) and with these items discussed as they arise via the construction phoneline, in accordance with Section 4 of this Strategy.  The CEMP, along with the supporting Vegetation Management Plan identify specific mechanisms to manage and mitigate these impacts.
Visual Amenity and Privacy	Visual impacts of earthwork and construction activities, along with potential impacts on the privacy of adjacent sensitive receivers.	Potentially affected receivers would be advised of works with the potential for impact via letter box drop and phone contact (if appropriate) and with these items discussed as they arise via the construction phoneline, in accordance with Section 4 of this Strategy.  The CEMP and supporting Vegetation Management Plan identifies specific mechanisms to manage and mitigate these impacts.
Out of Hours Work	The identified impacts could be magnified due to the works being carried out while surrounding receivers are more likely to be home in the early morning/evening, or asleep, with correspondingly lower background noise levels.	Out of hours works to only be undertaken in accordance with Condition D42, where necessary and subject to endorsement from the applicable managing agency (where relevant). Should out of hours work with the potential for impact be proposed the potentially affected receivers would be advised via letter box drop in accordance with Section 4.4 of this Strategy.
Aboriginal Heritage	There is the potential for encountering items of Aboriginal Heritage during excavation.	Monitoring of works by appropriately qualified personnel, along with the implementation of an unexpected finds protocol in consultation with Aboriginal Stakeholders and Heritage Division of the Department of Planning, Industry and Environment  The CEMP identifies specific mechanisms to manage and mitigate these impacts.
Hazardous Goods and Contamination	There is the potential for environmental incidents relating to the hazardous goods and contamination on site during construction.	The CEMP and supporting Unexpected Contamination Procedure identify specific mechanisms to manage and mitigate these impacts.
Misinformation and Misunderstanding	Lack of project awareness within the wider community may result in complaints being raised by those	The CCCHS includes measures at Section 4.3 to provide regular updates in plain language, supported by imagery to stakeholders and the





Potential Issue	Potential Key Impacts	Mitigation Strategy
	<p>unaware of the extent of the approval, with these complaints not directed through the appropriate project hotline.</p> <p>Unauthorised release of project information by the project team to the media, stakeholders or the community has potential to impact on project perception in the community.</p>	<p>wider community through public and private media.</p> <p>Contact details will be provided on site, the project web page and in all information issued. Information on project works, reporting and compliance is to be maintained and updated on the project website.</p>
Emergency Event	<p>Unforeseen emergency with the potential to impact on the community either directly, or indirectly through out of hours activities that may generate additional traffic or noise.</p>	<p>The CCCHS includes measures at Section 4.4 to provide updates in emergency events, with the CEMP identifying specific mechanisms to manage and mitigate these impacts from an environmental management perspective.</p>





### **3.0 Communications and Community Liaison Representative**

The Proponent will nominate a Communications and Community Liaison Representative (CCLR) who will provide the community and stakeholders with a single point of contact for all aspects of the project, responsible for receiving and disseminating information requests and complaints, along with addressing any interface issues. The CCLR will also facilitate property access should it be required.

The CCLR will be available for contact by local residents and the community at all reasonable times to answer any questions and address any concerns relating to the project. The CCLR will have up-to-date information on:

- Emerging stakeholders
- Planned construction activities
- Planned traffic arrangements
- Current landowner discussions with members of staff
- Planned community and stakeholder consultation
- Complaints or enquiries received
- Duties and accountabilities of staff; and
- Commitments to stakeholders made by the Proponent.

The CCLR will be responsible for recording, actioning and providing response to comments, queries or complaints received with relation to the construction of the project and will maintain the Complaints Register, including provision of periodic summary reports to the Environmental Representative in accordance with Section 5.2 of this strategy.

At the time of writing, the contact details for the CCLR are as follows:

- Alanna Ryan – Principal – SLR  
[aryan@slrconsulting.com](mailto:aryan@slrconsulting.com)  
0407 430 453.





## 4.0 Community and Stakeholder Engagement

### 4.1 Objectives

The key objectives of the strategy are to meet the requirements of Condition E3(i) of SSD-10448 and:

- Keep the local community and key stakeholders informed of the progress of works relating to the Project
- Ensure that enquires and complaints received from the community or key stakeholders are addressed and responded to in a timely and effective manner
- Inform relevant parties in advance of potential disturbances and events likely to cause impact
- Be good neighbours and members of the local community throughout the duration of the project's lifespan
- Providing an open two communications channel to allow ongoing, iterative engagement; and
- Seek opportunities for improvement throughout the project.

### 4.2 Conduct

In their communications and consultation with the community and key stakeholders, the Proponent and their representatives will comply at all times with the requirements of the *Privacy and Personal Information Protection Act 1998* (NSW) and the *Privacy Act 1988* (Cth).

### 4.3 Communication, Management and Mitigation Tools

A range of tools and techniques will be used to inform and engage with the community and stakeholders regarding the project. Table 4 below provides an overview of the mechanisms to be utilised to notify and consult with local community and key stakeholders and measures to mitigate potential issues throughout the development.





**Table 4: Communication Management and Mitigation Tools**

Tool/Technique	Description	Person Responsible	Audience	Frequency/Timing	Specification
Consultation Meetings	Meetings held to notify, discuss or consult on matters arising of relevance to community and or key stakeholders. Meetings to be held either face to face or on virtual platform(s)	CCLR	The wider community and key stakeholders.	Meetings to be held on an as needs basis dependant on matters to be discussed and appropriate timing of discussions	Details and matters to be discussed to be tailored to the purpose and aims of the meeting. Record of conversation (informal) or minutes of meeting (formal) to be recorded, retained by the CCLR and provided to all attendees following the meetings. A record of the discussion shall be included in the Complaints Register and actioned as required.
Complaints Register	Recording community and stakeholder interactions (including notification, consultation, queries, comments and complaints), along with associated remedial actions as required.	CCLR	The wider community and key stakeholders.	Project duration	The maintenance of the Complaints Register is required to satisfy the requirements of Condition (E1(g)(ii), E3(i) and E17(ix) of SSD-10448. The register will be continually updated to record community engagement, including information provided by the Proponent, feedback received, and remedial action undertaken where required.
Agency Meetings	Meetings with agencies to discuss matters relevant to their agency	CCLR and/or the Proponent	Relevant Agency	As required.	Meetings will be held as required to address matters relevant to specific agencies including the satisfaction of conditions of consent. These shall be undertaken either directly by the proponent or facilitated by the CCLR at the Proponent's discretion.
Notification Letterbox Drop	Letters would be provided to specific receivers identified as being potentially affected by construction. This may be undertaken in tandem with door knocking.	CCLR	Landowners and occupiers of the immediate area.	As required for the project duration.	Letter box drop details to be recorded in the Complaints Register. Timing of construction activity to be identified along with relevant contact details.
Email and phone	Where agreed to by the stakeholder and contact details provided, contact is made via email, phone and/or text message to notify or respond to query or complaint	CCLR	The wider community and key stakeholders.	As required for the project duration.	With the stakeholders consent, contact details shall be utilised to provide notification or further contact to respond to query or complaint. Recorded contact details are to kept private and used exclusively for the purpose of consultation on the project.





Tool/Technique	Description	Person Responsible	Audience	Frequency/Timing	Specification
On Site Signage	Project information details.	CCLR	Visitors to the site and residents of the immediate area.	Project duration.	Contain key project contact details including the hotline and web page, along with relevant project and safety information.
Project Information and Complaints Number	Phone number to be contacted should information on the project be required or complaint lodged.	CCLR	The wider community and key stakeholders.	Project duration.	Phone number to be included on site signage, the web page and all project information material. Feedback provided to be incorporated into the Complaints Register and actioned as required.
Staff and Visitor Induction and Training	Project information details.	Site Forman and Management Staff	Staff and visitors to the site.	Project duration.	Key project safety information, contact details, emergency procedures and site information.
Toolbox and Prestart Meetings	Project information details.	Site Forman and Management Staff	Staff and visitors to the site.	Project duration.	Task specific safety information, emergency procedures and relevant project updates. All staff and subcontractors to be made aware of external and internal communications procedures
Website	A web page shall be established for the project	The Proponent	The wider community and key stakeholders.	Project duration.	Website address and phone number located on site signage and all project information material. Web page to provide all details outlined in <b>Section 4.3.1</b> below.





### 4.3.1 Project Website

The Proponent will establish a website to be accessible from at least 48 hours prior to commencement of construction until the completion of all works approved under SSD-10448.

The following information will be made available on the website and updated monthly or more frequently when necessary and as required by SSD-10448 Condition E17:

- The documents referred to in Condition C2 of the SSD-10448 consent
- All current statutory approvals for the Development
- All approved strategies, plans and programs required under the conditions of the SSD-10448 consent
- the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged
- Regular reporting on the environmental performance of the Development in accordance with the reporting requirements in any plans or programs approved under the conditions of the SSD-10448 consent
- A comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of the SSD-10448 consent, or any approved plans and programs
- A summary of the current stage and progress of the Development
- Contact details to enquire about the Development or to make a complaint
- A complaints register, updated monthly
- The compliance report of the development
- Audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report; and
- Any other matter required by the Planning Secretary.

## 4.4 Notification Procedure

Where notification is required pursuant to Condition(s) of SSD-10448, notification shall be undertaken within the timeframes outlined within the Consent. Where notification is required due to a potential impact or issue, notification shall be undertaken in accordance with Table 5 below.

**Table 5: Notification of Potential Impact or Issue**

Potential Impact or Issue	Method of Contact/Consultation	Timeframe
High noise generating work	Email, Text Message or Letterbox drop – notifying of expected commencement, duration and affected hours	No less than 24 hours prior to the activity
Vibration intensive activity	Email, Text Message or Letterbox drop – notifying of expected commencement, duration and affected hours	No less than 24 hours prior to the activity
Traffic management disruption	Email, Text Message or Letterbox drop – notifying of expected commencement, duration and affected hours	No less than 24 hours prior to the activity





Potential Impact or Issue	Method of Contact/Consultation	Timeframe
	Variable Message Signs	
Respite offerings	Email or phone calls will be undertaken to determine whether respite is required and appropriate scheduling and duration for respite periods	No less than 24 hours prior to the activity
Emergency Event	Email, Text Message or Letterbox drop – notifying of expected commencement, duration and affected hours	As soon as possible

## 4.5 Complaints Procedure

The Proponent is committed to the timely and effective management of enquiries and complaints relating to construction activities for the project. To this end, the following complaints procedure will be adhered to, enabling the receipt and recording of enquiries and complaints, along with the methods of response and resolution of issues raised.

The complaints handling procedure outlined below and illustrated in Figure 2.

### 4.5.1 Receiving and Recording Enquiries and Complaints

The Proponent will establish a Project email address and nominate a phone number for the receipt of enquiries and complaints relating to the development. The email account will be regularly monitored to receive and respond to customer feedback and enquiries. The phone number will be available for contact from the commencement of works. The CCLR will manage the phonenumber from the commencement of the project until the completion of works. Where calls are received during hours of construction work (including out of hours works) all calls will be answered by the CCLR. Where calls are received outside of hours of construction works the caller will be invited to leave a message. All approaches from the community and stakeholders will be registered in the project's Complaints Register. The facilities established for receiving enquiries and complaints about the project during construction are shown in Table 6.

The contractors induction will include this CCCHS. If a community member approaches a contractor, the contractor is to take the contact details of the complainant and provide this immediately to their supervisor for escalation. The contractor is not to discuss the complaint or propose a response to the complaint. The supervisor will escalate the complaint immediately to Mirvac and the CCLR.

**Table 6: Enquiries and Complaints Facilities**

Facility	Purpose	Detail
Phone number	A contact phone number and associated contact name (the CCLR) for questions/enquiries and the lodgement of complaints relating to the development.	02 4037 3258
Email Address	An email address for questions/enquiries and the lodgement of complaints relating to the development.	<a href="mailto:aryan@slrconsulting.com">aryan@slrconsulting.com</a>
Postal Address	A postal address for the receipt of questions/enquiries and the lodgement of complaints relating to the development.	10 Kings Road New Lambton NSW 2292





Facility	Purpose	Detail
In person verbal	Verbal enquiries and complaints can be made formally during meetings or may be made informally where staff interact with members of the public in informal settings.	Where enquiry or complaint is made face to face to persons other than the CCLR, staff will immediately notify the Contractor's Project Manager who will then contact the CCLR. Record of the conversation (including the recording of contact details with consent) will be made by the staff member and provided to the CCLR immediately

The Proponent has established a Complaints Register to record all complaints and enquiries received by the above means. The Complaints Register will be maintained on a regular basis. The Complaints Register shall include the following details for all complaints or enquiries received:

- Date and time of complaint or enquiry
- Method by which the complaint or enquiry was made
- Name, address, contact telephone number of complainant (if no such details were provided, a note to that effect)
- Nature of complaint or enquiry
- Action taken in response including follow up contact with the complainant
- Any monitoring to confirm that the complaint or enquiry has been satisfactorily resolved; and
- If no action was taken, the reasons why no action was taken by you.

An excerpt of the Complaints Register is included at Appendix A.

#### 4.5.2 Responding to and Resolving Enquiries and Complaints

Where a complaint or enquiry is received the CCLR will attempt to provide an immediate response if possible, via phone or email. Where a complaint or enquiry cannot be responded to immediately the CCLR will assess and prioritise the submission and provide the complainant or enquirer with a follow up verbal response on what action is proposed within two hours during construction works (including night and weekend works) and 24 hours at other times. Where a complaint or enquiry cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant or enquirer within ten days.

In the event of a complaint, the CCLR will assess whether the complaint is founded or unfounded and if necessary, delegate the resolution of the issue to the project manager for action or to the relevant project engineer. The CCLR will oversee the rectification of the issue and respond to the complainant once the issue has been resolved.

In the event of an enquiry, the CCLR will endeavour to provide an immediate response where they are in possession of the relevant information. Where more specific or detailed information is required, the CCLR will liaise with the project manager or relevant project engineer to obtain the information required to respond to the enquiry and provide this information to the enquiring party once in hand.

Where the above protocol is unsuccessful in resolving complaints, mediation may be undertaken at the discretion of the Proponent to facilitate negotiation between affected parties. This shall be performed with the assistance of the ER and potentially via an independent person (mediator) appointed by the Proponent as required.



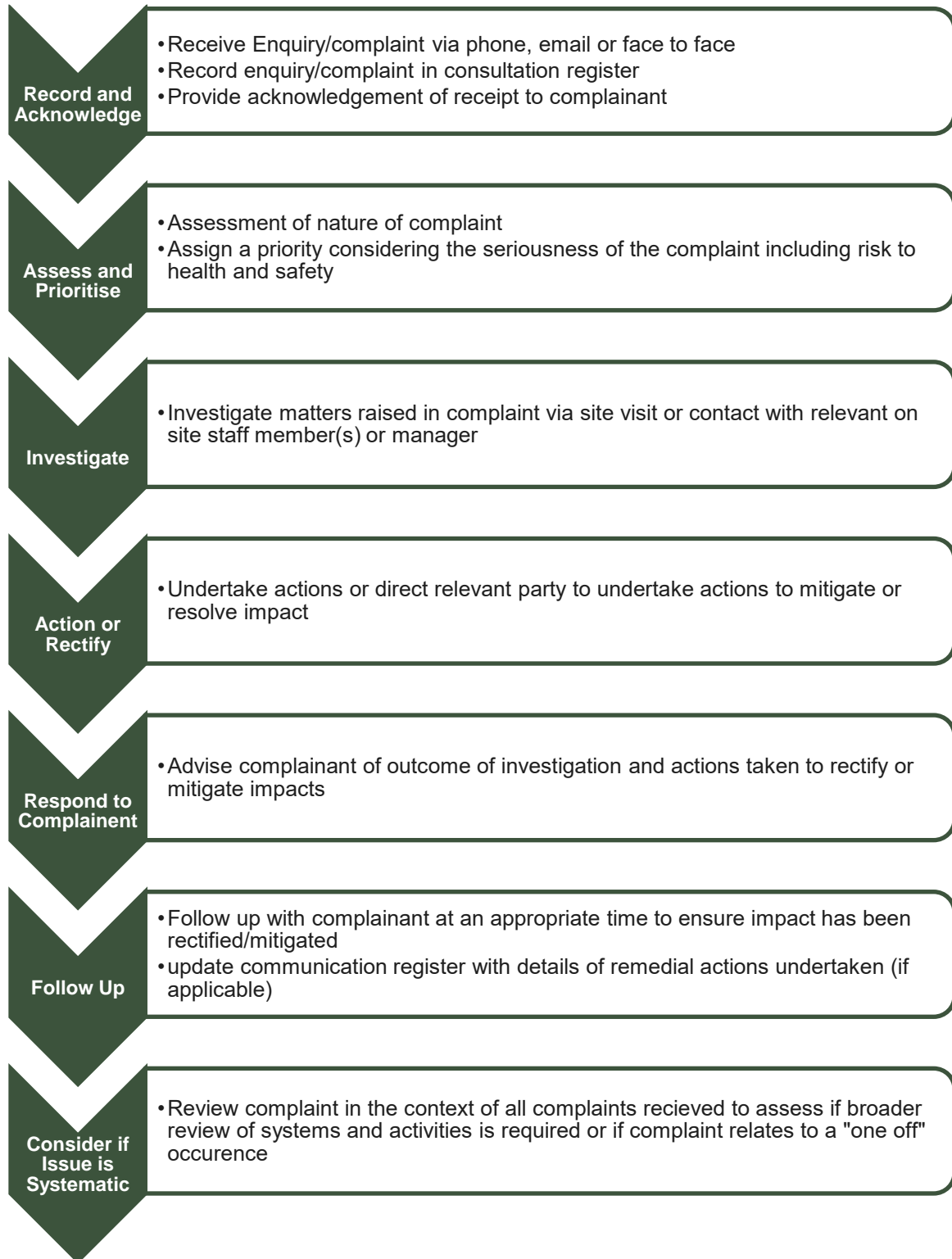


A summary of complaints and enquiries will be provided on a monthly basis to the ER for inclusion in their monthly report, with records made publicly available.





**Figure 2: Complaints Handling Procedure**





### 4.5.3 Unreasonable Complainant Conduct

The NSW Ombudsman provides guidelines which define unreasonable complaint conduct as:

*“...any behaviour by a current or former complainant which, because of its nature or frequency, raises substantial health, safety, resource or equity issues for the parties to a complaint.”*

Whilst it is not envisioned that the project will attract complainants that exhibit this behaviour, where a complainant is seen to potentially have a negative impact on the CCLR or project team’s health, safety, resourcing or equity of service, The Proponent shall adhere to the procedures and practices outlined within the NSW Ombudsman’s *“Managing Unreasonable Complainant Conduct Practice Manual 2nd Edition”*.

## 4.6 Contingency Management Plan

In accordance with Condition E1(e) of the SSD-10448 consent, a contingency management plan has been developed to outline the management of unpredicted impacts and their consequences. Details of these events, their severity and response are detailed in Table 7 below.





**Table 7: Contingency Management Plan**

Key Element	Trigger/Response	Condition Green	Condition Amber	Condition Red
Submission	Trigger	General feedback/comment (no complaint or query).	Enquiry made by formal or informal channels.	Complaint made by formal or informal channels.
	Response	Acknowledge receipt and record in Complaints Register. No further response required.	Acknowledge receipt and record in Complaints Register. Direct enquiry to relevant person for actioning and response within 5 days.	Acknowledge receipt and record in Complaints Register. Respond to complaint immediately if possible, if not direct enquiry to relevant person for actioning and provide complainant with a follow up verbal response on what action is proposed within two hours during construction works (including night and weekend works) and 24 hours at other times.
Media	Trigger	Positive story in print, online, radio or television.	Neutral or advisory story in print, online, radio or television.	Negative story in print, online, radio or television.
	Response	Record in Complaints Register and advise the proponent media/marketing team. No further response required.	Record in Complaints Register and advise the proponent media/marketing team. No further response required.	Record in Complaints Register and advise the proponent Project Team for further action and response. Contact relevant person for actioning and response within 48 hours
Unscheduled Event	Trigger	Event occurring outside of plan or schedule without impact or potential impact.	Event occurring outside of plan or schedule with minor impact or potential impact.	Event occurring outside of plan or schedule with major impact or potential impact.
	Response	No response required. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response within 48 hours. Acknowledge in Complaints Register. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response immediately. Acknowledge in Complaints Register. Identify opportunities for improvement to manage potential future events.
Political Interest	Trigger	General or non-specific enquiry by Local, State or Federal political representative.	Enquiry or complaint relating to minor issue by Local, State or Federal political representative.	Enquiry or complaint relating to major issue by Local, State or Federal political representative.
	Response	Community consultation team in conjunction with The Proponent Project Team to prepare and provide response or assign	Community consultation team in conjunction with the proponent Project Team to prepare and provide response within 48 hours. Record in Complaints Register.	Community consultation team in conjunction with the proponent Project Team to prepare and provide response within 24 hours. Record in Complaints Register.





Key Element	Trigger/Response	Condition Green	Condition Amber	Condition Red
		response task to relevant staff member for comment. Record in Complaints Register.		





## 5.0 Monitoring, Reporting and Evaluation

Monitoring, Reporting and Evaluation will be undertaken to measure the effectiveness of community consultation, stakeholder engagement and responses to complaints and enquiries. Opportunities for improvement will be sought on a continuous basis, with an annual review of the CCCHS undertaken to formalise these incremental improvements.

### 5.1 Monitoring

The performance of this strategy will be monitored monthly based upon an assessment of the following data:

- Total number of monthly complaints
- Review of number of monthly complaints relating to lack of consultation/misinformation/confusion
- Review of number of monthly enquiries relating to information previously disseminated to the community through other channels
- Monthly review of enquiries or complaints of a similar nature or theme indicative of underlying systematic issues with the project or communication strategy; and
- Response timeframes, including initial acknowledgement and the response to enquiries or remediation of issue(s).

The parameters of monitoring and performance criteria are outlined in Table 8: Summary of Monitoring Data below.

**Table 8: Summary of Monitoring Data**

Monitoring Parameter	Rationale	Performance Criteria	Monitoring Frequency
Total number of complaints	The number of complaints received in total is indicative of the community's satisfaction with the project.	A reduction in number of complaints, baseline determined by number of complaints received in preceding months.	Monthly
Number of complaints relating to lack of consultation/misinformation/confusion	Number of complaints relating to lack of consultation/ misinformation/ confusion is indicative of the effectiveness and clarity of communication tools utilized.	A reduction in number of complaints, baseline determined by number of complaints received in preceding month.	Monthly
Number of enquiries relating to information previously disseminated	Number of enquiries relating to information previously disseminated is indicative to the effectiveness of the delivery of information.	A reduction in number of enquiries, baseline determined by number of enquiries received in preceding month.	Monthly
Number of complaints/enquiries within defined categories based on theme or subject	A large number of complaints or enquiries relating to a single issue may be indicative of a systematic issue to be addressed as a priority.	A reduction in number of complaints, baseline determined by number of complaints received in preceding month.	Monthly
Response timeframes	Response to enquiries and complaints should be timely to ensure effective responsiveness and	Enquiries and complaints acknowledged within 48 hours. Urgent enquiries and complaints responded to	Monthly





Monitoring Parameter	Rationale	Performance Criteria	Monitoring Frequency
	rectification of issues and to encourage trust within the community.	within 48 hours of receipt, non-urgent enquiries and complaints responded to within 5 days.	

## 5.2 Reporting

Reporting shall be undertaken directly to the ER, with the Complaints Register to be provided to the approved ER in accordance with Conditions C32(a) of SSD-10448.

A monthly community consultation summary will be made publicly available on the project web page and shall include:

- A summary of community consultation activities undertaken within the preceding month
- A summary of all enquiries and complaints received within the preceding month, including details of response and/or remediation activities.

## 5.3 Evaluation and Review

Review of this strategy shall be undertaken in accordance with the provisions of the project CEMP (SLR, 2021).

Where performance criteria are not being satisfied, review of this strategy and its implementation will be undertaken by the CCLR and changes to the strategy may be made to rectify the short fall. Where systematic issues are identified associated with construction activities, the project manager will be advised and immediate rectification of the issue will be requested.

This strategy will be reviewed in accordance with Condition E8 of SSD-10448 and where necessary updated or revised in accordance with Condition E9 of SSD-10448.





## 6.0 References

- NSW Ombudsman (2012) *Managing Unreasonable Complainant Conduct Practice Manual 2nd Edition*
- SLR Consulting Australia (2024) *Construction Environmental Management Plan*
- Urbis (2020) *Aspect Industrial Estate Environmental Impact Statement*
- Urbis (2021) *Response to Submissions*
- Urbis (2022) *Amended Development Report*







# Appendix A Complaints Register

## Aspect Industrial Estate

### Community Consultation and Complaints Handling Strategy

Mirvac Projects Pty Ltd

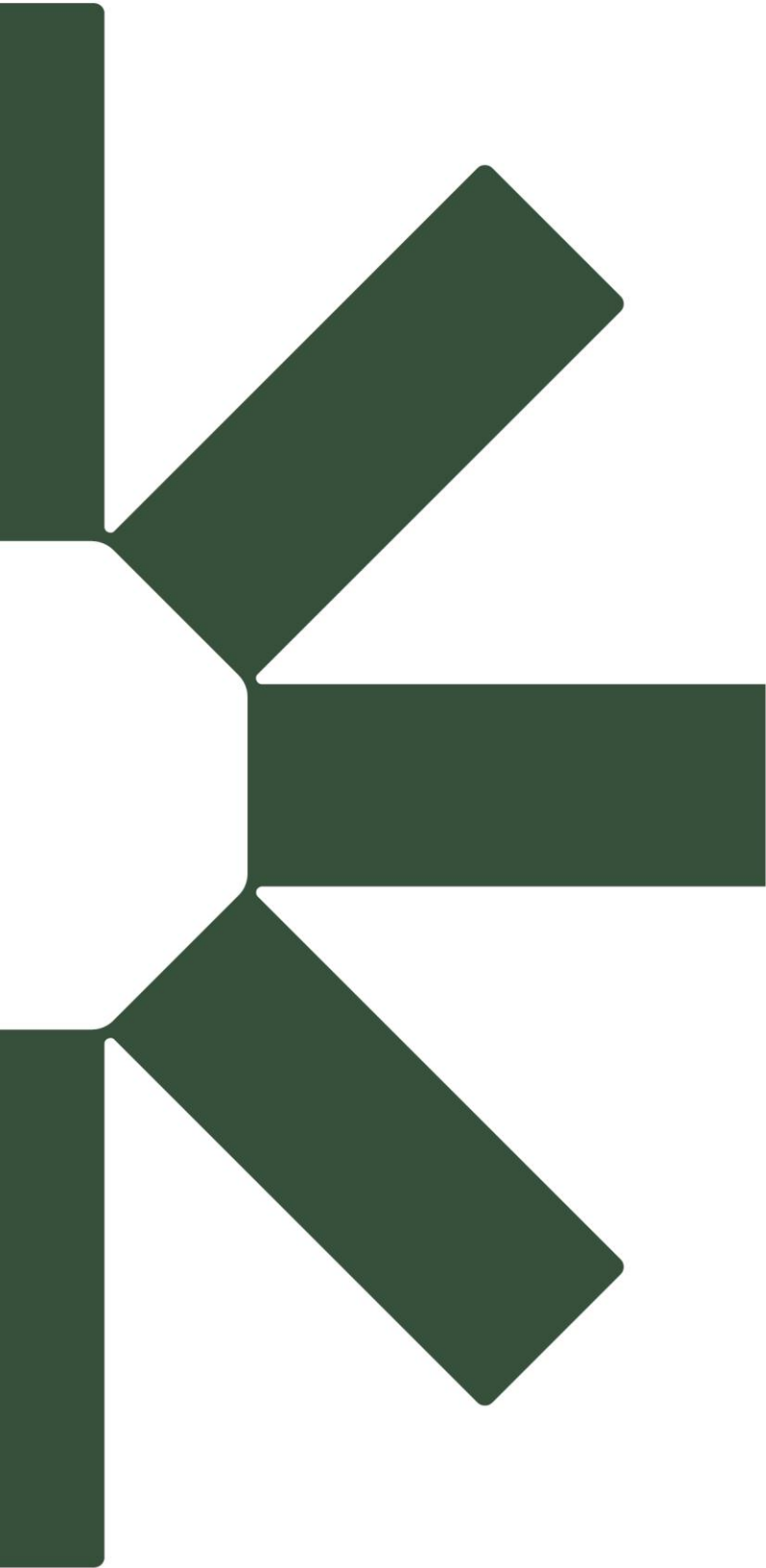
SLR Project No.: 660.v30130.00000

15 July 2024









Making Sustainability Happen





# **Appendix H     Construction Noise and Vibration Management Plan**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



# ASPECT INDUSTRIAL ESTATE

## **SSD-58257960 Warehouse 2 Construction Noise and Vibration Management Plan**

### **Prepared for:**

Mirvac Industrial Developments Pty Ltd  
Level 28  
200 George Street  
Sydney NSW 2000



## EXECUTIVE SUMMARY

### PREPARED BY

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### BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Mirvac Industrial Developments Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

### DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
630.031249.00002-CNVMP-R01-v1.1	29 July 2024	Joshua Ridgway Jason Rasquinha	Mark Irish	Mark Irish
630.031249.00002-CNVMP-R01-v1.0	15 July 2024	Joshua Ridgway Jason Rasquinha	Mark Irish	Mark Irish



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#### APPENDICES

Appendix A: Acoustic terminology



# 1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Mirvac to prepare a Construction Noise and Vibration Management Plan (CNVMP) for construction works associated with the development of Warehouse 2 (the Site) within Aspect Industrial Estate (AIE) located at 788-882 Mamre Road, Kemps Creek, NSW.

This CNVMP addresses the potential noise and vibration impacts associated with the construction of Warehouse 2 and details the mitigation and management procedures for dealing with potential impacts. Construction noise and vibration impacts were previously assessed for the AIE as part of the *Aspect Industrial Estate SSDA Noise and Vibration Impact Assessment* prepared by SLR in February 2021 (SLR report 610.19127-R02-v1.4, hereafter referred to as the Estate NVIA), a CNVMP for AIE prepared by SLR in January 2024 (SLR report 610.19127-CNVMP-R05-v4.1-20240125, hereafter referred to as the Estate CNVMP), and the *Aspect Industrial Estate SSD-58257960 Warehouse 2 Noise Impact Assessment* prepared by SLR in September 2023 (SLR report 610.19127-R12-v2.0, hereafter referred to as the WH2 NIA).

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in **Appendix A**.

SLR is suitably qualified to produce this CNVMP and is a member of the Australian Acoustical Society (AAS). SLR is also a member firm of the Association of Australasian Acoustical Consultants (AAAC). Author qualifications are listed in **Table 1** below:

**Table 1 Author Qualifications**

Name, Role & Division	Qualifications	Experience
<b>Mark Irish</b> Principal Consultant Acoustics and Vibration	MDes Sc BE(Elec) MAAS MIOA	Mark is a team leader at SLR and a Principal Consultant with over 20 years of industry experience. Mark's areas of expertise include building acoustics, planning assessments and the assessment and mitigation of industrial noise impacts. Mark has extensive experience of DA and SSDA assessments and brings detailed knowledge of the NSW planning guidelines relevant to noise and vibration, and a long track record of delivering multi-disciplinary projects on-time and to the required quality expectations.
<b>Joshua Ridgway</b> Associate Consultant Acoustics and Vibration	MDesSc (Audio & Acoustics) DipPM MAAS	Joshua is an Associate Consultant with over 12 years industry experience. Joshua has worked on a broad range of assessments involving field measurements, analysis, modelling, reporting and management of construction and operational impacts from a variety of projects. Joshua has extensive experience in delivering key State Significant Development projects in NSW and brings detailed knowledge of the complexities of assessing and managing construction and industrial noise impacts and a thorough understanding of the regulatory, stakeholder and community expectations for SSDA assessments and noise management plans.



Name, Role & Division	Qualifications	Experience
<b>Jason Rasquinha</b> Senior Consultant Acoustics and Vibration	MArchSc (Audio & Acoustics, High Performance Buildings)	Jason is a Senior Consultant with over 5 years industry experience.  Jason has worked on a range of projects that cover road, construction and industrial noise monitoring, building acoustics design assessments, preparation of construction and operational management plans, and Council and SSDA noise assessments.  Jason has broad experience in acoustics, including extensive experience in attended and unattended noise monitoring, partition, floor and reverberation testing, and noise modelling. Jason currently manages SLR's Sydney equipment inventory.

## 1.1 Procedure for Implementing this CNVMP

This general procedure will be followed in order to implement this CNVMP:

1. Review the requirements of the Development Consent Conditions relevant to construction noise and vibration (refer to **Section 3**), the location of the nearest sensitive receivers (refer to **Section 2.1**) and the applicable Noise Management Levels (NMLs) (refer to **Section 5.2.1**).
2. Prior to commencement of construction phases/activities, confirm the assumptions regarding construction activities/locations/equipment/methodology detailed in **Section 6.1** are accurate and remain valid. Where different methodology or equipment is proposed, further validation of the predicted noise levels will be undertaken in accordance with **Section 6.1.1**.
3. Review the predicted noise levels for the proposed construction activities (refer to **Section 6.3** and any updated assessment undertaken in step 2) to confirm the predicted impacts for each activity.
4. Where the noise impacts are predicted to be:
  - Below the relevant NMLs – undertake best practice noise management measures to minimise noise impacts.
  - Above the NMLs – implement all feasible and reasonable noise mitigation and management measures relevant to that activity (refer to **Section 7.2**) to reduce the impacts (to below the NMLs where possible). Measures considered/implemented must be documented for inclusion in the Construction Contractor's Monthly Report to Mirvac.
  - Above 75 dBA – implement mitigation and management measures for highly noise affected receivers as per **Section 7.2** including consideration of respite periods, duration respite, and alternative accommodation. Consultation with the individual highly noise affected residences must be undertaken to discuss the appropriate mitigation/respite solution for high noise works and must be documented for inclusion in the Construction Contractor's Monthly Report to Mirvac.
5. Review the minimum working distances for vibration intensive plant (refer to **Section 5.4.2**) and the vibration assessment results (refer to **Section 6.4**). Where vibration intensive plant is proposed to be used within the minimum working distances of vibration sensitive structures/receivers implement feasible and reasonable mitigation and management measures as per **Section 7.2**.
6. Undertake noise and/or vibration monitoring in accordance with **Section 7.3**, where required.
7. Where works are required out of the standard construction hours, additional assessment and documentation must be prepared for approval by the Planning Secretary (refer to **Section 6.2**).



8. Resolve any noise/vibration issues during construction works as per the contingency plan (refer to **Section 7.5**), and document and report incidents and complaints as per the requirements in **Section 7.5** and **Section 7.4**, respectively.

## 2 Development Overview

Aspect Industrial Estate (AIE) is legally described as Lots 301 and 305 in DP1305254, and Lots 104 and 105 in DP1305965, with an area of around 56.3 hectares (ha). The AIE is located east of Mamre Road, Kemps Creek, within the Penrith Local Government Area. Warehouse 2 is located on the northern portion of the AIE.

AIE has around 950 m of direct frontage to Mamre Road with a proposed intersection providing vehicular access via Mamre Road to the M4 Motorway and Great Western Highway to the north and Elizabeth Drive to the south.

The AIE is located around 4 km northeast of the future Western Sydney Nancy-Bird Walton Airport, 13 km southeast of the Penrith CBD and 40 km west of the Sydney CBD.

The locations of the AIE and surrounding receivers are shown in **Figure 1**. The approved AIE Masterplan design is shown in **Figure 2** and the approved Warehouse 2 development is shown in **Figure 3**. This CNVMP only concerns the construction of Warehouse 2 shown in **Figure 3**.

It is noted that numerous residences surrounding the development have been demolished or permanently vacated since the preparation of the Estate NVIA. **Figure 1** shows the existing receivers at the time of preparation of this CNVMP, which are included in the assessment of noise and vibration. Demolished/vacated receivers are not included in the assessment.



**Figure 1 AIE Location, Sensitive Receivers Areas and Modelled Buildings**

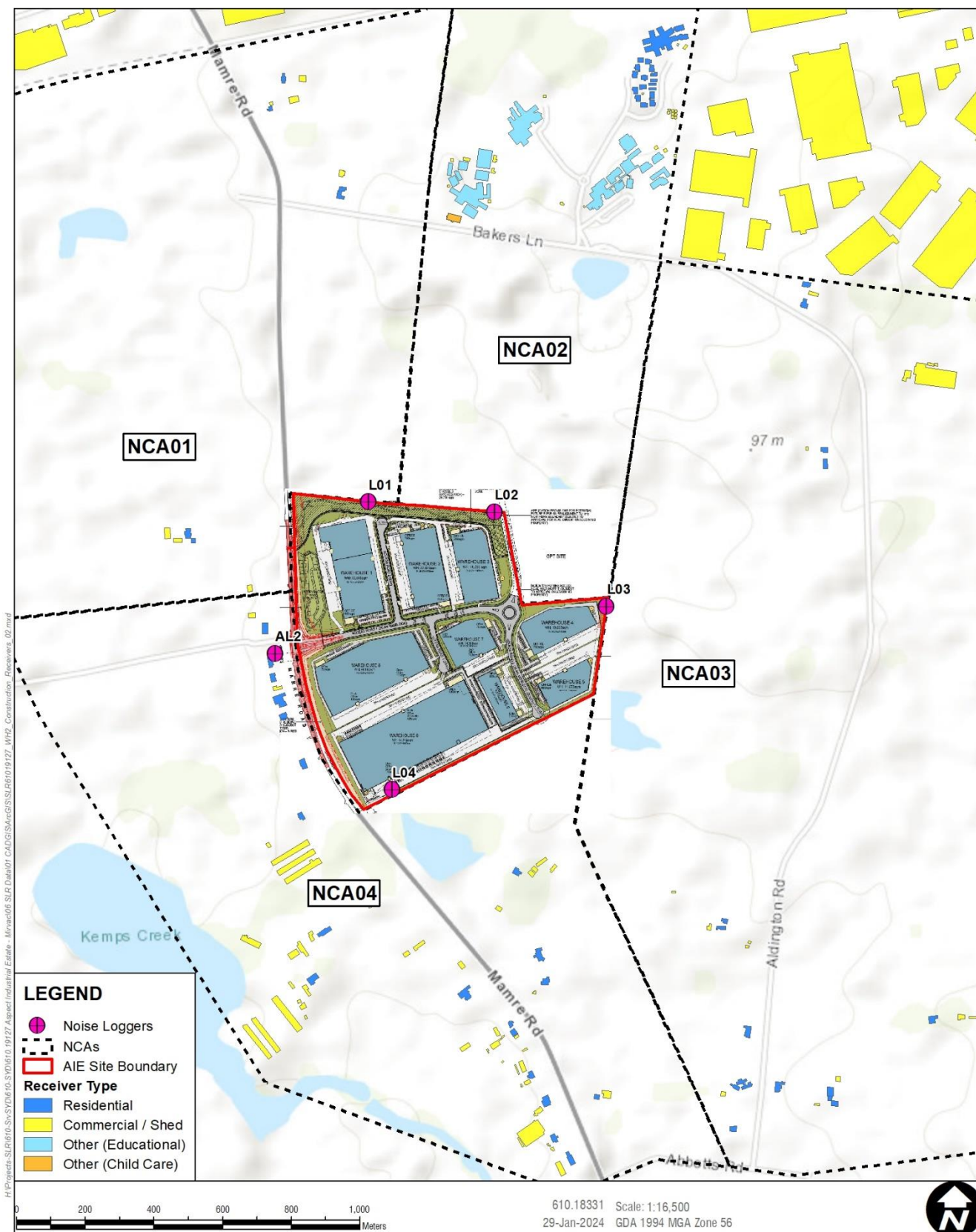




Figure 2 Approved Estate Masterplan

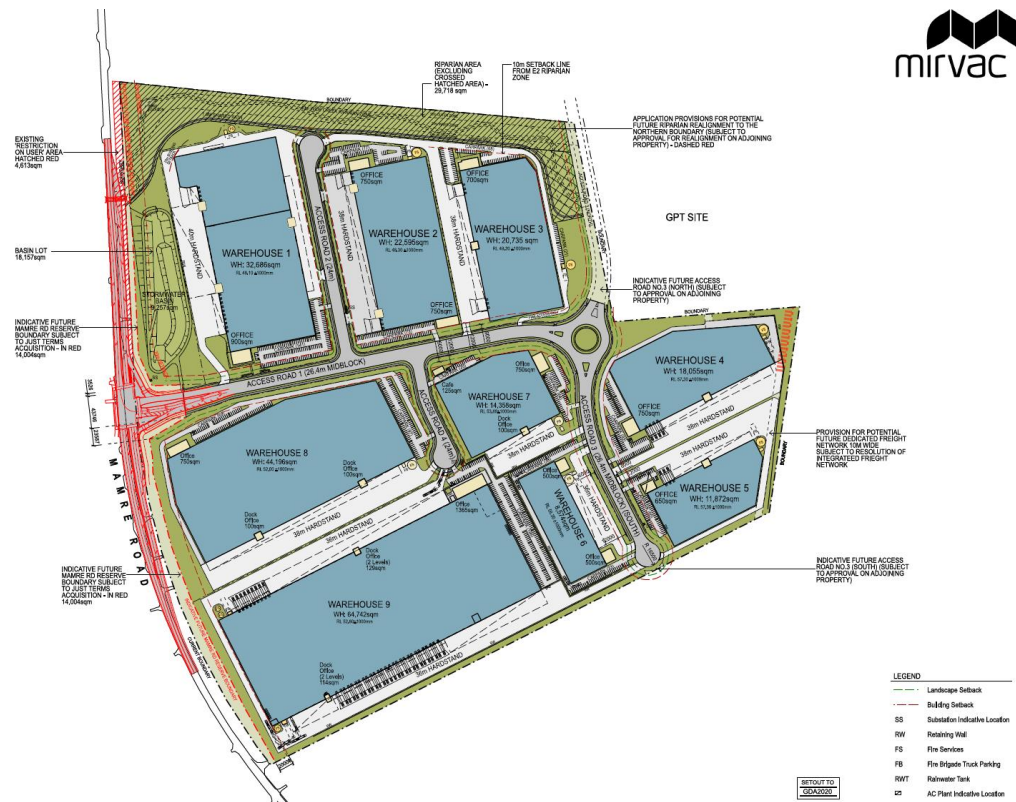
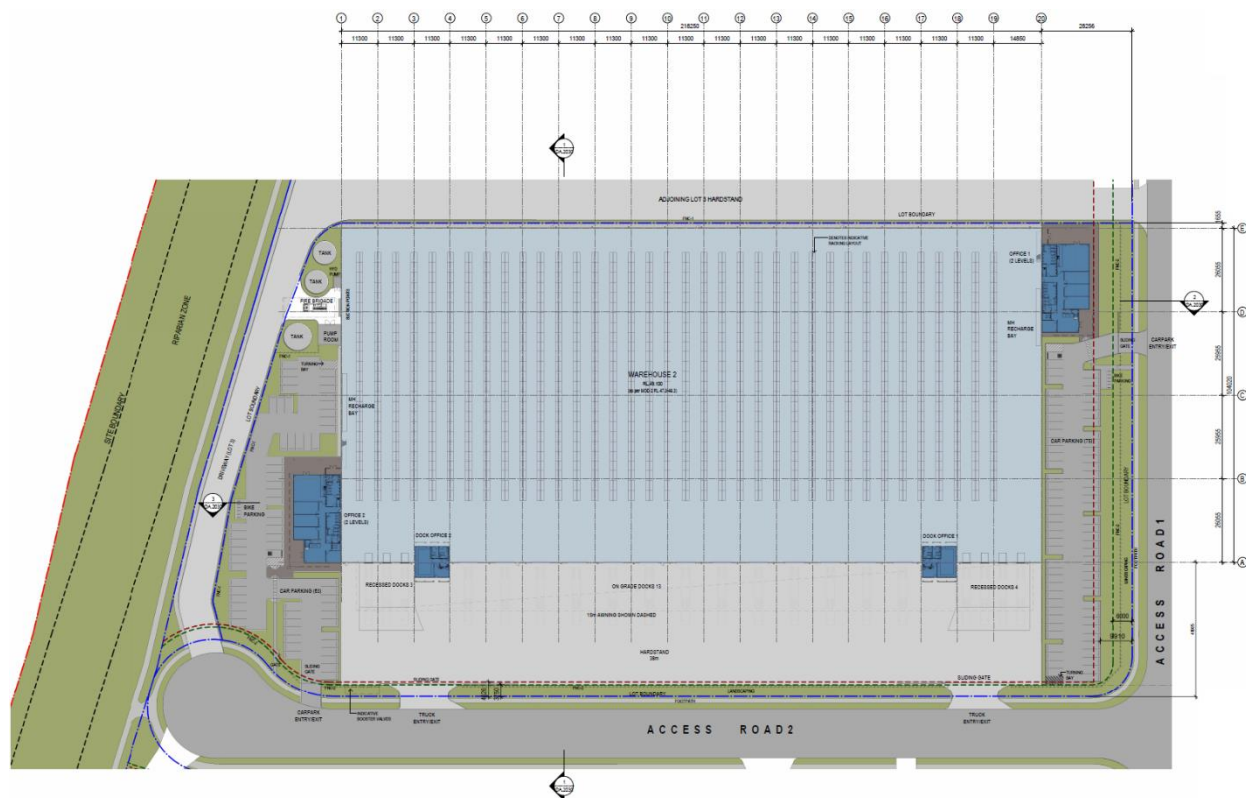


Figure 3 Approved Warehouse 2 Development





## 2.1 Nearest Sensitive Receivers

The area surrounding the AIE has been divided into four Noise Catchment Areas (NCAs). The NCAs group together sensitive receivers with similar existing noise environments.

The NCAs and sensitive receivers in the area around the AIE are detailed in **Table 2** and shown in **Figure 1**.

**Table 2 Sensitive Receivers**

NCA	Direction from AIE	Description
NCA01	Northwest North	<p>This NCA includes one residence to the northwest and several residences to the north of the AIE where the noise environment is influenced by road traffic noise from Mamre Road.</p> <p>The receivers in this NCA are primarily scattered rural residential dwellings with associated commercial/shed structures.</p> <p>The closest residential receiver in this NCA to the Warehouse 2 boundary are around 550 m to the northwest and 950 m to the north.</p> <p>The nearest residences to the north and northeast of the AIE have been demolished and are not included in this assessment.</p>
NCA02	North	<p>This NCA includes receivers to the north of the AIE where the noise environment is less influenced by road traffic noise from Mamre Road. Distant road traffic, natural noises (such as wind and insects), and local traffic on Bakers Lane primarily influence the noise environment in this NCA.</p> <p>The receivers in this NCA include several schools (eg Mamre Anglican School), a childcare centre, and the Emmaus Village residential area, all located to the north of Bakers Lane.</p> <p>The closest residential receivers to the Warehouse 2 boundary (Emmaus Village) are around 1,350 m to the north, with the closest childcare and educational receivers around 850 m to the north.</p> <p>The cluster of receivers close to the northern AIE boundary have been demolished and are not included in this assessment.</p>
NCA03	East	<p>This NCA includes receivers to the northeast and southeast of the AIE where the noise environment is influenced by distant road traffic noise, natural noises (such as wind and insects), and local road traffic on Aldington Road.</p> <p>The receivers in this NCA are primarily scattered rural residential dwellings with associated commercial/shed structures.</p> <p>The closest residential receivers to the Warehouse 2 boundary are around 1,150 m to the northeast and 1,450 m to the southeast. The receivers to the east of the AIE have been demolished and are not included in this assessment.</p>
NCA04	South Southwest West	<p>This NCA includes receivers to the south, southwest and west of the AIE where the noise environment is influenced primarily by road traffic noise from Mamre Road.</p> <p>The receivers in this NCA are primarily scattered rural residential dwellings with associated commercial/shed structures.</p> <p>The closest residential receivers to the Warehouse 2 boundary are around 385 m to the west and around 800 m to the south. The clusters of receivers on the lots adjacent to the southern AIE boundary have been confirmed by the developer of those lots to be vacant with no intention of occupation prior to being demolished and are not included in this assessment.</p>



### 3 Development Consent

This CNVMP has been prepared to accompany the Construction Environmental Management Plan (CEMP) for the construction and fitout of the Site (Warehouse 2).

Development Consent for the project was approved by the Minister for Planning and Public Spaces in SSD-58257960 dated July 2024. The conditions relevant to this CNVMP are reproduced in **Table 3**.

**Table 3 Development Consent Conditions**

Development Consent			Where Addressed								
Operation of Plant and Equipment											
A32. All plant and equipment used on site, or to monitor the performance of the Development, must be: <div><div>a) maintained in a proper and efficient condition; and</div><div>b) operated in a proper and efficient manner.</div></div>			Section 7.2								
Hours of Work											
B28. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary. <i>Table 2 Hours of Work</i> <table><tr><th>Activity</th><th>Day</th><th>Time</th></tr><tr><td rowspan="2">Construction</td><td>Monday – Friday</td><td>7 am to 6 pm</td></tr><tr><td>Saturday</td><td>8 am to 1 pm</td></tr></table>			Activity	Day	Time	Construction	Monday – Friday	7 am to 6 pm	Saturday	8 am to 1 pm	Section 6.2
Activity	Day	Time									
Construction	Monday – Friday	7 am to 6 pm									
	Saturday	8 am to 1 pm									
B29. Work outside of the hours identified in condition B28 may be undertaken in the following circumstances: <div><div>a) works that are inaudible at the nearest sensitive receivers;</div><div>b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or</div><div>c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.</div></div>			Section 6.2								
Construction Noise Limits											
B30. The development must be constructed to achieve the construction noise management levels detailed in the <i>Interim Construction Noise Guideline</i> (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan approved under condition B31.			Sections 1.1, 5.2, 6 & 7								



Development Consent	Where Addressed
<b>Construction Noise management Plan</b>	
<p>B31. The Applicant must prepare a Construction Noise and Vibration Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must:</p> <ul style="list-style-type: none"> <li>a) be prepared by a suitably qualified and experienced noise expert(s);</li> <li>b) describe procedures for achieving the noise management levels in EPA's <i>Interim Construction Noise Guideline</i> (DECC, 2009) (as may be updated or replaced from time to time);</li> <li>c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;</li> <li>d) include strategies that have been developed with the community for managing high noise generating works;</li> <li>e) describe the community consultation undertaken to develop the strategies in condition B31(d); and</li> <li>f) include a complaints management system that would be implemented for the duration of the development.</li> </ul>	<p>This CNVMP</p> <p><b>Section 1</b> <b>Section 1.1</b></p> <p><b>Sections 7</b></p> <p><b>Section 7.4</b></p>
<p>B32. The Applicant must:</p> <ul style="list-style-type: none"> <li>a) not commence construction of the development until the Construction Noise and Vibration Management Plan required by condition B31 is approved by the Planning Secretary; and</li> <li>b) implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of construction.</li> </ul>	<p><b>Section 6.2</b></p> <p><b>Section 8</b></p>
<b>Vibration Criteria</b>	
<p>B35. Vibration caused by construction at any residence or structure outside the site must be limited to:</p> <ul style="list-style-type: none"> <li>a) for structural damage, the latest version of <i>DIN 4150-3:2016-12 Vibration in Buildings – Part 3: Effects on Structures</i> (German Institute for Standardisation, 2016); and</li> <li>b) for human exposure, the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: a technical guideline</i> (DEC, 2006) (as may be updated or replaced from time to time).</li> </ul>	<p><b>Sections 5.4, 6.4, 7.2 &amp; 7.3.2</b></p>
<p>B36. Vibratory compactors must not be used closer than 30 metres from residential or commercial buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B35.</p>	<p><b>Sections 6.4 &amp; 7.2</b></p>
<p>B37. The limits in conditions B35 and B36 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, as approved as part of the CEMP required by condition C2 of this consent.</p>	<p>Conditions B35 and B36 apply.</p>



Development Consent	Where Addressed
<b>Environmental Management</b>	
<p><b>Management Plan Requirements</b></p> <p>C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> <li>a) detailed baseline data;</li> <li>b) details of: <ul style="list-style-type: none"> <li>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>(ii) any relevant limits or performance measures and criteria; and</li> <li>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul> </li> <li>c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</li> <li>d) a program to monitor and report on the: <ul style="list-style-type: none"> <li>(i) impacts and environmental performance of the development; and</li> <li>(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;</li> </ul> </li> <li>e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</li> <li>f) a program to investigate and implement ways to improve the environmental performance of the development over time;</li> <li>g) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);</li> <li>(ii) complaint;</li> <li>(iii) failure to comply with statutory requirements; and</li> </ul> </li> <li>h) a protocol for periodic review of the plan.</li> </ul> <p><i>Note: the Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans</i></p>	<p>This CNVMP</p> <p><b>Section 4</b></p> <p><b>Section 3</b></p> <p><b>Section 5</b></p> <p><b>Sections 6.1.1 &amp; 7</b></p> <p><b>Section 7.2</b></p> <p><b>Section 7.3</b></p> <p><b>Section 7.5</b></p> <p><b>Section 8</b></p> <p><b>Section 7.5</b></p> <p><b>Section 7.4</b></p> <p><b>Section 7.5</b></p> <p><b>Section 8</b></p>



## 4 Existing Environment

Unattended noise monitoring was completed as part of the Estate NVIA in November 2019 and subsequently by the estate construction contractor in July and August 2022 prior to commencement of construction. A summary of the relevant locations is detailed in **Table 4**. The locations are shown on **Figure 1**. Further information regarding the noise monitoring is provided in the Estate CNVMP.

**Table 4 Summary of Ambient Noise Levels**

ID	Address	Measured Noise Levels (dBA)					
		Background Noise (RBL)			Average Noise (LAeq)		
		Day	Evening	Night	Day	Evening	Night
L01	Lot 58 DP259135	39	39	32	50	49	50
L02	Lot 58 DP259135	35	33	32	43	42	43
L03	Lot 56 DP259135	34	33	29	44	41	41
L04	Lot 54 DP259135	39	40	32	52	53	54
AL2	833A Mamre Road	49	43	34	61	57	57

Note 1: The assessment periods are the daytime which is 7 am to 6 pm Monday to Saturday and 8 am to 6 pm on Sundays and public holidays, the evening which is 6 pm to 10 pm, and the night-time which is 10 pm to 7 am on Monday to Saturday and 10 pm to 8 am on Sunday and public holidays. See the NSW EPA *Noise Policy for Industry*.

Note 2: RBL increased to the minimum RBL specified in the NSW EPA *Noise Policy for Industry* (NPfI).

The results at L01 to L04 are used for receivers in NCA01 to NCA04 respectively.

The AL2 results have been adopted for receivers 819, 833A, 833B, 845, 845A, and 859 Mamre Road, where the residences are located a similar distance from Mamre Road. The above additional monitoring has been adopted for these receivers as it is considered to be more representative of these specific receivers than the previous noise monitoring undertaken at L04, which was around twice the distance from Mamre Road as these receivers. L04 is considered representative of all other receivers in NCA04.



## 5 Assessment Criteria

### 5.1 Construction Noise and Vibration Guidelines

The standards and guidelines relevant to the Site are listed in **Table 5**. These guidelines aim to protect the community and environment from excessive noise and vibration impacts during construction of projects.

**Table 5 Construction Noise and Vibration Standards and Guidelines**

Guideline/Policy Name	Where Guideline Used
<i>Interim Construction Noise Guideline</i> (ICNG) (DECC, 2009)	Assessment of airborne noise impacts on sensitive receivers
<i>Construction Noise and Vibration Guideline</i> (CNVG) (Roads and Maritime Services, 2016)	Assessment and management protocols for noise and vibration impacts
<i>Road Noise Policy</i> (RNP) (DECCW, 2011)	Assessment of construction traffic impacts
<i>BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2</i> , BSI, 1993	Assessment of vibration impacts (structural damage) to non-heritage sensitive structures
<i>DIN 4150:Part 3-2016 Structural vibration – Effects of vibration on structures</i> , Deutsches Institute fur Normung, 1999	Screening assessment of vibration impacts (structural damage) to heritage sensitive structures, where the structure is found to be unsound
<i>Assessing Vibration: a technical guideline</i> (DEC, 2006)	Assessment of vibration impacts on sensitive receivers

### 5.2 Interim Construction Noise Guideline

The NSW *Interim Construction Noise Guideline* (ICNG) is used to assess and manage impacts from construction noise on residences and other sensitive land uses in NSW.

The ICNG contains procedures for determining project specific Noise Management Levels (NMLs) for sensitive receivers based on the existing background noise in the area. The 'worst-case' noise levels from construction of a project are predicted and then compared to the NMLs in a 15-minute assessment period to determine the likely impact of the project.

The NMLs are not mandatory limits, however, where construction noise levels are predicted or measured to be above the NMLs, feasible and reasonable work practices to minimise noise emissions are to be investigated.

#### Residential Receivers

The ICNG approach for determining NMLs at residential receivers is shown in **Table 6**.



**Table 6 ICNG NMLs for Residential Receivers**

Time of Day	NML LAeq(15minute)	How to Apply
Standard Construction Hours  Monday to Friday 7:00 am to 6:00 pm  Saturday 8:00 am to 1:00 pm  No work on Sundays or public holidays	Noise affected RBL <sup>1</sup> + 10 dB	<ul style="list-style-type: none"> <li>The noise affected level represents the point above which there may be some community reaction to noise</li> <li>Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level</li> <li>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.</li> </ul>
	Highly Noise Affected 75 dBA	<ul style="list-style-type: none"> <li>The Highly Noise Affected (HNA) level represents the point above which there may be strong community reaction to noise</li> <li>Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours that the very noisy activities can occur, taking into account: <ul style="list-style-type: none"> <li>Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools or mid-morning or mid-afternoon for works near residences)</li> <li>If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.</li> </ul> </li> </ul>
Outside Standard Construction Hours	Noise affected RBL + 5 dB	<ul style="list-style-type: none"> <li>A strong justification would typically be required for works outside the recommended standard hours</li> <li>The proponent should apply all feasible and reasonable work practices to meet the noise affected level</li> <li>Where all feasible and reasonable practises have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.</li> </ul>

Note 1: The RBL is the Rating Background Level and the ICNG refers to the calculation procedures in the NSW *Industrial Noise Policy* (INP). The INP has been superseded by the NSW EPA *Noise Policy for Industry* (NPfi).

### ‘Other Sensitive’ Land Uses and Commercial Receivers

The ICNG NMLs for ‘other sensitive’ non-residential land uses are shown in **Table 7**.

**Table 7 NMLs for ‘Other Sensitive’ Receivers**

Land Use	Noise Management Level LAeq(15minute) (dBA) (Applied when the property is in use)	
	Internal	External
Classrooms at schools and other educational institutions	45	55 <sup>1</sup>
Commercial	-	70

Note 1: It is assumed that these receivers have windows partially open for ventilation which results in internal noise levels being around 10 dB lower than the external noise level.



## Sleep Disturbance

A method for assessing sleep disturbance is contained in the NPfl. Although the NPfl sleep disturbance criteria relates to industrial noise, it is also considered relevant for reviewing potential impacts from construction noise as a screening criterion to identify the need for further assessment. The NPfl notes that a detailed maximum noise level assessment should be undertaken where a project results in night-time noise levels which exceed 52 dBA  $L_{A_{max}}$  or the prevailing background level plus 15 dB, whichever is the greater.

Works will be undertaken during standard daytime construction hours, in accordance with Condition B28. For works required during out of hours periods, and approved under Conditions B28 and B29, the sleep disturbance screening level of night-time RBL plus 15 dB will be applied.

### 5.2.1 NML Summary

The NMLs for the Site have been determined in accordance with the requirements of the ICNG and are shown in **Table 8**. Further information regarding the NMLs is provided in the Estate CNVMP.

**Table 8 Site Specific Noise Management Levels (dBA)**

Receiver Type	NCA	Representative Noise Monitoring Location	NML (LAeq(15minute) – dBA)				Sleep Disturbance Screening Level (LAmax dBA)
			Standard Construction Hours (RBL+10dB)	Out of Hours <sup>4</sup> (RBL+5dB)			
			Daytime	Daytime <sup>3</sup>	Evening	Night-time	Night-time
Residential	NCA01	L01	49	44	44	37	52
Residential	NCA02	L02	45	40	38	37	52
Residential	NCA03	L03	45 <sup>1</sup>	40	38	35	52
819, 833, 845, 859 Mamre Rd	NCA04	AL2	59	54	47	39	52
All other NCA04 Residential		L04	49	44	44 <sup>2</sup>	37	52
Educational	NCA01	n/a	55	55 (when in use)			-
Commercial	Various	n/a	70	70 (when in use)			-

Note 1: RBL increased to the minimum RBL specified in the NPfl.

Note 2: Where the evening RBL is higher than the daytime RBL, the daytime RBL has been used.

Note 3: Daytime out of hours is 7 am to 8 am and 1 pm to 6 pm on Saturday, and 8 am to 6 pm on Sunday and public holidays.

Note 4: In accordance with Condition B28, works will be undertaken during standard daytime construction hours. Where out of hours works are required and are approved under Conditions B28 and B29, the out of hours NMLs apply.

In addition to the above NMLs, residential receivers are considered to be ‘highly noise affected’ if the predicted level exceeds 75 dBA  $L_{Aeq}(15\text{minute})$ .



## 5.3 Construction Road Traffic Noise Guidelines

The potential impacts from construction traffic on public roads are assessed in accordance with the NSW EPA *Road Noise Policy* (RNP).

An initial screening test is first applied to evaluate if existing road traffic noise levels are expected to increase by more than 2.0 dB as a result of construction traffic. Where this is considered likely, further assessment is required using the RNP base criteria shown in **Table 9**.

**Table 9 RNP Criteria for Assessing Construction Vehicles on Public Roads**

Road Category	Type of Project/Land Use	Assessment Criteria (dBA)	
		Daytime (7 am – 10 pm)	Night-time (10 pm – 7 am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	LAeq(15hour) 60 (external)	LAeq(9hour) 55 (external)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	LAeq(1hour) 55 (external)	LAeq(1hour) 50 (external)

The Estate NVIA predicted construction traffic to result in a minimal increase (i.e. less than 2 dB) in the overall traffic noise levels along Mamre Road, which is the sole construction haulage route. As such, construction traffic noise impacts have not been assessed further.

## 5.4 Vibration Guidelines

The effects of vibration from construction work can be divided into three categories:

- Those in which the occupants of buildings are disturbed (**human comfort**). People can sometimes perceive vibration impacts when vibration generating construction work is located close to occupied buildings. Vibration from construction work tends to be intermittent in nature and the EPA's *Assessing Vibration: a technical guideline* (2006) provides criteria for intermittent vibration based on the Vibration Dose Value (VDV), as shown in **Table 10**.
- Those where building contents may be affected (**building contents**). People perceive vibration at levels well below those likely to cause damage to building contents. For most receivers, the human comfort vibration criteria are the most stringent and it is generally not necessary to set separate criteria for vibration effects on typical building contents. Exceptions to this can occur when vibration sensitive equipment, such as electron microscopes or medical imaging equipment, are in buildings near to construction work. No such equipment has been identified in the study area.
- Those where the integrity of the building may be compromised (**structural/cosmetic damage**). If vibration from construction work is sufficiently high, it can cause cosmetic damage to elements of affected buildings. Industry standard cosmetic damage vibration limits are specified in British Standard BS 7385 and German Standard DIN 4150. The limits are shown in **Table 11** and **Table 12**.



**Table 10 Human Comfort Vibration – Vibration Dose Values for Intermittent Vibration**

Building Type	Assessment Period	Vibration Dose Value <sup>1</sup> (m/s <sup>1.75</sup> )	
		Preferred	Maximum
Critical Working Areas (eg operating theatres or laboratories)	Day or night-time	0.10	0.20
Residential	Daytime	0.20	0.40
	Night-time	0.13	0.26
Offices, schools, educational institutions and places of worship	Day or night-time	0.40	0.80
Workshops	Day or night-time	0.80	1.60

Note 1: The VDV accumulates vibration energy over the daytime and night-time assessment periods, and is dependent on the level of vibration as well as the duration.

**Table 11 Cosmetic Damage – BS 7385 Transient Vibration Values for Minimal Risk of Damage**

Group	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures. Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Note 1: Where the dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values may need to be reduced by up to 50%.

**Table 12 Cosmetic Damage – DIN 4150 Guideline Values for Short-term Vibration on Structures**

Group	Type of Structure	Guideline Values Vibration Velocity (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified as Group 1 or 2 <b>and</b> are of great intrinsic value (eg heritage listed buildings)	3	3 to 8	8 to 10	8	20 <sup>1</sup>

Note 1: It may be necessary to lower the relevant guideline value markedly to prevent minor damage.



### 5.4.1 Heritage Buildings or Structures

Heritage listed buildings and structures should be considered on a case-by-case basis but as noted in BS 7385 should not be assumed to be more sensitive to vibration, unless structurally unsound. Where a heritage building is deemed to be sensitive, the more stringent DIN 4150 Group 3 guideline values in **Table 12** can be applied.

No heritage buildings have been identified in the vicinity of the Site.

### 5.4.2 Minimum Working Distances for Vibration Intensive Works

Minimum working distances for typical vibration intensive construction equipment are provided in the CNVG and are shown in **Table 13**. The minimum working distances are for both cosmetic damage (from BS 7385 and DIN 4150) and human comfort (from the NSW EPA *Assessing Vibration: a technical guideline*). They are calculated from empirical data which suggests that where work is further from receivers than the quoted minimum distances then impacts are not considered likely.

**Table 13 Recommended Minimum Working Distances from Vibration Intensive Equipment**

Plant Item	Rating/Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline)
		Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	
Vibratory Roller	<50 kN (1–2 tonne)	5 m	11 m	15 m to 20 m
	<100 kN (2–4 tonne)	6 m	13 m	20 m
	<200 kN (4–6 tonne)	12 m	25 m	40 m
	<300 kN (7–13 tonne)	15 m	31 m	100 m
	>300 kN (13–18 tonne)	20 m	40 m	100 m
	>300 kN (>18 tonne)	25 m	50 m	100 m
Small Hydraulic Hammer	300 kg (5 to 12 t excavator)	2 m	5 m	7 m
Medium Hydraulic Hammer	900 kg (12 to 18 t excavator)	7 m	15 m	23 m
Large Hydraulic Hammer	1,600 kg (18 to 34 t excavator)	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	20 m
Piling Rig – Bored	≤ 800 mm	2 m (nominal)	5 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	2 m

The minimum working distances are indicative and will vary depending on the particular item of equipment and local geotechnical conditions. The distances apply to cosmetic damage of typical buildings under typical geotechnical conditions.



## 6 Construction Noise and Vibration Assessment

### 6.1 Construction Activities

Representative construction scenarios to assess the likely impacts from the various construction phases of the project are detailed the WH2 NIA. These scenarios are detailed in **Table 14**.

**Table 14 WH2 NIA Construction Scenario Descriptions**

Equipment	Total SWL	Concrete Pump	Concrete Truck	Concrete Vibrator	Crane - Mobile (100t)	Dozer	Elevated Working Platform	Excavator (20t)	Front End Loader	Hand Tools	Roller - Vibratory <sup>1</sup>	Truck - Dump	Truck - Flatbed	Water Truck
Sound Power Level		109	109	113	113	116	97	105	112	104	114	110	103	107
Estimated on-time in any 15-minutes		10	15	5	15	10	15	10	10	15	15	10	10	10
Scenario														
Earthworks	119					X		X	X		X	X		X
Construction of pads and hardstands	113	X	X	X										
Construction of structures	114				X		X			X			X	

Note 1: Equipment classed as 'annoying' in the ICNG and requires a 5 dB correction.

Note 2: Sound power level data is taken from the DEFRA Noise Database, RMS *Construction and Vibration Guideline* and TfNSW *Construction Noise and Vibration Strategy*.

#### 6.1.1 Confirmation of Construction Activities Prior to Commencement

Prior to commencement of the construction stages included in **Table 14**, the methodology and equipment will be reviewed and confirmation provided that the assumptions in the CNVMP remain valid. Where different methodology or equipment is proposed, further validation of the predicted noise levels will be undertaken to ensure that the proposed mitigation measures are anticipated to be sufficient.

Where feasible, validation of noise levels during high noise works must be measured in advance of commencement of the works, ie test measurements of the equipment undertaking the works for a short period prior full commencement of the works. For example, measurement for a short period during the daytime of equipment/activities proposed to be undertaken during night works.



## 6.2 Hours of Construction

Construction of the development must not commence until this CNVMP is approved by the Planning Secretary.

Condition B28 requires construction activities to only be undertaken during the following hours, unless otherwise agreed in writing by the Planning Secretary:

- 7:00 am to 6:00 pm, Mondays to Fridays
- 8:00 am to 1:00 pm on Saturdays
- At no time on Sundays or Public Holidays.

Notwithstanding, Condition B29 allows out of hours work to be undertaken in the following circumstances:

- Works that are inaudible at the nearest sensitive receivers
- For the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons
- Where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Works that are inaudible at the nearest receivers would typically be limited to fitout works inside fully enclosed buildings. Where noisier internal works or any external works are required out of hours a construction noise impact statement (CNIS) must be prepared detailing the proposed out of hours works activities, predicted noise and vibration impacts, and proposed mitigation and management measures. CNIS for out of hours works will be provided to the Planning Secretary for approval.

## 6.3 Construction Noise Predictions

The predicted noise levels at the most-affected sensitive receivers surrounding the site are shown in **Table 15** and exceedances of the NMLs are shown in **Table 16**.

The predictions represent a typical worst-case scenario where the equipment in each scenario is working concurrently and the nearest location to each receiver. It is expected that noise levels would frequently be lower than the worst-case levels presented.

**Table 15 Predicted Construction Noise Levels – Standard Daytime Construction Hours**

Receiver	NCA	NML (dBA)	Predicted Noise Level – LAeq(15minute) (dBA)		
			Earthworks	Hardstands	Structures
Residential	NCA01	49	49	43	44
	NCA02	45	43	37	38
	NCA03	45	45	39	40
819, 833, 845, 859 Mamre Rd	NCA04	59	56	50	51
All other NCA04 Residential		49	48	42	43
Other Sensitive	Various	55	47	41	42



**Table 16 Predicted Exceedance at Nearest Receivers – Standard Daytime Construction Hours**

Receiver		NCA	NML (dBA)	Predicted Noise Level – LAeq(15minute) (dBA)		
				Earthworks	Hardstands	Structures
Residential		NCA01	49	-	-	-
		NCA02	45	-	-	-
		NCA03	45	-	-	-
819, 833, 845, 859 Mamre Rd		NCA04	59	-	-	-
All other NCA04 Residential			49	-	-	-
Other Sensitive		Various	55	-	-	-
Legend (NML exceedances)		= Minor to marginal (1 to 10 dB exceedance)		= Moderate (11 to 20 dB exceedance)		= High (>20 dB exceedance)

The above worst-case predictions show the following:

- No exceedances are predicted at any receivers during any of the assessed construction scenarios.
- No residential receivers are predicted to be highly noise affected (>75 dBA).
- Works would only occur during Standard Daytime Construction Hours. There is no expectation that evening or night-time work would be required.

The presented impacts would only be expected to occur when noisy work is being completed close to the site boundaries, relative to each receiver. When work is further from the receiver, or when less noise-intensive equipment is being used, the noise levels would be lower.

While no exceedances of the NMLs are predicted, feasible and reasonable construction noise mitigation measures should be applied to minimise the noise emissions from construction. Construction noise mitigation and management measures are discussed in **Section 7**.

## 6.4 Construction Vibration

Vibration intensive items of plant proposed for use during the construction of the site would include the use of vibratory rollers during 'earthworks'. Offset distances for the vibration intensive equipment have been determined from the CNVG minimum working distances for cosmetic damage and human response (see **Table 13**).

The nearest vibration sensitive receivers are located around 385 m from the Warehouse 2 site boundary, therefore, no receivers are located within the minimum working distances.

Where commercial/industrial buildings are constructed on other lots of the AIE and are operational prior to construction of Warehouse 2, these may be within the minimum working distances for human comfort vibration. This may be applicable to Warehouse 1, Warehouse 3, Warehouse 7 and Warehouse 8.

Vibratory compactors must not be used closer than 30 metres from residential or commercial buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B35.



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Feasible and reasonable construction mitigation measures should be applied where vibration intensive works are proposed to be undertaken within the minimum working distances. Construction noise mitigation and management measures are discussed in **Section 7**.



## 7 Mitigation and Management Measures

The ICNG acknowledges that due to the nature of construction works it is inevitable that there will be impacts where construction is near to sensitive receivers. The worst-case noise impacts during construction of the Site are predicted to be 'low', however, this would likely only occur on an infrequent basis when noise-intensive works are being completed near to receivers. Works are also generally limited to daytime hours only.

All appropriate feasible and reasonable mitigation measures will be applied to the work to minimise the potential impacts, as far as practicable.

Specific receivers eligible for noise mitigation are identified in Figure 7 in Appendix 4 of the Development Consent. These receivers are shown in **Figure 4**. It should be noted that these receivers are not predicted to be impacted by noise or vibration from construction of Warehouse 2.

**Figure 4 Mitigation Eligible Receivers**





As detailed in **Section 6.3**, no high exceedances of the NMLs during daytime standard hours are predicted at any of the surrounding receivers during any of the works and no receivers are predicted to be Highly Noise Affected (>75 dBA). As such, it is considered that there are no high noise generating works near sensitive receivers and consent conditions B31 (d) and (e) do not require specific measures to be implemented. Regardless, community notification has been undertaken in accordance with the Community Communication and Complaints Handling Strategy (refer to the CEMP).

## 7.1 Consultation Undertaken to Date

The consultation activities undertaken to date are summarised below:

- A fact sheet and letterbox drop outlining the key features of the proposal and contact details for feedback was distributed in May 2020 to households on Mamre Road, Bakers Lane and Aldington Road, Kemps Creek.
- A near neighbour information letter was distributed accompanying the fact sheet and letterbox drop.
- Stakeholder notification was provided to members of Council and Government, along with the retirement village, schools and childcare centres in the area.
- An engagement email and phone line was established for feedback arising from the above fact sheets.
- Social media monitoring was undertaken to gather community thoughts, feedback and sentiment regarding the proposal.
- Agency consultation was undertaken with multiple government agencies.
- Responses were provided to agency and stakeholder feedback.

Consultation activities are detailed in full in the *Urbis Mamre Road Rezoning – Engagement Outcomes Report*.

## 7.2 Standard Mitigation and Management Measures

The mitigation and management measures that would be applied to the Site are detailed in **Table 17**.

**Table 17 Environmental Management Controls for Construction Noise and Vibration**

Measure	Person Responsible	Timing / Frequency	Reference / Notes
<b>Project Planning</b>			
Use quieter and less vibration emitting construction methods where feasible and reasonable.	Project Manager	Ongoing	Best practice
Works will be completed during standard daytime construction hours outlined in <b>Section 6.2</b> . Out of hours works will be requested as required with sufficient notification provided to DPE for approval.			
Truck routes to Site will be limited to major roads (refer to CTMP for details of traffic route control measures).			



Measure	Person Responsible	Timing / Frequency	Reference / Notes
Scheduling for High Noise or Vibration Generating Works			
Respite offers will be considered where high-noise works are predicted to exceed 75 dBA for residential receivers. For schools and other sensitive receivers a lower level of 65 dBA will be used to account for the sensitive daytime uses of these receivers. Respite offers will be considered for high-vibration works where the works are undertaken within the human comfort minimum working distances for all receiver types.  Consultation with these receivers will be undertaken to determine appropriate respite periods, such as exam periods for schools.	Project Manager/ Communications and Community Liaison Representative	Ongoing	Best practice
High-noise or vibration generating works will be carried out in continuous blocks no longer than three hours in length, with a minimum respite period of one hour between each block. 'Continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing these works.			
Duration Respite will be considered where it may be beneficial to sensitive receivers to increase the duration of blocks of work or number of consecutive periods in order to complete the works more quickly. The project team will engage with the community where Duration Respite is considered in accordance with the Community Communication Strategy (CCS).			
In addition to respite periods and/or duration respite, temporary relocation measures can be offered to sensitive receivers where high-noise works are predicted to exceed 75 dBA, such as offer of alternative accommodation for high-noise works during out of hours periods.			
Notification detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night-time period, any operational noise benefits from the works (where applicable) and contact telephone numbers will be undertaken in accordance with the CCS.			
Site Layout			
Compounds and worksites will be designed to promote one-way traffic and minimise the need for vehicle reversing.	Project Manager	Ongoing	Best practice
Where practicable, work compounds, parking areas, and equipment and material stockpiles will be positioned away from noise-sensitive locations and take advantage of existing screening from local topography.			
Documentation of how Site layout has been considered to reduce noise impacts must be provided to the Contractor's Project Manager for inclusion in the Monthly Report to Mirvac. This must occur any time there are significant changes to the Site layout.			



Measure	Person Responsible	Timing / Frequency	Reference / Notes
Equipment that is noisy will be started away from sensitive receivers			
Training			
Training will be provided to all personnel on noise and vibration requirements for the Site. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Project Manager	Ongoing	Best practice
Plant and Equipment Source Mitigation			
All plant and equipment must be maintained in a proper and efficient condition, and operated in a proper and efficient manner.	Project Manager	Ongoing	Condition A32
Where practicable, tonal reversing alarms (beepers) will be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements).			Best practice
Noisy equipment will be sited behind structures that act as barriers, or at the greatest distance from the noise-sensitive area. Equipment will be oriented so that noise emissions are directed away from any sensitive areas, where possible.			
Noise generating equipment will be regularly checked and effectively maintained, including checking of hatches/enclosures regularly to ensure that seals are in good condition and doors close properly against seals.			
Noise monitoring spot checks of equipment will be completed to ensure individual items are operating as expected			
Dropping materials from a height will be avoided.			
Loading and unloading will be carried out away from noise sensitive areas, where practicable.			
Trucks will not queue outside residential properties. Truck drivers will avoid compression braking as far as practicable.			
Truck movements will be kept to a minimum, ie trucks are fully loaded on each trip.			
Screening			
Where possible, install purpose-built screening or enclosures will be used around long-term fixed plant that has the potential to impact nearby receivers	Project Manager	Ongoing	Best practice
The layout of the Site will take advantage of existing screening from local topography, where possible. Site huts, maintenance sheds and/or containers will be positioned between noisy equipment and the affected receivers.			
Community Consultation			
Notifications will be provided to the affected community where high impacts are anticipated or where out of hours works are required. Notification will be a minimum of 24 hours.		Ongoing	Best practice



Measure	Person Responsible	Timing / Frequency	Reference / Notes
Where complaints are received, work practices will be reviewed and feasible and reasonable practices implemented to minimise any further impacts. Refer to <b>Section 7.4</b> .	Communications and Community Liaison Representative		
Monitoring			
Noise and/or vibration monitoring will be conducted (as appropriate) when noise/vibration intensive works are being undertaken in close proximity to sensitive receivers.			Best practice
Noise and/or vibration monitoring will be conducted (as appropriate) in response to any complaints received to verify that levels are not substantially above the predicted levels.			
Refer to <b>Section 7.3</b> for full details of monitoring requirements.			
Vibration			
<p>If vibration generating works are required within the minimum cosmetic damage working distances and considered likely to exceed the criteria:</p> <ul style="list-style-type: none"><li>Different construction methods with lower source vibration levels will be investigated and implemented, where feasible</li><li>Attended vibration measurements will be undertaken at the start of the works to determine actual vibration levels at the item. Works will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.</li></ul>	Environmental Coordinator	Ongoing	Best practice
Where works are required within the cosmetic damage minimum working distances, building condition surveys will be completed before and after the works to ensure no cosmetic damage has occurred.			
Vibratory compactors must not be used closer than 30 metres from residential or commercial buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B35.			

## 7.3 Monitoring

### 7.3.1 Construction Noise Monitoring

Attended noise measurements will be undertaken at the start of noise-intensive works to verify the levels do not exceed the NMLs and to check the effectiveness of mitigation and management measures. The contractor will undertake attended noise monitoring for any works where hammering and ripping of hard surfaces such as rock or concrete will be occurring, and also for any out of hours works.

Where feasible, validation of noise levels during high noise works must be measured in advance of commencement of the works, ie test measurements of the equipment undertaking the works for a short period prior full commencement of the works. For example, measurement for a short period during the daytime of equipment/activities proposed to be undertaken during night works.



Attended noise monitoring will also be undertaken in response to any formal complaints. All monitoring will be completed by suitably qualified acoustic specialists. The location and extent of attended monitoring will be determined in consultation with project staff and would be dependent on the activities taking place.

The monitoring will take place during the expected noisiest construction periods and be representative / indicative of the impacts at the potentially affected sensitive receivers.

A noise monitoring report will be prepared after each attended monitoring survey.

All items of acoustic instrumentation utilised will be designed to comply with AS/NZS IEC 61672.1-2019 *Electroacoustics – Sound level meters* (AS IEC 61672) and carry current calibration certificates.

### 7.3.2 Construction Vibration Monitoring

In **Section 6.4** it is identified that the no vibration receivers are located within the minimum working distances. However, where commercial/industrial buildings are constructed on Lots 1, 3, 7 and 8 of the AIE and are operational, prior to construction of Warehouse 2, these may be within the minimum working distances for human comfort vibration.

Where vibration intensive works (such as rockbreaking, vibratory rolling or plate compacting) are required within the minimum working distances of sensitive receivers or structures (refer to **Section 5.4.2**), vibration will be monitored continuously for the duration of works within the minimum working distances.

Attended vibration measurements will be undertaken at the start of vibration intensive works within the minimum working distances to confirm the levels of vibration are below the applicable vibration limits (refer to **Section 5.4**).

Vibration monitors will be installed by an acoustic consultant at the closest points of the sensitive structure to the vibration intensive works to continuously monitor vibration for the duration of the works. Should the works location change, the geophones will be relocated to remain at the closest point of the structure to the works.

The vibration monitoring equipment will have visible and audible alarms installed where operators of equipment can see/hear them:

- A warning vibration level of 2/3 of the applicable vibration limit will trigger a 'warning' alarm if exceeded.
- A 'halt work' alarm will trigger if vibration is measured equal to the applicable vibration limit. Actions to be carried out if the exceedance alarms are triggered are detailed in **Section 7.5**.

Vibration monitoring data will be downloaded and reported at the following timeframes:

- Monthly during works (at a minimum)
- Within one week of an exceedance of the vibration limit alarm level
- Upon completion of vibration monitoring.

All items of vibration instrumentation will be designed to comply with applicable guidelines and carry current calibration certificates.



### 7.3.3 Monitoring Reports

Noise and/or vibration monitoring reports will be provided to the relevant regulatory authorities after review, unless otherwise agreed by the relevant regulatory authorities. Monitoring reports would include the following details, at a minimum:

- Noise/vibration monitoring/measurement locations
- Date, time and length of noise monitoring/measurements
- Weather conditions during the measurements
- Name and position of personnel undertaking measurements
- Construction activities being undertaken during measurements
- Locations of construction equipment and distance from monitoring location
- Measured  $L_{Aeq}$  and  $L_{Amax}$  noise levels during construction works (for each activity) along with a comparison to the predicted noise levels (noise monitoring only)
- Measured  $L_{A90}$  background noise level in absence of the construction works (noise monitoring only)
- Measured vibration levels during construction works (for each activity) along with a comparison to the relevant vibration criteria (vibration monitoring only)
- Measured vibration levels and relevant details of any of exceedance of the warning vibration level or vibration limits (vibration monitoring only)
- Measured background vibration level in absence of the construction works (vibration monitoring only)
- Operator observations noting any extraneous noise/vibration sources or other points of relevance.

Note: A summary of monitoring and reporting is included in Section 5.1 of the CEMP for quick reference.

## 7.4 Complaints Management

Any complaint received in relation to the environmental performance or management of the Site shall be managed and reported in accordance with Section 3.6 of the CEMP



## 7.5 Contingency Plan

The following contingency management plan, shown in **Table 18**, would be used to manage noise and vibration impacts that are higher than expected.

Any incident or non-compliance shall be handled and reported in accordance with Section 3.5 of the CEMP. As detailed in Section 5.1 of the CEMP, all Condition Amber and Condition Red occurrences will be recorded in the Construction Contractor's Monthly Report to Mirvac and discussed during the toolbox talks.

The following events constitute an incident in terms of noise and vibration:

- Trigger of Condition Red for noise impacts during the standard construction hours detailed in Condition B28.
- Any works occurring outside the standard construction hours detailed in Condition B28, where those works do not meet the allowable circumstances defined in Condition B29
- Trigger of Condition Red for vibration impacts at sensitive receivers.

**Table 18 Contingency Management Plan**

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Noise impacts at sensitive receiver locations	Trigger	LAeq(15minute) noise levels do not exceed applicable NMLs	LAeq(15minute) noise levels exceed applicable NMLs	LAeq(15minute) noise levels exceed Highly Noise Affected criteria (75 dBA)
	Response	On-going best practice management measures to minimise noise emissions	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts (aiming to achieve NMLs)	Works exceeding the Highly Noise Affected criteria will be managed in accordance with the strategies for high-noise generating works determined through community consultation, as detailed in <b>Section 7.1</b> and <b>7.2</b> .
Vibration impacts at sensitive receiver locations	Trigger	Vibration intensive works undertaken outside minimum working distance for the specific equipment in use	Vibration intensive works undertaken within minimum working distance for the specific equipment in use	Vibration levels exceed applicable vibration limits
	Response	On-going best practice management measures to minimise vibration emissions	Undertake vibration monitoring for the duration of the works to confirm vibration levels.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below applicable limits. If vibration levels cannot be kept below applicable limits then a different construction method or equipment must be utilised.

Note: This contingency management plan is replicated in Section 5.2 of the CEMP for quick reference.



## 7.6 Roles and Responsibilities

Overall roles and responsibilities relating to the Site are outlined in Section 3.2 of the CEMP. The key responsibilities specifically for noise and vibration management are as follows:

### 7.6.1 Contractor's Project Manager

- Ensuring appropriate resources are available for the implementation of this CNVMP
- Assessing data from inspections and providing project-wide advice to ensure consistent approach and outcomes are achieved
- Providing necessary training for project personnel to cover noise and vibration management
- Reviewing and update of this CNVMP, where necessary
- Commissioning suitably qualified consultants to complete noise and vibration monitoring. Ensuring environmental coordinators appropriately undertake attended noise and vibration measurements required by this CNVMP
- Assessing and (as required) mitigating risks of high noise and vibration levels before commencing works and ensuring that the appropriate controls are implemented
- Ceasing works in the event of excessive noise and vibration generation
- In the event that a noise or vibration complaint is received, implementing the procedure outlined in **Section 7.4**.

### 7.6.2 Environmental Coordinator

- Coordinating noise and/or vibration monitoring program, where required
- Review control measures in accordance with the CNVMP
- Identifying and reporting any high or non-compliant noise and vibration emissions.

### 7.6.3 All Workers on Site

- Observing any noise and vibration emission control instructions and procedures that apply to their work
- Taking action to prevent or minimise noise and vibration emission incidents
- Identifying and reporting noise and vibration emission incidents.



---

## 8 Review and Improvement of Noise Management Plan

Reviews, investigations, and improvements to this plan and the environmental performance shall be undertaken in accordance with Section 6 of the CEMP.

This CNVMP will be reviewed, and if necessary, updated in the following circumstances:

- Significant changes to the equipment, machinery and plant operated within the Site
- Where it is identified via monitoring that the performance of the Site is not meeting the objectives of the CNVMP
- At the request of the relevant regulatory authority or other relevant government agency

All employees and contractors will be informed of any revisions to the CNVMP by Site Management during toolbox talks.

The most recent version of the CNVMP approved by the Planning Secretary will be implemented for the duration of construction works.



# Appendix A:

## Acoustic terminology



### 1. Sound Level or Noise Level

The terms 'sound' and 'noise' are almost interchangeable, except that 'noise' often refers to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure. The human ear responds to changes in sound pressure over a very wide range with the loudest sound pressure to which the human ear can respond being ten million times greater than the softest. The decibel (abbreviated as dB) scale reduces this ratio to a more manageable size by the use of logarithms.

The symbols SPL, L or LP are commonly used to represent Sound Pressure Level. The symbol LA represents A-weighted Sound Pressure Level. The standard reference unit for Sound Pressure Levels expressed in decibels is  $2 \times 10^{-5}$  Pa.

### 2. 'A' Weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an 'A-weighting' filter. This is an electronic filter having a frequency response corresponding approximately to that of human hearing.

People's hearing is most sensitive to sounds at mid frequencies (500 Hz to 4,000 Hz), and less sensitive at lower and higher frequencies. Different sources having the same dBA level generally sound about equally loud.

A change of 1 dB or 2 dB in the level of a sound is difficult for most people to detect, whilst a 3 dB to 5 dB change corresponds to a small but noticeable change in loudness. A 10 dB change corresponds to an approximate doubling or halving in loudness. The table below lists examples of typical noise levels.

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely noisy
110	Grinding on steel	
100	Loud car horn at 3 m	Very noisy
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

Other weightings (eg B, C and D) are less commonly used than A-weighting. Sound Levels measured without any weighting are referred to as 'linear', and the units are expressed as dB(lin) or dB.

### 3. Sound Power Level

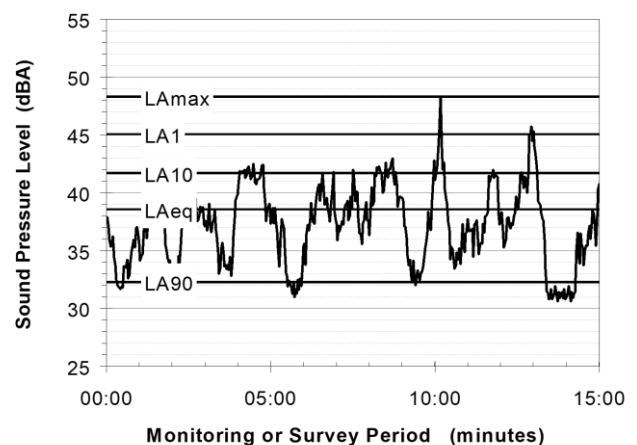
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit  $10^{-12}$  W.

The relationship between Sound Power and Sound Pressure is similar to the effect of an electric radiator, which is characterised by a power rating but has an effect on the surrounding environment that can be measured in terms of a different parameter, temperature.

### 4. Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels LAN, where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

LA1 The noise level exceeded for 1% of the 15 minute interval.

LA10 The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.

LA90 The noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.

LAeq The A-weighted equivalent noise level (basically, the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.

### 5. Frequency Analysis

Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

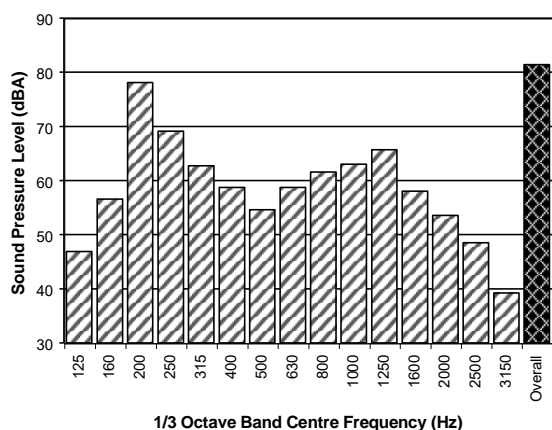
The units for frequency are Hertz (Hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (three bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)



The following figure shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands.



## 6. Annoying Noise (Special Audible Characteristics)

A louder noise will generally be more annoying to nearby receivers than a quieter one. However, noise is often also found to be more annoying and result in larger impacts where the following characteristics are apparent:

- **Tonality** - tonal noise contains one or more prominent tones (ie differences in distinct frequency components between adjoining octave or 1/3 octave bands), and is normally regarded as more annoying than 'broad band' noise.
- **Impulsiveness** - an impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.
- **Intermittency** - intermittent noise varies in level with the change in level being clearly audible. An example would include mechanical plant cycling on and off.
- **Low Frequency Noise** - low frequency noise contains significant energy in the lower frequency bands, which are typically taken to be in the 10 to 160 Hz region.

## 7. Vibration

Vibration may be defined as cyclic or transient motion. This motion can be measured in terms of its displacement, velocity or acceleration. Most assessments of human response to vibration or the risk of damage to buildings use measurements of vibration velocity. These may be expressed in terms of 'peak' velocity or 'rms' velocity.

The former is the maximum instantaneous velocity, without any averaging, and is sometimes referred to as 'peak particle velocity', or PPV. The latter incorporates 'root mean squared' averaging over some defined time period.

Vibration measurements may be carried out in a single axis or alternatively as triaxial measurements (ie vertical, longitudinal and transverse).

The common units for velocity are millimetres per second (mm/s). As with noise, decibel units can also be used, in which case the reference level should always be stated. A vibration level  $V$ , expressed in mm/s can be converted to decibels by the formula  $20 \log (V/V_0)$ , where  $V_0$  is the reference level ( $10^{-9}$  m/s). Care is required in this regard, as other reference levels may be used.

## 8. Human Perception of Vibration

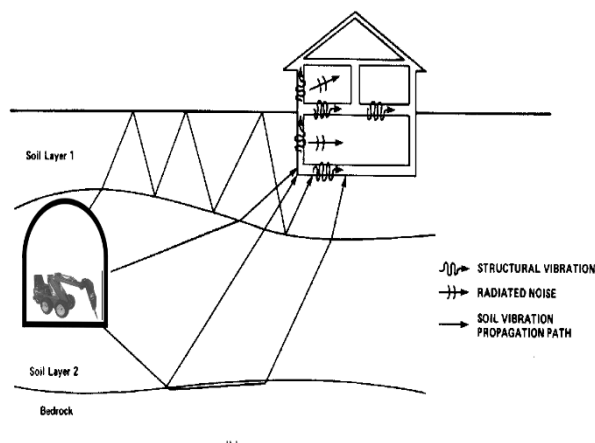
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience and expectations, and on other connotations associated with the perceived source of the vibration. For example, the vibration that a person responds to as 'normal' in a car, bus or train is considerably higher than what is perceived as 'normal' in a shop, office or dwelling.

## 9. Ground-borne Noise, Structure-borne Noise and Regenerated Noise

Noise that propagates through a structure as vibration and is radiated by vibrating wall and floor surfaces is termed 'structure-borne noise', 'ground-borne noise' or 'regenerated noise'. This noise originates as vibration and propagates between the source and receiver through the ground and/or building structural elements, rather than through the air.

Typical sources of ground-borne or structure-borne noise include tunnelling works, underground railways, excavation plant (eg rockbreakers), and building services plant (eg fans, compressors and generators).

The following figure presents an example of the various paths by which vibration and ground-borne noise may be transmitted between a source and receiver for construction activities occurring within a tunnel.



The term 'regenerated noise' is also used in other instances where energy is converted to noise away from the primary source. One example would be a fan blowing air through a discharge grill. The fan is the energy source and primary noise source. Additional noise may be created by the aerodynamic effect of the discharge grill in the airstream. This secondary noise is referred to as regenerated noise.



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# **Appendix I      Construction Air Quality Management Plan**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





# Aspect Industrial Estate – Warehouse 2

## Construction Air Quality Management Plan

### **Mirvac**

Level 28, 200 George Street  
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Prepared by:

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SLR Project No.: 630.031249

31 July 2024

Revision: V1.4



## Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
V1.4	31 July 2024	K Barker	Varun Marwaha	Varun Marwaha
V1.3	29 July 2024	K Barker	Varun Marwaha	Varun Marwaha
V1.2	12 July 2024	K Barker	Varun Marwaha	Varun Marwaha
V1.1	4 July 2024	K Barker	Varun Marwaha	Varun Marwaha
V1.0	13 February 2024	K Barker	Varun Marwaha	Varun Marwaha
	Click to enter a date.			

## Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Mirvac (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.





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## 1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Mirvac to prepare a Construction Air Quality Management Plan (CAQMP) for construction works associated with the development of Warehouse 2 (the Project) within Aspect Industrial Estate (AIE) located at Mamre Road, Kemps Creek, NSW (the Development Site).

The aim of this CAQMP is to address potential air quality impacts on nearby sensitive receivers during the construction works. Objectives of the CAQMP

The objectives of this CAQMP are as follows:

- Maintain acceptable levels of amenity for surrounding receptors;
- Ensure compliance with relevant ambient air quality criteria for particulate matter and deposited dust at surrounding receptors;
- Maintain an effective response mechanism to deal with issues and complaints relating to dust emissions from the construction works;
- Outline air quality management commitments and responsibilities, including air quality compliance monitoring and reporting requirements; and
- Promote environmental awareness among employees and subcontractors.

### SSD 58257960

Mirvac obtained SSD 58257960 on 5 July 2024 from Department of Planning, Housing and Infrastructure (DPHI) for Stage 3 Development for construction and operation of Warehouse 2 (**Figure 1**). The approved works under SSD 58257960 are as follows:

Construction of Warehouse 2:

- 13.7 metres (m) high.
- 22,595 m<sup>2</sup> warehouse.
- 1,500 m<sup>2</sup> office space, across two (2) ancillary offices.
- 200 m<sup>2</sup> loading dock space, across two (2) dock spaces.
- Installation of warehouse racking and office fit outs.
- 138 car parking spaces (63 in the northern car park, 75 in the southern car park).
- On lot landscaping along site frontages and within car parking areas.
- Installation of on-lot infrastructure, including on-lot stormwater and waterway health measures.
- Operation of the warehouse and distribution facility for 24 hours a day, 7 days a week.





Figure 1 Warehouse 2





## 2.0 Statutory Requirements

This CAQMP has been prepared to accompany the Construction Environmental Management Plan (CEMP) for the Development Site.

Development consent for the Project was approved by the Minister for Planning and Public Spaces in SSD 10448 dated [24 May 2022], and SSD 58257960 dated 4 July 2024. The conditions relevant to this CAQMP are reproduced in **Table 1**.

**Table 1 Development Consent Conditions (SSD 10448)**

Development Consent	Where addressed
<b>Dust Minimisation</b>	
<b>Condition D54</b>	
The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 9.0
<b>Condition D55</b>	
During construction, the Applicant must ensure that: (a) exposed surfaces and stockpiles are suppressed by regular watering; (b) all trucks entering or leaving the site with loads have their loads covered; (c) trucks associated with the development do not track dirt onto the public road network; (d) public roads used by these trucks are kept clean; and (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.	<b>Section 9.0</b>
<b>Construction Air Quality Management Plan</b>	
<b>Condition D56</b>	
Prior to commencement of construction, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by Condition E2 and must:	2-page CV of the author is attached in <b>Appendix E</b>
(a) be prepared by a suitably qualified and experienced person(s)	
(b) detail and rank all emissions from all sources of the development, including particulate emissions	<b>Section 7.0</b>
(c) describe a program that is capable of evaluating the performance of the construction and determining compliance with key performance indicators;	<b>Section 11</b>
(d) identify the control measures that will be implemented for each emission source; and	<b>Section 9.0</b>
(e) nominate the following for each of the proposed controls: (i) key performance indicator; (ii) monitoring method; (iii) location, frequency, and duration of monitoring; (iv) record keeping; (v) complaints register; (vi) response procedures; and (vii) compliance monitoring.	<b>Section 5</b> <b>Section 10.0</b> <b>Section 11</b>
<b>Condition D57</b>	
The Applicant must: (a) not commence construction until the CAQMP required by condition D56 is approved by the Planning Secretary; and (b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of the development.	This CAQMP





Development Consent	Where addressed
<b>Odour Management</b>	
<b>Condition D58</b>	
The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).	<b>Section 9.0</b>

**Table 2 Development Consent Conditions (SSD 58257960)**

Development Consent	Where addressed
<b>Dust Minimisation</b>	
<b>Condition B47</b>	
The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	<b>Section 9.0</b>
<b>Condition B48</b>	
During construction, the Applicant must ensure that: (a) exposed surfaces and stockpiles are suppressed by regular watering; (b) all trucks entering or leaving the site with loads have their loads covered; (c) trucks associated with the development do not track dirt onto the public road network; (d) public roads used by these trucks are kept clean; and (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.	<b>Section 9.0</b>
<b>Construction Air Quality Management Plan</b>	
<b>Condition B49</b>	
Prior to commencement of construction, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by Condition C2 and must: (a) be prepared by a suitably qualified and experienced person(s)	2-page CV of the author is attached in <b>Appendix E</b>
(b) detail and rank all emissions from all sources of the development, including particulate emissions	<b>Section 7.0</b>
(c) describe a program that is capable of evaluating the performance of the construction and determining compliance with key performance indicators;	<b>Section 11</b>
(d) identify the control measures that will be implemented for each emission source; and	<b>Section 9.0</b>
(e) nominate the following for each of the proposed controls: (i) key performance indicator; (ii) monitoring method; (iii) location, frequency, and duration of monitoring; (iv) record keeping; (f) include a complaints register, response procedures and compliance monitoring	<b>Section 5</b> <b>Section 10.0</b> <b>Section 11</b>
<b>Condition B50</b>	
The Applicant must: (a) not commence construction until the CAQMP required by condition D56 is approved by the Planning Secretary; and (b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of the development.  <i>Note: The Applicant may update an existing and approved CAQMP for the site to include the development to satisfy the requirements of Condition B49. Any updated CAQMP must be to the satisfaction of the Planning Secretary.</i>	This CAQMP





Development Consent	Where addressed
<b>Odour Management</b>	
<b>Condition B51</b>	
The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).	<b>Section 9.0</b>
<b>Environmental Management</b>	
<b>Condition C1 - Management Plan Requirements</b>	
<p>C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> <li>a) detailed baseline data;</li> <li>b) details of: <ul style="list-style-type: none"> <li>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>(ii) any relevant limits or performance measures and criteria; and</li> <li>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul> </li> <li>c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</li> <li>d) a program to monitor and report on the: <ul style="list-style-type: none"> <li>(i) impacts and environmental performance of the development; and</li> <li>(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;</li> </ul> </li> <li>e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</li> <li>f) a program to investigate and implement ways to improve the environmental performance of the development over time;</li> <li>g) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);</li> <li>(ii) complaint;</li> <li>(iii) failure to comply with statutory requirements; and</li> </ul> </li> <li>h) a protocol for periodic review of the plan.</li> </ul> <p><i>Note: the Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans</i></p>	<p>This CAQMP</p> <p><b>Section 6.2</b></p> <p><b>Section 5.0</b></p> <p><b>Section 12.0</b></p> <p><b>Section 9.0</b></p> <p><b>Section 12.0</b></p> <p><b>Section 13.0</b></p> <p><b>Section 12.0 &amp; 13.0</b></p> <p><b>Section 10.0.</b></p> <p><b>Section 11.0.</b></p> <p><b>Section 13.0</b></p> <p><b>Section 15.0</b></p>

It is noted that the consent conditions in **Table 2** (ie for Warehouse 2) are largely consistent with those prescribed for the Aspect Industrial Estate, as shown in **Table 1**.



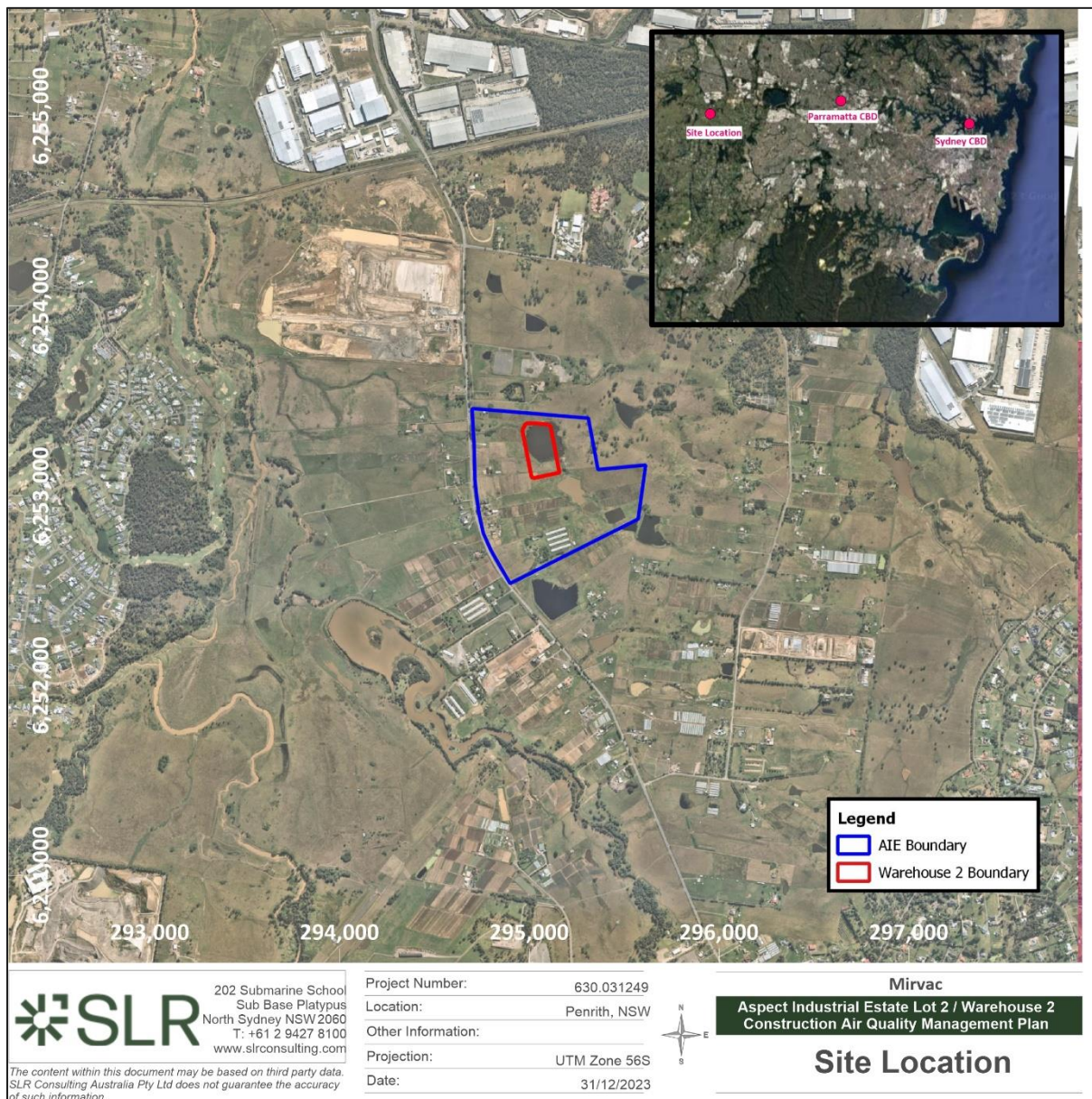


## 3.0 Project Overview

### 3.1 Site Location

AIE is legally described as Lot 301 and 305 in DP1305254 and Lot 104 and 105 in DP1305965, with an area of approximately 56.3 hectares (ha). The Development Site is located east of Mamre Road, Kemps Creek, within the Penrith Local Government Area. Warehouse 2 is located on the northern portion of the site. The Development Site is located approximately 39 kilometres (km) west-northwest of the Sydney Central Business District (CBD) and 20 km west-southwest of the Parramatta CBD. The local setting of the Development Site is shown in **Figure 2**.

**Figure 2 Site Location**

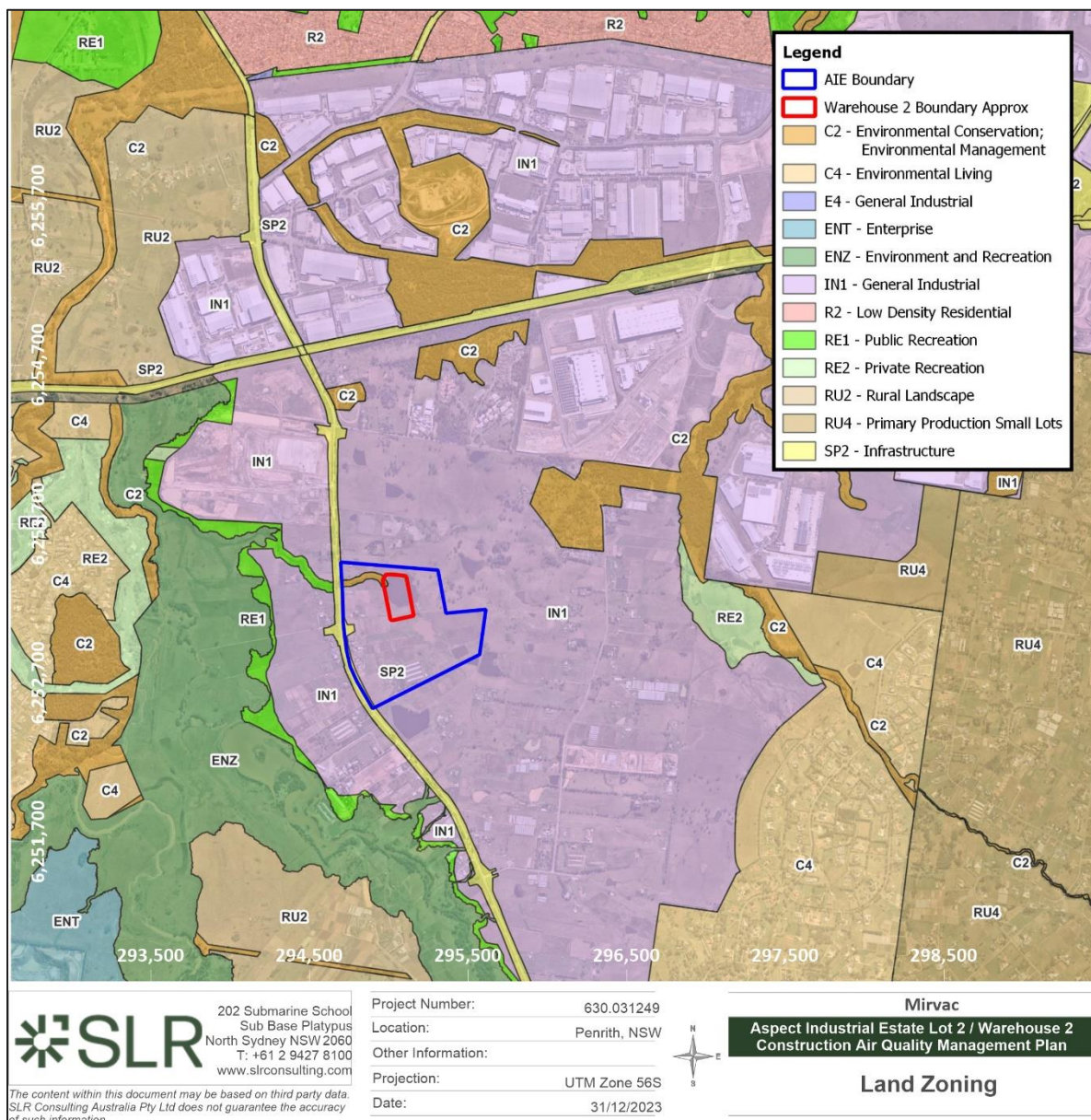




## 3.2 Surrounding Land Uses and Sensitive Receptors

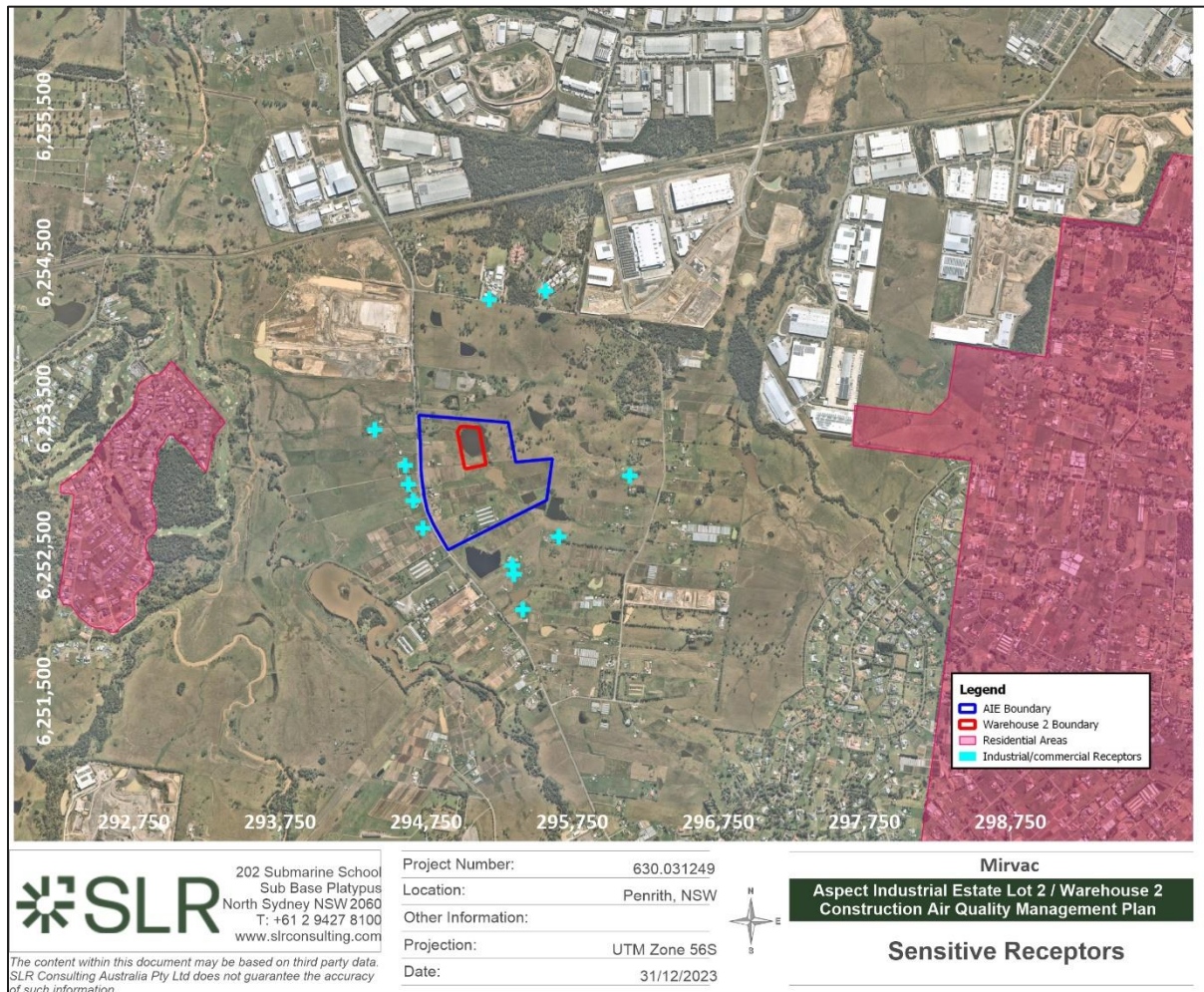
As shown in **Figure 3**, adjacent areas to the north, south, and east of the Development Site are zoned as IN1 (General Industrial) and there are areas zoned as SP2 (Infrastructure) to the west of the Development Site. As shown in **Figure 4**, the nearest industrial/commercial receptors are located approximately 100 m to the west of the AIE Development Site boundary, and approximately 400 m west of the Warehouse 2 boundary including amenities (such as office buildings or workshops) within this zone, where individuals are likely to experience air quality impacts due to construction activities at the Development Site.

**Figure 3 Surrounding Land Uses**





**Figure 4 Surrounding Receptors**



### 3.3 Site Layout

The approved Masterplan (as modified) design is shown in **Figure 5**. This CAQMP only concerns the construction of Warehouse 2 is shown in **Figure 5**, and does not include the works to construct any other infrastructure.





[illegible]

The construction activities at the Development Site are detailed in the CEMP.

Construction hours will be in accordance with Conditions B28 and B29 of Development Consent SSD 58257960 which are reproduced below:

*Table 2 Hours of Work*

Activity	Day	Time
Earthworks and construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm
Operation	Monday – Sunday	24 hours

- a. *works that are inaudible at the nearest sensitive receivers;*
- b. *for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or*



- c. where it is required in an emergency to avoid loss of lives, property or to prevent environmental harm.

It is noted that the construction hours for Warehouse 2 (in conditions B28 and B29 of SSD 58257960) are largely consistent with those prescribed for the Aspect Industrial Estate in conditions D41 and D42 of SSD-10448.

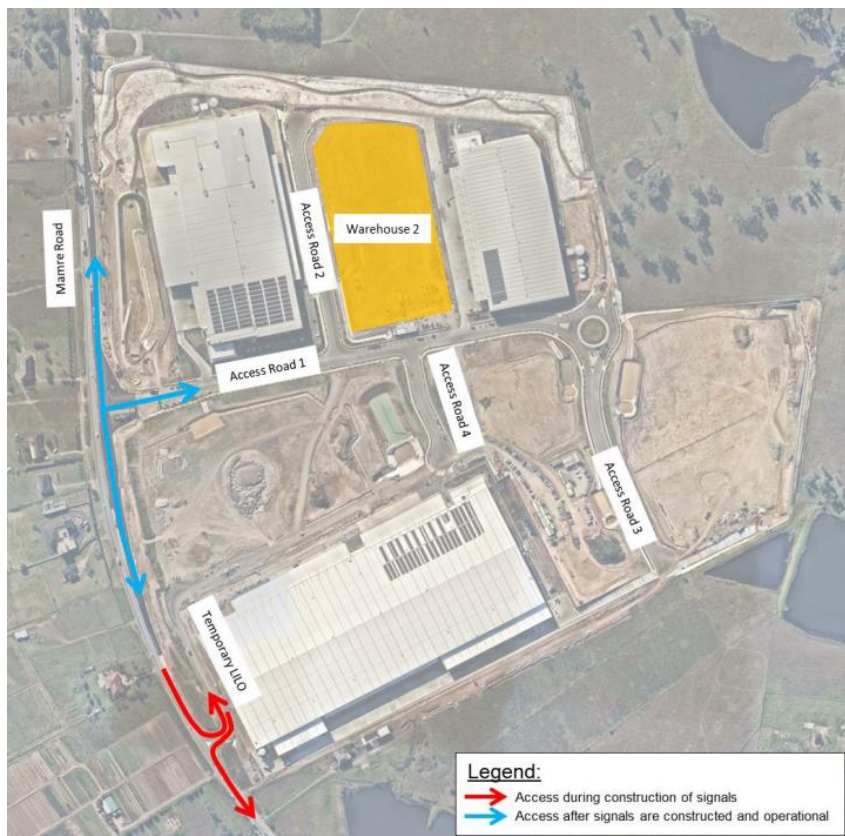
The approved construction hours will be provided to all staff and contractors in their inductions. The movements of staff and contractors will be recorded for this project.

### 3.6 Construction Site Access

As stated in the Construction Traffic Management Plan (Ason 2024), the access to AIE will be via the existing temporary Mamre Road left in/left out (LILO) access road in the south-west corner of the site. This temporary access has been approved under the TfNSW Works Authorisation Deed (WAD) (TfNSW reference: WAD DS2022 / 000659). **Figure 6** shows the layout of the approved access.

As required under Condition of Consent SSD 58257960 Condition B3, Warehouse 2 construction traffic will be restricted in using the Temp LILO until the signalised intersection is constructed and operational. Following the opening (and operation) of the signalised intersection Warehouse 2, construction traffic will be required to use the signalised intersection only. Emergency vehicle access shall be maintained at all times with a dedicated emergency vehicle parking space identified and unoccupied (unless by an emergency vehicle).

**Figure 6 Construction Site Access**



Source: Ason 2024





### 3.7 Construction Contact Details

**Table 3** lists the key contacts during the construction of Warehouse 2.

**Table 3 Construction Contact List**

Role	Name	Company	Contact Details
Project Principal	Meg Horan	Mirvac	0421 843 033 meg.horan@mirvac.com
Contractor's Project Manager	Anne-Kristin Kahra	Texco	0410 986 717 akahra@texco.net.au
Contractor's Environmental Advisor	Andrew Littlewood	Rubicon Enviro Pty Ltd	0429 953 626 andrew@rubiconenviro.com.au
Contractor Work Health and Safety (WHS) Coordinator	Luke Townsend	Texco	0407 469 217 ltownsend@texco.net.au
Project Environmental Representative	Maurice Pignatelli	OptimE Pty Ltd	0407 493 176 maurice@optimenv.com.au
Alternate Project Environmental Representative	Ben Bracken	BBEnviro	0410 409 897 ben.bracken@bbenviro.com.au
Principal's Environmental Consultant (PEC)	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au
Communications and Community Liaison Representative	Alanna Ryan	SLR Consulting	02 4037 3258 aryan@slrconsulting.com





## 4.0 Potential Sources of Air Emissions

The Air Quality Impact Assessment (AQIA) for the construction of the Development Site was prepared by SLR in October 2020 (SLR 2020). As stated in the AQIA, the main emissions to air during the construction phase will be emissions of particulate matter (as TSP, PM<sub>10</sub> and PM<sub>2.5</sub>) and nuisance dust from the following key potential sources that have been identified:

During the construction works, the key potential sources of dust have been identified as:

- Dust emissions from earthworks activities (e.g. excavation and loading of soils to trucks);
- Wind-generated dust from disturbed surfaces and stockpiles;
- Wheel-generated dust and particulate matter emissions in diesel exhaust emissions from on-site plant and equipment and construction traffic movements; and
- Particulate matter associated with exhaust emissions from increased/congested traffic emissions due to road closures or diversions.

In addition to the construction activities being carried out at any point in time, a number of other environmental factors may also affect the generation and dispersion of dust emissions, including:

- Wind direction - determines whether dust and suspended particles are transported in the direction of the sensitive receptors;
- Wind speed - governs the potential suspension and drift resistance of particles;
- Surface type - more erodible surface material types have an increased soil or dust erosion potential;
- Surface material moisture - increased surface material moisture reduces soil or dust erosion potential;
- Other external factors such as current works being undertaken by others outside of the defined Project boundaries and current climatic (dry) weather conditions;
- Rainfall or dew - rainfall or heavy dew that wets the surface of the soil reduces the risk of dust generation.

Potential air quality impacts associated with the proposed construction works, and the relative risk ratings, are addressed in **Section 7.0**.





## 5.0 Relevant Pollutants and Air Quality Criteria

This section outlines the identification of the key performance indicators (KPI) for the Site.

### 5.1 Pollutants of Concern

As identified in **Section 4.0**, potential air pollutants of interest for the construction activities are considered to be:

- Suspended particulate matter;
- Deposited dust; and
- Odour.

The following sections outline the potential health and amenity issues associated with the above pollutants, while **Section 5.2** outlines relevant air quality assessment criteria.

#### 5.1.1 Suspended Particulate Matter

Airborne contaminants that can be inhaled directly into the lungs can be classified on the basis of their physical properties as gases, vapours or particulate matter. In common usage, the terms “dust” and “particulates” are often used interchangeably. The health effects of particulate matter are strongly influenced by the size of the airborne particles. Smaller particles can penetrate further into the respiratory tract, with the smallest particles having a greater impact on human health as they penetrate to the gas exchange areas of the lungs. Larger particles primarily cause nuisance associated with coarse particles settling on surfaces.

The term “total particulate matter” (TSP) refers to a category of airborne particles, typically less than 30 microns ( $\mu\text{m}$ ) in diameter. Particulate matter with an aerodynamic diameter of 10 microns or less is referred to as  $\text{PM}_{10}$ . The  $\text{PM}_{10}$  size fraction is sufficiently small to penetrate the large airways of the lungs, while  $\text{PM}_{2.5}$  (2.5 microns or less) particulates are generally small enough to be drawn in and deposited into the deepest portions of the lungs. Potential adverse health impacts associated with exposure to  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  include increased mortality from cardiovascular and respiratory diseases, chronic obstructive pulmonary disease and heart disease, and reduced lung capacity in asthmatic children. In an urban setting, the emission of  $\text{PM}_{2.5}$  is primarily associated with vehicles exhausts resulting from the incomplete combustion of diesel.

#### 5.1.2 Deposited Dust

**Section 5.1.1** is concerned in large part with the health impacts of particulate matter. Nuisance impacts need also to be considered, mainly in relation to deposited dust. Dust can cause nuisance by settling on surfaces and possessions, affecting visibility and contaminating tank water supplies. High rates of dust deposition can also adversely affect vegetation by blanketing leaf surfaces.

#### 5.1.3 Odour

Odour may be caused by a single pollutant or a complex mixture. Impacts from odorous air contaminants are often nuisance-related rather than health-related. There are various elements that are commonly regarded as combining to cause odour nuisance are collectively known as the FIDOL factors (frequency, intensity, duration, offensiveness, and location or context). Other factors may also come into play when assessing odour impacts, such as population sensitivity, background level, and community expectation.





## 5.2 Ambient Air Quality Criteria

There are no air quality criteria outlined within Development Consent SSD 10448, therefore the NSW EPA criteria have been adopted in **Table 4**.

State air quality guidelines specified by the NSW Environmental Protection Agency (EPA) for the pollutants identified in **Section 5.1** are published in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA 2022) (hereafter 'Approved Methods'). The ground level air quality impact assessment criteria listed in Section 7 of the Approved Methods have been established by NSW EPA to achieve appropriate environmental outcomes and to minimise associated risks to human health as published in the Approved Methods. They have been derived from a range of sources and are the defining ambient air quality criteria for NSW and are considered to be appropriate for use in this assessment.

A summary of the relevant impact assessment criteria for particulate matter is provided in **Table 4**. The relevant criterion for nuisance dust deposition is provided in **Table 4**. The rate of dust deposition is measured by means of a collection gauge, which catches the dust settling over a fixed surface area and over a period of about 30 days.

The NSW EPA Impact Assessment Criteria are the measurable KPI's for PM<sub>10</sub>, PM<sub>2.5</sub>, and deposited dust impacts from the Site.

**Table 4 NSW EPA Impact Assessment Criteria for Particulate Matter and Nuisance Dust**

Pollutant	Averaging Period	Unit	Assessment Criteria
Particulate matter (PM <sub>10</sub> )	24-hours	(µg/m <sup>3</sup> )	50
	Annual		25
Particulate matter (PM <sub>2.5</sub> )	24-hours		25
	Annual		8
Deposited dust	Annual	(g/m <sup>2</sup> /month)	2 (maximum increase in deposited dust level) 4 (maximum total deposited dust level)

Source: (NSW EPA 2022)

Impacts from odorous air contaminants are often nuisance-related rather than health-related. Odour performance goals guide decisions on odour management but are generally not intended to achieve "no odour". Condition D58 of the consent conditions listed in **Section 2.0** requires that development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

The detectability of an odour is a sensory property that refers to the theoretical minimum concentration that produces an olfactory response or sensation. This point is called the *odour threshold* and defines one odour unit (ou). An odour goal of less than 1 OU would theoretically result in no odour impact being experienced.





The NSW EPA recommends within the Technical Framework that, as a design goal, no individual be exposed to ambient odour levels of greater than 7 ou. This is based on experience gained through odour assessments from proposed and existing facilities in NSW indicating that an odour performance goal of 7 ou is likely to represent the level below which “offensive” odours should not occur (for an individual with a ‘standard sensitivity’ to odours). This is expressed as the 99<sup>th</sup> percentile value, as a nose response time average (approximately one second).

A summary of the impact assessment criteria given for various population densities, as drawn from the Approved Methods, is given in **Table 5**. For areas such as that surrounding the Site, the relevant odour impact assessment criterion set by the Approved Methods for complex mixtures of odorous air pollutants is 2 ou (nose-response-time average, 99<sup>th</sup> percentile). As there are no other obvious sources of odour around the Site and the surrounding sensitive receptors are likely to have a high sensitivity to odour, the conservative assumption of a 2 ou criteria for the site will aid in ensuring that development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

**Table 5 NSW EPA Impact Assessment Criteria for Complex Mixtures of Odorous Air Pollutants**

Population of Affected Community (number of receptors)	Impact Assessment Criteria for Complex Mixtures of Odours (ou) (nose-response-time average, 99 <sup>th</sup> percentile)
Urban area ( $\geq 2000$ )	2
~500	3
~125	4
~30	5
~10	6
Single residence ( $\leq 2$ )	7

Source: (NSW EPA 2022)

### 5.3 Local Government Air Quality Toolkit

The NSW EPA has developed the Local Government Air Quality Toolkit (EPA 2018), in response to requests from local Council officers for information and guidance on the common air quality issues they manage. Guidance is available under Part 3 of the Local Government Air Quality Toolkit for Construction Sites, which lists the common sources of emissions, and mitigation and management measures to control airborne dust levels from construction sites and has been consulted in the development of this CAQMP.





## 6.0 Existing Environment

### 6.1 Local Meteorology

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording wind speed and wind direction data is the Horsley Park Automatic Weather Station (AWS) (Station ID 67119), located approximately 5 kilometres (km) southeast of the Development Site. The annual and seasonal wind roses and long-term rainfall patterns observed at the Horsley Park AWS indicate that:

- Winds that would blow fugitive dust emissions from the construction works towards the nearest receptors located to the north, east, and west of the proposed construction activities occur rarely during (less than 8%) of the time.
- The long-term wind and rainfall patterns suggest that construction activities at the Development Site have the greatest potential to impact on surrounding sensitive receptors during the months of May (autumn), and July (winter) to September (spring).

Full analysis of the wind roses and rainfall can be found in **Appendix A**.

### 6.2 Background Air Quality

Air quality monitoring is performed by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) at a number of monitoring stations across NSW. The closest such station with data for the last five years is the St Marys Air Quality Monitoring Station (AQMS), which is located approximately 5.5 km to the northwest of the Development Site. Considering the relatively flat terrain between the Development Site and St Marys AQMS, as well as similar land use surrounding both locations, it is assumed that the air quality monitoring data recorded at the AQMS is a reasonable representation of the air quality experienced at the Development Site. The following relevant air pollutants are monitored at this station:

- Fine particles as PM<sub>10</sub>; and
- Fine particles as PM<sub>2.5</sub>.

A summary of the PM<sub>10</sub> concentrations for the last five years (2019-2023) is tabulated in **Table 6** and presented graphically in **Figure 7** and **Figure 8**.

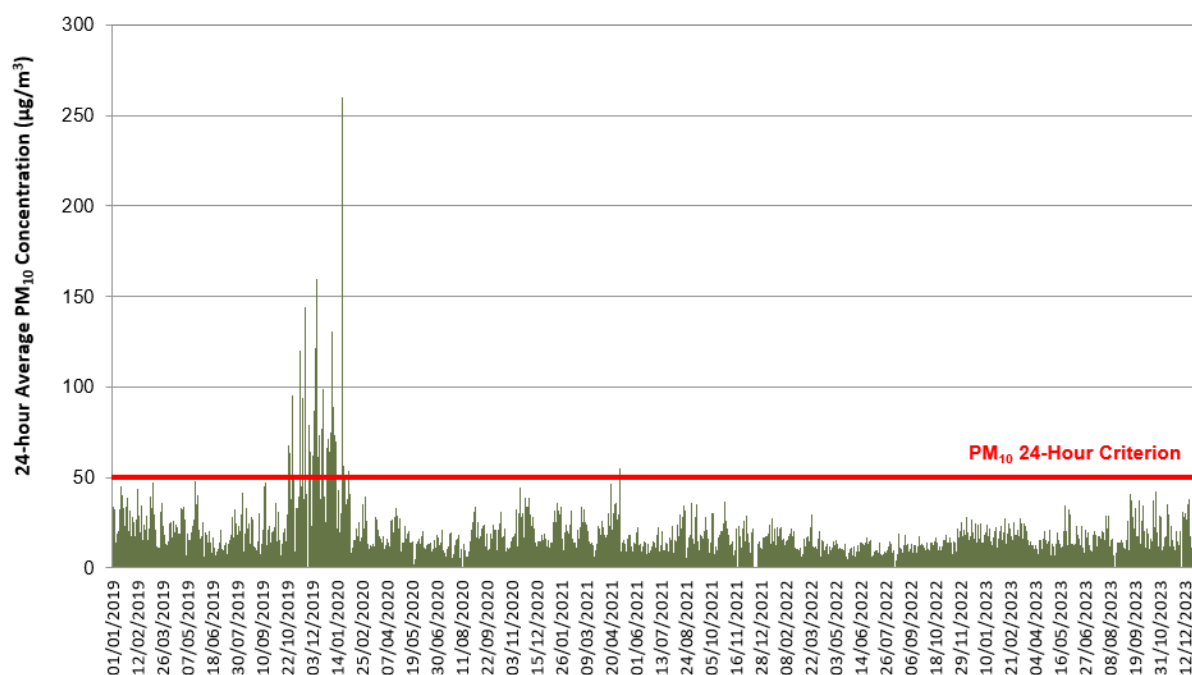
**Table 6 Summary of PM<sub>10</sub> Monitoring Data at St Marys AQMS (2019 – 2023)**

Year	PM <sub>10</sub> (µg/m <sup>3</sup> )			PM <sub>2.5</sub> (µg/m <sup>3</sup> )		
	24-hour	Annual	90 <sup>th</sup> Percentile 24-hour	24-hour	Annual	90 <sup>th</sup> Percentile 24-hour
2019	159.8	24.7	29.4	88.3	9.8	10.5
2020	260.3	18.9		82.5	7.6	
2021	54.9	16.2		40.3	5.8	
2022	29.7	12.0		12.6	3.9	
2023	42.5	15.6		36.8	5.6	
<b>Average</b>	<b>109.4</b>	<b>17.2</b>	--	<b>52.1</b>	<b>6.3</b>	-
<b>Criterion</b>	<b>50</b>	<b>25</b>	-	<b>25</b>	<b>8</b>	-

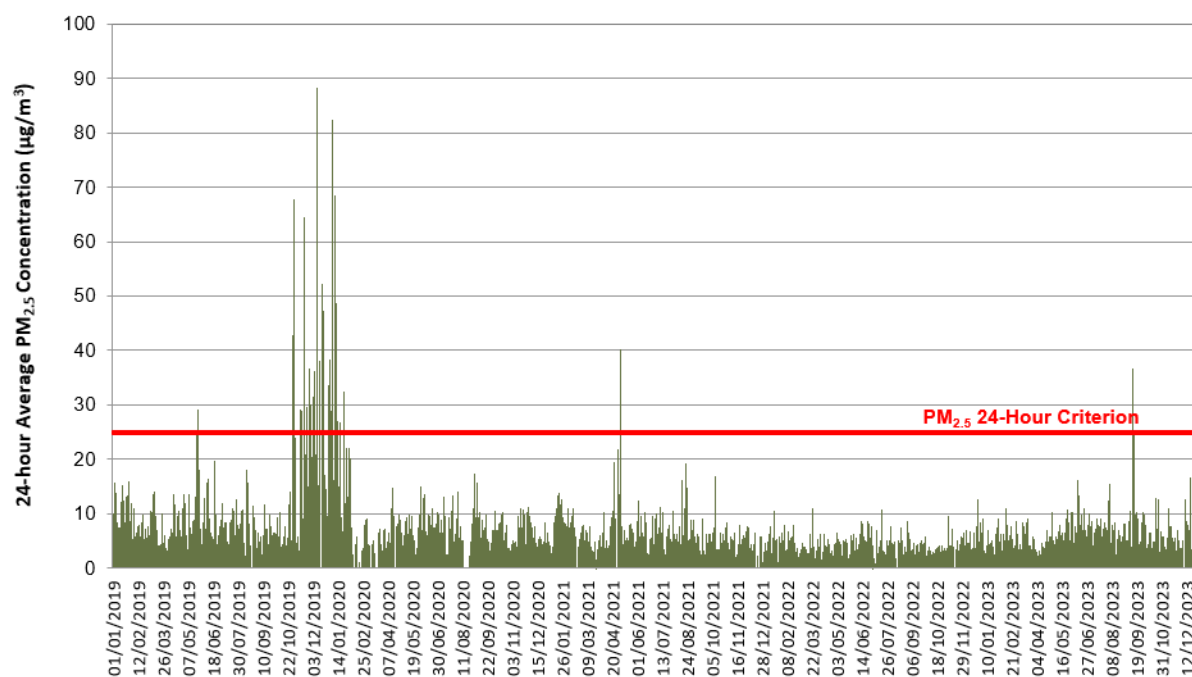




**Figure 7 Measured 24-Hour Average PM<sub>10</sub> Concentrations at St Marys AQMS (2019 – 2023)**



**Figure 8 Measured 24-Hour Average PM<sub>2.5</sub> Concentrations at St Marys AQMS (2019 – 2023)**





A review of the ambient air quality data presented in **Table 6**, **Figure 7**, and **Figure 8** shows that generally, the 24-hour average PM<sub>10</sub> and PM<sub>2.5</sub> concentrations recorded by the St Marys AQMS are below the relevant 24-hour average guidelines, however isolated exceedances (normally on less than ten days per year) have been recorded in most years. The exception to this was the November 2019 to January 2020 period, when unprecedented and extensive bushfires within NSW resulted in an extended period of very elevated particulate concentrations across Sydney that were significantly above the 24-hour average guidelines. A review of the available compliance monitoring reports indicates that the intermittent exceedance days recorded during the other years were also primarily due to exceptional events such as bushfire emergencies, dust storms and hazard reduction burns.

In summary, the St Mary's AQMS data show that background particulate levels in Sydney can be elevated at times. Effective dust mitigation measures therefore need to be implemented during the construction works so that the activities do not contribute to any additional exceedances of air quality criteria in the surrounding area.





## 7.0 Assessment of Dust Emissions during Construction

Potential impacts of dust emissions associated with proposed demolition and construction activities for the entire AIE Development Site was performed in the AQIA (SLR 2020) based on the methodology outlined in the Institute of Air Quality Management (UK) (IAQM) document, “*Assessment of dust from demolition and construction*” (Holmen 2014). This guidance document provides a structured approach for classifying construction sites according to the risk of air quality impacts, to identify relevant mitigation measures appropriate to the risk (see **Appendix B** for full methodology).

The IAQM approach has been used widely in Australia for the assessment of air quality impacts from construction projects and the identification of appropriate mitigation measures, which has been accepted by regulators across all states and territories for a variety of construction projects.

The IAQM method uses a four-step process for assessing dust impacts from construction activities:

- **Step 1:** Screening based on distance to the nearest sensitive receptor; whereby the sensitivity to dust deposition and human health impacts of the identified sensitive receptors is determined.
- **Step 2:** Assess risk of dust effects from activities based on:
  - the scale and nature of the works, which determines the potential dust emission magnitude; and
  - the sensitivity of the area surrounding dust-generating activities.
- **Step 3:** Determine site-specific mitigation for remaining activities with greater than negligible effects.
- **Step 4:** Assess significance of remaining activities after management measures have been considered.

The summary of the risk assessment is provided below (see **Appendix B** for full methodology).

### Risk Assessment Outcome Summary

**Table 7** presents the preliminary risk of air quality impacts from uncontrolled construction activities during the construction works derived using the risk matrix provided in **Table B4** in **Appendix B**, based on the identified receptor sensitivity and sensitivity of the area.





**Table 7 Preliminary Risk of Air Quality Impacts from Construction Activities (Uncontrolled)**

Impact	Sensitivity of Area	Dust Emission Magnitude				Preliminary Risk			
		Demolition	Earthworks	Construction	Trackout	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low	Medium	Large	Large	Large	Low Risk	Low Risk	Low Risk	Low Risk
Human Health	Low					Low Risk	Low Risk	Low Risk	Low Risk

The results indicate that there is a low risk of adverse dust soiling and a low risk of human health impacts occurring at the off-site sensitive receptor locations even if no mitigation measures were to be applied to control emissions during the works.

Based on the dust emission magnitudes and the preliminary risk from these activities, the activities are ranked as (highest risk to lowest risk):

- 1 Demolition
- 2 Earthworks
- 3 Construction
- 4 Track out

For almost all construction activity, the IAQM Methods notes that the aim should be to prevent significant effects on receptors through the use of effective mitigation, and experience shows that this is generally possible.

The outcomes of the previous assessment for the AIE development capture the risk associated with Warehouse 2, however, it is noted that demolition is not required for Warehouse 2. Therefore the ranked risk for Warehouse 2 is as follows:

- 1 Earthworks
- 2 Construction
- 3 Track out





## 8.0 Assessment of Odour Emissions During Construction

To assess the odour nuisance risk, a qualitative odour assessment methodology has been adopted for this assessment. The following broad risk-based approach prescribed by the Institute of Air Quality Management (IAQM 2018) has been adopted:

- **Nature of Impact:** does the impact result in an adverse or beneficial environment?
- **Receptor Sensitivity:** how sensitive is the receiving environment to the anticipated impacts? This may be applied to the sensitivity of the environment in a regional context or specific receptor locations.
- **Magnitude:** what is the anticipated scale of the impact?

The integration of sensitivity with impact magnitude is used to derive the predicted **significance** of that change. Full details of the methodology can be found in **Appendix C**.

In regard to the odour nuisance impacts, by addressing the FIDOL (Frequency, Intensity, Duration, Offensiveness and Location) factors, the potential for odour impacts from this source at the sensitive receptors may be evaluated.

- **Frequency** - the surrounding sensitive receptors located to the north, east, and west of the Site (refer **Section 3.2**) have a low potential to experience odour impacts since no obvious odour sources are available within the AIE Site. Winds that would blow fugitive dust emissions from the construction works towards the nearest receptors located to the north, east, and west of the proposed construction activities occur less than 8% of the time (refer **Appendix A**), therefore there is a **low** likelihood that the surrounding receptors would experience frequent potential odour impacts from the AIE Site.
- **Intensity** – based on the activities within the AIE Site, the odour intensity from is expected to be negligible at the surrounding receptors. Given this, odours from the Site are likely to be of **low** intensity and generally of intermittent nature.
- **Duration** - Given that conducive wind directions only occur approximately 8% of the time, the potential duration of any odour impacts is concluded to be **low**.
- **Offensiveness** – Given the nature of the activities held at the AIE Site, the very low intensity odours that may be detectable beyond the boundary of the Site would be expected to have a **low** level of offensiveness.
- **Location** - the impact of location on the acceptability of odours from the Site has been accounted for by the surrounding receptors sensitivity classifications detailed in **Appendix C (high)**.

Given the above, the potential exposure impact of odour emissions from the Site is considered to be **negligible** (ie Impact is predicted to cause no significant consequences) for the Site (see **Table 8**).





**Table 8 Impact Significance – Odour from AIE Site**

Potential Odour Exposure Impact	Receptor Sensitivity		
	Low	Medium	High
Very Large	Moderate adverse	Substantial adverse	Substantial adverse
Large	Slight adverse	Moderate adverse	Substantial adverse
Medium	Negligible	Slight adverse	Moderate adverse
Small	Negligible	Negligible	Slight adverse
Negligible	Negligible	Negligible	Negligible

In line with the IAQM method, it is concluded that the overall effect is '**negligible**'. Notwithstanding the negligible risk, the mitigation measures are recommended in **Section 9.0**.





## 9.0 Mitigation Measures

As per **Section 7.0**, construction works at the Development Site pose a **low risk** to neighbouring sensitive receptors during earthworks, construction, and trackout phases. Nonetheless, in accordance with best practice construction methodology, and minimise potential for cumulative impacts on local air quality during periods of high background concentrations, a range of dust mitigation measures will be implemented during the construction works to minimise dust emissions.

**Table 9** lists the mitigation measures to be adopted during the construction works.

**Table 9 Site-Specific Dust and Odour Management Measures Recommended**

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Communications			
The Community Communications Strategy will be implemented.	Communications and Community Liaison Representative	Prior to commencing construction and ongoing	Best practice
The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the Contractor's Project Manager.	Construction Contractor		
The head or regional office contact information will be displayed on site signage.			
Site Management			
All dust and air quality incidents will be undertaken as per <b>Section 10.0</b> of this CAQMP.	Construction Contractor	Ongoing	<b>Section 10.0</b> of this document
All dust and air quality complaints will be undertaken as per <b>Section 10.0</b> of this CAQMP.			<b>Section 10.0</b> of this document
Where excessive dust events occur (i.e. prolonged visual dust in a particular area), additional watering of dust producing activities will be undertaken or activities temporarily halted until such times that the dust source is under control.		During excessive dust events	
Horsley Park Bureau of Meteorology station weather forecast will be reviewed daily (i.e. wind, rain) to inform site dust management procedures for the day.	Construction Contractor/Site Supervisor	Daily	Best practice
All daily and weekly records will be maintained in the site environmental observations register (or similar)		As required	
Preparing and Maintaining the Site			
All reasonable steps to minimise dust generated will be undertaken during construction.	Construction Contractor	Ongoing	Best practice





Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.			
Land stabilisation works will be carried out in such a way on site to minimise exposed surfaces.			
Dust generating activities in areas close to receptors will be closely monitored and additional mitigation applied as required to best manage potential dust emissions			
Stockpiles that will be in place for more than 20 days and are not actively used as well as any stockpiles that are susceptible to wind or water erosion will be suitably protected from erosion within 10 days of the establishment of each stockpile.  Temporary stabilisation of disturbed surfaces will be undertaken within two weeks of the stockpile being established.			
Site fencing and barriers will be kept clean using wet methods.			
Operating Vehicle/Machinery and Sustainable Travel			
Trucks associated with construction works will not track dirt off site and onto the public road network.	Construction Contractor	Ongoing	Best practice
Project public roads used by delivery trucks will be kept clean.			
All on-road vehicles will comply with relevant vehicle emission standards (prescribed by the NSW TfNSW), where applicable, and will be maintained in good condition, in accordance with manufacturer's specifications and POEO Act.			
Delivery trucks will switch off engines whilst undertaking a delivery on-site, if idling time is likely to exceed 5 minutes.			
Vehicle speed limit restrictions are implemented on site, including: General - 20km/h High risk area - 10km/h Haul routes – 50 km/h			
Truck queuing and unnecessary trips will be minimised through logistical planning and by the identification and use of specific park up/hold areas away from the Project.			
All vehicle maintenance records will be maintained in the site vehicles register (or similar)			





Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
General Construction Operations			
Only cutting, grinding or sawing equipment fitted with suitable dust suppression systems, such as water sprays will be used.	Construction Contractor	Ongoing	Best practice
Adequate water supply will be available on the site for effective dust/particulate matter suppression/ mitigation using a combination of potable and non-potable water sources.			
Water carts will be used on all denuded or exposed surfaces and unsealed roads to minimise dust emissions.	Construction Contractor	Ongoing	
Equipment, inclusive of, but not limited to Environmental spill kits will be readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.			
Works will be assessed during strong winds or in weather conditions where high levels of airborne particulates may potentially impact the sensitive receivers.  Continual monitoring of wind speed and direction will be undertaken to guide this decision and ensure that adequate mitigation measures are undertaken		Continuously and during high winds	
Waste Management			
All trucks entering or leaving the Site will have their loads covered.	Construction Contractor	Ongoing	Best practice
No waste materials, timbers or any other combustible materials will be burnt on site.			
Avoid storing waste material on site for extended periods of time to prevent odour generation			
Store putrescible waste in enclosed containers			
Earthworks			
Scopes of work will be planned in such a way to assist in minimising the duration that surfaces are left denuded	Construction Contractor	Ongoing	Best practice
Rehabilitation of disturbed surfaces will be undertaken within 20 days of final construction levels.		Within 20 days of final construction levels	
If unanticipated strong odours or significant visual dust emissions are noted or observed on site, an investigation will be undertaken by the construction contractor Project Manager to identify the scope of work or source of the emission prior to undertaking and applying any additional mitigation measures.		Ongoing	





Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Construction			
Sand and other aggregates will not be allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	Construction Contractor	Ongoing	Best practice
Trackout			
Water-assisted road sweeper(s) will be used on an as required basis should any material be tracked out of the site.	Construction Contractor	Ongoing	Best practice
Record all regular inspections and maintenance undertaken of site haul routes and project related public roads in a site log book.			
A wheel washing system and/or cattle grid system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) will be implemented.			
Inspections of 'sediment tracking' onto the roadway will be undertaken on a regular basis, and a review of control measures will undertaken as required.			
Odour			
Odorous material should be covered with a non-porous material eg tarpaulin.	Construction Contractor	Ongoing	Best practice
Odorous material should be isolated, and not subject to any treatment (eg burning, diluting, mixing etc), until advice should be sought from an odour specialist.			



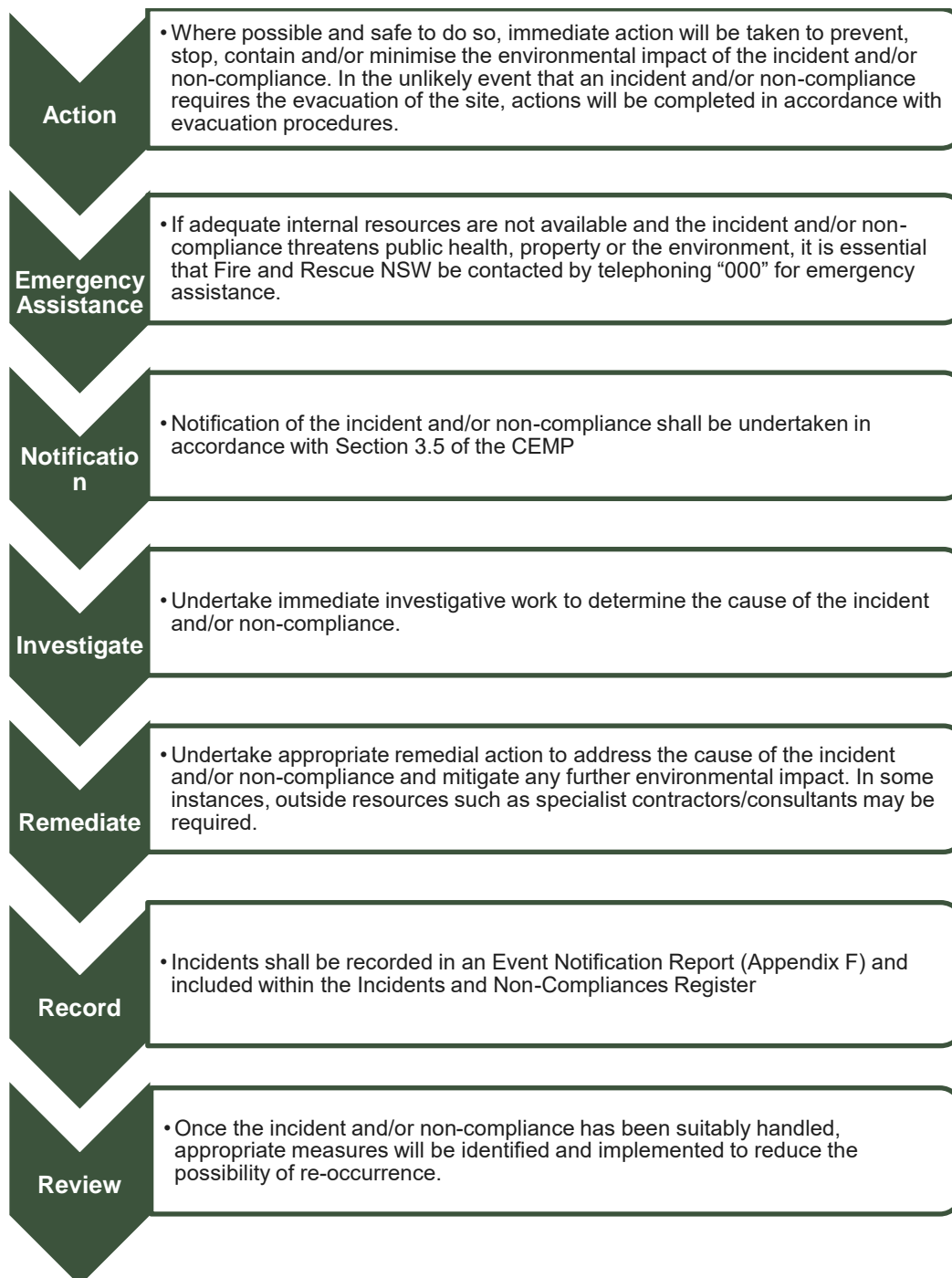


## 10.0 Incident and Non-Compliance Response and Handling Procedure

Any incident and non-compliance in relation to the air quality performance shall be managed and reported in general accordance with the process shown in **Figure 9**.

For the detailed incident and non-compliance response and handling procedure, please refer to Section 3.5 of the CEMP.

**Figure 9: Incident and Non-Compliance Procedure**



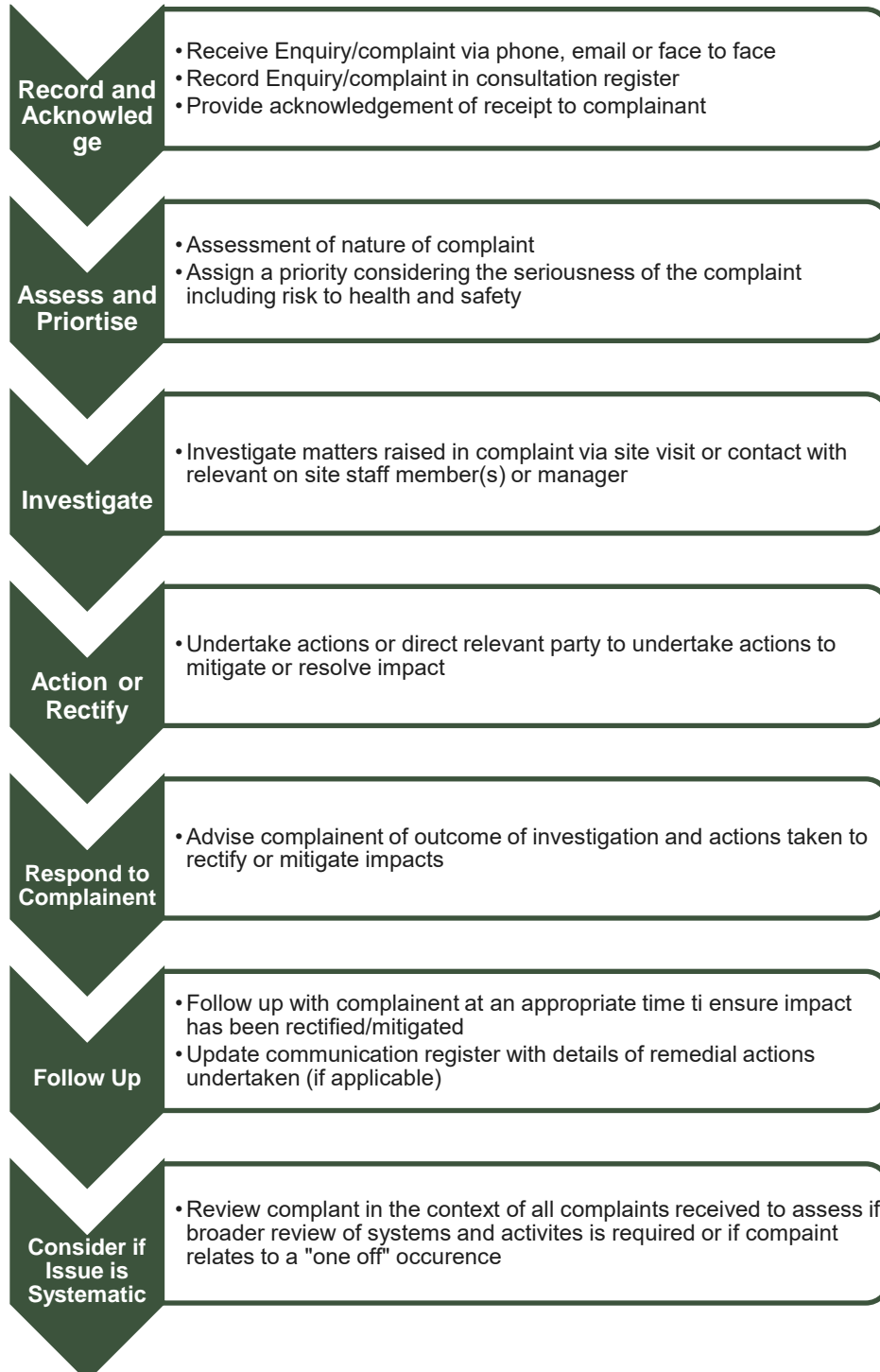


## 11.0 Complaints Handling and Response Procedure

Any complaints in relation to the air quality performance shall be managed in general accordance with the process shown in **Figure 10**.

For a detailed complaints and handling procedure please refer to Section 3.6 and Appendix G of the CEMP.

**Figure 10: Complaints Handling Procedure**





## 12.0 Air Quality Monitoring Program

As discussed in **Section 7.0**, the risk of construction dust emissions causing nuisance impacts at off-site sensitive receptor locations is concluded to be low. It is also noted that any impacts will be temporary and managed through the implementation of appropriate mitigation measures (see **Section 9.0**).

An air quality monitoring program has been implemented by Mirvac as part of the management of air emissions during construction of the AIE. The data from ongoing monitoring program for AIE will be utilised to inform the management measures and contingency response for the construction.

A summary of the on-site air quality monitoring programme at the AIE is shown in **Table 10**.

**Table 10 Summary of On-Site Monitoring Programme**

Pollutant	Equipment Used	Number of Monitoring Sites	KPI's Criterion (Averaging Period)	Monitoring Frequency
Deposited dust	Dust Deposition Gauges (DDGs)	4	4 g/m <sup>2</sup> /month (annual average)	Monthly - Continuous/ongoing
Particulate matter	Site Hive logger	3	50 µg/m <sup>3</sup> (24-hr average)	Continuous/ongoing
Visible emissions	None	Each boundary	No visible dust leaving the Site Boundary (Daily recorded observations of visible dust by the site supervisor or delegate)	Continuous/ongoing
Nuisance Dust	In consultation with a suitably qualified air quality professional at the complaint location (or as near as practicable)	-	4 g/m <sup>2</sup> /month (annual average)	Continuous/ongoing
Odour	None	Each boundary	No odours detected at the Site Boundary (Daily recorded observations of odour by the site supervisor or delegate)	Continuous/ongoing





**Figure 11 Air Quality Monitoring Locations for the AIE Construction Project**



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Project Number: 630.031249  
Location: Penrith, NSW  
Other Information:  
Projection: UTM Zone 56S  
Date: 31/12/2023



Mirvac  
Aspect Industrial Estate Lot 2 / Warehouse 2  
Construction Air Quality Management Plan  
**AIE Air Quality  
Monitoring Locations**





## 13.0 Contingency Management Plan

The air quality contingency management plan for the construction activities is shown in **Table 11**. As noted in **Section 12.0**, data from the ongoing monitoring program will be utilised to inform the appropriate contingency response for the Development.

**Table 11 Air Quality Contingency Management Plan for the Construction**

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Visible dust leaving the site	Trigger	Daily inspections show that there is no visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site multiple times during a day OR from multiple locations within the site.
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as: <i>Deployment of additional water sprays, water trucks etc</i>	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities
Dust deposition reading of >4g/m <sup>2</sup> /month	Trigger	Dust deposition rates are less than 4 g/m <sup>2</sup> /month at all the dust gauges.	Dust deposition rate greater than 4 g/m <sup>2</sup> /month is recorded by any of the dust gauges	Dust deposition rates greater than 4 g/m <sup>2</sup> /month are recorded by two or more dust gauges for two months in a row.
	Response	Continue monitoring program as normal.	Mirvac Project Managers to analyse data to try to identify the source(s) of dust. Construction Contractor to review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering.	Mirvac Project Managers to review and investigate construction activities and respective control measures for the monitoring period. If it is concluded that construction activities were directly responsible for the exceedance (i.e. the exceedance event was not caused due to high regional dust levels or local non-project dust source), Construction Contractor to submit an incident report to government agencies.





Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Complaints received regarding nuisance dust	Trigger	There are no complaints received during the construction	An air-quality related complaint is received from a nearby resident	Further complaints are received from the same complainant after the additional mitigation measures have been implemented
	Response	Continue monitoring program as normal.	<p>Report the complaint to the regulator, in line with complaints handling procedure (See <b>Section 10.0</b> ).</p> <p>Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate.</p> <p>Review timing of the complaint compared to known site activities to identify if particular site activities (or lack of activity in the case of mitigation measures) are contributing to the complaints.</p>	<p>Including real time monitors to measure PM<sub>10</sub> and PM<sub>2.5</sub>.</p> <p>Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing (see <b>Appendix D</b>).</p> <p>The investigation should take into account (but not limited to) regional dust/particulate data, prevailing wind data on the day/time of complaints, onsite activities at the time of complaints and offsite activities at the time of complaints.</p> <p>Conduct real time air quality monitoring at the complaint location (or as near as practicable) including meteorology if required. This monitoring should be conducted in consultation with a suitably qualified air quality professional.</p> <p>Identify the following from any monitoring conducted:</p> <p>Monitoring method;</p> <p>Location, frequency and duration of monitoring;</p> <p>Assessment against compliance with criteria identified in <b>Section 5.2</b>;</p> <p>Recommendations for further mitigation.</p>
Intense Meteorological	Trigger	Normal Meteorological	Forecast winds greater than 5 m/s and dry conditions.	Forecast winds greater than 10 m/s and dry conditions.





Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Conditions		Conditions		
	Response	Continue monitoring program as normal.	Limit the activities that generate dust within 200 m of downwind sensitive activities. Additional visual inspection of exposed areas and activities. Assess the need for additional controls such as increased water application rates.	Stop activities that generate dust up to 200 m downwind of the construction activities, until wind eases.





## 14.0 Roles and Responsibilities

Overall roles and responsibilities relating to the project are outlined in Section 3.2 of the overarching CEMP. The key responsibilities specifically for dust management are as follows::

### 14.1 Contractor's Project Manager

- Ensuring appropriate resources/plant/personnel are available for the implementation of this CAQMP;
- Record any incidents/non-compliances with the project criteria.
- Assessing data from inspections and providing project-wide advice to ensure consistent approach and outcomes are achieved;
- Providing necessary training for project personnel to cover air quality management;
- Reviewing and update of this CAQMP;
- Assessing and engaging (as required) additional mitigation controls to best manage the risks of elevated dust levels before commencing works each day and ensuring that the appropriate controls are implemented and effective;
- Reviewing weather forecasts daily and current observations of meteorological conditions (as recorded at Horsley Park AWS);
- Throughout the day, visually assessing the dust levels and the effectiveness of any dust controls that have been implemented, which may include engaging additional resources to reduce or mitigate the risk of dust leaving the site
- Ceasing particular scopes of works as required in the event of excessive dust generation due to extreme weather conditions or inadequately controlled construction activities (eg high winds, surface dirt accumulation, etc.); and
- In the event that an air quality complaint is received, the procedure in **Section 10.0** of this CAQMP will be implemented.

### 14.2 Environmental Coordinator

- Undertaking dust monitoring program; and
- Review that control measures are working in accordance with the CAQMP.

### 14.3 All Workers on Site

- Observing any dust emission control instructions and procedures that apply to their work;
- Taking action to prevent or minimise dust emission incidents; and
- Identifying and reporting dust emission incidents.





## 15.0 Review and Improvement of the CAQMP

Reviews, investigations, and improvements to this plan shall be undertaken in accordance with Section 6 of the CEMP. In addition, the review of the CAQMP will be undertaken at least quarterly and will include participation by the contractor's project manager. The review will comprise, as a minimum, the following:

- Identification of areas of opportunity for ongoing improved environmental performance;
- Analysis of the causes of any recorded non-compliances, including those identified in environment inspections and audits;
- Verification of the effectiveness of corrective and preventative actions; and
- Highlighting any changes in procedures resulting from process improvement.

This CAQMP will also be reviewed and, if necessary, revised in the following circumstances:

- Where there is any change to the scope of the construction activities and/or disturbance footprint;
- Where it is identified that the environmental performance is not meeting the objectives of the CAQMP;
- In the event of a substantiated complaint being received regarding air quality impacts; and/or
- At the request of a relevant regulatory authority.





## 16.0 References

- EPA. 2018. “Local Government Air Quality Toolkit, Module 3 – Guidelines for Managing Air Pollution, Part 3 – Guidance Notes for Construction Sites.”
- Holmen. 2014. “IAQM Guidance on the assessment of dust from demolition and construction, <http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf>.” *Institute of Air Quality Management, London* (Institute of Air Quality Management).
- IAQM. 2018. “Guidance on the assessment of odour for planning.”
- NSW EPA. 2022. “Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.” August.
- SLR. 2020. “Aspect Industrial Estate - Air Quality and Odour Impact Assessment.” *R01*.
- SLR. 2020. “Aspect Industrial Estate - Air Quality and Odour Impact Assessment, R01-v1.4.”
- URBIS. 2020. “Environmental Impact Statement Aspect Industrial Estate.” *State Significant Development Application, prepared for: Mirvac, P0013978*. November.
- Ason 2024, Construction Traffic Management Plan, Aspect Industrial Estate – Warehouse 2, dated 12/07/2024, Reference: P2168r03







# **Appendix A    Wind Roses And Rainfall Data Analysis**

## **Aspect Industrial Estate – Warehouse 2**

### **Construction Air Quality Management Plan**

**Mirvac**

SLR Project No.: 630.031249

31 July 2024



## Wind Conditions

Local wind speed and direction influence the dispersion of air pollutants. Wind speed determines both the distance of downwind transport and the rate of dilution as a result of 'plume' stretching. Wind direction, and the variability in wind direction, determines the general path pollutants will follow and the extent of crosswind spreading. Surface roughness (characterised by features such as the topography of the land and the presence of buildings, structures and trees) will also influence dispersion.

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording wind speed and wind direction data is the Horsley Park Automatic Weather Station (AWS) (Station ID 67119), located approximately 5 kilometres (km) southeast of the Development Site. Considering the relatively flat terrain between the Development Site and Horsley Park AWS, it is considered reasonable to assume that the wind conditions recorded at the Horsley Park AWS are representative of the wind conditions experienced at the Development Site.

Annual and seasonal wind roses for the years 2018 to 2022 compiled from data recorded by the Horsley Park AWS are presented in **Figure A1**. Wind roses show the frequency of occurrence of winds by direction and strength. The bars correspond to the 16 compass points (degrees from North). The bar at the top of each wind rose diagram represents winds blowing from the north (i.e. northerly winds), and so on. The length of the bar represents the frequency of occurrence of winds from that direction, and the widths of the bar sections correspond to wind speed categories, the narrowest representing the lightest winds. Thus it is possible to visualise how often winds of a certain direction and strength occur over a long period, either for all hours of the day, or for particular periods during the day.

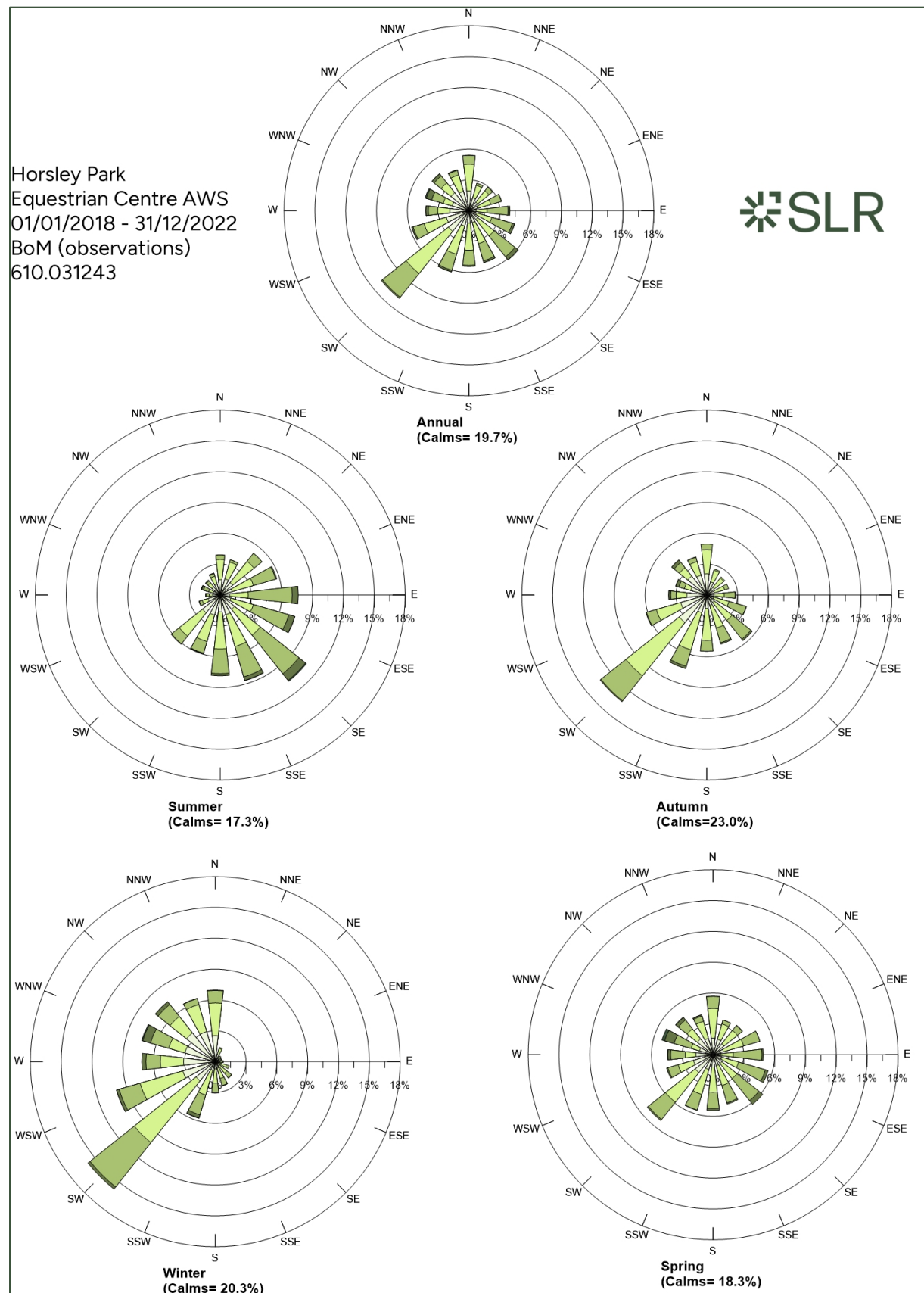
The annual wind rose (**Figure A1**) indicates that the predominant wind directions in the area are from the southwest direction. Calm wind conditions (wind speed less than 0.5 m/s) were recorded approximately 19.7% of the time throughout the five year period reviewed. The average seasonal wind roses for the years 2018-2022 indicate that:

- In summer, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.8 m/s). The majority of winds originated from eastern and southern quadrants, with very few winds from westerly directions. Calm wind conditions were recorded approximately 17.3% of the time during summer.
- In autumn, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.1 m/s). The majority of winds originated from the southwest quadrant, with very few winds from the northeast. Calm wind conditions were observed to occur approximately 23% of the time during autumn.
- In winter, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 10.0 m/s). The majority of winds originated from the north and west quadrants, with very few winds from the east. Calm wind conditions were observed to occur approximately 20.3% of the time during winter.
- In spring, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 10.0 m/s). The frequencies of winds were generally even from all directions. Calm wind conditions were observed to occur approximately 18.3% of the time during spring.





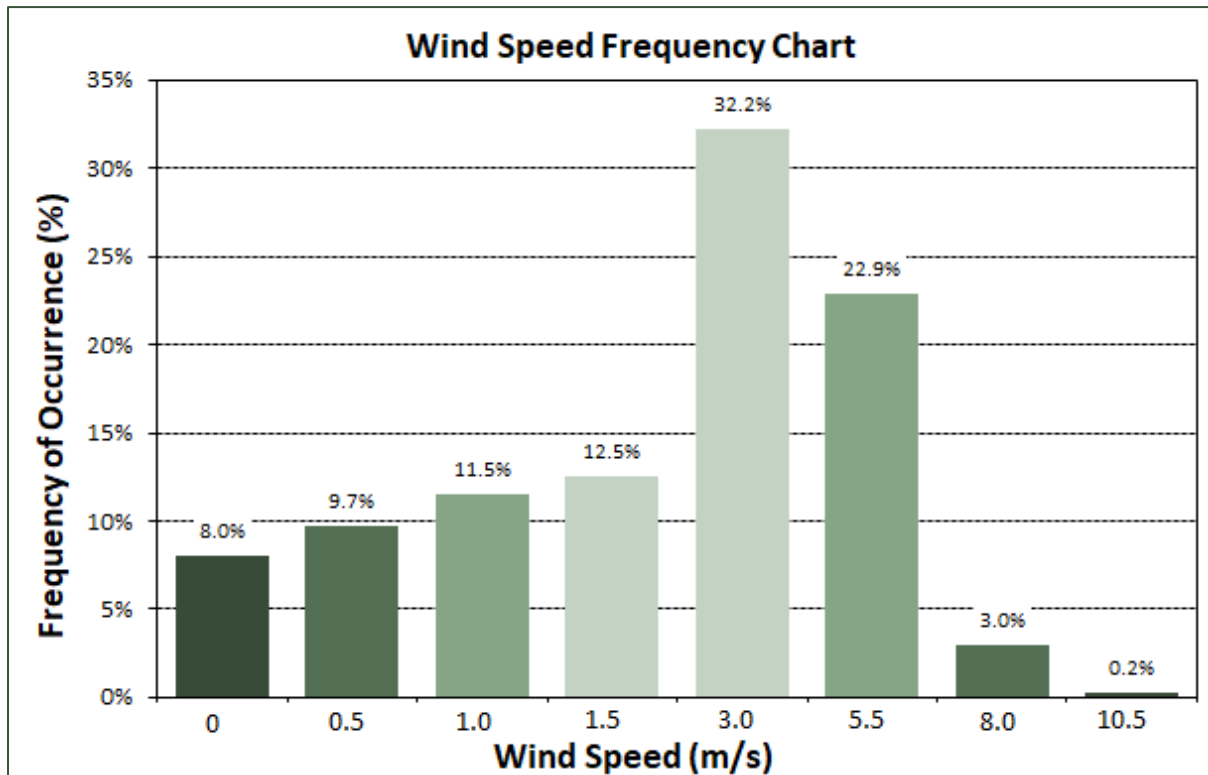
**Figure A1 Annual and Seasonal Wind Roses for Horsley Park (2018 to 2022)**





Wind erosion of dust from exposed surfaces (ie, during the construction phase of the development) is usually initiated when wind speeds exceed the threshold friction velocity for a given surface or material, however a general rule of thumb is that wind erosion can be expected to occur above 5 m/s (USEPA 2006). The frequency of wind speeds for the period of 2018-2022 is presented in **Figure A2**. The plot showed that the frequency of wind speeds exceeding 5 m/s for the period 2018-2022 at Horsley Park AWS was approximately 4.9%.

**Figure A2 Wind Speed Frequency Chart for Horsley Park AWS – 2018-2022**



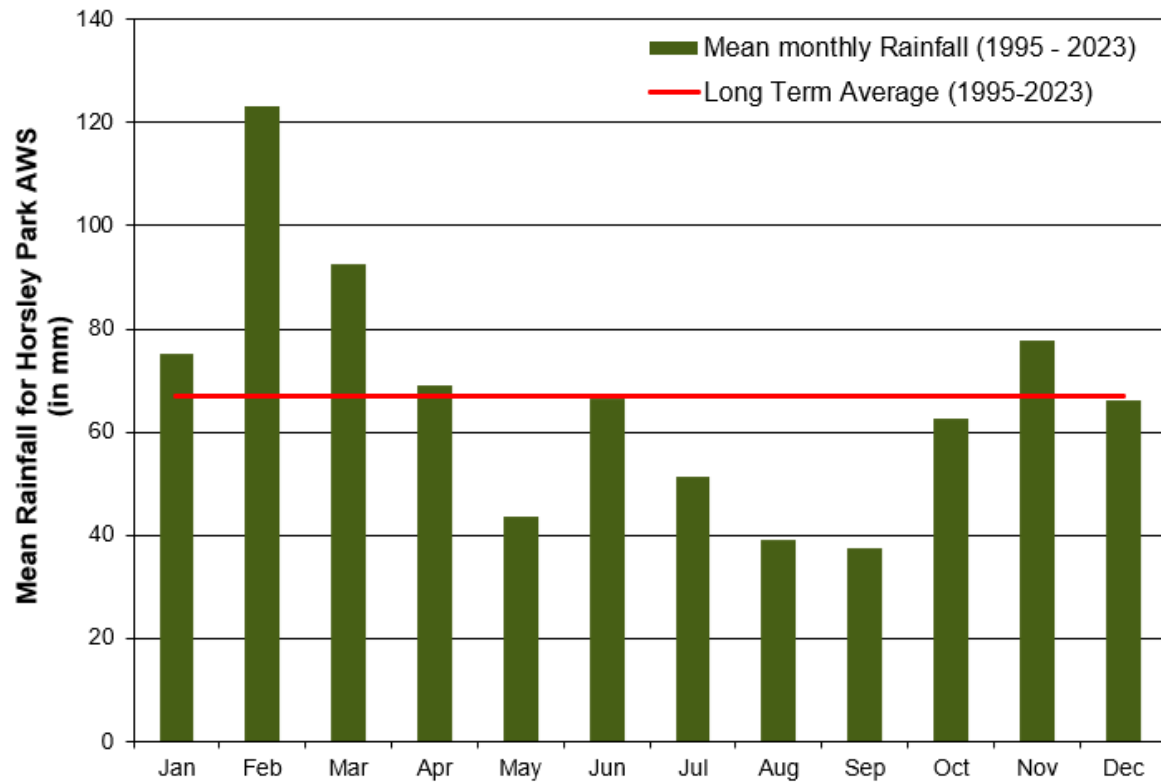
## Rainfall

Dry periods (no rainfall) have the greatest potential for fugitive dust emissions during construction. The long-term monthly rainfall averages recorded at Horsley Park AWS rain gauge are shown in **Figure A3**. It is noted that generally rainfall is relatively low in mid-winter to mid spring periods. This rainfall pattern suggests that dust emissions from the construction activities at the Development Site have the greatest potential to impact on receptors for the period of late autumn to early spring.





**Figure A3 Long term Mean Rainfall for Horsley Park AWS – 1995 to 2023**







# **Appendix B     Construction Phase Risk Assessment Methodology**

## **Aspect Industrial Estate – Warehouse 2**

### **Construction Air Quality Management Plan**

**Mirvac**

SLR Project No.: 630.031249

31 July 2024



### Step 1 – Screening Based on Separation Distance

As noted in **Section 3.2**, a number of sensitive receptors (residential) are located within 100 m from the AIE Site boundary.

The IAQM screening criteria for further assessment is the presence of a ‘human receptor’ within:

- 350 m of the boundary of the site; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).

As a ‘human receptor’ is located within 350 m of the boundary of the site, further assessment is required. For the purpose of this assessment, the number of sensitive receptors is estimated to be between 10 and 100 within 100 m of the AIE Site boundary.

### Step 2a – Assessment of Scale and Nature of the Works

Step 2a of the assessment provides “dust emissions magnitudes” for each of four dust generating activities; demolition, earthworks, construction, and track-out (the movement of site material onto public roads by vehicles). The magnitudes are: *Large*; *Medium*; or *Small*, with suggested definitions for each category. The definitions given in the IAQM guidance for earthworks, construction activities and track-out, which are most relevant to this Development, are as follows:

*Demolition (Any activity involved with the removal of an existing structure [or structures]. This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time):*

- **Large:** Total building volume >50,000 m<sup>3</sup>, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >20 m above ground level;
- **Medium:** Total building volume 20,000 m<sup>3</sup> – 50,000 m<sup>3</sup>, potentially dusty construction material, demolition activities 10-20 m above ground level; and
- **Small:** Total building volume <20,000 m<sup>3</sup>, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10m above ground, demolition during wetter months.

*Earthworks (Covers the processes of soil-stripping, ground-levelling, excavation and landscaping):*

- **Large:** Total site area greater than 10,000 m<sup>2</sup>, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than 8 m in height, total material moved more than 100,000 t.
- **Medium:** Total site area 2,500 m<sup>2</sup> to 10,000 m<sup>2</sup>, moderately dusty soil type (e.g. silt), 5 to 10 heavy earth moving vehicles active at any one time, formation of bunds 4 m to 8 m in height, total material moved 20,000 t to 100,000 t.
- **Small:** Total site area less than 2,500 m<sup>2</sup>, soil type with large grain size (e.g. sand), less than five heavy earth moving vehicles active at any one time, formation of bunds less than 4 m in height, total material moved less than 20,000 t, earthworks during wetter months.





**Construction** (Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc):

- **Large:** Total building volume greater than 100,000 m<sup>3</sup>, piling, on site concrete batching; sandblasting.
- **Medium:** Total building volume 25,000 m<sup>3</sup> to 100,000 m<sup>3</sup>, potentially dusty construction material (e.g. concrete), piling, on site concrete batching.
- **Small:** Total building volume less than 25,000 m<sup>3</sup>, construction material with low potential for dust release (e.g. metal cladding or timber).

**Track-out** (The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network):

- **Large:** More than 50 heavy vehicle movements per day, surface materials with a high potential for dust generation, greater than 100 m of unpaved road length.
- **Medium:** Between 10 and 50 heavy vehicle movements per day, surface materials with a moderate potential for dust generation, between 50 m and 100 m of unpaved road length.
- **Small:** Less than 10 heavy vehicle movements per day, surface materials with a low potential for dust generation, less than 50 m of unpaved road length.

In order to provide a conservative assessment of potential impacts, it has been assumed that if at least one of the parameters specified in the 'large' definition is satisfied, the works are classified as large, and so on.

Based on the above, dust emission magnitudes have been categorised as presented in **Table B1**.

**Table B1 Categorisation of Dust Emission Magnitude**

Activity	Dust Emission Magnitude	Basis
Demolition	Medium	<p><b>IAQM Definition:</b> Total building volume 20,000 m<sup>3</sup> – 50,000 m<sup>3</sup>, potentially dusty construction material, demolition activities 10-20 m above ground level.</p> <p><b>Relevance to this Project:</b> <i>Total volume of the buildings to be demolished within the AIE Site is estimated to be approximately 50,000 m<sup>3</sup>.</i></p>
Earthworks	Large	<p><b>IAQM Definition:</b> Total site area greater than 10,000 m<sup>2</sup>, potentially dusty soil type (eg clay, which will be prone to suspension when dry due to small particle size), more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than 8 m in height, total material moved more than 100,000 t.</p> <p><b>Relevance to this Project:</b> <i>Total area of the AIE Site is estimated to be approximately 558,000 m<sup>2</sup>.</i></p>





Activity	Dust Emission Magnitude	Basis
Construction	Large	<p><b>IAQM Definition:</b> Total building volume greater than 100,000 m<sup>3</sup>, piling, on site concrete batching; sandblasting.</p> <p><b>Relevance to this Project:</b> <i>Multiple warehouses buildings are proposed at the AIE Site, the total building volume is estimated to be approximately 2,745,000 m<sup>3</sup> (total buildings are of 274,500 m<sup>2</sup> and average height of 10 m).</i></p>
Trackout	Large	<p><b>IAQM Definition:</b> More than 50 heavy vehicle movements per day, surface materials with a high potential for dust generation, greater than 100 m of unpaved road length.</p> <p><b>Relevance to this Project:</b> <i>It is estimated that more than 50 heavy vehicles movements per day will occur during the peak construction period.</i></p>

## Step 2b – Risk Assessment

### Assessment of the Sensitivity of the Area

Step 2b of the assessment process requires the sensitivity of the area to be defined. The sensitivity of the area takes into account:

- The specific sensitivities that identified sensitive receptors have to dust deposition and human health impacts;
- The proximity and number of those receptors;
- In the case of PM<sub>10</sub>, the local background concentration; and
- Other site-specific factors, such as whether there are natural shelters such as trees to reduce the risk of wind-blown dust.

Individual receptors are classified as having *high*, *medium* or *low* sensitivity to dust deposition and human health impacts (ecological receptors are not addressed using this approach). The IAQM method provides guidance on the sensitivity of different receptor types to dust soiling and health effects as summarised in **Table B2**. It is noted that user expectations of amenity levels (dust soiling) is dependent on existing deposition levels.

**Table B2 IAQM Guidance for Categorising Receptor Sensitivity**

Value	High Sensitivity Receptor	Medium Sensitivity Receptor	Low Sensitivity Receptor
Dust soiling	Users can reasonably expect a high level of amenity; or The appearance, aesthetics or value of their property would be diminished by soiling, and the people or property would reasonably be	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or The appearance, aesthetics or value of their	The enjoyment of amenity would not reasonably be expected; or Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or





Value	High Sensitivity Receptor	Medium Sensitivity Receptor	Low Sensitivity Receptor
	expected to be present continuously, or at least regularly for extended periods as part of the normal pattern of use of the land.	property could be diminished by soiling; or The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.	There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.
	<i>Examples: Dwellings, museums, medium and long term car parks and car showrooms.</i>	<i>Examples: Parks and places of work.</i>	<i>Examples: Playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.</i>
Health effects	Locations where the public are exposed over a time period relevant to the air quality objective for PM <sub>10</sub> (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).	Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM <sub>10</sub> (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).	Locations where human exposure is transient.
	<i>Examples: Residential properties, hospitals, schools and residential care homes.</i>	<i>Examples: Office and shop workers, but will generally not include workers occupationally exposed to PM<sub>10</sub>.</i>	<i>Examples: Public footpaths, playing fields, parks and shopping street.</i>





According to the IAQM methods, the sensitivity of the identified individual receptors (as described above) is then used to assess the *sensitivity of the area* surrounding the active construction area, taking into account the proximity and number of those receptors, and the local background PM<sub>10</sub> concentration (in the case of potential health impacts) and other site-specific factors. Additional factors to consider when determining the sensitivity of the area include:

- any history of dust generating activities in the area;
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors;
- any conclusions drawn from analysing local meteorological data which accurately represent the area and if relevant, the season during which the works will take place;
- any conclusions drawn from local topography;
- the duration of the potential impact (as a receptor may be willing to accept elevated dust levels for a known short duration, or may become more sensitive or less sensitive (acclimatised) over time for long-term impacts); and
- any known specific receptor sensitivities which go beyond the classifications given in the IAQM document.

Based on the criteria listed in **Table B2**, the sensitivity of the identified receptors in this study is concluded to be *high* for health impacts and *high* for dust soiling, as they include residential areas where people may be reasonably expected to be present continuously as part of the normal pattern of land use.

The IAQM guidance for assessing the sensitivity of an area to dust soiling is shown in **Table B3**. The sensitivity of the area should be derived for each of activity relevant to the project (ie construction and earthworks).

**Table B3 IAQM Guidance for Categorising the Sensitivity of an Area to Dust Soiling Effects**

Receptor Sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Note: Estimate the total number of receptors within the stated distance. Only the *highest level* of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors < 20m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors < 50 m is 102. The sensitivity of the area in this case would be high.

A modified version of the IAQM guidance for assessing the *sensitivity of an area* to health impacts is shown in **Table B4**. For high sensitivity receptors, the IAQM methods takes the existing background concentrations of PM<sub>10</sub> (as an annual average) experienced in the area of interest into account and is based on the air quality objectives for PM<sub>10</sub> in the UK. As these objectives differ from the ambient air quality criteria adopted for use in this assessment (i.e. an annual average of 19.1 µg/m<sup>3</sup> for PM<sub>10</sub>) the IAQM method has been modified slightly.





This approach is consistent with the IAQM guidance, which notes that in using the tables to define the *sensitivity of an area*, professional judgement may be used to determine alternative sensitivity categories, taking into account the following factors:

- any history of dust generating activities in the area;
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors;
- any conclusions drawn from analysing local meteorological data which accurately represent the area, and if relevant the season during which the works will take place;
- any conclusions drawn from local topography;
- duration of the potential impact; and
- any known specific receptor sensitivities which go beyond the classifications given in this document.

**Table B4 IAQM Guidance for Categorising the Sensitivity of an Area to Dust Health Effects**

Receptor sensitivity	Annual mean PM <sub>10</sub> conc.	Number of receptors <sub>a,b</sub>	Distance from the source (m)				
			<20	<50	<100	<200	<350
High	>25 µg/m <sup>3</sup>	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	21-25 µg/m <sup>3</sup>	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	17-21 µg/m <sup>3</sup>	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<17 µg/m <sup>3</sup>	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>25 µg/m <sup>3</sup>	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	21-25 µg/m <sup>3</sup>	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	17-21 µg/m <sup>3</sup>	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<17 µg/m <sup>3</sup>	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low





Receptor sensitivity	Annual mean PM <sub>10</sub> conc.	Number of receptors <sub>a,b</sub>	Distance from the source (m)				
			<20	<50	<100	<200	<350
Low	-	>1	Low	Low	Low	Low	Low

Notes:

- (a) Estimate the total within the stated distance (e.g. the total within 350 m and not the number between 200 and 350 m); noting that only the highest level of area sensitivity from the table needs to be considered.
- (b) In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties.

The nearest sensitive receptor is located within 350 m from the western AIE boundary. Based on the classifications shown in **Table B3** and **Table B4**, the sensitivity of the area to dust soiling and to health effects may both be classified as '*low*'. This categorisation has been made considering the individual receptor sensitivities derived above, the annual mean background PM<sub>10</sub> concentration of 19.1 µg/m<sup>3</sup> recorded at St Marys AQMS (see **Section 6.2**) and the anticipated number of sensitive receptors present in the vicinity of the AIE.

### Risk Assessment

The dust emission magnitude from Step 2a and the receptor sensitivity from Step 2b are then used in the matrices shown in **Table B5** (earthworks and construction), **Table B6** (track-out) and **Table B7** (demolition) to determine the risk category with no mitigation applied.

**Table B5 Risk Category from Earthworks and Construction Activities**

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

**Table B6 Risk Category from Track-out Activities**

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

**Table B7 Risk Category from Demolition Activities**

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible







# **Appendix C    Odour Risk Assessment Methodology**

## **Aspect Industrial Estate – Warehouse 2**

### **Construction Air Quality Management Plan**

**Mirvac**

SLR Project No.: 630.031249

31 July 2024



## Nature of Impact

Predicted impacts may be described in terms of the overall effect upon the environment:

- **Beneficial:** the predicted impact will cause a beneficial effect on the receiving environment.
- **Neutral:** the predicted impact will cause neither a beneficial nor adverse effect.
- **Adverse:** the predicted impact will cause an adverse effect on the receiving environment.

## Receptor Sensitivity

Sensitivity may vary with the anticipated impact or effect. A receptor may be determined to have varying sensitivity to different environmental changes, for example, a high sensitivity to changes in air quality, but low sensitivity to noise impacts. Sensitivity may also be derived from statutory designation which is designed to protect the receptor from such impacts.

Sensitivity terminology may vary depending upon the environmental effect, but generally this may be described in accordance with the following broad categories - Very high, High, Medium and Low.

**Table C1** outlines the methodology used in this study to define the sensitivity of receptors to air quality impacts.

**Table C1 Receptor Sensitivity to Odours**

Sensitivity	Criteria
High	<p>Surrounding land where:</p> <ul style="list-style-type: none"> <li>• users can reasonably expect enjoyment of a high level of amenity; and</li> <li>• people would reasonably be expected to be present here continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.</li> </ul> <p>Examples may include residential dwellings, hospitals, schools/education and tourist/cultural.</p>
Medium	<p>Surrounding land where:</p> <ul style="list-style-type: none"> <li>• users would expect to enjoy a reasonable level of amenity, but wouldn't reasonably expect to enjoy the same level of amenity as in their home; or</li> <li>• people wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.</li> </ul> <p>Examples may include places of work, commercial/retail premises and playing/recreation fields.</p>
Low	<p>Surrounding land where:</p> <ul style="list-style-type: none"> <li>• the enjoyment of amenity would not reasonably be expected; or</li> <li>• there is transient exposure, where the people would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.</li> </ul> <p>Examples may include industrial use, farms, footpaths and roads.</p>





## Magnitude

Magnitude describes the anticipated scale of the anticipated environmental change in terms of how that impact may cause a change to baseline conditions. Magnitude may be described quantitatively or qualitatively. Where an impact is defined by qualitative assessment, suitable justification is provided in the text.

**Table C2 Magnitude of Impacts**

Magnitude	Description
Very Large	Impact is predicted to cause significant consequences on the receiving environment (may be adverse or beneficial)
Large	Impact is predicted to possibly cause statutory objectives/standards to be exceeded (may be adverse)
Medium	Predicted impact may be tolerated for most of the days, but maybe intolerable for some days.
Small	Predicted impact may be tolerated.
Negligible	Impact is predicted to cause no significant consequences.

## Significance

The risk-based matrix provided below illustrates how the definition of the sensitivity and magnitude interact to produce impact significance.

**Table C3 Impact Significance Matrix**

Potential Odour Exposure Impact	Receptor Sensitivity		
	Low	Medium	High
Very Large	Moderate adverse	Substantial adverse	Substantial adverse
Large	Slight adverse	Moderate adverse	Substantial adverse
Medium	Negligible	Slight adverse	Moderate adverse
Small	Negligible	Negligible	Slight adverse
Negligible	Negligible	Negligible	Negligible

Where the overall effect is greater than “slight adverse”, the effect is likely to be considered significant. Note that this is a binary judgement: either it is “significant”, or it is “not significant”. Concluding that an effect is significant should not mean, of itself, that a development proposal is unacceptable, and the planning application should be refused; rather, it should mean that careful consideration needs to be given to the consequences, scope for securing further mitigation, and the balance with any wider environmental, social and economic benefits that the proposal would bring.







# **Appendix D    Air Quality Notification Form**

## **Aspect Industrial Estate – Warehouse 2**

### **Construction Air Quality Management Plan**

**Mirvac**

SLR Project No.: 630.031249

31 July 2024



Construction of Warehouse 2	
<b>Air Quality Notification Form</b>	
<ul style="list-style-type: none"> <li>➤ This form to be completed within 24hrs of an exceedance of PM<sub>10</sub> dust &gt;50 µg/m<sup>3</sup> (24hr average) on site (CAQMP Sect 5.2 Table 4 – 24hr average)</li> <li>➤ This form to be completed by the Contractor PM, PE or Environmental Representative</li> <li>➤ Please attach site observation photographs as required</li> </ul>	
Contract	
Prepared by (Print Name)	
Position (Project PM, Engineer etc)	
Time/Day/Date of notification	
What were the PM <sub>10</sub> levels recorded at the start of the shift?	
Was there scope of work specific dust generation observed during the reporting period? (If yes, please provide site specific area)	
Was the measured dust level influenced by dust from external sources? (yes/no/possible)	
Dust generating construction related activities at the time of the notification (1) Provide a brief description of works being undertaken at the time of the dust being observed	
Wind direction and speed relating to the reporting period (show variable wind directions and speed throughout the notification period. Attach wind charts if applicable) (3)	
Were additional dust mitigation resources implemented during the reporting period? (if yes, provide a brief description)	
Sign/Date	
<b>Mirvac Contract Superintendent to Complete</b>	
Notified ER Time/Day/Date	
Follow up required (yes/no)	
Is this notification issued as a result of an external complaint?	
Sign/Date	







# **Appendix E    Curriculum Vitae Of Author**

## **Aspect Industrial Estate – Warehouse 2**

### **Construction Air Quality Management Plan**

**Mirvac**

SLR Project No.: 630.031249

31 July 2024



**Kate Barker, BSc, BIntSt**  
Senior Project Consultant | Air Quality | Asia - Pacific



Kate is a Senior Project Consultant in Air Quality with a background in environmental science. For the last five years she has worked with a diverse range of clients providing advice and technical assistance on air quality and environmental issues. She is experienced in the use of dispersion modelling software such as AERMOD and CALMET/CALPUFF.

Kate has extensive experience in providing atmospheric dispersion assessments, management plans, odour surveys, occupation exposure assessments, ambient monitoring, and greenhouse gas assessments.

Her experience has covered a broad range of industries, including data centers, power stations, poultry farms, waste recycling, concrete batching, foundries, and consumer product manufacturing. She is dedicated to helping her clients achieve their air quality goals through robust assessments and effective management advice.

## Education

- Bachelor of Science (Environmental)/Bachelor of International Studies, University of Technology Sydney (2017)

## Project Experience

### **Waste Transfer Station, Odour Impact Assessment – Stapylton, QLD (2023)**

Kate contributed to the delivery of an Odour Impact Assessment by conducting a qualitative risk-based assessment of odour quality impacts associated with the proposed upgrade of waste transfer station.

### **Augusta Street Warehouse and Distribution Centre, Air Quality Assessment – Blacktown, NSW (2023)**

Kate contributed to the delivery of an Air Quality Impact Assessment for the State Significant Development of a warehouse and distribution centre by conducting a qualitative risk-based assessment of air quality impacts associated with the construction and a semi-quantitative risk-based assessment of operational activities.

### **Central Coast Leagues Club Masterplan, Air Quality Assessment – Central Coast NSW (2023)**

Kate contributed to the delivery of an Air Quality Assessment by conducting a qualitative risk-based assessment of air quality impacts associated with the construction and operation of the mixed used development.

### **Station Road Data Centre Expansion Air Quality Impact Assessments – Seven Hills, NSW (2022)\*\***

Kate delivered an Air Quality Impact Assessments for the Station Road Data Centre Expansion through assessing exhaust emissions for general and emergency operations using AERMOD dispersion modelling.

### **Air Quality (Dust and Odour) Impact Assessments - Attunga, Carrathool, Manilla NSW, Fairglens Farms (Poultry) (2019-2021)\*\***

Kate delivered several Air Quality Impact Assessments for the Fairglens Farms for proposed poultry facilities using CALPUFF dispersion modelling. Her consultation on air quality issues also included preliminary separation distance assessments to provide advice on potential new sites.

\*\*Denotes experience completed at another firm





**Kate Barker, BSc, BIntSt**  
Senior Project Consultant | Air Quality | Asia - Pacific



**Air Quality Impact Assessment (CAP Ethylene oxide)- Dandenong South VIC, Steritech (2021)\*\***

Kate delivered an Air Quality Impact Assessment for a Catalytic Abatement Plant for an ethylene oxide sterilization facility using an AERMOD dispersion assessment and assessment of the required emission rate to achieve compliance and reduce impacts to the surrounding environment and community.

**Odour Impact Assessment, Odour Sampling Management - Goondiwindi QLD, Sunpork (2021)\*\***

Kate contributed to the Odour Impact Assessment for the proposed piggery expansion through project planning, managing the odour sampling program, CALMET and CALPUFF model set up, and document preparation and report writing.

**Environmental Impact Statement and Air Quality Impact Assessment - Padstow NSW, Gow Street Recycling Centre (2019-2022)\*\***

Kate contributed to the EIS project for a proposed drilling mud processing plant through preparing sections of the EIS, conducting dust monitoring, delivering an Air Quality Impact Assessment with an AERMOD dispersion assessment and greenhouse gas assessment. She also managed the project throughout the final SSD assessment stages and preparing responses to submissions and DPIE requests for information.

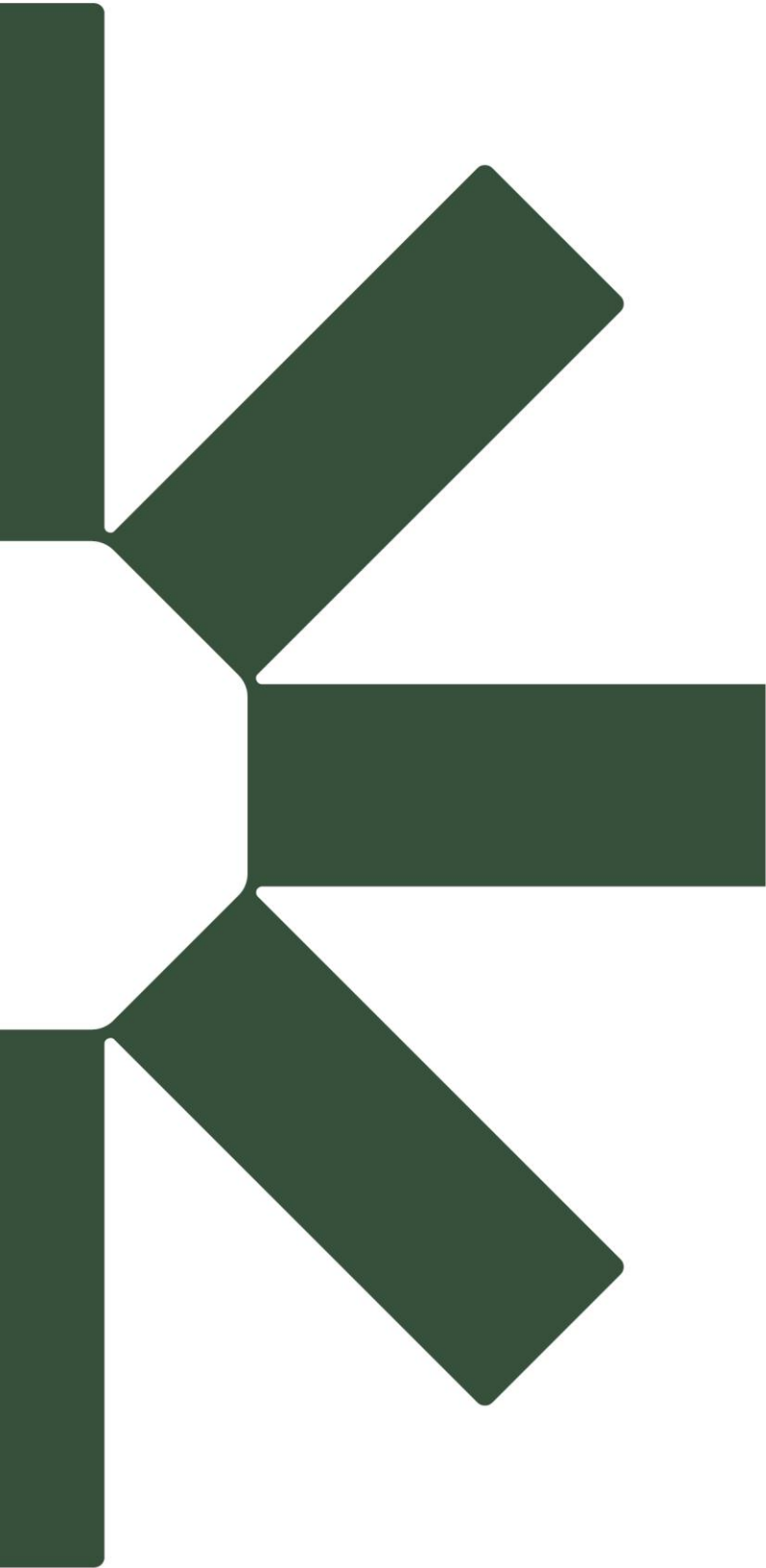
**Air Quality (Odour and Dust) Impact Assessment, Smithfield NSW, Jalco (PACT Group) (2019)\*\***

Kate delivered an Air Quality Impact Assessment and additional works for a proposal at the detergent manufacturing facility which required a CALPUFF dispersion assessment, odour surveys, community consultation, and developing a staged action plan for recommended mitigation measures.

\*\*Denotes experience completed at another firm







Making Sustainability Happen





# **Appendix J      Construction Traffic Management Plan**

**Aspect Industrial Estate Construction Environmental  
Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





# **Construction Traffic Management Plan**

## **Aspect Industrial Estate – Warehouse 2**

7/08/2024

Ref: P2168r03

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## Document Control

Project No	P2168
Project	Aspect Industrial Estate – Warehouse 2
Client	Mirvac
File Reference	P2168r03v5 CTMP_WH2, Mamre Rd, Kemps Creek, Issue

### Revision History

Revision No.	Date	Details	Author	Approved by
v2	12/07/2024	Final	Alan Tan	Rhys Hazell
v3	29/07/2024	Updated to include minor amendments	Alan Tan	Rhys Hazell
v4	01/08/2024	Updated to include minor amendments	Alan Tan	Rhys Hazell
v5	07/08/2024	Updated to include minor amendments	Alan Tan	Rhys Hazell



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# 1 Introduction

## 1.1 Introduction

Mirvac Property Services (Aust) Pty Ltd (Mirvac) engaged Ason Group to prepare a Construction Traffic Management Plan (CTMP) to support construction of an industrial development at 804-882 Mamre Road, Kemps Creek. The site is identified as Stage 3 Warehouse 2 and forms part of the broader Aspect Industrial Estate (AIE) on the eastern side of Mamre Road. AIE is planned to deliver large lot industrial warehouses across nine separate lots.

Mirvac obtained State Significant Development (SSD) Consent SSD 10448 on 24 May 2021 from the Department of Planning, Housing and Infrastructure (DPHI), formerly Department of Planning and Environment (DPE) for the AIE Concept Proposal and Stage 1 development of AIE (AIE Stage 1). Mirvac subsequently submitted SSD 58257960 for the Stage 3 Warehouse 2 development with approval granted on 5 July 2024. This CTMP follows the Warehouse 9 CTMP and therefore should be read in the context of each and the broader AIE.

This CTMP details the measures and strategies to be undertaken during all construction works to minimise the effects of the works on the surrounding road network and to ensure the safety and efficiency of the community, construction workers and all road users.

## 1.2 Development Consent

This CTMP responds the Development Consent issued on 5 July 2024 as it relates to SSD 58257960. The relevant conditions and associated section within the report are outlined in **Table 1**.

**TABLE 1: DEVELOPMENT CONSENT**

Development Consent	Reference
<b>Access and Traffic</b>	
A7. The Applicant must not operate the development until the Mamre Road / Access Road 1 intersection is completed to the satisfaction of the relevant roads' authority, in accordance with Condition B6.	<b>Noted</b>
A8. The largest vehicle permitted to access the site is a 30 metre Performance Based Standards (PBS) Level 2 Type B.	<b>Section 2.3</b>
A9. The Applicant must ensure all vehicles associated with construction and operation of the development do not use Bakers Lane, Aldington Road and Abbots Road.	<b>Section 2.4</b>
<b>Mamre Road Precinct Working Group</b>	
A37. Prior to the commencement of construction of the development and until all components of the development are constructed and operational, the Applicant must participate in a working group with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. The working group must:	-
(d) review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP;	<b>Section 3.3</b>



(f) identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP; and	<b>Section 3.3</b>
<b>Construction Traffic Management Plan</b>	
B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:	-
(a) be prepared by a suitably qualified and experienced person(s);	<b>Noted</b>
(b) be prepared in consultation with Council and TfNSW;	<b>Section 1.8.1 Appendix A</b>
(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction	<b>Section 3.3</b>
(d) detail proposed work zones, heavy vehicle routes, access and parking arrangements	<b>Section 2.4 Section 2.8 Section 3.5</b>
(e) detail the number of construction vehicle movements and demonstrate how the movements will be managed in the context of road changes in the vicinity of the site	<b>Section 3.1 Section 3.2 Section 3.3</b>
(f) include a Driver Code of Conduct to <ul style="list-style-type: none"> <li>(i) minimise the impacts of construction on the local and regional road network</li> <li>(ii) minimise conflicts with other road users</li> <li>(iii) minimise road traffic noise</li> <li>(iv) inform truck drivers of the site access arrangements, turning restrictions and use of specified routes</li> <li>(v) include a program to monitor the effectiveness of these measures</li> <li>(vi) detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions.</li> </ul>	<b>Appendix D</b>
(g) include the location of any crane(s) and a crane movement plan	<b>Section 3.12 Appendix E</b>
(h) include a consultation strategy for liaising with and managing the cumulative impacts of other developments in the MRP including the Mamre Road and Elizabeth Drive Upgrade Projects	<b>Section 4.2</b>
(i) include a program to monitor the effectiveness of these measures	<b>Section 4.2</b>
(j) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes	<b>Section 1.8.2</b>
B2. The Applicant must:	
(a) not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and	<b>Noted</b>
(b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.	<b>Noted</b>
<b>Construction Access</b>	
B3. For construction traffic associated with the development, the Applicant must:	-
(a) not use the Mamre Road / Access Road 1 intersection for construction vehicles associated with the development, until the intersection is fully completed to the satisfaction of the relevant roads authority	<b>Section 2.3</b>



(b) use the temporary left-in/left-out access off Mamre Road (constructed in accordance with condition D13A of Schedule 2 of SSD-10448) for construction vehicles, until the Mamre Road / Access Road 1 intersection is fully operational	<b>Section 2.3</b>
(c) not use the temporary left-in/left-out access off Mamre Road for construction vehicles, once the Mamre Road / Access Road 1 intersection is operational	<b>Section 2.3</b>
B4. Prior to the commencement of construction, the Applicant must install a 60 kilometre per hour (km/hr) road works speed limit on Mamre Road between Bakers Lane and Abbots Road for the duration of construction and to the satisfaction of TfNSW. The road works speed limit must remain in operation 24 hours a day, seven days a week, unless otherwise instructed by TfNSW	<b>Section 1.8.1</b> <b>Section 3.4</b> <b>Appendix A</b>
B5. The Applicant must monitor construction and operational traffic volumes using the temporary left-in/left-out access off Mamre Road (constructed in accordance with condition D13A of Schedule 2 of SSD-10448) for the period that the temporary construction access is being used. Traffic volumes must be reported to TfNSW and the Planning Secretary on a monthly basis.	<b>Section 4.3</b>

## 1.3 Project Representatives and Stakeholders

This report has been prepared by consultants who hold a SafeWork NSW Work Health & Safety Traffic Control Work card, accredited for the 'Prepare a Work Zone Traffic Management Plan'. Details of the accredited consultants are provided below:

- Alan Tan Ticket No. TCT1043262
- Malcolm Rhys Hazell Ticket No. TCT0045321.

This CTMP has been prepared to meet the requirements outlined in Appendix A and Appendix E, Section E.2 of the Transport for NSW Traffic Control at Work Sites Technical Manual (Issue No. 6.1, 2022).

Through the preparation of this CTMP, the project representatives and stakeholders who have been/ will be consulted in the development of the traffic management strategy are listed in **Table 2**.

**TABLE 2: PROJECT REPRESENTATIVES AND STAKEHOLDERS**

Name	Organisation	Role
<b>Operational Change</b>	TfNSW	Customer Journey Planning, Greater Sydney
<b>Gavin Cherry</b>	Penrith City Council	Development Assessment Coordinator
<b>Anne-Kristin Kahra</b>	Texco Construction	Senior Project Manager
<b>Ash McGowan</b>	RP Infrastructure	Senior Project Manager
<b>Malcolm (Rhys) Hazell</b>	Ason Group	Principal Lead
<b>Alan Tan</b>	Ason Group	Senior Traffic Engineer

## 1.4 Project Details

### 1.4.1 Site Location

The site is within AIE which is legally known as Lot 301 and 305 in DP1305254 and Lot 104 and 105 in DP1305965. The site covers an area of 56.3 hectares (ha) and is about 4km north of the future Western



Sydney International (Nancy-Bird Walton) Airport (WSA), 13km south-east of the Penrith CBD and 40km west of the Sydney CBD.

AIE has a frontage of about 950 metres to Mamre Road along the western boundary with a future signalised intersection to provide for vehicle access via Mamre Road. Mamre Road in-turn provides direct access to the M4 Motorway and Great Western Highway to the north and Elizabeth Drive to the south. Access to the site is provided via internal access roads, with both heavy and light vehicle access available from Access Road 1 and 2 and light vehicle access via Access Road 1 only.

The location of the site within AIE and in the context of the surrounding local area is shown in **Figure 1**.



*Figure 1: Site Location within the Mamre Road precinct*

This project covers construction of Warehouse 2 as part of the broader AIE estate. It does not cover any other works, including delivery of the internal access roads or future signalised intersection on Mamre Road. Warehouse 2 and the broader AIE is shown in **Figure 2**.





Figure 2: Aspect Industrial Estate Overview Plan

## 1.4.2 Project Description

The approved works under SSD 58257960 for the construction of Warehouse 2 are as follows:

- 13.7-metre-high structure
- 22,595m<sup>2</sup> of warehouse
- 1,500m<sup>2</sup> office across two ancillary offices
- 200m<sup>2</sup> dock office space
- 138 parking spaces (63 in the northern car park, 75 in the southern car park)
- On-lot landscaping along site frontages and within car parking areas
- Installation of on-lot infrastructure, including on-lot stormwater and waterway health measures
- Operation of the warehouse and distribution facility for 24 hours a day, 7 days a week.



## 1.5 Existing Context

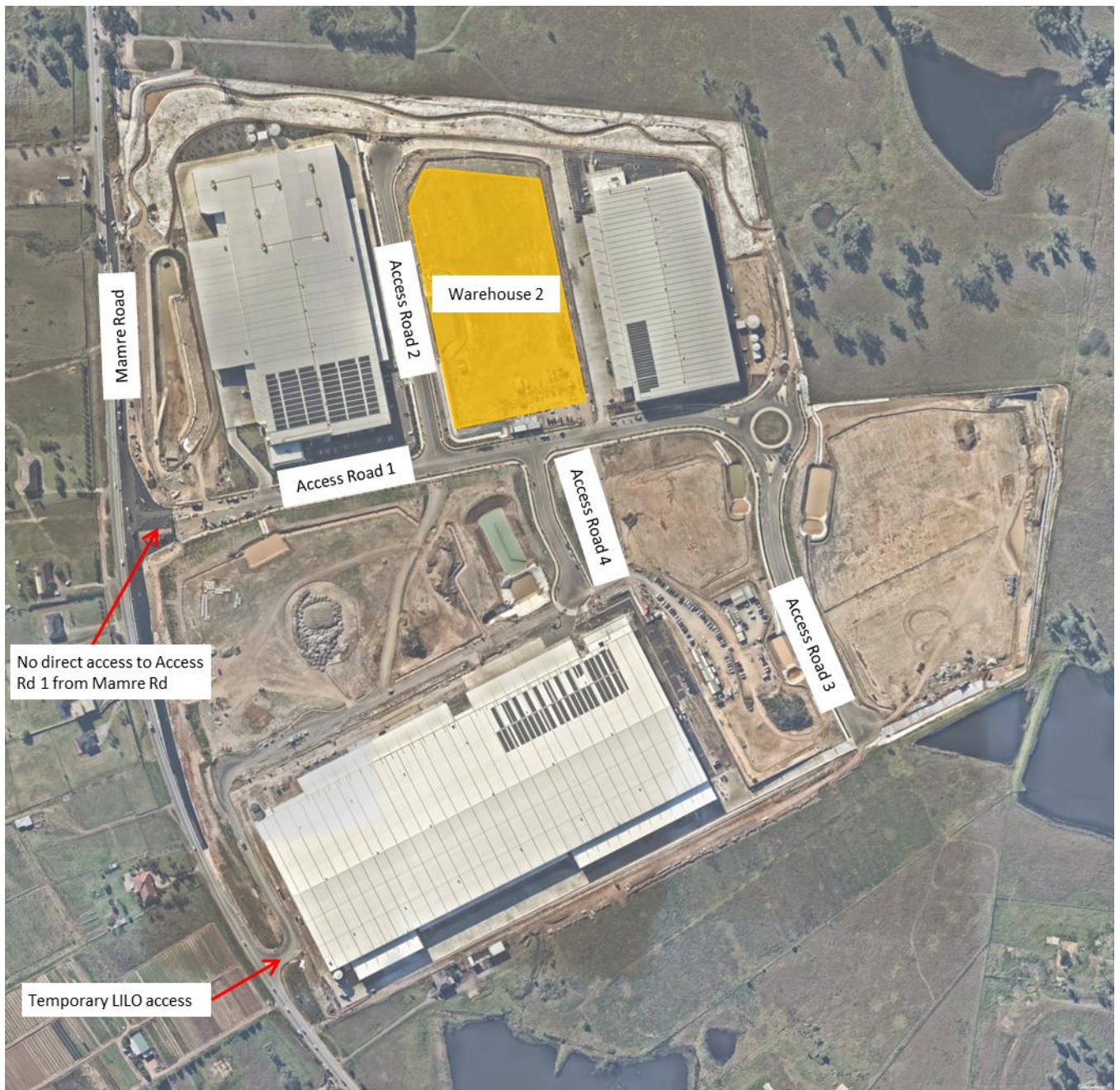
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AIE currently includes operational traffic associated with Warehouse 1 and Warehouse 9 together with construction traffic associated with Warehouse 3. All operational and construction traffic currently enter and exit AIE via a temporary left in/ left out (LILO) access road on Mamre Road in the south-west of the site (adjacent to Warehouse 9). The temporary access road is shown in **Figure 3**, with site photos included in **Figure 4** to **Figure 7**.

**Section 2.3** includes a detailed assessment of the temporary access road, together with details around timing and modifications to AIE access arrangements generally.

Access Road 1 has been largely constructed for the section between Mamre Road and Warehouse 3 (close to the under construction internal roundabout). and will be operational once the signalised intersection is constructed and operational. In the meantime, the vehicle access to Access Road 1 will continue via Access Road 4 and the temporary LILO access road, with internal connections to Access Road 2 and Access Road 4 also facilitated.





Source: Nearmap, 05 July 2024

Figure 3: Current AIE Access Arrangements





Figure 4: Temporary LIFO Construction Site Access (looking north along Mamre Road)



Figure 5: Access Road 4 (looking north towards Access Road 1)





Figure 6: Access Road 1 (looking west towards Mamre Road)



Figure 7: Access Road 4 (looking south)

## 1.6 Authority Requirements

### 1.6.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements (SEARs) were issued by DPE on 30 April 2020. The SEARs include general DPE requirements together with specific SEARs as provided by Transport for NSW (TfNSW), several of which speak directly to those covered by this CTMP.

Legislative and other requirements applicable to all aspects of the project are included in Section 3.3 of the CEMP.



## 1.6.2 Crash History

A review of the latest available data from TfNSW crash database has been completed to establish the crash history in the vicinity of the site. The latest publicly available crash data provided by TfNSW includes the 5-year period ending 2022 with any such newer crash data not yet available for reference. An assessment of the latest publicly available crash statistics is presented in **Table 3** and **Figure 8**.

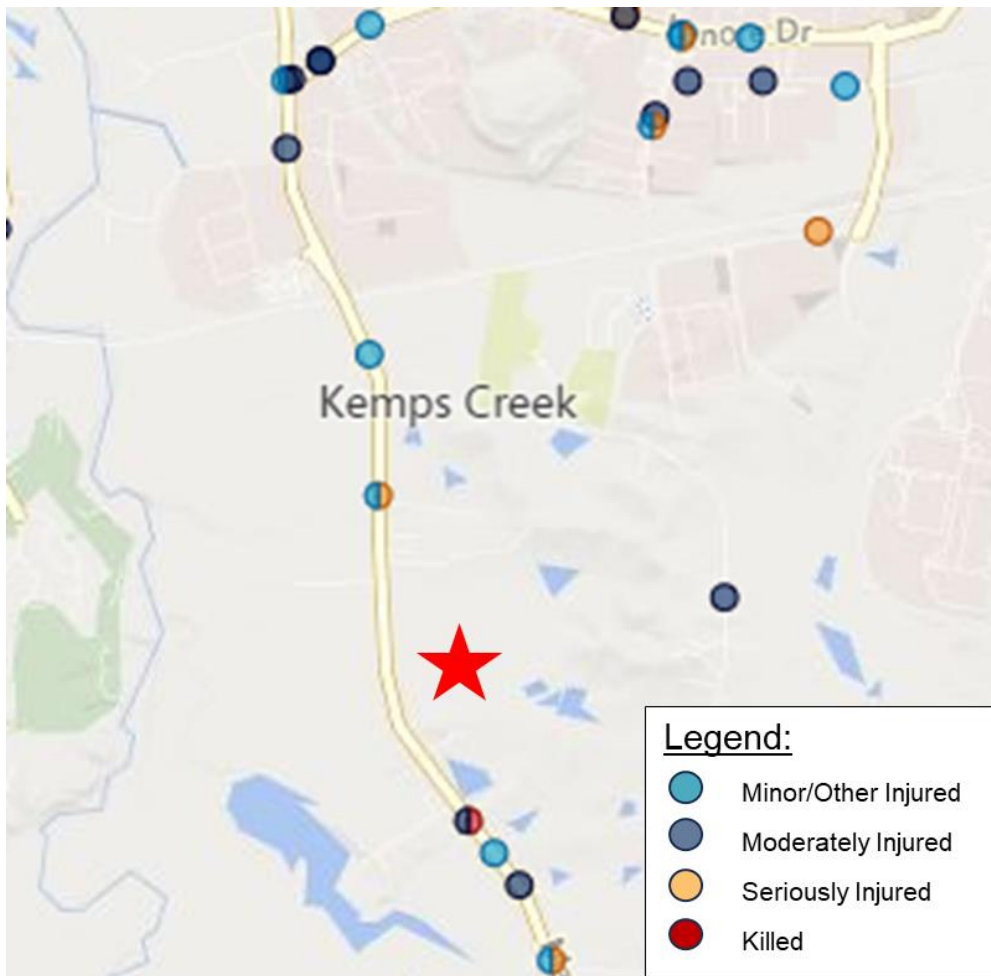
**TABLE 3: CRASH HISTORY**

Year	Location	RUM Code	Injury/Death
2018	Mamre Road, North of Site	20 – Head on	2 injured
2018	Mamre Road, North of Site	71 – Off Road left into object	1 injured
2019	Mamre Road, South of Site	71 – Off Road left into object	nil
2019	Mamre Road, South of Site	30 – Rear End	4 injured
2019	Mamre Road, North of Site	20 – Head on	1 injured
2020	Mamre Road, South of Site	20 – Head On	1 killed, 1 injured
2020	Mamre Road, South of Site	20 – Head On	2 injured
2022	Mamre Road, South of Site	40 – U-turn	2 injured
2022	Mamre Road, North of Site	40 – U-turn	nil
2022	Mamre Road, South of Site	74 – On Road out of control	1 injured
2022	Mamre Road, North of Site	71 – Off Road left into object	nil

Source: TfNSW Crash Statistics Website

The crash statistics indicate that between 2018 and 2022, there were 11 crashes on Mamre Road within approximately 1.5km of the site. Of the recorded crashes, one crash was fatal and located at least 800m south of the site. The closest recorded crash was approximately 700m from the site which indicates no discernible historical road safety issue along this section of Mamre Road.





Source: Interactive Crash Statistics website

Figure 8: 2018-2022 5-year period crash map

As discussed, only crashes along Mamre Road within 1.5km of the site have been included as part of this assessment. These crashes are generally north of Abbotts Road and south of the Warragamba Pipeline easement. Crashes outside this area are not considered to influence the site and site access arrangements and therefore omitted from **Table 3**.

It is also recognised that while traffic volumes and road conditions along Mamre Road have continued to change in the period since 2022, anecdotal evidence indicates that isolated crashes continue to remain the predominant pattern in the study area. This indicates that while additional construction related activities have resulted in an increase in traffic volumes on Mamre Road, the restrictions and monitoring in place have evidently prevented a corresponding pattern of increasing crashes.



## 1.7 Site Related Data

### 1.7.1 Road Details

The key roads surrounding the site are identified in **Figure 2** and summarised in **Table 4**.

**TABLE 4: LOCAL ROAD NETWORK**

Road Name	Section	Speed Limit	Parking	Traffic Volumes
Mamre Road	Bakers Ln & Abbotts Rd	80 km/hr	No	AM Peak: 1,850 <sup>1</sup> veh/hr PM Peak: 1,682 <sup>1</sup> veh/hr Weekday average: 21,814 <sup>1</sup> veh/day 7-day average: 18,653 <sup>1</sup> veh/day
Erskine Park Road	Mamre Rd & M4	70 km/hr	No	-
Bakers Lane	Mamre Rd & Aldington Rd	60 km/hr (40 km/hr during school periods)	No	-
Elizabeth Drive	M7 & The Northern Rd, Hume Highway & Mamre Rd	80 km/hr	No	2021 ADT: 26,516 <sup>2</sup> veh/day

Notes: 1) Mamre Road tube count data collected in May 2024 between Bakers Ln and Abbotts Rd  
2) Transport for NSW Traffic Volume Viewer

## 1.8 Stakeholder Engagement

### 1.8.1 Authority Consultation

Mirvac has, through Infrastructure Project Managers Orion, engaged with TfNSW to install a posted 60 kilometre per hour road works speed limit on Mamre Road between Bakers Lane and Abbotts Road for the duration of construction works, as required under SSD 58257960 Condition B4. Relevant TfNSW consultation evidence from 10 July 2024 is included in **Appendix A**.

Mirvac have submitted this CTMP to key stakeholders including TfNSW and Penrith City Council for consultation. See **Appendix A** for evidence of this process.

### 1.8.2 Stakeholder Notification

In the event that any disruptions (unexpected or in advance) to roadways/ footpaths occur as a result of construction works, the procedures outlined below are to be followed:

- Any updates required to the CTMP will be resubmitted to all key stakeholders (TfNSW and Penrith City Council) for review and approval.
- During future disruptions to roadways/ footpaths are required, Council/ TfNSW is to be notified first and depending on the extent of the disruption Mirvac is to notify affected property occupiers via use of letter drops and Variable Message Signs (VMS).
- If any unforeseen disruptions to roadways/ footpaths occur, Council/ TfNSW is to be notified first and depending on the extent of the disruption, Mirvac is to notify affected property occupiers via use of traffic controllers and Variable Message Signs (VMS).



- In the event of heavy vehicle damage to Council/ TfNSW assets/ infrastructure, Mirvac will notify Penrith City Council's Traffic and Transport team and/ or Assets Branch.
- If any future disruptions to the surrounding community, they will be notified by the appointed Communications and Community Liaison Representative (CCLR) in accordance with the procedures detailed in **Section 4.5**.



## 2 Proposed Works and Staging

### 2.1 Construction Activity

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Construction is expected to commence in September 2024, with practical completion planned by June 2025 (duration of approximately 10 months). The following is a breakdown of the key construction activities and installation equipment required:

- Earthworks, including cut and fill:
  - Delivery of DGB20 via truck and dogs.
  - Installation equipment: grader, dump truck, 30t excavators.
  - Timeframe: 4 weeks from commencement.
- Footings, including detailed excavation, concrete pour and HD bolt installation:
  - Delivery of material via semi-trailers and concrete agitators.
  - Installation equipment: 5t excavator, tip truck.
  - Timeframe: 2-3 weeks.
- Structural steel:
  - Delivery via semi-trailers.
  - Installation equipment: 40t crane, boom lifts.
  - Timeframe: 5 weeks.
- Precast panels:
  - Delivery via semi-trailers.
  - Installation equipment: 20t Franna, boom lifts.
  - Timeframe: 1-2 weeks.
- Roofing and wall cladding:
  - Delivery via semi-trailers.
  - Installation equipment: 40T crane, boom lifts, scissor lifts.
  - Timeframe: 3-4 weeks.
- Concrete place:
  - Delivery via concrete agitator trucks.
  - Installation equipment: somero, bobcat, ride-on and walk behind finishing machines.
  - Timeframe:
    - Internal: 4 weeks.
    - External: 3-4 weeks.
- Asphalt place:
  - Delivery via agitators.
  - Installation equipment: asphalt machine.
  - Timeframe: 1 week.
- Landscaping:
  - Delivery via truck and dogs.
  - Installation equipment: backhoe.
  - Timeframe: 3-4 weeks.
- Office fit out:
  - Delivery via trucks.



- Installation equipment: boom lifts, scissor lifts.
- Timeframe: 6-8 weeks.

This CTMP outlines the works involved and the necessary associated traffic management measures.

## 2.2 Construction Hours

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The work hours for Warehouse 2 will be as follows:

- Monday to Friday – 7am to 6pm
- Saturday – 8am to 1pm
- Sunday and Public Holidays – No work.

The above work hours are consistent with Condition B28 of the development consent. These restrictions to work hours will also limit traffic/ deliveries to site except as permitted by emergency/ out-of-hours work approval etc.

Mirvac will lodge an application for an Out of Work Hours Permit with DPHI to seek approval for any such construction works that are not permissible under Condition B29 of the development consent, which stipulates the following:

*B29. Works outside of the hours identified in condition B28 may be undertaken in the following circumstances:*

- (a) works that are inaudible at the nearest sensitive receivers*
- (b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or*
- (c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.*

## 2.3 Site Access Arrangements

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As discussed in Section 1.5, access to AIE will be via the existing temporary Mamre Road LILO access road in the south-west corner of the site. This temporary access has been approved under the TfNSW Works Authorisation Deed (WAD) (TfNSW reference: WAD DS2022 / 000659). **Figure 9** details the layout of the approved access.

As required under Condition of Consent SSD 58257960 Condition B3, Warehouse 2 construction traffic will be restricted in using the Temp LILO until the signalised intersection is constructed and operational. Following the opening (and operation) of the signalised intersection Warehouse 2, construction traffic will be required to use the signalised intersection only.

At no time will construction vehicles be permitted to use Bakers Lane, Aldington Road or Abbots Road when travelling to or from the construction site. This includes site personnel/ contractors travelling by light vehicle.

Emergency vehicle access shall be maintained at all times with a dedicated emergency vehicle parking space identified and unoccupied (unless by an emergency vehicle).



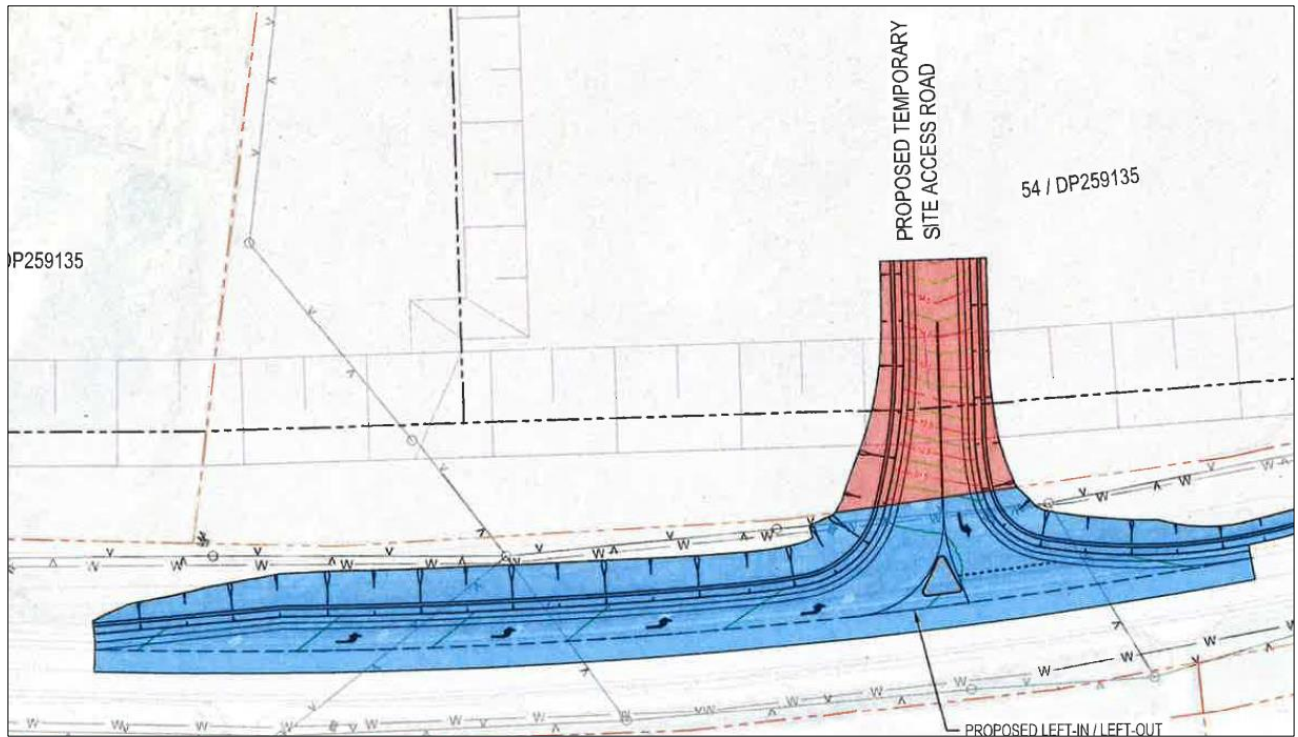


Figure 9: Approved temporary intersection layout under TfNSW WAD

During all construction works, a variety of vehicles will be used and range from concrete trucks up to 20m articulated vehicles. It is noted that Condition A8 of SSD 58257960 allows for larger vehicles to access the AIE estate, stipulating that “the largest vehicle permitted to access the site is a 30m Performance Based Standards (PBS) Level 2 Type B.” In this regard, no vehicles larger than this will be used throughout all construction works with the AIE access strategy shown in **Figure 10**.



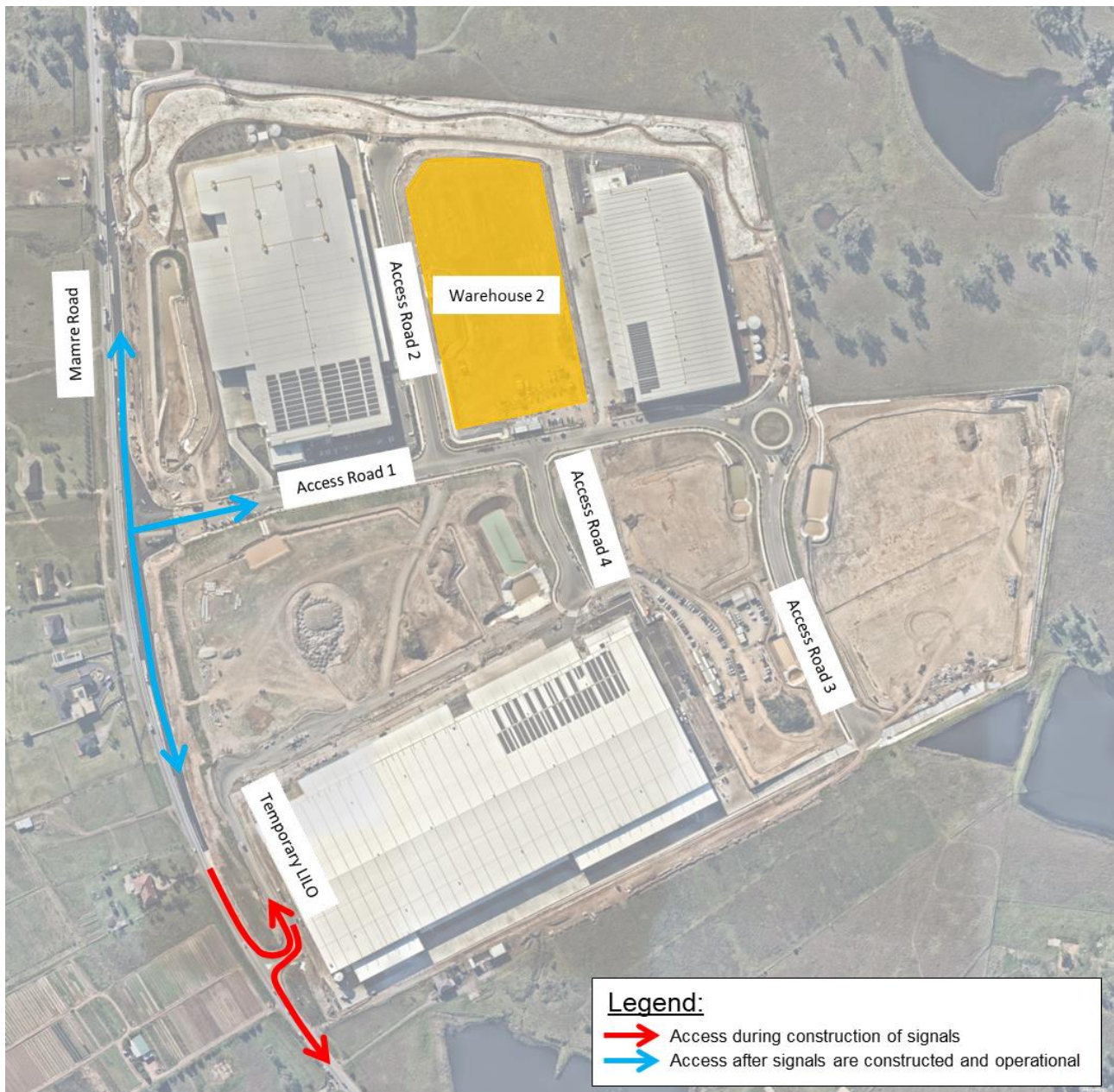


Figure 10: AIE access strategy

## 2.4 Truck Routes

All heavy vehicles will be strictly limited to the arrival and departure routes as detailed in **Figure 11**.

At no time will construction vehicles be permitted to use Bakers Lane, Aldington Road or Abbots Road when travelling to or from the construction site. This includes site personnel/ contractors travelling in light vehicles. Construction vehicles shall be restricted to the temporary LHO access until such time that the new Mamre Road/ Access Road 1 signalised intersection is operational.

A copy of the approved routes will be distributed by Texco to all drivers before their arrival to site. No trucks will queue on any roads on approach to the construction site. Mobile phones, two-way radios or application-based solutions will be used to coordinate truck arrivals.



As shown in **Figure 12**, the proposed construction vehicle routes are also consistent with the TfNSW Restricted Access Vehicles (RAV) map for vehicles up to 26m B-doubles.

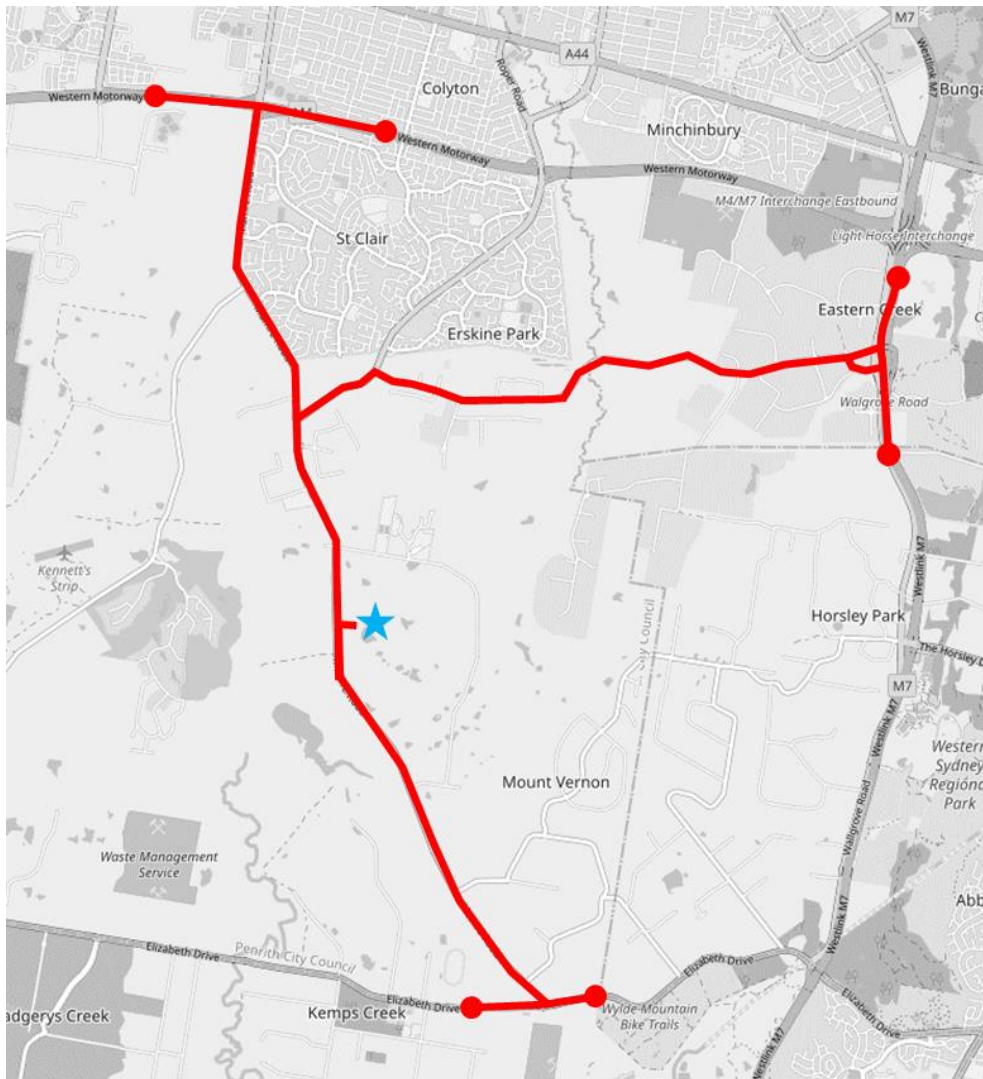


Figure 11: Construction Vehicle Route Map



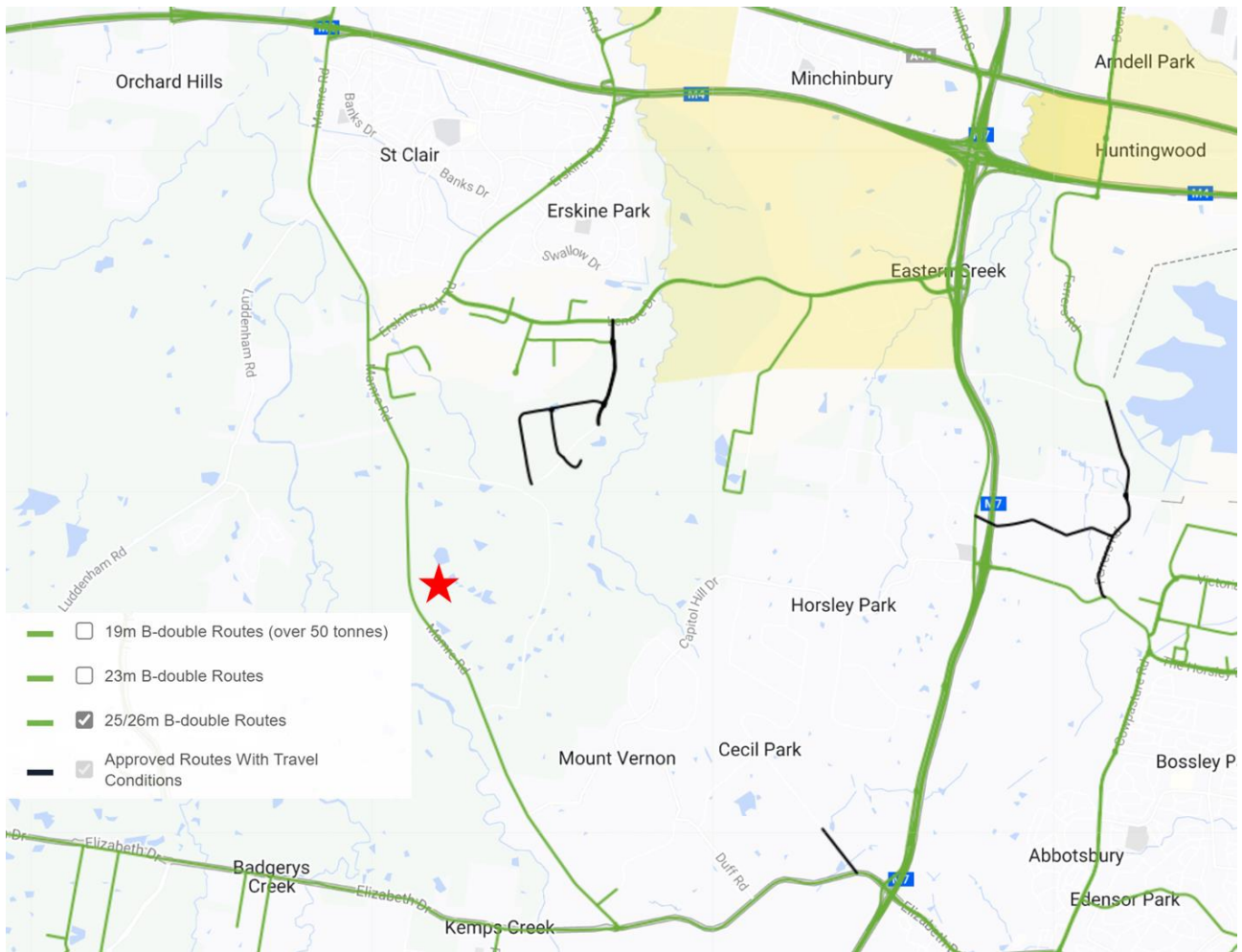


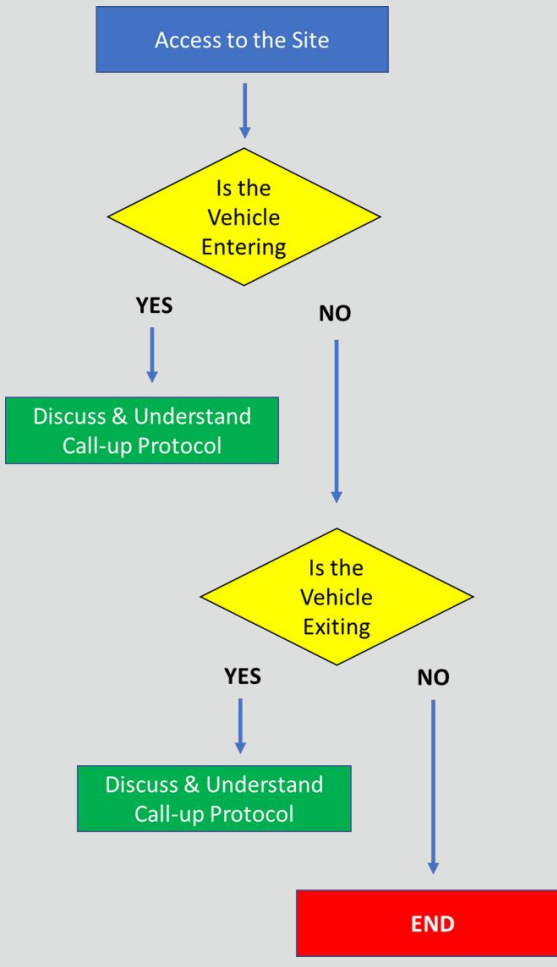
Figure 12: Restricted Access Vehicle (RAV) Map

## 2.5 Temporary Traffic Management Method

Traffic management shall be undertaken in accordance with the methodology outlined within the TGS included in **Appendix B** and defined in **Table 5**. All road users are expected to be directed around the worksite in order to physically separate the road user from any hazards within the worksite.



**TABLE 5: ACCESS PROTOCOLS & METHODOLOGY**

Procedure	Responsibility	Notes
 <pre> graph TD     A[Access to the Site] --&gt; B{Is the Vehicle Entering}     B -- YES --&gt; C[Discuss &amp; Understand Call-up Protocol]     B -- NO --&gt; D{Is the Vehicle Exiting}     D -- YES --&gt; E[Discuss &amp; Understand Call-up Protocol]     D -- NO --&gt; F[END]           </pre>	Site Manager / Foreman / Traffic Controller	<b>ENTRY PROTOCOL:</b> Via UHF radio, channel agreed at pre-start 1. Vehicle to advise gate controller when 200m from gate via UHF — vehicle to ensure flashing lights are on 2. Vehicle advises of metres from gate in 50m lots (i.e., 150m from gate 100m from gate). 3. Gate Controller advises safe to enter, vehicle enters site and decelerates behind barriers 4. If not safe to enter, vehicle is to continue driving and not stop / queue on the public roadway 5. Vehicle uses road network to return and make another attempt at entering site
	Site Manager / Foreman / Traffic Controller	<b>EXIT PROTOCOL:</b> Via UHF radio, channel agreed at pre-start 1. Vehicle driver to radio Gate Controller to ensure exit is possible – vehicle to ensure flashing lights are on 2. If no issues driver to accelerate to exit gate and merge with traffic. 3. If driver cannot exit, Gate Controller to order vehicle to hold until gate is clear. <b>Gate Controller is not to stop traffic on the public road network</b>

## 2.6 Risk Assessment

A risk assessment is aimed to identify the hazards and risks associated with the works. The purpose of this risk assessment is to determine the controls required for the protection of road workers and road users. A risk assessment has been completed and is attached in **Appendix C**.

## 2.7 Site Contact

The key construction site contacts throughout all construction stages are detailed in **Table 6**.



**TABLE 6: CONSTRUCTION CONTACT**

Role	Name	Company	Contact Details
<b>Project Principal</b>	Meg Horan	Mirvac	0421 843 033 meg.horan@mirvac.com
<b>Contractor's Project Manager</b>	Anne-Kristin Kahra	Texco	0410 986 717 akahra@texco.net.au
<b>Contractor's Environmental Advisor</b>	Andrew Littlewood	Rubicon Enviro Pty Ltd	0429 953 626 andrew@rubiconenviro.com.au
<b>Contractor Work Health and Safety (WHS) Coordinator</b>	Luke Townsend	Texco	0407 469 217 ltownsend@texco.net.au
<b>Project Environmental Representative</b>	Maurice Pignatelli	OptimE Pty Ltd	0407 493 176 maurice@optimenv.com.au
<b>Alternate Project Environmental Representative</b>	Ben Bracken	BBEnviro	0410 409 897 ben.bracken@bbenviro.com.au
<b>Principal's Environmental Consultant (PEC)</b>	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au
<b>Communications and Community Liaison Representative</b>	Alanna Ryan	SLR Consulting	02 4037 3258 aryan@slrconsulting.com

The list of key contacts shall be provided to all staff and contractors as part of site induction, as well as be posted on the site shed. Consideration should also be given to presenting this list of contacts on the project website.

## 2.8 Works Zone

No Work Zone is required as it relates to the construction of Warehouse 2 with all construction works to occur within the Lot 301 and 305 in DP1305254 and Lot 104 and 105 in DP1305965 site boundaries.

In the event that the implementation of further temporary traffic control measures on public road/ road related area Mirvac will obtain a Road Occupancy Permit (ROP) from Penrith City Council, in accordance with Condition E1(b)i). If excavation and/ or road opening works on a public road are necessary, Mirvac will obtain a Road Opening Permit.



## 3 Traffic Management

### 3.1 Approved Operational Traffic Volumes

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The Ason Group traffic report supporting the Concept Plan (ref: 1029r04) outlined the following operational traffic volumes associated with AIE once all sites are fully operational:

- AM peak: 577 vehicle movements per hour
- PM peak: 602 vehicle movements per hour
- Daily total: 7,310 vehicle movements per day.

For the purposes of this report, one truck is equal to one inbound movement plus one outbound movement for a total of two movements.

In this context, the following sections detail the various construction and operational traffic volumes to better understand the cumulative impacts both internally and external to AIE.

### 3.2 Construction Vehicle Traffic Generation

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#### 3.2.1 Warehouse 2 Construction Traffic

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The anticipated vehicle movements associated with Warehouse 2 construction have been estimated having consideration to construction worker numbers together with plant, equipment and a variety of construction haulage requirements.

Overall, the construction schedule estimates that Warehouse 2 will generate up to 200 vehicles per day comprising 140 light vehicles and 60 heavy vehicles. This equates to 400 vehicle movements (in + out). In this regard, there will be approximately 45 vehicle movements in the AM peak hour (35 light vehicles and 10 heavy vehicles) and 35 vehicle movements in the PM peak hour (30 light vehicles and 5 heavy vehicles).

These volumes are consistent with the approved Transport Assessment prepared by Ason Group dated 24/07/2023 (report reference: P2168r01v5).

#### 3.2.2 Internal Road Construction

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Delivery of the roads internal to AIE are also important to understand. In this regard, reference to the Ason Group traffic report (ref: 1029r05v9) delivered as part of AIE construction traffic management has been referenced to understand the associated and previously approved construction traffic volumes. The AIE CTMP estimated that there would be a maximum 564 construction vehicle movements per day throughout all stages, with an estimated maximum 160 movements in any peak hour.

As discussed in **Section 1.5**, with several roads already partly or wholly delivered as part of AIE (including access roads 1, 2 and 4), the peak activity is likely already passed with the above volumes considered a theoretical peak and unlikely to coincide with construction timelines associated with delivery of Warehouse 2.

#### 3.2.3 Operational Traffic

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As discussed in **Section 1.5**, Warehouse 1 is currently operational with both Warehouse 3 and Warehouse 9 planned to be similarly operating when Warehouse 2 construction commences. In this regard, these warehouses were estimated to generate the following traffic volumes:



- Warehouse 1 – 986 vehicle movements per day and 81 movements in any peak hour
- Warehouse 3 – 627 vehicle movements per day and 52 movements in any peak hour
- Warehouse 9 – 1,931 vehicle movements per day and 160 movements in any peak hour.

In combination, these three warehouses would generate about 293 vehicle movements in any peak hour.

All operational traffic will be restricted to using Mamre Road only when travelling to and from the site. At no time will any operational vehicles be permitted to use Bakers Lane, Aldington Road or Abbotts Road.

### 3.2.4 Summary of Cumulative Traffic Volumes

The expected cumulative vehicle trips at the time when Warehouse 2 construction commences have been estimated and detailed in **Table 7**. This includes a combination of the operational sites (Warehouse 1, 3 and 9) and under construction sites (Warehouse 2). Construction traffic associated with delivering the Mamre Road/ Access Road 1 signalised intersection are also included.

Cumulative traffic has been benchmarked against the traffic generation of the AIE precinct, approved as part of the masterplan SSDA, with all traffic expected to use the Mamre Road/ Access Road 1 signalised intersection on arrival and departure. As such, once the intersection is constructed and operational, the intersection has been approved to accommodate 7,217 daily vehicle trips. In this regard, the cumulative vehicle trips associated with Warehouse 2 construction remain significantly less than those approved for the AIE precinct and would not be expected to materially impact the internal road network or externally along Mamre Road and other intersecting roads in the vicinity.

Mirvac will liaise regularly with appointed contractors, including works associated with delivering the signalised intersection to avoid any such large vehicle delivery conflicts and to ensure that the cumulative construction impacts are managed and not exceed approved operational limits.

Signage internal to AIE will continue to ensure appropriate use by construction and operational traffic, with use of traffic controllers where necessary and consistent with current arrangements. Peak activity associated with the operational sites would also unlikely coincide with peak construction vehicle activity, further limiting the peak hour effects. Overall, the existing AIE access arrangements (through the temporary LILO) and final signalised intersection will be able to cater for the anticipated traffic as part of the staged delivery of AIE.

**TABLE 7: DAILY TRAFFIC VOLUMES**

Development	Approved Volumes	Vehicle Trips	Net Difference
Warehouse 1 (operational)	7,217	986	-3,329
Warehouse 2 (construction)		400	
Warehouse 3 (operational)		627	
Warehouse 9 (operational)		1,931	
Signalised Intersection Works		10	
<b>Total</b>	<b>7,217</b>	<b>3,954</b>	<b>-3,263</b>

*Note: As of July 2024, all internal roads have largely been constructed, with nominal ongoing construction activity expected for these works.*



### 3.3 Impact Mitigation on Surrounding Network

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The impacts of construction traffic and associated mitigation measures to be implemented are outlined below.

- **Construction Traffic in Mamre Road:** Construction traffic will initially use a temporary intersection to access the work area for the works. To ensure the impacts to motorists within the area are kept to a minimum, construction traffic will be contained with the prescribed volumes, as outlined within the CTMP prepared by WEM Civil.
- **Management of deliveries:** Mirvac will manage deliveries to shall ensure that construction vehicles, particularly heavy vehicles, will not exceed approved limits.
- **Safety During Construction:** Safety to motorists and pedestrians throughout the area will be maintained during construction through the preparation and execution of Traffic Guidance Schemes (TGS's). A range of TGS's will be incorporated to Mirvac CTMPs, for each access throughout construction, to identify all reasonably foreseeable hazards, assess the hazards, and manage the hazards as best possible by either eliminating or minimising the risks. TGS's shall be monitored and updated accordingly throughout the project.
- **Reporting:** Reporting and monitoring of movements during peak periods are to be undertaken to ensure that drivers are adhering to restricted times, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved.

The key to managing the cumulative impact of the various construction worksites in the vicinity of the site is to firstly identify the relevant stakeholders and future coordination/ liaison requirements as part of the following major projects:

- Mamre Road Upgrade.
- Sydney Metro – Western Sydney Airport.
- Aldington and Abbots Road Upgrade.
- ESR Silk Logistics - Westlink Kemps Creek.

Mirvac will liaise and coordinate on a regular basis in the form of construction interface meetings/ transport coordination/ liaison/ working group for coordinating activities between projects and to minimise overlapping of high-volume days, such as major concrete pours.

It is also noted that Mirvac has a representative on the Mamre Road Precinct Working Group. The working group comprises other relevant consent holders in the MRP, and will meet regularly to review cumulative traffic, safety measures to manage cumulative construction traffic (including coordination and communication), funding and monitoring.

With the above measures, it is not expected that this level of traffic movement would create any adverse impact on the surrounding road network.

### 3.4 Vehicle Management

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In accordance with TfNSW requirements and the Conditions of Consent, all drivers are to be familiar with the Driver Code of Conduct before attending the Site. A copy of the Code is included in **Appendix C**.

All vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the site. Public roads used by construction vehicles are to be kept clean at all times. All vehicles enter and exit the site in a forward direction.



All subcontractors must be inducted by Mirvac's on lot contractor Texco, to ensure that the procedures are met for all vehicles entering and exiting the construction site. Mirvac will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles. Vehicle movements to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads. Public roads, access points and internal parking areas will not be obstructed by any materials, unapproved vehicles, refuse skips or the like, under any circumstances. At no time shall heavy vehicles and bins associated with the development park on local roads or footpaths in the vicinity of the site.

All vehicles are wholly contained on site before being required to stop. At no stage shall queuing or idling occur on the public road network. A schedule for deliveries of goods and materials will be established prior to that day, with Traffic Controllers to always maintain radio contact with construction vehicles. The anticipated deliveries will be made known to site personnel at daily prestart meetings.

All loading and unloading of materials will occur within the site boundary.

In accordance with SSD 58257960, Condition B5, Mirvac through their on-lot contractor will monitor construction and operational traffic volumes using the temporary LILO access on Mamre Road (constructed in accordance with condition D13A of Schedule 2 of SSD-10448) for the period that the temporary construction access is being used. Traffic volumes will be reported to TfNSW and the Planning Secretary on a monthly basis.

As discussed in Section 1.8.1, Mirvac has engaged with TfNSW as it relates to installation of a posted 60 kilometre per hour road works speed limit on Mamre Road between Bakers Lane and Abbots Road for the duration of construction works. The details will be confirmed with TfNSW, with all necessary signage to be installed prior to the commencement of Warehouse 2 construction works. All signage will remain in place 24 hours a day, 7 days a week unless otherwise instructed by TfNSW.

### 3.5 Contractor and Heavy Vehicle Parking

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There will be adequate parking supply to accommodate the expected maximum 100 and average 60 workers on site at any one time.

Contractors will typically drive given a general absence of practical bus services along Mamre Road in the vicinity of the site. On-site parking will be made available, with suitable pedestrian connections always maintained between the work areas and contractor parking. A dedicated contractor parking area and heavy vehicle strategy will be developed and modified as necessary throughout all works stages to ensure practical use.

It is expected that the location of dedicated heavy vehicle parking areas will change as the construction of the internal road network progresses, therefore the location of parking spaces shall be outlined within the driver code of conduct and communicated at the regular toolbox meetings. Parking will be regularly monitored to ensure no queuing onto any roadway at any time.

### 3.6 Pedestrian and Cyclist Management

---

As detailed in **Table 8**, there is a general absence of vulnerable road users along Mamre Road on account of no formal footpaths, bicycle paths or shared paths along the site frontage.

In the unlikely event that there are pedestrians or cyclists needing to cross an access driveway they will be temporarily held by an accredited traffic controller at such times that construction vehicles are entering or exiting the site. Once the construction vehicles are clear, the traffic controller will allow pedestrians/ cyclists to continue on their journey.



## 3.7 Fencing Requirements

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Construction fencing will be provided around the perimeter of the site to ensure unauthorised persons are unable to gain access to the site.

## 3.8 Traffic Guidance Scheme

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A site-specific TGS has been developed and included in **Appendix B** to reflect specific work activities and/or changes to road conditions. It is noted that any new signage will take into consideration any existing signage implemented as part of other warehouses in AIE.

## 3.9 Authorised Traffic Controller

---

There is a requirement for an authorised traffic controller to be present at the temporary construction access. The responsibilities include:

- Implementation of the TGS.
- Pedestrian and cyclist management, to ensure that adverse conflicts between vehicle movements and pedestrians/cyclists do not occur.
- Supervision of all vehicle movements across pedestrian footpaths at all times, and (if required)
- Supervision of all loading and unloading of construction materials from on-street works zone during the deliveries in the construction phase of the project (if required).

## 3.10 Driver Awareness & Code of Conduct

---

All drivers shall be made aware of and adhere to the Driver Code of Conduct, as outlined in **Appendix D**.

It is understood that DPHI are working with key proponents of the Mamre Road Precinct Consultative Committee to ensure availability of an updated Driver Code of Conduct. Whilst the Driver Code of Conduct included in this CTMP does not yet reflect any such updates, Mirvac is committed to updating and implementing as necessary within one month of receiving direction from the Planning Secretary.

## 3.11 Worker Induction

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All workers and subcontractors engaged on-site would be required to complete a site induction. The induction will include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain must be suitably trained and covered by adequate and appropriate insurances.

## 3.12 Cranage

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The location of cranes and a crane movement plan has been prepared by Texco and attached to **Appendix E**.



## 4 Monitoring and Review

### 4.1 Report Monitoring

---

This CTMP shall be subject to ongoing review and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator. A review of the CTMP shall occur monthly. All and any reviews undertaken should be documented, however key considerations regarding the review of the CTMP shall be:

- Tracking deliveries against the volumes outlined within the report. Deliveries will be tracked against approved volumes and will keep a vehicle log - including Rego & time of entry - for the purpose of assessing the effectiveness of these monitoring programs.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (parking and access issues)
- Ensure TGS's are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" cardholders to ensure they remain consistent with the set-up on-site.
- Regular checks to ensure all loads are entering and leaving the site covered as outlined within this CTMP.
- A Dilapidation report shall be undertaken periodically to assess the condition of the road and note whether there has been any reduction in the quality of the road as a result of construction vehicles.

The development of a program to monitor the effectiveness of this CTMP shall be established by Mirvac. This process is expected to form part of the monitoring plan required to be included as part of the overarching Construction Environmental Management Plan (CEMP), of which this CTMP forms a part.

The roadway (including the footpath) must be kept in a serviceable condition for the duration of construction. At the direction of Council, undertake remedial treatments such as patching at no cost to Council.

### 4.2 Traffic Monitoring Program

---

Texco has commenced regular traffic monitoring through hourly construction vehicle traffic counts. This data is submitted to Mirvac at the end of every week to ensure that construction traffic volumes are within the approved thresholds. All Mirvac sub-contractors are also required to monitor traffic on their respective worksites. The temporary LILO also includes a gatehouse operated by Mirvac, with personnel keeping record of all vehicle entries and exits. Given that all traffic entering and exiting AIE do so via the temporary LILO, Mirvac is able to obtain traffic volumes for the entire AIE precinct. These traffic volumes will be reported to TfNSW and the Planning Secretary monthly and as required.

It is also noted that there is distinct and obvious on-site signage that definitively reinforces the need to turn left on entry and exit, with no U-turns permitted on Mamre Road at any time. These signs also warn of the penalties; \$8,000 fines for individuals and \$15,000 fines for companies. Signage indicating the placement of licence plate recognition technology further reinforces the access arrangements.

Any non-compliances will be immediately communicated with the relevant contractors for action and Mirvac will notify DPHI accordingly.

### 4.3 Work Site Inspections, Recording and Reporting

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Recording and reporting of the monitoring programs shall be done in accordance with Section E.3, E.4 and E.5 of the TCAWs Manual. As such, the structure, schedule, and frequency of these activities have been considered and identified.



To inspect, review and audit the temporary traffic management (TTM) arrangements implemented on site, the following actions are to be undertaken by suitably qualified personnel in accordance with TCAWS 6.1 requirement during all phases of construction, being:

**TABLE 8: EXAMPLE REVIEW OF ACTIVITIES**

Activity			Frequency or Details
Shift Inspections	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Regular Inspections	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
TMP Review	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Road Safety Audit	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Other	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments			

Given that the length of construction and that no regular works have been proposed outside the site, monthly TTM inspections is considered sufficient.

## 4.4 Contingency Plan

A contingency plan shall be established by Mirvac and is to be included in the overarching CEMP. Notwithstanding, **Table 9** outlines an indicative plan to be undertaken by Mirvac in the event that the monitoring program identifies the management plan is not effective in managing the construction impacts.

This contingency plan can also be used for works on the Mamre Road/ Access Road 1 intersection however, it is expected that WEM Civil (who prepared the site specific CTMP's for the intersection works) will also provide an updated Contingency Plan. A Compliance Report must be submitted to DPHI reviewing the environmental performance of the development to:

- identify any trends in the monitoring data over the life of the development
- identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies
- describe what measures will be implemented over the next year to improve the environmental performance of the development.

**TABLE 9: CONTINGENCY PLAN**

Risk		Condition Green	Condition Amber	Condition Red
Construction Movements	Trigger	Both peak hour and daily Construction traffic volumes are in accordance with volume and time constraints as outlined within Section 3.1 (150 LV & 184 HV Movements per day) and <b>Section 3.2</b>	Construction traffic volumes exceeds programmed Peak volumes but is within permissible daily volume constraints (150 LV & 184 HV Movements per day)	Construction traffic volumes exceeds permissible volume and time constraints (150 LV & 184 HV Movements per day)
	Response	No response required	Review and investigate construction activities, and where appropriate, implement	As with Condition Amber, plus; <ul style="list-style-type: none"> <li>• If it is concluded that construction activities were directly responsible for the</li> </ul>



			additional remediation measures such as: <ul style="list-style-type: none"> <li>Review CTMP and update where necessary</li> <li>Provide additional training.</li> </ul>	exceedance, submit an incident report to government agencies. <ul style="list-style-type: none"> <li>Stop all transportation into and out of the site.</li> </ul>
<b>Queuing</b>	Trigger	No queuing identified	Queuing identified within site, but not on to public road	Queuing identified on the public road
	Response	No response required. Continue monitoring program	Review the delivery schedule prepared by Mirvac. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Driver Code of Conduct	As with Condition Amber, plus <ul style="list-style-type: none"> <li>Review and investigate construction activities.</li> <li>If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.</li> <li>Temporary halting of activities and resuming when conditions have improved.</li> <li>Stop all transportation into and out of the site.</li> <li>Review CTMP and update where necessary, provide additional training.</li> </ul>
<b>Noise</b>	Trigger	Noise levels do not exceed imposed noise constraints, as outlined within the Noise Assessment Report (<45dBA), nor has there been a traffic noise related complaint	Noise levels in minor excess (<10dBA) of imposed noise constraints, or receipt of a single noise complaint	Noise levels greatly in excess (>10dBA) of imposed noise constraints or consistent noise complaints.
	Response	No response required	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	As with Condition Amber. If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
<b>Traffic Guidance Scheme</b>	Trigger	No observable issues (TGS implements according to plan)	Minor inconsistencies with TGS to onsite operations (such as covered signs, missing signs, fallen cones, etc.)	Failure to implement plan effectively (even if there has been no near miss or incident)
	Response	No response required	Traffic Controller to amend TGS on site and to keep a log of all changes	Stop work until an investigation has been undertake into the incident. There are to be changes made to the TGS to ensure that the safety of all workers, students and civilians are catered for.
<b>Dust</b>	Trigger	No observable dust	Minor quantities of dust in the air and tracking on to the road	Large quantities of dust in the air and tracking on to the road
	Response	No response required	Review and investigate construction vehicle movements and activities and respective control measures, where appropriate. Implement	As with Condition Amber. <ul style="list-style-type: none"> <li>If it is concluded that construction vehicle activities and movements were directly responsible for the exceedance, submit an</li> </ul>



			<p>additional remedial measures, such as:</p> <ul style="list-style-type: none"> <li>• All drivers of vehicles transporting loose materials will be required to ensure the entire load is covered using a tarpaulin or similar impervious material.</li> <li>• Deployment of additional water sprays</li> <li>• Wheel wash station shall be positioned at the exit point of all gates.</li> <li>• Temporary halting of vehicle movements and activities and resuming when conditions have improved.</li> <li>• The roads will also be cleaned on a regular basis to minimise dust/dirt particles depositing externally from the site.</li> </ul>	<p>incident report to government agencies.</p> <ul style="list-style-type: none"> <li>• Implement relevant responses and undertake immediate review to avoid such occurrence in future.</li> </ul>
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## 4.5 Communications Strategy

Community consultation and complaints for Warehouse 2 will be managed in accordance with the Community Consultation and Complaints Handling Strategy (CCCHS) (SLR 2023).

The appointed CCLR shall be responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint. The roles of the CCLR would comprise:

- Lead and manage the community involvement activities, including liaison with property owners and key stakeholders.
- Be the primary daily contact to the public handling of enquiries / complaints management / interface issues.
- Maintain the complaints register and make available the complaints register to the ER on a daily basis.
- Be available for contact by local residents and the community at all reasonable times to answer any questions.
- Liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the upgrade works.
- Lead the delivery of communication and community engagement strategies and plans.
- Facilitate meetings, forums and arranging interviews to address concerns from community.
- Provide advice and participate with the project teams to improve and enhance the delivery of communication services to the community.
- Build, maintain collaborative and consultative working relationships with internal and external stakeholders.
- Be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback.

All employees who are made aware of a complaint, either verbal or written, are to immediately notify the Mirvac Project Manager, who will then contact the CCLR. Upon becoming aware of a complaint, the protocol outlined below will be followed.



**TABLE 10: RESPONSE STRATEGY**

Ref	Protocol	Action
1	Record and acknowledge	<p>Any employee who takes receipt of a complaint, either verbal or written, are to immediately notify Mirvac's Project Manager who will then contact the Communications and Community Liaison Representative.</p> <p>Mirvac's Project Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works. In the normal course of events, the first contact for complaints will usually be made in person or by telephone.</p> <p>The complainant's name, address, and contact details, along with the nature of the complaint, will be requested. If the complainant refuses to supply the requested information, a note will be made on the form and complainant advised of this.</p>
2	Assess and prioritise	The CCLR will prioritise all complaints by severity for the risk to health and safety and will attempt to provide an immediate response via phone or email.
3	Investigate	An on-site investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any monitoring information and/or records at and around the time of the complaint will be reviewed for any abnormality or incident that may have resulted in the complaint.
4	Action or rectify	<p>Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact.</p> <p>The CCLR will assess whether the complaint is founded or unfounded and delegate the remediation of the issue to Mirvac's Project Manager for action, as required.</p>
5	Respond to Complainant	<p>The CCLR will oversee the rectification of the issue and respond to the complainant once the issue has been resolved.</p> <p>The complainant will be provided with a follow up verbal response on what action is proposed within two hours during night-time works (between the hours of 6:00 pm and 10:00 pm) and 24 hours at other times.</p> <p>Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant within ten days.</p>
6	Record	<p>It is imperative that an assessment of the situation is carried out and documented to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the Community Correspondence Register.</p> <p>A copy of the completed form will be maintained for at least five years</p>
7	Preventative Action	<p>Once the complaint has been suitably handled, appropriate measures will be identified and implemented to negate the possibility of re-occurrence.</p> <p>The Community Correspondence Register is not finalised until the preventative actions are completed and recorded on the form.</p>

In addition to the above, the CCLR is to notify the community liaison representative when traffic is expected to exceed the parameters set within "Condition Green" of **Table 9**. Notwithstanding, **Table 11** outlines an indicative communication strategy to ensure that adequate communication with key stakeholders have been met.

**TABLE 11: COMMUNICATIONS STRATEGY**

Risk	Impact	Comms Channel
<b>Wider Traffic Disruption</b>	Wider community and stakeholders informed through local and wider advertising and notification	<ul style="list-style-type: none"> <li>stakeholder meetings</li> <li>stakeholder email blast</li> <li>communications and community liaison representative</li> </ul>



# Appendix A. Stakeholder Consultation



Our reference: P-729734-N9T8  
Contact: Gavin Cherry  
Telephone: (02) 4732 8125

17 July 2024

ATTN: Chee Hui Chan  
Email: [cheehui.chan@mirvac.com](mailto:cheehui.chan@mirvac.com)

Dear Chee Hui Chan,

**Council Response to Planning Enquiry Regarding Condition of Consent B1b– Construction Traffic Management Plan for SSD-5825796 at Aspect Industrial Estate Stage 3 Warehouse 2 – 788-882 Mamre Road, Kemps Creek, NSW, 2178**

I refer to the above referenced SSD Notice of Determination, and specifically Condition B1 (b) which requires consultation to occur with Council regarding the Construction Traffic Management Plan (CTMP). A copy of the consent condition and Council's response is provided below:

**Construction Traffic Management Plan**

- B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
  - (b) be prepared in consultation with Council and TfNSW;
  - (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
  - (d) detail proposed work zones, heavy vehicle routes, access and parking arrangements;
  - (e) detail the number of construction vehicle movements and demonstrate how the movements will be managed in the context of road changes in the vicinity of the site;
  - (f) include a Driver Code of Conduct to:
    - (i) minimise the impacts of construction on the local and regional road network;
    - (ii) minimise conflicts with other road users;
    - (iii) minimise road traffic noise;
    - (iv) inform truck drivers of the site access arrangements, turning restrictions and use of specified routes;
    - (v) include a program to monitor the effectiveness of these measures; and
    - (vi) detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions.
  - (g) include the location of any crane(s) and a crane movement plan;
  - (h) include a consultation strategy for liaising with and managing the cumulative impacts of other developments in the MRP including the Mamre Road and Elizabeth Drive Upgrade Projects;
  - (i) include a program to monitor the effectiveness of these measures; and
  - (j) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

Council's Asset Management Department have reviewed the CTMP received 12 July 2024 and raise no concerns or recommended amendments to the drafted Plan.



It is however also noted that the Department of Planning, Housing and Infrastructure (as the applicable consent authority) must be suitably satisfied that the condition requirements are met.

Yours sincerely,



Gavin Cherry  
Development Services Coordinator



---

From: Mostafa Nazar <m.nazar@theoriongroup.au>  
Sent: Friday, July 26, 2024 11:38 AM  
To: Meg Horan <meg.horan@mirvac.com>  
Cc: Chee Hui Chan <cheehui.chan@mirvac.com>  
Subject: RE: [#21-0202] Speed Reduction - Bakers to Abbot

Good morning @Meg,

Thanks for your time on the phone. I have just received confirmation from Robson that the signs will be installed between 2<sup>nd</sup> to 7<sup>th</sup> of August 2024. The date range is due to procurement uncertainty.

However, they are confident it will all be installed at the latest by 7<sup>th</sup> of August 2024.

Regards,



**Mostafa Nazar | Senior Civil Engineer**

BEng Civil, MIEAust  
(02) 8660 0035 0407 416 823  
Suite 4.04, 12 Century Circuit, Norwest NSW 2153

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From: Mostafa Nazar <[m.nazar@theoriongroup.au](mailto:m.nazar@theoriongroup.au)>  
Sent: Tuesday, July 23, 2024 10:26 AM  
To: Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Alexandra Chung <[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>  
Cc: Mina Fahmy <[m.fahmy@theoriongroup.au](mailto:m.fahmy@theoriongroup.au)>; 21-0202-Aspect Industrial Estate <[21-0202-AspectIndustrialEstate@orionconsulting.com.au](mailto:21-0202-AspectIndustrialEstate@orionconsulting.com.au)>  
Subject: FW: [#21-0202] Speed Reduction - Bakers to Abbot

Hi Team,

FYI - please see below confirmation from TfNSW that it is in fact no objection for the implementation of the TGS to reduce the speed from Bakers to Abbots.

I am currently discussing with Robsons on implementation strategy. Will update the team once a plan of attack is confirmed.

Regards,



**Mostafa Nazar | Senior Civil Engineer**

BEng Civil, MIEAust  
(02) 8660 0035 0407 416 823  
Suite 4.04, 12 Century Circuit, Norwest NSW 2153

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From: Adnan Islam <[Adnan.Islam@transport.nsw.gov.au](mailto:Adnan.Islam@transport.nsw.gov.au)>  
Sent: Monday, July 22, 2024 4:37 PM  
To: Mostafa Nazar <[m.nazar@theoriongroup.au](mailto:m.nazar@theoriongroup.au)>  
Subject: RE: [#21-0202] Speed Reduction - Bakers to Abbot

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Hi

No objection from TMC on the proposed TGS.

Regards  
Adnan

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From: Mostafa Nazar <[m.nazar@theoriongroup.au](mailto:m.nazar@theoriongroup.au)>  
Sent: Monday, July 22, 2024 4:30 PM  
To: Adnan Islam <[Adnan.Islam@transport.nsw.gov.au](mailto:Adnan.Islam@transport.nsw.gov.au)>



**Cc:** Russell Hogan <[Russell.hogan@mirvac.com](mailto:Russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alex Chung <[Alexandra.chung@mirvac.com](mailto:Alexandra.chung@mirvac.com)>; Mina Fahmy <[m.fahmy@theoriongroup.au](mailto:m.fahmy@theoriongroup.au)>; 21-0202-Aspect Industrial Estate <[21-0202-AspectIndustrialEstate@orionconsulting.com.au](mailto:21-0202-AspectIndustrialEstate@orionconsulting.com.au)>  
**Subject:** RE: [#21-0202] Speed Reduction - Bakers to Abbot

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Hi @Adnan Islam,

Just to clarify, are we saying there is no objection from TMC to implement the proposed TGS or you have not received any feedback from TMC?



**Mostafa Nazar | Senior Civil Engineer**

BEng Civil, MIEAust  
(02) 8660 0035 0407 416 823  
Suite 4.04, 12 Century Circuit, Norwest NSW 2153

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From: Adnan Islam <[Adnan.Islam@transport.nsw.gov.au](mailto:Adnan.Islam@transport.nsw.gov.au)>  
Sent: Monday, July 22, 2024 4:18 PM  
To: Mostafa Nazar <[m.nazar@theoriongroup.au](mailto:m.nazar@theoriongroup.au)>  
Cc: Russell Hogan <[Russell.hogan@mirvac.com](mailto:Russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alex Chung <[Alexandra.chung@mirvac.com](mailto:Alexandra.chung@mirvac.com)>; Mina Fahmy <[m.fahmy@theoriongroup.au](mailto:m.fahmy@theoriongroup.au)>; 21-0202-Aspect Industrial Estate <[21-0202-AspectIndustrialEstate@orionconsulting.com.au](mailto:21-0202-AspectIndustrialEstate@orionconsulting.com.au)>  
Subject: RE: [#21-0202] Speed Reduction - Bakers to Abbot

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Hi

No further comments from TMC.

Regards  
Adnan

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**From:** Mostafa Nazar <[m.nazar@theoriongroup.au](mailto:m.nazar@theoriongroup.au)>  
**Sent:** Thursday, July 18, 2024 10:01 AM  
**To:** Adnan Islam <[Adnan.Islam@transport.nsw.gov.au](mailto:Adnan.Islam@transport.nsw.gov.au)>  
**Cc:** Russell Hogan <[Russell.hogan@mirvac.com](mailto:Russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alex Chung <[Alexandra.chung@mirvac.com](mailto:Alexandra.chung@mirvac.com)>; Mina Fahmy <[m.fahmy@theoriongroup.au](mailto:m.fahmy@theoriongroup.au)>; 21-0202-Aspect Industrial Estate <[21-0202-AspectIndustrialEstate@orionconsulting.com.au](mailto:21-0202-AspectIndustrialEstate@orionconsulting.com.au)>  
**Subject:** RE: [#21-0202] Speed Reduction - Bakers to Abbot



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Goodmorning @Adnan Islam,

Hope you are doing well.

Just checking to see if there were any updates from TMC on this matter?

If you require anything else to resolve this matter, please advise at your earliest convenience.

Please give me a call to discuss should it be required.

Regards,



**Mostafa Nazar | Senior Civil Engineer**

BEng Civil, MIEAust

(02) 8660 0035 0407 416 823

Suite 4.04, 12 Century Circuit, Norwest NSW 2153

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From: Adnan Islam <[Adnan.Islam@transport.nsw.gov.au](mailto:Adnan.Islam@transport.nsw.gov.au)>

Sent: Thursday, July 11, 2024 2:09 PM

To: Mostafa Nazar <[m.nazar@theoriongroup.au](mailto:m.nazar@theoriongroup.au)>

Cc: Russell Hogan <[Russell.hogan@mirvac.com](mailto:Russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alex Chung <[Alexandra.chung@mirvac.com](mailto:Alexandra.chung@mirvac.com)>; Mina Fahmy <[m.fahmy@theoriongroup.au](mailto:m.fahmy@theoriongroup.au)>

Subject: RE: [#21-0202] Speed Reduction - Bakers to Abbot

This is an external email and may be malicious. Please take care when clicking links or opening attachments.

Hi

Thank you. Received the TGS. Emailed it to TMC for their review

Regards

Adnan

OFFICIAL

**From:** Mostafa Nazar <[m.nazar@theoriongroup.au](mailto:m.nazar@theoriongroup.au)>

**Sent:** Wednesday, July 10, 2024 11:26 AM

**To:** Adnan Islam <[Adnan.Islam@transport.nsw.gov.au](mailto:Adnan.Islam@transport.nsw.gov.au)>

**Cc:** Russell Hogan <[Russell.hogan@mirvac.com](mailto:Russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alex Chung



<Alexandra.chung@mirvac.com>; Mina Fahmy <m.fahmy@theoriongroup.au>

**Subject:** [#21-0202] Speed Reduction - Bakers to Abbot

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Hi @Adnan Islam,

In light of our discussions last week, part of MOD 7 conditions (utilising the current LILO), we have been asked by the LUA to adhere to the condition below:

*Installation of a 60km/h road works speed limit between Bakers Lane and Abbots Road that will remain in operation 24 hours a day and seven days a week for duration of construction unless instructed otherwise by TfNSW.*

We have modified the TGS's for Stage 2a and 3a to allow for the speed reduction to extend up to Bakers and Abbots.

Per our discussions and in review of the ROL application, the speed reduction seems to be permitted already from Bakers to Abbots.

Could you please liaise with TMC and confirm acceptance of the TGS's in the links below:

- o Stage 2a (current traffic closure) -  
<https://www.dropbox.com/scl/fo/I5nyjigxhyjnhp0trbuyb/ALMsYqiaek8mcgB4OfIEtm4?e=1&preview=788-882+Mamre+Rd%2C+Kemps+Creek+-+St+2a.pdf&rlkey=sdslp7ampe3v6jax88daunutx&st=d65u2vsg&dl=0>
- o Stage 3a (will be implemented from 26<sup>th</sup> of July 2024) -  
<https://www.dropbox.com/scl/fo/I5nyjigxhyjnhp0trbuyb/ALMsYqiaek8mcgB4OfIEtm4?e=1&preview=788-882+Mamre+Rd%2C+Kemps+Creek+-+St+3a.pdf&rlkey=sdslp7ampe3v6jax88daunutx&st=ud1cbzjq&dl=0>

Please give me a call if you have any questions on this matter.

Please note we will cover any conflicting speed limit signs with the extent.

Regards,

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---

From: Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>  
Sent: Monday, July 29, 2024 10:26 AM  
To: Chee Hui Chan <cheehui.chan@mirvac.com>; Development CTMP CJP  
<development.CTMP.CJP@transport.nsw.gov.au>; Heather Trengove <Heather.Trengove@transport.nsw.gov.au>  
Cc: Daniel Brook <daniel.brook@mirvac.com>; Meg Horan <meg.horan@mirvac.com>; Alexandra Chung  
<alexandra.chung@mirvac.com>; Scott Sugandi <scott.sugandi@mirvac.com>; Kym Dracopoulos  
<kym.dracopoulos@mirvac.com>; Russell Hogan <russell.hogan@mirvac.com>; Meg Horan  
<meg.horan@mirvac.com>



Morning Chee,

Transport for NSW (TfNSW), Greater Sydney Division has reviewed the CTMP and endorse the proposed temporary construction arrangements, subject to the following conditions:

- Any Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS.
- Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals.
- Access to be maintained for residents, businesses and emergency vehicles at all times.
- No marshalling or queuing of construction vehicles is to occur on public roads. Arriving vehicles that are not able to use parking bay/work zone must continue to a holding point until space becomes available.
- When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles.
- Access to the site should be at the farthest point from the intersection as practicable to reduce additional conflicting vehicle manoeuvres.
- Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic and pedestrian movements in this area.
- Any approved Works Zone should only be used for work activities. No infrastructure, including bins, tanks or traffic control equipment should be left on the road when the works zone is not in use by a vehicle. All non-vehicular items must be contained with the work area and not on the carriageway. When a work zone is not in use, the area/lane must be opened up to allow for normal trafficable conditions
- Should TfNSW Network and Asset Management, Network Operations, CJP Operations, Network and Safety or other TfNSW business area determine that that more information is to be provided for review and acceptance, including other TCS locations, this information must be submitted prior to the CTMP being implemented, or otherwise agreed upon.
- Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742

Endorsement of the CTMP is not an approval to the type of traffic management or delineation devices used, nor is it an approval to any traffic guidance schemes depicted within the CTMP. It is assumed that the proponent has used type approved devices and has developed its traffic guidance schemes in accordance with the relevant Australian Standards and Guidelines.

The proponent is to ensure local residents, businesses, schools and other stakeholders in the affected area as well as emergency service organisations are notified of the changes associated with the CTMP, prior to its implementation.

Please ensure this CTMP is shared and adhered to by all contractors. If the CTMP changes, please forward a copy to [Developments.CJP@transport.nsw.gov.au](mailto:Developments.CJP@transport.nsw.gov.au) or further review and endorsement.



---

OFFICIAL

From: Chee Hui Chan <[cheehui.chan@mirvac.com](mailto:cheehui.chan@mirvac.com)>  
Sent: Friday, July 26, 2024 8:19 AM  
To: Development CTMP CJP <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>; Benjamin Borger <[Benjamin.BORGER@transport.nsw.gov.au](mailto:Benjamin.BORGER@transport.nsw.gov.au)>  
Cc: Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alexandra Chung <[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>; Scott Sugandi <[scott.sugandi@mirvac.com](mailto:scott.sugandi@mirvac.com)>; Kym Dracopoulos <[kym.dracopoulos@mirvac.com](mailto:kym.dracopoulos@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>  
Subject: RE: RE: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic Management Plan – Seeking Consultation from TfNSW

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Morning Heather

We appreciate TfNSW reviewing the Warehouse 2 CTMP we submitted.

We would like to follow up on the status of the review, we understood TfNSW previously forecasted earliest date for consultation response by 26 July 2024. Please can TfNSW advise if we can expect TfNSW's response today or if TfNSW require more time.

Regards

**Chee Hui Chan**  
Assistant Development Manager  
Commercial & Mixed Use Development

Level 28, 200 George Street Sydney NSW 2000 Australia

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AFR Boss

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---

OFFICIAL

From: Chee Hui Chan  
Sent: Wednesday, July 17, 2024 1:58 PM  
To: Development CTMP CJP <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>; Benjamin Borger <[Benjamin.BORGER@transport.nsw.gov.au](mailto:Benjamin.BORGER@transport.nsw.gov.au)>  
Cc: Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alexandra Chung <[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>; Scott Sugandi <[scott.sugandi@mirvac.com](mailto:scott.sugandi@mirvac.com)>; Kym Dracopoulos



<[kym.dracopoulos@mirvac.com](mailto:kym.dracopoulos@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>

Subject: RE: RE: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic Management Plan – Seeking Consultation from TfNSW

Hi Heather

Further to the below, we note we cannot issue via attachment due to the file size exceeded the limit of email attachment.

Please advise if you still have issues accessing the file, we can download and issue via OneDrive link.

Regards

**Chee Hui Chan**

Assistant Development Manager  
Commercial & Mixed Use Development

Level 28, 200 George Street Sydney NSW 2000 Australia

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---

From: Chee Hui Chan

Sent: Wednesday, July 17, 2024 1:56 PM

To: 'Development CTMP CJP' <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>; Benjamin Borger <[Benjamin.BORGER@transport.nsw.gov.au](mailto:Benjamin.BORGER@transport.nsw.gov.au)>

Cc: Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alexandra Chung <[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>; Scott Sugandi <[scott.sugandi@mirvac.com](mailto:scott.sugandi@mirvac.com)>; Kym Dracopoulos <[kym.dracopoulos@mirvac.com](mailto:kym.dracopoulos@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>

Subject: RE: RE: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic Management Plan – Seeking Consultation from TfNSW

Hi Heather

Apologies regarding the issues with access, we have reissued the access to TfNSW. Please can we request your confirmation if the link below now works?

 [P2168r03v2 CTMP\\_WH2, Mamre Rd, Kemps Creek, Issue w Consultation email.pdf](#)

Alternatively our SharePoint has also issued a link to TfNSW with access to the file, please advise if you have any issues accessing the file?

Regards

**Chee Hui Chan**

Assistant Development Manager  
Commercial & Mixed Use Development





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---

From: Development CTMP CJP <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>  
Sent: Wednesday, July 17, 2024 1:52 PM  
To: Chee Hui Chan <[cheehui.chan@mirvac.com](mailto:cheehui.chan@mirvac.com)>; Development CTMP CJP  
<[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>; Benjamin Borger <[Benjamin.BORGER@transport.nsw.gov.au](mailto:Benjamin.BORGER@transport.nsw.gov.au)>  
Cc: Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alexandra Chung  
<[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>; Scott Sugandi <[scott.sugandi@mirvac.com](mailto:scott.sugandi@mirvac.com)>; Kym Dracopoulos  
<[kym.dracopoulos@mirvac.com](mailto:kym.dracopoulos@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Meg Horan  
<[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>  
Subject: RE: RE: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic Management Plan –  
Seeking Consultation from TfNSW

Hi Chee,

We have tried to access the link below but we are unable to view the document. Can you please provide us with a pdf. version.

Kind Regards,

Heather Trengove  
Principal Transport Planner  
Customer Journey Planning  
Greater Sydney  
Transport for NSW

231 Elizabeth Street, Sydney 2000

Note: I work Mon, Tue, Wed

---

OFFICIAL

From: Chee Hui Chan <[cheehui.chan@mirvac.com](mailto:cheehui.chan@mirvac.com)>  
Sent: Monday, July 15, 2024 11:29 AM  
To: Development CTMP CJP <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>; Benjamin Borger  
<[Benjamin.BORGER@transport.nsw.gov.au](mailto:Benjamin.BORGER@transport.nsw.gov.au)>  
Cc: Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alexandra Chung  
<[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>; Scott Sugandi <[scott.sugandi@mirvac.com](mailto:scott.sugandi@mirvac.com)>; Kym Dracopoulos  
<[kym.dracopoulos@mirvac.com](mailto:kym.dracopoulos@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Meg Horan  
<[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>  
Subject: RE: RE: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic  
Management Plan – Seeking Consultation from TfNSW

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Hi Heather

We appreciate response from TfNSW on the 10 business days turnaround timeframe and confirming the earliest date for TfNSW to issue comments by 26/07/24. Apologies for the short timeframe we advised in our email request.

We look forward to receive response from TfNSW.

Regards

**Chee Hui Chan**

Assistant Development Manager  
Commercial & Mixed Use Development

Level 28, 200 George Street Sydney NSW 2000 Australia

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From: Development CTMP CJP <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>

Sent: Monday, July 15, 2024 11:09 AM

To: Chee Hui Chan <[cheehui.chan@mirvac.com](mailto:cheehui.chan@mirvac.com)>; Development CTMP CJP <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>; Benjamin Borger <[Benjamin.BORGER@transport.nsw.gov.au](mailto:Benjamin.BORGER@transport.nsw.gov.au)>  
Cc: Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alexandra Chung <[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>; Scott Sugandi <[scott.sugandi@mirvac.com](mailto:scott.sugandi@mirvac.com)>; Kym Dracopoulos <[kym.dracopoulos@mirvac.com](mailto:kym.dracopoulos@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>

Subject: RE: RE: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic Management Plan – Seeking Consultation from TfNSW

Hi Chee,

Please note that our department has a minimum 10 business day turnaround on getting comments back to applicants.

We are working on our review but we will unfortunately be unable to return comments by Friday 19<sup>th</sup> July. The soonest you will receive comments would be Friday 26<sup>th</sup> July.

Kind Regards,

Heather Trengove  
Principal Transport Planner  
Customer Journey Planning



OFFICIAL

From: Chee Hui Chan <[cheehui.chan@mirvac.com](mailto:cheehui.chan@mirvac.com)>  
Sent: Friday, July 12, 2024 5:01 PM  
To: Development CTMP CJP <[development.CTMP.CJP@transport.nsw.gov.au](mailto:development.CTMP.CJP@transport.nsw.gov.au)>; Benjamin Borger <[Benjamin.BORGER@transport.nsw.gov.au](mailto:Benjamin.BORGER@transport.nsw.gov.au)>  
Cc: Daniel Brook <[daniel.brook@mirvac.com](mailto:daniel.brook@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>; Alexandra Chung <[alexandra.chung@mirvac.com](mailto:alexandra.chung@mirvac.com)>; Scott Sugandi <[scott.sugandi@mirvac.com](mailto:scott.sugandi@mirvac.com)>; Kym Dracopoulos <[kym.dracopoulos@mirvac.com](mailto:kym.dracopoulos@mirvac.com)>; Russell Hogan <[russell.hogan@mirvac.com](mailto:russell.hogan@mirvac.com)>; Meg Horan <[meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)>  
Subject: RE: RE: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic Management Plan – Seeking Consultation from TfNSW

Some people who received this message don't often get email from [cheehui.chan@mirvac.com](mailto:cheehui.chan@mirvac.com). [Learn why this is important](#)

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**\*\*Apologies, typo to the below email. Please find below updated dates we seek TfNSW comments by 19<sup>th</sup> July 2024.**

Dear TfNSW,

Re: Aspect Industrial Estate (SSD-58257960 Condition B1(b)) – Construction Traffic Management Plan – Seeking Consultation from TfNSW

My name is Chee Hui Chan and I work with Meg Horan, Daniel Brook and Russell Hogan at Mirvac on the Aspect Industrial Estate.

In accordance with Condition B1(b) of Consent SSD-58257960, the CTMP is required to be prepared in consultation with TfNSW and Council and is required to be finalised and approved by the Planning Secretary prior to the commencement of construction of Warehouse 2. We therefore seek TfNSW comments on the CTMP which will ultimately be incorporated into the Construction Environmental Management Plan required under the consent.

Please see link below to the Construction Traffic Management Plan (CTMP) for Stage 3 Development (Warehouse 2) required under the abovementioned Consent for the construction of Warehouse 2.

Link:  [P2168r03v2 CTMP\\_WH2, Mamre Rd, Kemps Creek, Issue w Consultation email.pdf](#)

Condition	Consent	Mirvac target finalisation / issue to Planning Secretary for approval	To enable issue to Planning Secretary - we are seeking TfNSW comments by
Condition B1(b) – Construction Traffic Management Plan	SSD-58257960	Monday 22 <sup>nd</sup> July 2024	Friday 19 <sup>th</sup> July 2024



Relevant Condition extract for ease of reference:

SSD-58257960 Condition B1:

**Construction Traffic Management Plan**

- B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
  - (b) be prepared in consultation with Council and TfNSW;
  - (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
  - (d) detail proposed work zones, heavy vehicle routes, access and parking arrangements;
  - (e) detail the number of construction vehicle movements and demonstrate how the movements will be managed in the context of road changes in the vicinity of the site;
  - (f) include a Driver Code of Conduct to:
    - (i) minimise the impacts of construction on the local and regional road network;
    - (ii) minimise conflicts with other road users;
    - (iii) minimise road traffic noise;
    - (iv) inform truck drivers of the site access arrangements, turning restrictions and use of specified routes;
    - (v) include a program to monitor the effectiveness of these measures; and
    - (vi) detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions.
  - (g) include the location of any crane(s) and a crane movement plan;
  - (h) include a consultation strategy for liaising with and managing the cumulative impacts of other developments in the MRP including the Mamre Road and Elizabeth Drive Upgrade Projects;
  - (i) include a program to monitor the effectiveness of these measures; and
  - (j) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

Please don't hesitate to contact me should you have any questions.

Kind regards,

**Chee Hui Chan**

Assistant Development Manager  
Commercial & Mixed Use Development

Level 28, 200 George Street Sydney NSW 2000 Australia

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# Appendix B. Traffic Guidance Scheme




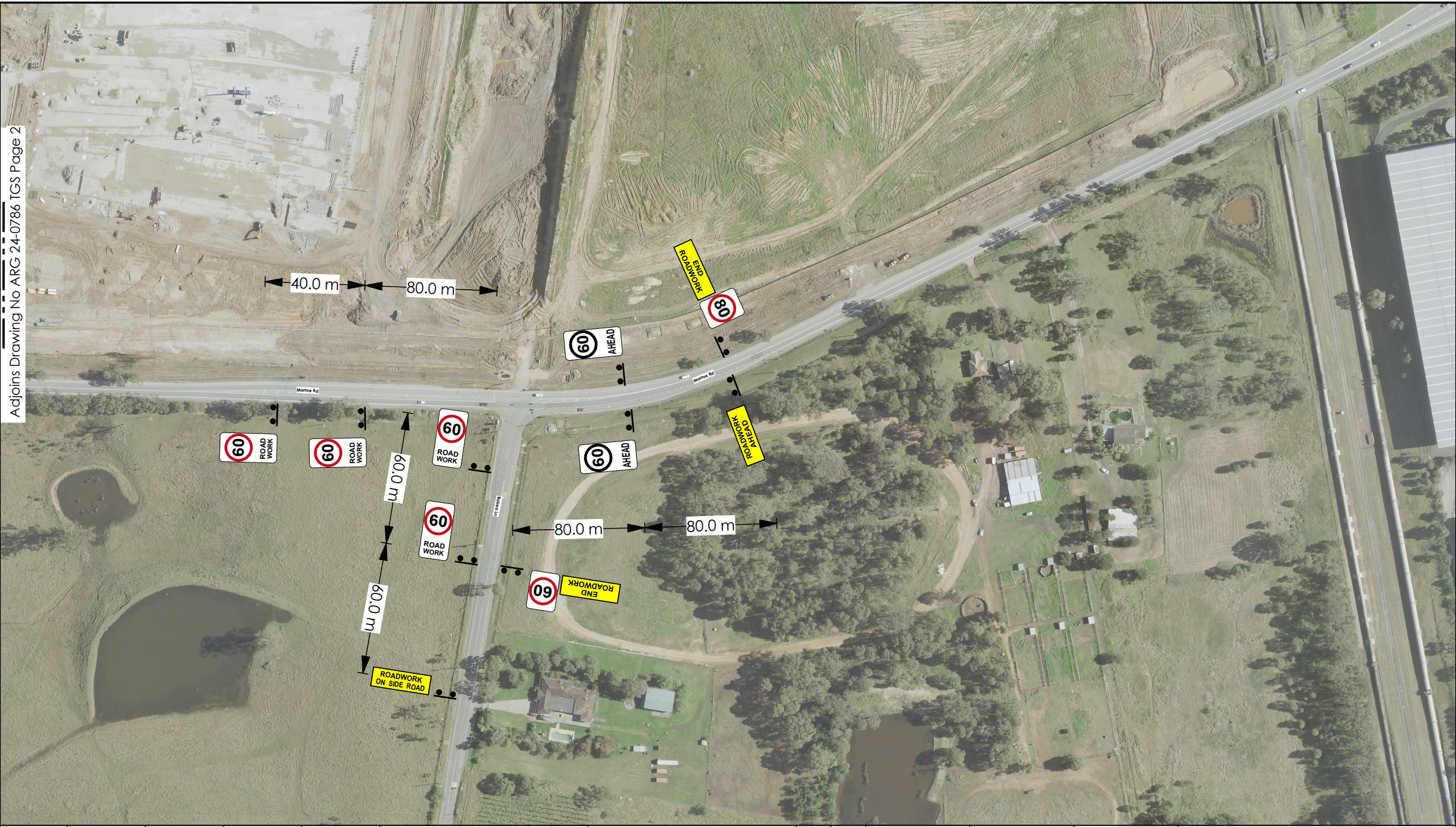
**Legend:**

-  2x VMS
-  Cones
-  DB80k150 Concrete Safety Barriers
-  Work Area

### Compliance Notes:

1. All TGSs are in accordance with TfNSW - TCAWS V6.1
2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3
3. Sign spacing TfNSW - TCAWS V6.1, Section 7.3
4. Recommended sight distances to devices TfNSW - TCAWS V6.1, Section 7.3
5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13
6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6
7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2

Client:	
	
Project Description:	
Mamre Road Aspect Industrial Estate Stage 3a	
Work Location:	
788 - 882 Mamre Rd Kemps Creek, NSW 2178	
Drawing No:	TMP Reference No.:
ARG 24-0786 TGS	ARG 23-042 TMP

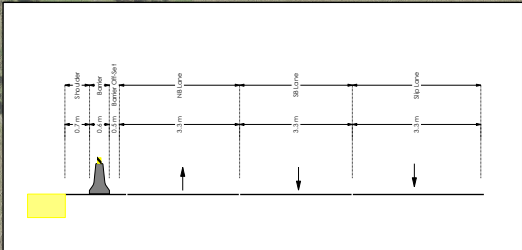






Aspions Drawing No ARG 24-0786 TGS Page 3

Aspions Drawing No ARG 24-0786 TGS Page 1
















<div>ACR</div> <div>Allroad Group Pty Ltd</div>	Designed by:	Franziska Mueller	Designed by:	Ronak Gandhi	<b>Legend:</b> <div><div> 2x VMS</div><div> Cones</div><div> DB80k150 Concrete Safety Barriers</div><div> Work Area</div></div>	<b>Compliance Notes:</b> 1. All TGSs are in accordance with TfNSW - TCAWS V6.1 2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3 3. Sign spacing TfNSW - TCAWS V6.1, Section 7.3 4. Recommended sight distances to devices TfNSW - TCAWS V6.1, Section 7.3 5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13 6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6 7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2		REVISION	REV	Description	Type of TTM:	Static Works	Duration:	Single Shift	Client: <div></div>	
	00	sent to client	TTM Set-up:						Detour via Sidetrack							
	01	V 1.10.1	Shift TTM Inspections:						after installation -> every 2h		Project Description: Mamre Road Aspect Industrial Estate Stage 3a					
	Review Date:		Existing Speed Limit:													
	03/08/2024		80 km/h						Work Location: 788 - 882 Mamre Rd Kemps Creek, NSW 2178							
North Code:		Map Reference:		Scale:												
				Bing Satellite		1:500		Drawing No: ARG 24-0786 TGS		TMP Reference No.: ARG 23-042 TMP						
Sign Type:		Issue Date:		Page No.:												
B Size Permanent		03/07/2024		05 of 16												

Qualification No:	TCT0024272	Qualification No:	TCT0063633
Role:	Planning & Delivery Manager	Role:	Planning & Design Manager
Signature:		Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....





<div></div> <div>Allroad Group Pty Ltd</div>	Designed by:	Franziska Mueller	Designed by:	Ronak Gandhi	<b>Legend:</b> <div><div> 2x VMS</div><div> Cones</div><div> DB80k150 Concrete Safety Barriers</div><div> Work Area</div></div>	<b>Compliance Notes:</b> 1. All TGSs are in accordance with TfNSW - TCAWS V6.1 2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3 3. Sign spacing TfNSW - TCAWS V6.1, Section 7.3 4. Recommended sight distances to devices TfNSW - TCAWS V6.1, Section 7.3 5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13 6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6 7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2	<div>REVISION</div> <table><tr><td>REV</td><td>Description</td><td>Type of TTM:</td><td>Duration:</td><td rowspan="5">Client:<div></div></td></tr><tr><td>00</td><td>sent to client</td><td>Static Works</td><td>Single Shift</td></tr><tr><td>01</td><td>V 1.10.1</td><td>TTM Set-up:</td><td>Detour via Sidetrack</td></tr><tr><td colspan="2">Review Date:</td><td colspan="2">Existing Speed Limit:</td></tr><tr><td colspan="2">03/08/2024</td><td colspan="2">80 km/h</td></tr><tr><td colspan="2">North Code:</td><td>Map Reference:</td><td>Scale:</td><td rowspan="3">Project Description: Mamre Road Aspect Industrial Estate Stage 3a</td></tr><tr><td colspan="2"></td><td>Bing Satellite</td><td>1:500</td></tr><tr><td colspan="2">Sign Type:</td><td>Issue Date:</td><td>Page No.:</td></tr><tr><td colspan="2">B Size Permanent</td><td>03/07/2024</td><td>05 of 16</td><td>Work Location: 788 - 882 Mamre Rd Kemps Creek, NSW 2178</td></tr><tr><td colspan="2"></td><td></td><td></td><td>Drawing No:</td><td>TMP Reference No.:</td></tr><tr><td colspan="2"></td><td></td><td></td><td>ARG 24-0786 TGS</td><td>ARG 23-042 TMP</td></tr></table>	REV	Description	Type of TTM:	Duration:	Client: <div></div>	00	sent to client	Static Works	Single Shift	01	V 1.10.1	TTM Set-up:	Detour via Sidetrack	Review Date:		Existing Speed Limit:		03/08/2024		80 km/h		North Code:		Map Reference:	Scale:	Project Description: Mamre Road Aspect Industrial Estate Stage 3a			Bing Satellite	1:500	Sign Type:		Issue Date:	Page No.:	B Size Permanent		03/07/2024	05 of 16	Work Location: 788 - 882 Mamre Rd Kemps Creek, NSW 2178					Drawing No:	TMP Reference No.:					ARG 24-0786 TGS	ARG 23-042 TMP
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Aspens Drawing No ARG 24-0439 TGS Page 3

Aspens Drawing No ARG 24-0439 TGS Page 1

<div>ACR</div> <div>Allroad Group Pty Ltd</div>	Designed by:	Franziska Mueller	Designed by:	Ronak Gandhi	<b>Legend:</b>  2x VMS  DB80k150 Concrete Safety Barriers  Work Area	<b>Compliance Notes:</b>  1. All TGSs are in accordance with TfNSW - TCAWS V6.1 2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3 3. Sign spacing TfNSW - TCAWS V6.1, Section 7.3 4. Recommended sight distances to devices TfNSW - TCAWS V6.1, Section 7.3 5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13 6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6 7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2	<div>REVISION</div> <div>REV</div> <div>Description</div> <div>00</div> <div>sent to client</div> <div>01</div> <div>V1.10.1</div> <div>Review Date:</div> <div>03/08/2024</div> <div>North Code:</div> <div></div> <div>Sign Type:</div> <div>B Size Permanent</div>	Type of TTM:	Static Works	Duration:	Single Shift	Client:		<div></div>							
	Qualification No:	TCT0024272	Qualification No:	TCT0063633				TTM Set-up:		Detour via Sidetrack		Project Description:		Mamre Road Aspect Industrial Estate Stage 2a							
	Role:	Planning & Delivery Manager		Role:				Planning & Design Manager		Shift TTM Inspections:		after installation -> every 2h		Work Location:		788 - 882 Mamre Rd Kemps Creek, NSW 2178					
	Signature:			Signature:						Existing Speed Limit:		80 km/h									
	Implementer Name:	.....		Implementer Qualification No:				TCT.....		Map Reference:		Bing Satellite		Scale:		1:500					
						Issue Date:		03/07/2024		Page No.:		03 of 16		Drawing No:		ARG 24-0439 TGS		TMP Reference No.:		ARG 23-042 TMP	





<div></div> <div>Allroad Group Pty Ltd</div>	Designed by:	Franziska Mueller	Designed by:	Ronak Gandhi	<div><b>Legend:</b></div> <div> 2x VMS</div> <div> DB80k150 Concrete Safety Barriers</div> <div> Work Area</div>	<div><b>Compliance Notes:</b></div> <div>1. All TGSs are in accordance with TfNSW - TCAWS V6.1</div> <div>2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3</div> <div>3. Sign spacing TfNSW - TCAWS V6.1, Section 7.3</div> <div>4. Recommended sight distances to devices TfNSW - TCAWS V6.1, Section 7.3</div> <div>5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13</div> <div>6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6</div> <div>7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2</div>	<div><b>REVISION</b></div>	REV	Description	Type of TTM:	Duration:	Client: <div></div>	
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	01	V 1.10.1	TTM Set-up:					Detour via Sidetrack		Project Description: <div>Mamre Road Aspect Industrial Estate Stage 2a</div>			
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Sign Type:		Issue Date:		Page No.:		Drawing No:		TMP Reference No.:					
B Size Permanent		02/04/2024		03 of 16		ARG 24-0439 TGS		ARG 23-042 TMP					



# Appendix C. Risk Assessment



# Proposed Warehouse Development – Warehouse 1, Aspect Industrial Estate

## Risk Assessment and Communication Tool

Project Number	2168r03		
Project Name	Construction of warehouse and ancillary office		
Site Location	Warehouse 2, Lot 1-5 Mamre Rd, Kemps Creek		
Date of Assessment	29 July 2024		
Revision	Issue I		
Name	Company	Title	
Document Control			
Date Issued	Revision	Issued By	Checked By
29/07/2024	Final	A. Tan	R. Hazell

Risk Matrix		Consequence				
		Minor A	Major B	Severe C	Critical D	Catastrophic E
Very Unlikely	1	Low	Low	Medium	Medium	Medium
Unlikely	2	Low	Low	Medium	Medium	High
Possible	3	Low	Medium	High	High	High
Likely	4	Medium	Medium	High	High	Extreme
Almost Certain	5	Medium	High	High	Extreme	Extreme

Description	
A - Minor	Could result in injury or illness not resulting in a lost work day or minimal environmental damage not required to be notified under jurisdiction requirements.
B - Major	Could result in injury or illness resulting in one or more lost work day(s) or environmental damage can be mitigated and is not required to be notified under jurisdiction
C - Severe	requirements where restoration activities can be accomplished.
D - Critical	Could result in permanent partial disability, injuries or illness that may result in
E - Catastrophic	hospitalisation of persons or environmental damage can be mitigated and is required to be notified under jurisdiction requirements.



Likelihood Descriptor	Design Likelihood
1 - Very unlikely	Industry experience suggests design failure is very unlikely. It can be assumed failure
2 - Unlikely	Industry experience suggests design failure is unlikely to occur in the life of design.
3 - Possible	Industry experience suggests design failure is possible some time during the life of the
4 - Likely	Industry experience suggests design failure is likely to occur during the life of the product.
5 - Almost certain	Industry experience suggests design failure is almost certain to occur during the life of the



## Risk Assessment and Communication Tool

### Example

ID. Ref	Risk and/ or Hazard	Risk Description	Location	Existing Control	Initial Risk Rating			Design Response to risk and /or hazard	Status of Risk	Assignment of risk or hazard	Residual risk rating		
					C	L	RR				C	L	RR
1	Unauthorized Access to the Site	Site prevents unauthorised access	Entire Site	Nil	C	3	High	Exclusion barriers will be provided as part of the main works. The design provides a defined separation between construction and work areas.	Design Solution	Mirvac	B	2	Low
2	Interaction between pedestrians and vehicles	Vehicles and pedestrians to be separates as best possible	Entire Site & Access Roads	Nil	D	3	High	Dedicated footpath, pedestrian crossings and additional signage shall be provided to separate vehicles and pedestrians as best possible.	Design Solution	Mirvac	B	2	Low
3	Potential vehicle conflict points	Vehicles can crash with each other while manoeuvring through the site	Entire Site & Access Roads	Nil	B	3	Medium	Roadways are capable of two-way flow. Nonetheless, Traffic Controllers shall limit movements within disrupted areas to limit any safety issues. Low speeds throughout the site also reduce potential for crashes	Design Solution	Mirvac	B	1	Low



4	Fatigue	Injury caused by fatigue	Entire Site	Nil	C	3	High	Toolbox meetings and regular breaks (in line with WHS practices) to minimise fatigue	Design Solution	Mirvac	B	1	Low
5	Fall risks	Injury due to falls (in general)	Entire Site	Nil	E	3	High	Ensuring level changes across the site to be minimised as best possible, with additional black & yellow hazard tape/markings being installed where appropriate. Installation of handrails where level changes / ramps grades are significant.	Design Solution	Mirvac	C	2	Medium
6	Misdirected access into neighbouring site	Vehicle in unsafe locations	Entire Site	Nil	C	3	High	Ensuring appropriate directional signage has been provided to ensure vehicles do not access the wrong construction site, which could create potential safety breaches and hazards for all parties	Design Solution	Mirvac	B	2	Low
7	Conflicting Traffic Management	Coordinating Traffic Controllers could create misleading and wrong advice	Entire Site	Nil	C	3	High	Toolbox meetings, regular liaison with all construction teams and review of signage plans on site in order to minimise contradicting signage.	Design Solution	Mirvac	C	2	Medium
8	Disobeying road rules	Drivers not adhering to road rules (e.g. no U-turning on Mamre Road)	Entire Site, Mamre Road	Driver Code of Conduct, warning signage, LPR	E	3	High	Monitoring of traffic volumes, regular reporting and review, fines, LPR to discourage law-breaking, submission of data to TfNSW and Planning Secretary.	Design Solution	Mirvac	C	1	Medium



# Appendix D. Driver Code of Conduct

## Driver Code of Conduct

Safe Driving Policy for Warehouse 2, Lot 1-5 Mamre Road, Kemps Creek.

## Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks on the local and regional road network.
- To minimise conflict with other road users.
- To minimise road traffic noise.
- To ensure truck drivers use specified heavy vehicles routes between the Site and the sub-regional road network.

## Code of Conduct

The code of conduct requires that while driving any vehicle for work-related purposes. Drivers are to be issued with a copy of the Drivers Code of Conduct, and must comply with all of the following:

- Demonstrate safe driving and road safety activities.
- Abide by traffic, road, and environmental legislations.
- Follow site signage and instructions.
- Drivers must only enter and exit the site via the approved entry and exit points and travel routes.

The below activities in any vehicles will be considered as a breach of conduct and will result in removal from site:

- Reckless or dangerous driving causing injury or death.
- Driving whilst disqualified or not correctly licensed.
- Drinking or being under the influence of drugs while driving.
- Failing to stop after an incident.
- Loss of demerit points leading to suspension of licence.
- Any actions that warrant the suspension of a licence.
- Exceeding the speed limit in place on any permanent or temporary roads.

## Driver Responsibilities

All Drivers on site must:

- Be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.
- Display the highest level of professional conduct when driving a vehicle at all times.
- Ensure they have a current driver licence for the class of vehicle they are driving, and this licence is to be carried at all times.



- Immediately notify their supervisor or manager if their drivers' licence has been suspended, cancelled, or has had limitations applied.
- Comply with all traffic and road legislation when driving.
- Assess hazards while driving.
- Undertake daily pre-start checks of mufflers, oil, tyre pressures, radiator, and battery levels of company vehicles they regularly used.
- Drive within the legal speed limits, including driving to the conditions.
- Not drive outside of the approved heavy vehicle routes. All drivers must obey weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies. Heavy Vehicles shall adhere to the selected routes.
- Do not queue on public roads unless a prior approval has been sought.
- Be aware that at no time may a tracked plant be permitted or required on a paved road.
- Never drive under the influence of alcohol or drugs, including prescription and over the counter medication if they cause drowsiness – to do so will merit disciplinary measures.
- All drivers to report to their supervisor if they have been prescribed medication prior to the start of work.
- Wear a safety seat belt at all times when in the vehicle.
- Avoid distraction when driving – the driver will adjust car stereos/mirrors etc. before setting off or pull over safely to do so.
- Report ALL near-misses, crashes, and scrapes to their manager,
- Report infringements to a manager at the earliest opportunity.
- Report vehicle defects to a manager prior to the next use of the vehicle.
- Follow speed limits as imposed within the estate.
- Keep loads covered at all times.
- Park in dedicated light vehicle or heavy vehicle parking spaces.
- Follow the approved site ingress/ egress routes only, as defined below.



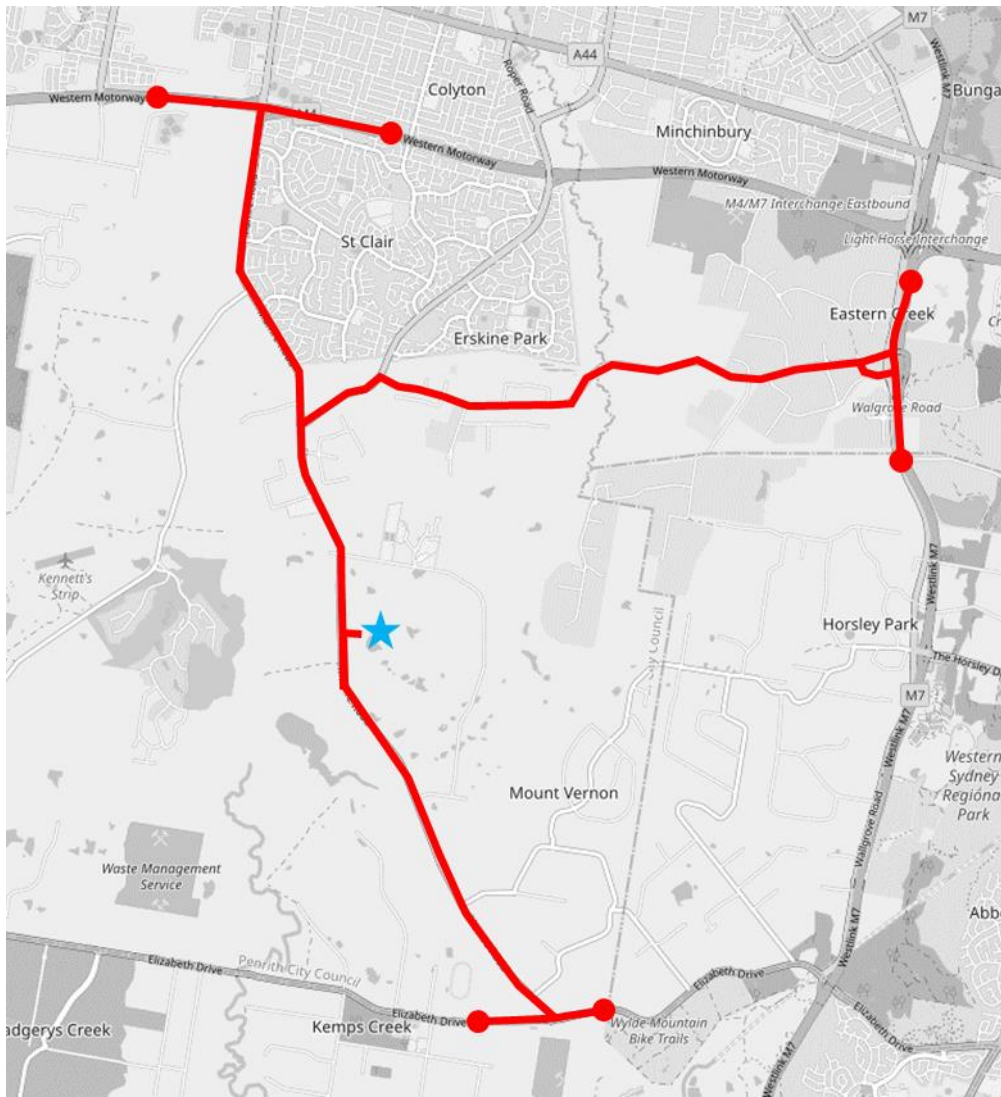


Figure B: Construction Vehicle Route Map

## Road Traffic Noise

Generating excessive noise is governed by legislation and is an offence. Heavy trucks generate a higher level of noise than light vehicles.

The amenity of surrounding road users/residents is to be maintained as far as practical during the construction process. Vehicles traveling to, from and within the site shall not create unreasonable or unnecessary noise or vibration to minimise interference to adjoining building operations.

No tracked vehicles will be permitted or required on any paved roads. All heavy vehicle operators are required to adhere to the following during the course of their duty:

- If possible, minimise road traffic noise by not using engine brakes near residences and built-up areas.
- All vehicles must be fitted with audible reversing alarms. These are essential for the safety of all personnel. Reversing alarms are, however, the source of potential noise complaints from neighbouring residents, so all drivers should be aware of this and try to minimise reversing when possible.
- Avoid loading and unloading of materials/deliveries outside of daytime hours.
- Trucks should not idle near residential receivers.
- Stationary sources of noise, such as generators, should be located away from sensitive receivers.



- Project personnel, including relevant sub-contractors, to acquaint themselves with noise and vibration requirements and the location of sensitive receivers during inductions and toolbox talks.
- Delivery vehicles should be fitted with straps rather than chains for unloading, wherever possible.
- Truck drivers should avoid compression-braking and overrevving as far as practicable when accessing the site during the approved hours and avoid them entirely outside of the approved work hours.
- Where night-time works are required, trucks should use broadband reversing alarms.

## Site Team Responsibilities

Mirvac is responsible to take all steps necessary to ensure company vehicles are as safe as possible and will not require staff to drive under conditions that are unsafe.

This will be achieved by undertaking the following:

- Ensuring all vehicles are well maintained and that the equipment enhances driver, operator, and passenger safety by way of:
  - Pre-commencement checks for all new plant arriving on-site and prior to undertaking any work.
  - Daily prestart inspections for all plant, vehicles, and equipment currently on-site.
  - All construction plant must be fitted with a flashing light, fire extinguisher and reverse alarms (or squawkers).
  - Ensure all operators onsite have a current verification of competency (VOC) for their current driver's licence of the appropriate class.
  - Ensure maintenance requirements are met and recorded.
- Identify driver training needs and arranging appropriate training or re-training. This may include providing the below:
  - Operator VOC assessment as part of all inductions.
  - Regular Toolbox discussions on safety features, managing fatigue, approved heavy routes, driver responsibility and drink-driving.
- Encouraging Safe Driving behaviour by:
  - Ensuring the subcontractor is informed if their staff become unlicensed.
  - Not covering or reimbursing staff speeding or other infringement notices.
  - Ensuring Legal use of mobile phones in vehicles while driving only and that illegal use is not undertaken.
- Encouraging better fuel efficiency by:
  - Use of other transport modes or remote conferencing, whenever practical.
  - Providing training on, and circulating information about, travel planning and efficient driving habits.

## Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers.
  - Names and addresses of witnesses.
  - Insurers details



- Give the following information to the involved parties:
  - Name, address, and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

## Environmental Procedures

A range of measures shall be implemented to ensure the following:

- No dirt or debris from the construction vehicles is tracked on to the public road network.
- Reduce the impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods.
- Watering of dusty activities will be undertaken, or activities temporarily halted and then resumed once weather conditions have improved.
- Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main Project work areas.
- All vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria, and
- Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.



# Appendix E. Crane Movement Plan





# 100T Crane for Structural Steel and Roof Lift

## Final Steel/Roof Lift

## SITE PLAN

## SITE PLAN



No	DATE:	REVISION:	BY:	CHK:
P5	16.02.2024	PRELIMINARY ISSUE	NN	JC
P6	23.02.2024	PRELIMINARY ISSUE	NN	JC
P7	28.02.2024	PRELIMINARY ISSUE	NN	JC
P8	02.04.2024	PRELIMINARY ISSUE	NN	JC
P9	10.04.2024	PRELIMINARY ISSUE	NN	JC
P1	03.05.2024	WIP ISSUE	NN	JC
P1	07.05.2024	INTERTENANCY WALL REMOVED	NN	JC
A	23.05.2024	ISSUED FOR CONSTRUCTION	NN	JC
R	13.06.2024	DWG UPDATES	NN	JC

**watson  
young**

TITLE: SITE PLAN

PLOT DATE: 13/06/2024 3:02:44 PM

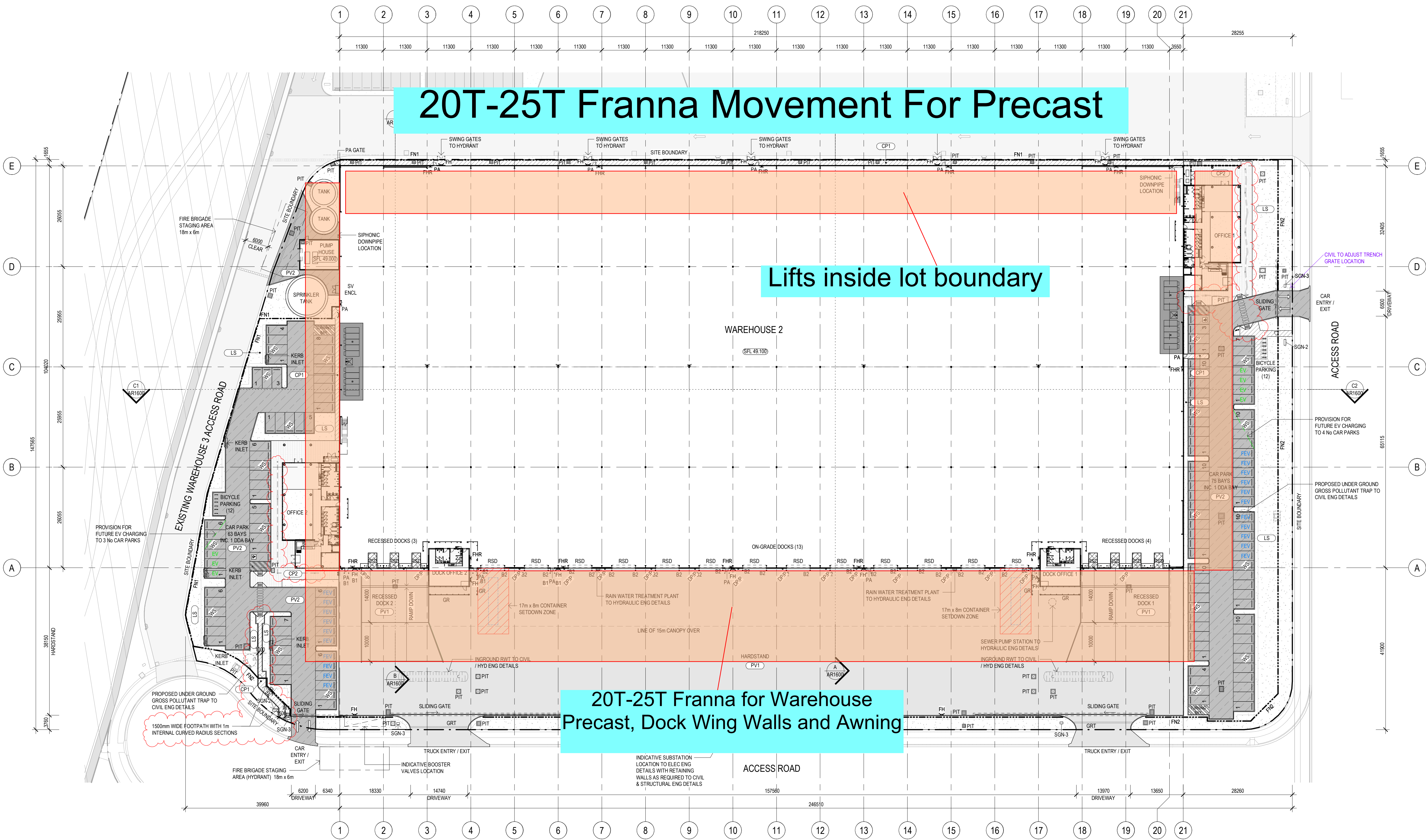
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JOB NO: DRAWING NO: REVISION:

Watson Young Architects Pty Melbourne | Perth | Sydney (03 9516 8855, ACN: 111398700)

8 Gratian Street Prahran VIC 3181 [info@watsonyoung.com.au](mailto:info@watsonyoung.com.au) [watsonyoung.com.au](http://watsonyoung.com.au)  
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1 SITE PLAN  
AR1100 SCALE: 1:500

LEGEND:

SITE PLAN

- PV1 INDICATES EXTENT OF HEAVY DUTY CONCRETE VEHICULAR PAVEMENT TO CIVIL ENGINEERS DETAILS. CONFIRM EXTENT ON SITE.
- PV2 INDICATES EXTENT OF LIGHT DUTY VEHICULAR PAVEMENT (ASPHALT) TO CIVIL ENGINEERS DETAILS. CONFIRM EXTENT ON SITE.
- CP1 INDICATES CONCRETE PAVEMENT WITH RULED LINES TO PEDESTRIAN WALKWAYS TO CIVIL ENGINEERS DETAILS. CONFIRM EXT ON SITE.
- CP2 INDICATES FEATURE CONCRETE PAVERS TO CIVIL ENGINEERS DETAILS. CONFIRM EXTENT ON SITE.
- CP3 INDICATES EXTENT OF CONCRETE PAVEMENT TO CIVIL ENGINEERS DETAILS. CONFIRM EXTENT ON SITE.
- LS INDICATES AREA OF LANDSCAPING REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPING LAYOUT & DETAILS.

- KR PROVIDE KERB RAMPS & TACTILE INDICATORS WHERE REQUIRED TO COMPLY WITH AS-2441 FOR DISABLED ACCESS. REFER TO TYPICAL DETAILS.
- FHR FIRE HOSE REEL TO COMPLY WITH AS-2441. REFER TO CONSULTANTS DRAWINGS FOR LOCATIONS, DETAILS & SPECIFICATIONS.
- FH FIRE HYDRANT TO COMPLY WITH AS-2441 AND AS-2419. REFER TO CONSULTANTS DRAWINGS FOR LOCATIONS, DETAILS & SPECIFICATIONS.
- NOTE: EXTERNAL HYDRANTS SHALL BE ACCESSIBLE AND PROVIDED WITH CLEARANCES IN ACCORDANCE WITH AS-2419.1 AND LOCATED WHERE THEY ARE NOT OBSTRUCTED BY PARKING OR LOADING AND UNLOADING OF VEHICLES AND ARE PROTECTED FROM DAMAGE WHERE NECESSARY.
- MSB MAIN ELECTRICAL SWITCHBOARD TO ENG'S DOCUMENTATION.
- ELP ELECTRICAL PILLAR. REFER TO CONSULTANTS DRAWINGS FOR LOCATIONS, DETAILS & SPECIFICATIONS.
- LP EXTERNAL LIGHT POLE. REFER TO CONSULTANTS DRAWINGS FOR LOCATIONS, DETAILS & SPECIFICATIONS.
- NOTE: EXTERNAL LIGHTING TO BE BAFFLED TO PRECLUDE LIGHT SPILL OR GLARE ONTO ADJACENT PROPERTIES OR ROADWAYS.
- AHDXXXX AUSTRALIAN HEIGHT DATUM LEVEL INDICATION. REFER TO CIVIL ENG'S DOCUMENTATION.
- FFLXXXX FINISHED FLOOR LEVEL INDICATION.
- RLXXXX RELATIVE FLOOR LEVEL INDICATION.
- SFLXXXX STRUCTURAL FLOOR LEVEL INDICATION.
- Bxx PROTECTIVE BOLLARD TYPE AS SCHEDULED.
- COL COLUMN TO STRUCTURAL ENGINEERS DETAILS.
- DP DOWNPIPE - REFER TO ROOF PLAN.
- DRP GALVANISED MILD STEEL DOWNPIPE PROTECTOR.
- FENCE TYPE 1 - 1800MM HIGH CHAIN MESH FENCE WITH 3 ROWS BARBED WIRE OVER TO 2100MM HIGH.
- FENCE TYPE 2 - 2100MM HIGH METAL FRAMED FENCING TO MANUFACTURERS DETAILS.
- FENCE TYPE 3 - FEATURE FENCING TO MANUFACTURERS DETAILS.
- FNEX EXISTING FENCE TO REMAIN.
- FHB FIRE HYDRANT BOOSTER CABINET.
- GRTx GALVANISED MILD STEEL GUARDRAIL, TYPE AS SCHEDULED.
- GR GRATED STORMWATER TRENCH TO CIVIL ENG'S DETAILS.
- QSM GAS METER TO AUTHORITIES REQUIREMENTS.
- HRxx HANDRAILS TYPE AS SCHEDULED. REFER DETAILS.
- RSD ROLLER SHUTTER DOOR.
- RWT LOCATION OF RAIN WATER TANK - REFER HYDRAULIC ENGINEERS DETAILS.
- SCxx SCREEN TYPE AS SCHEDULED - REFER DETAILS.
- SPD SPOON DRAIN TO CIVIL ENGINEERS DETAILS.
- SPV SPRINKLER VALVES.
- SST LOCATION OF SPRINKLER TANK - REFER HYDRAULIC ENGINEERS DETAILS.
- TT TACTILE INDICATORS TO AS-1428.
- WS WHEELSTOP TO CARSPACE TO AS-2880.1.
- WTM WATER METER TO AUTHORITIES REQUIREMENTS.
- EV DENOTES ELECTRIC VEHICLE CHARGING BAY.
- FEV DENOTES FUEL EFFICIENT VEHICLE PARKING BAY.
- TITLE BOUNDARY.
- EASEMENT.
- IRRIGATION CONDUIT SHOWN INDICATIVE.

THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH AND ARE SUBJECT TO THE TERMS OF WATSON YOUNG ARCHITECTS CONSULTANCY AGREEMENT. INCLUDING ITS SCOPE OF SERVICES REQUIRED UNDER THAT AGREEMENT. THESE DRAWINGS HAVE BEEN PREPARED USING REASONABLE SKILL, CARE AND DILIGENCE THAT WOULD ORDINARILY BE PROVIDED BY AN ARCHITECT. NOTHING PROVIDED BY WATSON YOUNG ARCHITECTS WILL RELIEVE ANY THIRD PARTY (INCLUDING THE BUILDER) FROM ANY RESPONSIBILITY OR LIABILITY.

THE BUILDER MUST CONFIRM ALL DIMENSIONS ON SITE PRIOR TO THE COMMENCEMENTS OF ANY PART OF THE WORKS. DO NOT SCALE OFF DRAWINGS - USE FIGURED DIMENSIONS ONLY.

THESE DRAWINGS ARE NON-EXHAUSTIVE, MAY NOT BE FINAL AND ARE SUBJECT TO APPLICABLE DEVELOPMENT, ALTERATION AND CHANGE AND MUST BE READ IN CONJUNCTION WITH THE RELEVANT TERMS AND CONDITIONS OF WATSON YOUNG ARCHITECTS' ENGAGEMENT AND THE OTHER RELEVANT PROJECT SPECIFICATIONS, DRAWINGS AND SCHEDULES.

IF ANY ERROR, AMBIGUITY, DISCREPANCY OR INCONSISTENCY IS DISCOVERED, SUCH ERROR, AMBIGUITY, DISCREPANCY OR INCONSISTENCY MUST BE IDENTIFIED TO WATSON YOUNG ARCHITECTS PROMPTLY.

THE DRAWINGS PROVIDED BY WATSON YOUNG ARCHITECTS ARE INTENDED FOR ITS CLIENT ONLY AND ARE NOT TO BE RELIED UPON BY ANY OTHER THIRD PARTY.

NOTES:

SITE PLAN

BUILDER TO CONFIRM ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF ANY PART OF THE WORKS.

ALL CARPARK DIMENSIONS TO FACE OF KERB UNLESS NOTED OTHERWISE.

REFER TO CIVIL ENGINEERS DOCUMENTATION FOR ALL EXTERNAL LEVELS, FALLS, STORM WATER DRAINAGE AND PAVEMENT DESIGN.

REFER LANDSCAPE ARCHITECTS DOCUMENTATION FOR LANDSCAPE DETAILS.

REFER FIRE ENGINEERS DOCUMENTATION FOR DETAILS OF FIRE SERVICES.

REFER SERVICES ENGINEERS DOCUMENTATION FOR DETAILS OF SERVICES.

REFER TO TRAFFIC ENGINEERS DOCUMENTATION FOR ALL INTERNAL SITE AND EXTERNAL ROAD WORKS AND TRAFFIC MANAGEMENT DETAILS.

BUILDER IS TO LOCATE, REDREG, CAP AND SEAL ETC ANY IN GROUND SERVICES PRIOR TO COMMENCEMENT OF ANY PART OF THE WORKS.

BUILDER IS TO SECURE AND OR HOARD THE SITE TO THE SATISFACTION OF LOCAL AUTHORITY AND TO MAINTAIN PUBLIC SAFETY.

GENERAL CARPARKING BAYS ARE TO HAVE A GRADIENT OF NO GREATER THAN 1:20 PARALLEL TO THE ANGLE OF PARKING.

DISABLED CARPARKING BAYS ARE TO HAVE A GRADIENT OF NO GREATER THAN 1:33 WHERE THE SURFACE HAS A BITUMENOUS SEAL, AND NO GREATER THAN 1:40 WHERE THE SURFACE IS CONCRETE FINISH IN ACCORDANCE WITH AS-2880.1.

LOCATIONS WHERE THE PATHWAY MEETS THE ROADWAYS ARE TO HAVE A GRADIENT OF NO GREATER THAN 1:8 AND TO BE FLUSH WITH THE PAVEMENT IN ACCORDANCE WITH AS-1428.

LINE MARKINGS & DIRECTIONAL FLOW ARROWS TO TRAFFIC ENGINEERS DETAILS AND SPECIFICATIONS.

MAXIMUM 190mm STEP TO ALL EXIT DOORS. PROVIDE EVEN TRANSITION BETWEEN INTERNAL & EXTERNAL LEVELS AT MAIN ENTRY DOORS.

ALLOW TO MAKE GOOD EXISTING PATH, NATURE STRIP, KERBS, ETC. OUTSIDE PROPERTY BOUNDARY EFFECTED BY CONSTRUCTION WORKS.



ISSUED FOR  
CONSTRUCTION

No.	DATE	REVISION:	BY:	CHK:
PS	16.02.2024	PRELIMINARY ISSUE	NN	JC
PD	23.02.2024	PRELIMINARY ISSUE	NN	JC
PT	28.02.2024	PRELIMINARY ISSUE	NN	JC
PR	02.04.2024	PRELIMINARY ISSUE	NN	JC
PS	10.04.2024	PRELIMINARY ISSUE	NN	JC
P1	03.05.2024	WIP ISSUE	NN	JC
0				
P1	07.05.2024	INTERIM WALL REMOVED	NN	JC
1				
A	23.05.2024	ISSUED FOR CONSTRUCTION	NN	JC
B	13.06.2024	DWG UPDATES	NN	JC

watson  
young

PROJECT: WH2 LOTS 54-58 MAMRE RD  
LOTS 54-58 MAMRE ROAD,  
KEMPS CREEK, NSW  
SITE PLAN

CLIENT: **texco**

DATE: APRIL 2024

DRAWN BY: MDB

SCALE: 1:500 @ B1

SCALE: NTS @ A3

CHECKED BY: JC

FILE PATH: C:\Users\Paul\Local 25242326 - WH2 LOTS 54-58 Mamre Rd\_Building\_V04\_Nabla\NVA

PLOT DATE: 13/06/2024 3:02:44 PM

JOB NO: 23296

DRAWING NO: AR1110

REVISION: B

Watson Young Architects PT, Melbourne | Perth | Sydney | 03 9516 8055 ACN: 111398700  
8 Gifford Street/Parsons VIC 3181 | info@watsonyoung.com.au | www.watsonyoung.com.au  
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# **Appendix K   Erosion and Sediment Control Plan**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



NOTES - Administration & General

1. This progressive plan is to be read in conjunction with the SWMP, CEMP, relevant specifications, and procedures.
2. Works programming to maximise the mitigation of erosion by the early implementation of permanent drainage measures, temporary and permanent soil surface stabilisation measures, and minimising the area and duration of soil disturbance.
3. Bureau of Meteorology weather forecasting to be monitored daily for the local 7-Day weather outlook. Site management measures to be planned for imminent storm/rainfall/flood/wind events include, but are not limited to;

• avoiding additional soil disturbance immediately prior to an event,

• provision of additional erosion and sediment controls in critical locations,

• installing, repairing, and/or adjusting ‘clean’ (off site water) and ‘dirty’ (on site) water drainage measures,

• desilting and re-instating sediment controls as required,

• implementing stockpile protection measures,

• stabilising and sealing disturbed soil surfaces,

• minimising dry soil handling in windy conditions,

• evacuating or protecting erodible materials in lower lying area.
4. The plan is to be revised as necessary (i.e. progression of works, altered site conditions or weather). **The controls depicted are subject to staging and the controls may be progressively implemented or removed according to progression of works.**
5. All erosion and sediment controls generally to be constructed in accordance with ‘Blue Book’ specifications and standard drawings being

• ‘Technical guidance for achieving Wianamatta–South Creek stormwater management targets’ - NSW DPHIE 2022;

• ‘Managing Urban Storm Water: Soils And Construction’ - 4<sup>th</sup> EDITION, LANDCOM, MARCH 2004;
6. Substitute materials may be utilised in the construction of erosion or sediment controls where functionality is not affected, i.e. compacted mulch bunds in place of sediment fences, stabilised earth berms in place of excavated drains near underground services or timber pegs in place of star pickets where electrical or gas hazards exist.
7. Personnel constructing controls to have demonstrated competence and experience. Specific awareness training and workshops to be undertaken by personnel with direct involvement with erosion and sediment control. Toolbox talks to regularly focus on erosion and sediment control for specific works, associated risks, potential impacts and mitigation measures.
8. All existing vegetated or undisturbed areas outside of the works area to be regarded as Exclusion zones and to be delineated with fencing, tape or other markers, as required. All site personnel to be instructed to avoid Exclusion zones or damaging installed controls.

Erosion Control

9. Prior to commencement of significant works, install surface drains, sediment traps, sumps & filters, and other surface runoff control measures to control runoff onto, across, and from the works zones to prevent the loss of sediment from the site.
10. Construction zones in constrained areas to be managed in smaller, defined sub-catchments to reduce slope lengths and minimise sediment loads to boundary controls.
11. Short term on-site stockpiles to be located away from drains and flow lines and be controlled with sediment fence or storm covers.
12. Any significant (long & steep) cut/fill batters should be progressively overlaid with Rolled Erosion Control Products (RECP’s such as jute mesh, coir fibre mesh, etc), mulching, Organic Fibre Mulches (OFM’s) or geobinders to reduce erosion and rilling, prior to permanent stabilisation with cover crops, mulching or other long-term surface protection
13. Vehicles transporting bulk materials on public roads are to correctly cover loads to prevent loss of load and/or dust generation.
14. Temporary controls in addition to those shown may be required at strategic locations as required by the progression of works or weather conditions
15. Unnecessary disturbance of site areas to be avoided particularly during wet conditions.

Water Management

16. Maximise the interception and diversion of ‘clean’ (off site water) away from works areas. The ‘clean’ flows to be conveyed in stabilised drainage lines to suitable discharge points. The flows to be discharged to off-site areas at non-erosive velocities with adequate diffusers, level spreaders, etc. Ensure drainage paths and controls are adjusted as required to maximise the separation of ‘clean’ (off site) and ‘dirty’ (on site) water flows through/off site.
17. Ensure permanent or temporary down pipes are connected to the roof guttering and stormwater pits as soon as practical.

Water Management

18. Flows paths with high velocity flows over unstabilised areas to be controlled with

• applied soil surface stabilisers i.e. geotextile lining, applied soil binders, coarse rock lining, etc

• suitably constructed check dams placed at intervals to maximise flow suppression and settling of coarse sediment.
19. Where possible, provide sand bag or other bunding controls at on-site collection points & pit inlets to prevent flows bypassing controls to downslope areas.
20. Protect all existing and constructed inlets to pits & culverts from sediment ingress.
21. Where practical, maintain and/or improve existing stabilised drains to assist in the diversion of ‘clean’ (off site) flows.
22. Flooded excavations, ponded water, etc. to be extracted where required and utilised for site purposes or treated to achieve acceptable water quality prior to discharge.

Sediment Control

23. Where relevant, vegetation to be progressively cleared to minimise disturbance by area and duration. Cleared vegetation to be windrowed parallel to the contour until mulching/removal to control flows across cleared areas
24. The installation of preliminary sediment controls such as perimeter sediment fencing, windrowed vegetation/mulch, excavated sediment traps, check dams, straw bale filters, etc, will be implemented prior to soil disturbance within the catchment.
25. Accumulated water in sediment traps/sumps cannot be pumped, discharged or released from site without completing a dewatering checklist.
26. Appropriate sediment tracking controls such as an aggregate/geotextile apron, shaker grid, etc. will be installed at exit points from the site. Personnel to monitor roadways & tracked sediments to be removed as required.
27. Personnel to ensure visual dust monitoring is maintained during works, and dust suppression is undertaken regularly. Dust control to be regularly conducted with water carts and soil stockpiles to suitably covered. Additional dust suppression measures to be utilised to minimise dust pollution during periods of high winds.
28. Temporary ‘dirty’ water drainage will be adjusted progressively to maximise flows to sediment control devices.

Contamination

29. Excavation of sub-soils to be inspected and monitored as works proceeds, to identify potential contamination. Any potentially contaminated soils to be stripped or excavated separately and transported directly to the designated stockpile, treatment area or licensed waste facility.
30. Potentially contaminated soils are to be stored within an appropriately bunded area and covered with heavy grade plastic or other impermeable covers for the duration of rainfall.
31. Ground disturbance and machinery/vehicle movements in potentially contaminated areas will be minimised to essential works.

Monitoring & Reporting and Inspection & Maintenance

32. The construction phase erosion and sediment controls on the site are to be supervised and certified by a CPESC. Monthly audits are to be completed by the CPESC and kept on record for the duration of the construction, and an additional 12 months following completion of construction works.
33. Inspections of erosion and sediment controls will occur following rainfall events >10mm (daily on workdays or as soon as practical during site shutdown periods), with any necessary repairs implemented as soon as possible.
34. Relevant checklists and records to be maintained noting details such as rainfall received, repairs to controls and amounts of sediments cleaned from controls.
35. Sediment traps, sumps and filters are to be desilted when 60% of storage capacity is reached.
36. All site personnel to report any spill, leaks, or other failure to relevant response staff as soon as possible.

Stabilisation

37. Erosion and sediment controls are to be maintained until the relevant catchments are stabilised, re-vegetated, or sealed adequately to achieve soil surface protection factors as per the ‘Blue Book’ and SWMP requirements.
38. Completed earthworks areas will be backfilled and compacted in a staged manner as soon as possible. Adjacent disturbed areas will be suitably trimmed and stabilised as required.
39. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.
40. Areas subject to heavy compaction and disturbance from vehicle movements and machinery to be scarified to a depth >100mm prior to topsoiling and seeding.

Statement of Compliance

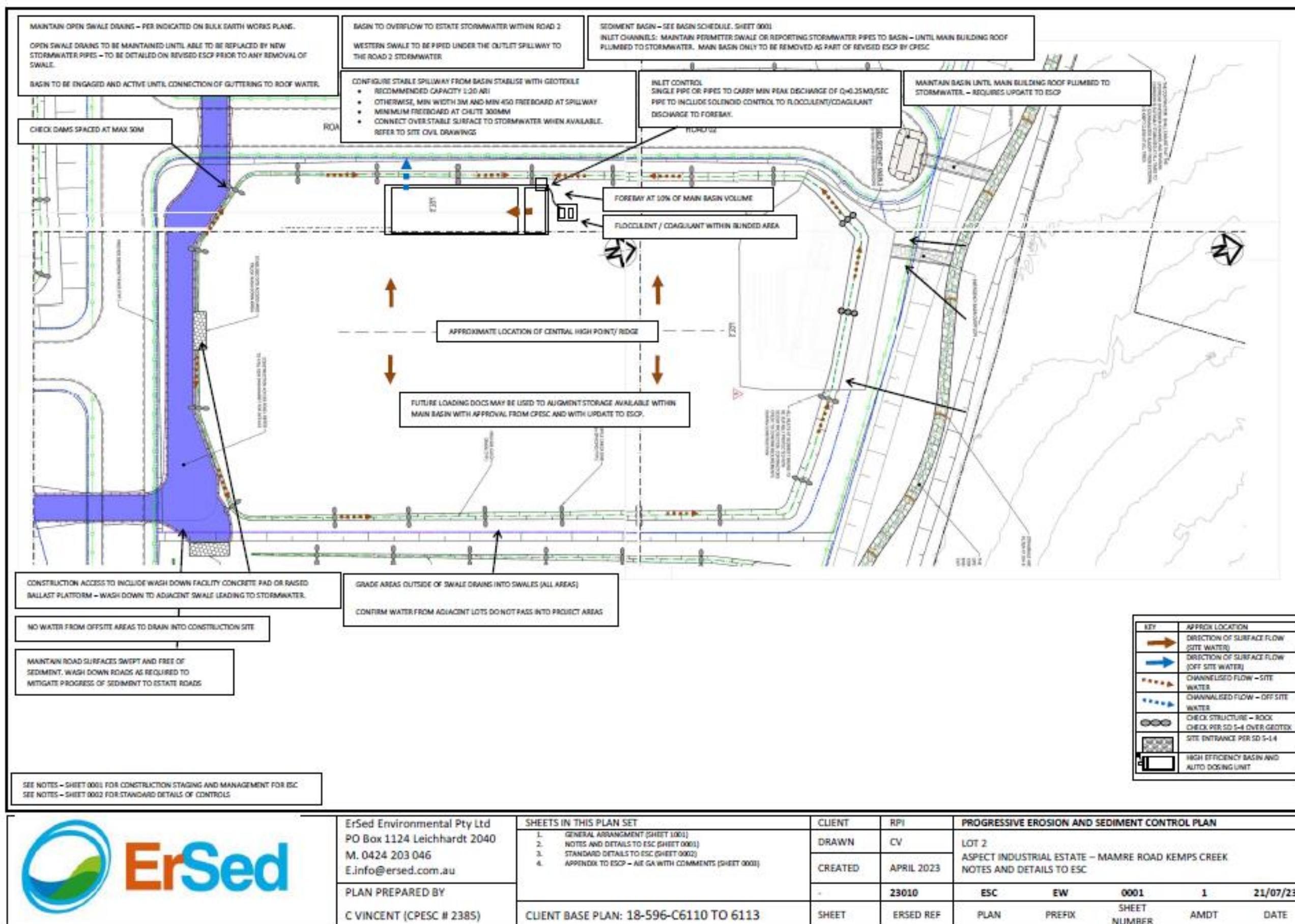
This plan has been developed, and is certified by, an appropriately qualified and experienced professional in erosion and sediment control. The plan and associated documents, calculations, and drawings, have been prepared to a standard which, if properly implemented, will achieve the water quality objectives described in ‘*Technical guidance for achieving Wianamatta–South Creek stormwater management targets*’ - NSW DPHIE 2022, and ‘*Managing Urban Stormwater – Soils & Construction*’ Volumes 1 & 2 – NSW Landcom 2006 & NSW DECC 2008. All erosion and sediment control measures are designed to be in accordance with the requirements of the aforementioned documents and the Penrith City Council Development Control Plan 2014.

Signed:  Andrew Littlewood - CPESC No. 5988

Date: 31<sup>st</sup> July 2024

Version	Drawn by	Date	Signed	Reviewed by	Date
01	A. Littlewood	11/07/2024			
01	A. Littlewood	31/07/2024			







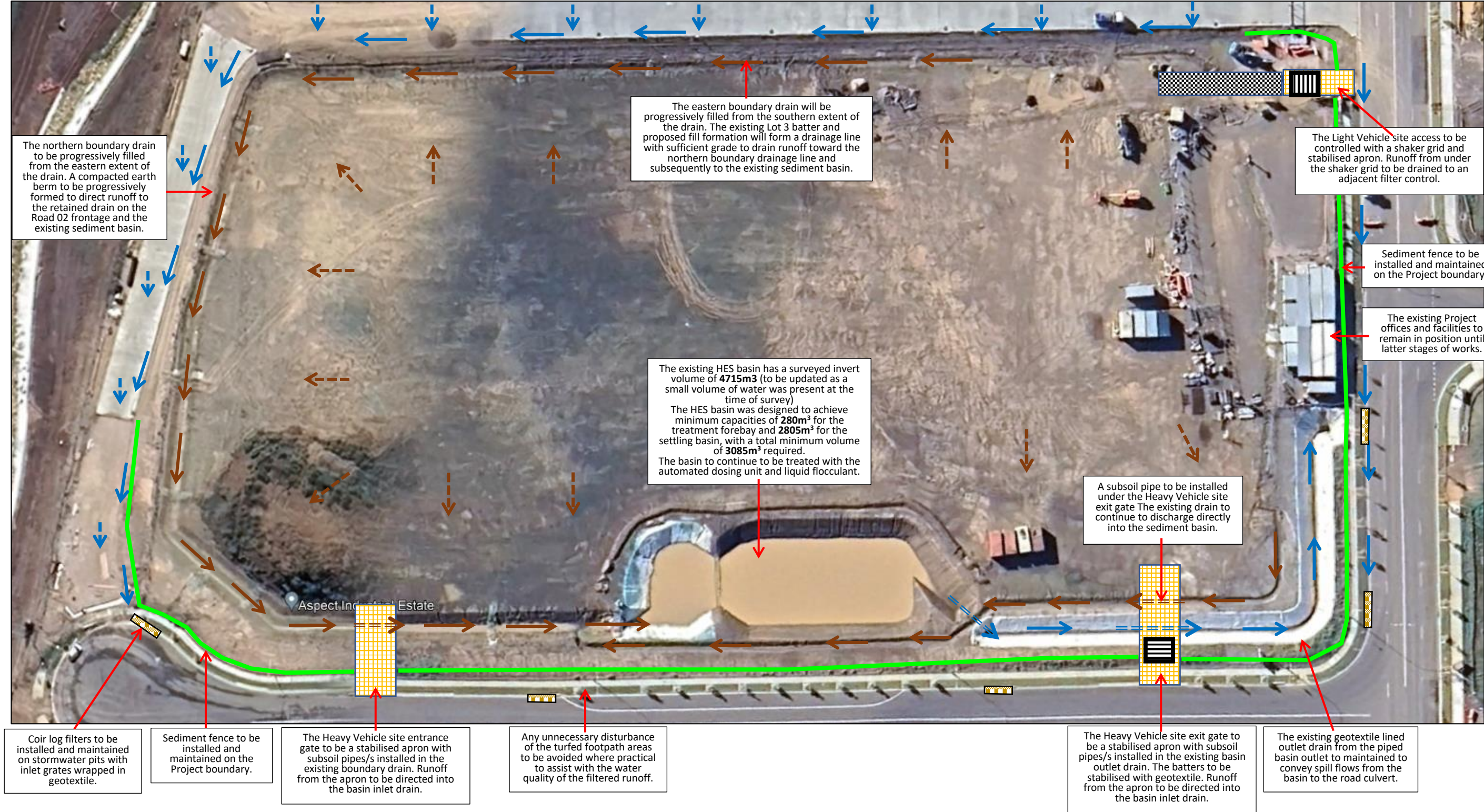
Aerial View of the current construction and erosion and sediment controls occurring on the AIE site – Aerial imagery from Google Earth: June 2024



Legend											
Off Site Water – Sheet Flows		Piped Drainage		Stabilised Soil Berm (geo/jute/seed)		Sediment basin / large sump		Sediment Fence Geotextile Apron		Vegetated filter	
Off Site Water – Concentrated Flow/Drain		Off-site & onsite water cross-over		Stabilised drain or spillway		Filter bag / rock & shade cloth sediment filter		Rock & shade cloth filter outlet		Controlled site access	
On Site Water - Concentrated Flow/Drain		'Off site' water exclusion bank		Rock lined drain		Compacted Mulch / Rock & Geotextile / topsoil sediment trap		Coir Log / Straw bale filter		Stabilised Haul Road/Access Track/ Piling pad/Piped crossing	
On Site Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Filter bag or sediment fence inlet filter		Temporary Traffic Barriers	



Lot 2 Aspect Industrial Estate Mamre Road, Kemps Creek - Progressive Erosion & Sediment Control Plan  
Stage 1 – Final trim earthworks, placement of stabilised aggregate, piling and underground services  
(ESCP based on Google Earth Aerial Imagery from 10/06/2024)



Legend											
Off Site Water – Sheet Flows		Piped Drainage		Stabilised Soil Berm (geo/jute/seed)		Sediment basin / large sump		Sediment Fence Geotextile Apron		Vegetated filter	
Off Site Water – Concentrated Flow/Drain		Off-site & onsite water cross-over		Stabilised drain or spillway		Filter bag / rock & shade cloth sediment filter		Rock & shade cloth filter outlet		Controlled site access	
On Site Water - Concentrated Flow/Drain		'Off site' water exclusion bank		Rock lined drain		Compacted Mulch / Rock & Geotextile / topsoil sediment trap		Coir Log / Straw bale filter		Stabilised Haul Road/Access Track/ Piling pad/Piped crossing	
On Site Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Filter bag or sediment fence inlet filter		Temporary Traffic Barriers	



Lot 2 Aspect Industrial Estate Mamre Road, Kemps Creek - Progressive Erosion & Sediment Control Plan  
Stage 2 –Building construction, pavements and underground services  
(ESCP based on Google Earth Aerial Imagery from 10/06/2024)



Legend											
Off Site Water – Sheet Flows		Piped Drainage		Stabilised Soil Berm (geo/jute/seed)		Sediment basin / large sump		Sediment Fence Geotextile Apron		Vegetated filter	
Off Site Water – Concentrated Flow/Drain		Off-site & onsite water cross-over		Stabilised drain or spillway		Filter bag / rock & shade cloth sediment filter		Rock & shade cloth filter outlet		Controlled site access	
On Site Water - Concentrated Flow/Drain		'Off site' water exclusion bank		Rock lined drain		Compacted Mulch / Rock & Geotextile / topsoil sediment trap		Coir Log / Straw bale filter		Stabilised Haul Road/Access Track/ Piling pad/Piped crossing	
On Site Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Filter bag or sediment fence inlet filter		Temporary Traffic Barriers	



Lot 2 Aspect Industrial Estate Mamre Road, Kemps Creek - Progressive Erosion & Sediment Control Plan  
Stage 3 –Building construction, pavements and landscaping  
(ESCP based on Google Earth Aerial Imagery from 10/06/2024)



Legend											
Off Site Water – Sheet Flows		Piped Drainage		Stabilised Soil Berm (geo/jute/seed)		Sediment basin / large sump		Sediment Fence Geotextile Apron		Vegetated filter	
Off Site Water – Concentrated Flow/Drain		Off-site & onsite water cross-over		Stabilised drain or spillway		Filter bag / rock & shade cloth sediment filter		Rock & shade cloth filter outlet		Controlled site access	
On Site Water - Concentrated Flow/Drain		'Off site' water exclusion bank		Rock lined drain		Compacted Mulch / Rock & Geotextile / topsoil sediment trap		Coir Log / Straw bale filter		Stabilised Haul Road/Access Track/ Piling pad/Piped crossing	
On Site Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Filter bag or sediment fence inlet filter		Temporary Traffic Barriers	



Mamre Road Precinct – Development Control Plan: Section 4.4.2 (6) Compliance Table

Requirement	Applicable/Relevant	PESCP Section/Drawing	Comment
Identify all areas likely to cause pollution of waterways from stormwater run-off and implement appropriate devices to stop the risk of pollution;	Yes	Shown on PESCP Drawings	The brown dashed arrows indicate the extent of disturbed areas and direction of ‘dirty’ water runoff
Divert clean water around the construction site to prevent contamination	Yes	Shown on PESCP Drawings	The blue dashed and solid arrows indicate the extent of offsite areas and direction of ‘clean’ water runoff and diversions
Retain as much natural vegetation as possible and limit site disturbance	No	N/A	No vegetation remains on site. See Note 15 regarding limiting unnecessary disturbance
Control stormwater that enters the construction site from upstream	No	N/A	No stormwater enters the construction site from upstream areas
Divert stormwater from undisturbed upper slopes onto stable areas	No	N/A	The is no undisturbed upper slopes impacting of site areas
Retain and stockpile all excavated topsoil for future landscaping	No	N/A	The is no existing natural or excavated topsoil remaining on site
Prevent sediment/silt from entering adjoining property by installing sediment control devices at the low side of sites and wash down areas	Yes	Shown on PESCP Drawings	Cut off drains direct site runoff to the main sediment basin, sediment fencing is installed on downslope boundaries and coir log filters to be installed on adjacent roadside stormwater pits with geotextile wrapped grates
Install high efficiency sediment basins to ensure compliance with the water quality target throughout the construction and building phases	Yes	Shown on PESCP Drawings	A high efficiency sediment basin (HES Basin) currently operates on site. The HES Basin to be converted to a Type D basin to allow for earthworks in the adjacent area. The existing basin to be maintained with a minimum capacity of <b>3735m<sup>3</sup></b> for the overall Type D basin volume until Stage 2 works commence. The total basin volume required is based on the provision of 900m3 of site runoff storage volume per hectare of unstabilised ground. The site area is 4.15 hectares x 900m3 = <b>3735m<sup>3</sup></b> . The Revised Soil Loss Equation calculations indicate that a total basin volume capacity of <b>3719m<sup>3</sup></b> would be required to contain a 113mm rainfall event.
Provide a single, stabilised entry/exit point to the site	Yes	3 stabilised entry/exit access points are shown on PESCP Drawings.	The multiple stabilised entry/exit access points have been provided for light vehicle and heavy vehicle separation for safety reasons, in accordance with normal industry practice. If a single exit/entrance is mandated by the ER, the direction to be provided to Site Controllers in writing.
Prevent sediment, including building materials, from reaching the road or stormwater system. Sediment is to be removed by sweeping, shovelling or sponging. Under no circumstances shall sediment be hosed	Yes	Shown on PESCP Drawings	Cut off drains direct site runoff to the main sediment basin, sediment fencing is installed on downslope boundaries and coir log filters to be installed on adjacent roadside stormwater pits with geotextile wrapped grates. See Note 26 regarding sediment tracking controls
Where a work zone permit over public property is applicable, debris control devices are to prevent spillage of building materials into stormwater drains	Yes	Shown on PESCP Drawings	No work zones over public property have been identified for the site to date. Inlet filter controls on roadside kerb inlet pits are to be maintained, and are shown on PESCP Drawings
Compact all drainage lines when backfilling	Yes	See Note 38 above	Nil
Connect downpipes to the stormwater system as early as possible	Yes	See Note 17 above	Nil
Revegetate all disturbed areas, after on-site works are completed	Yes	Shown on Landscape Drawings	The majority of the site will be occupied by the building structure, and paved access roads & parking areas, with minimal areas to be landscaped on boundary areas
Maintain all sediment control devices during earthworks and construction	Yes	See Note 37 above	Nil



Revised Soil Loss Equation Calculations Worksheet

### 1. Erosion Hazard and Sediment Basins

Site Name: Aspect Industrial Estate

Site Location: Mamre Road, Kemps Creek

Precinct/Stage: Lot 2 Warehouse

Other Details: 4.15 ha finishing earthworks, services and construction

Site area	Sub-catchment or Name of Structure						Notes
	1%/85	1%/95	113mm	143mm			
Total catchment area (ha)	4.15	4.15	4.15	4.15			
Disturbed catchment area (ha)	4.15	4.15	4.15	4.15			

#### Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D	D	D	D			From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D	D	D			Automatic calculation from above

#### Rainfall data

Design rainfall depth (no of days)	5	5	5	5			See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	95					
x-day, y-percentile rainfall event (mm)	32.2	70.8	113	143			
Rainfall R-factor (if known)	1892	1892	1892	1892			Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	9.13	9.13	9.13	9.13			

#### RUSLE Factors

Rainfall erosivity (R-factor)	1892	1892	1892	1892			Auto-filled from above
Soil erodibility (K-factor)	0.055	0.055	0.055	0.055			
Slope length (m)	100	100	100	100			RUSLE LS factor calculated for a high rill/interill ratio.
Slope gradient (%)	1	1	1	1			
Length/gradient (LS-factor)	0.20	0.20	0.20	0.20			
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (C-factor)	1	1	1	1	1	1	

#### Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.79	0.79	0.79			See Table F2, page F-4 in Appendix F

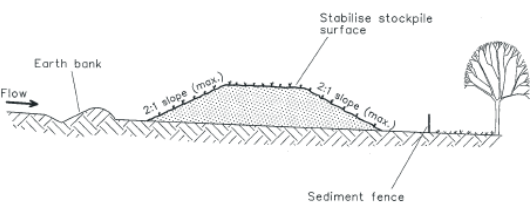
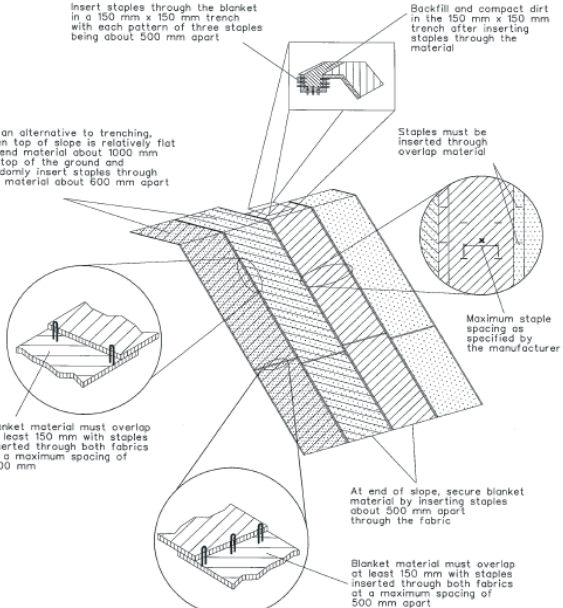
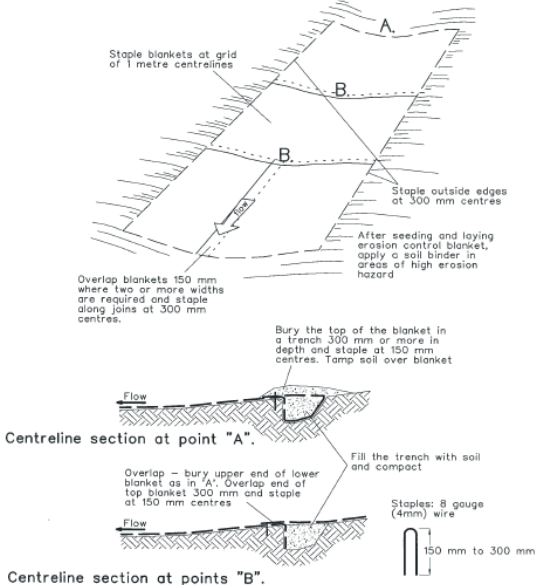
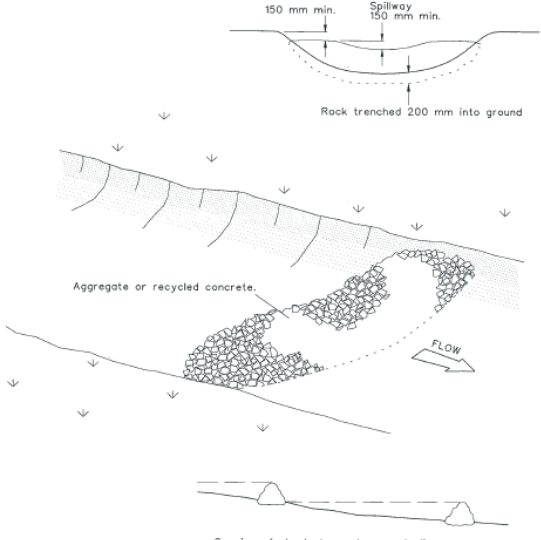
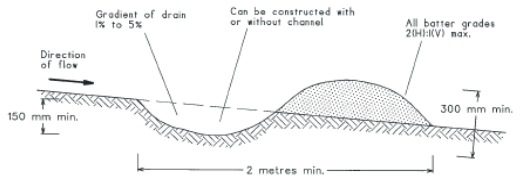
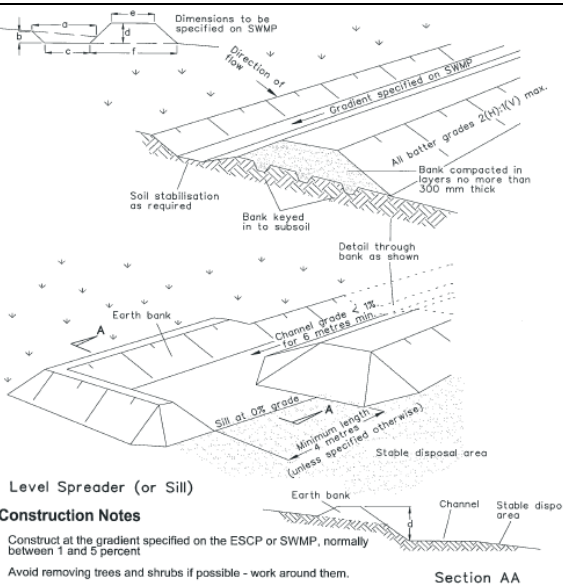
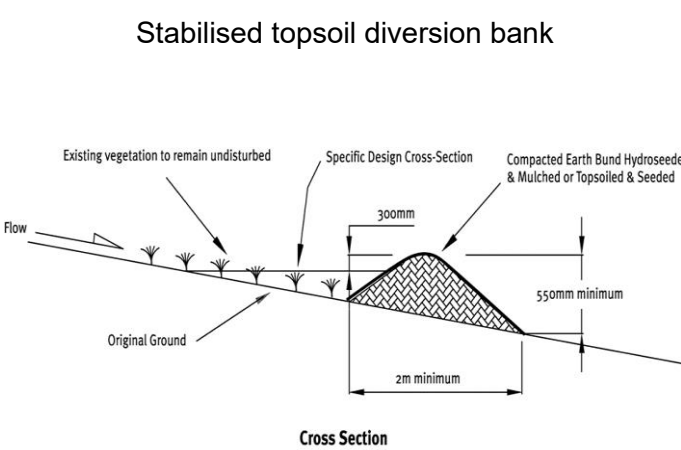
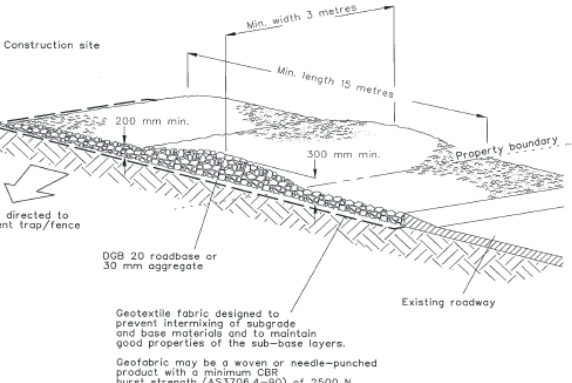
#### Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	28	28	28	28			
Soil Loss Class	1	1	1	1			See Table 4.2, page 4-13
Soil loss (m <sup>3</sup> /ha/yr)	21	21	21	21			Conversion to cubic metres
Sediment basin storage (soil) volume (m <sup>3</sup> )	15	15	15	15			See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m <sup>3</sup> )	855	2321	3705	4688			See Sections 6.3.4(i) for calculations
Sediment basin total volume (m <sup>3</sup> )	870	2336	3720	4703			

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

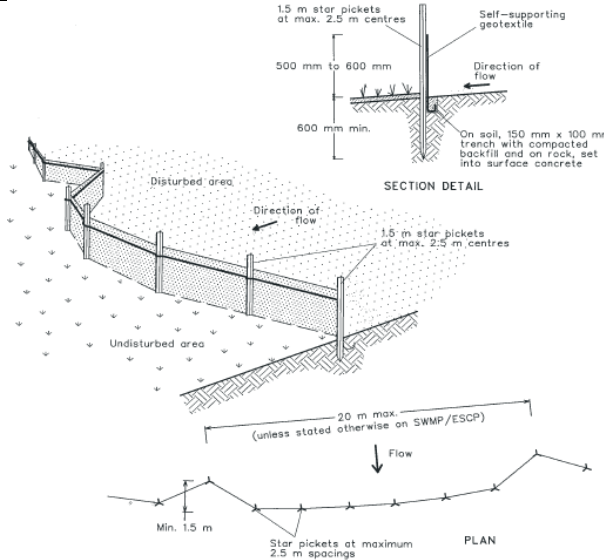
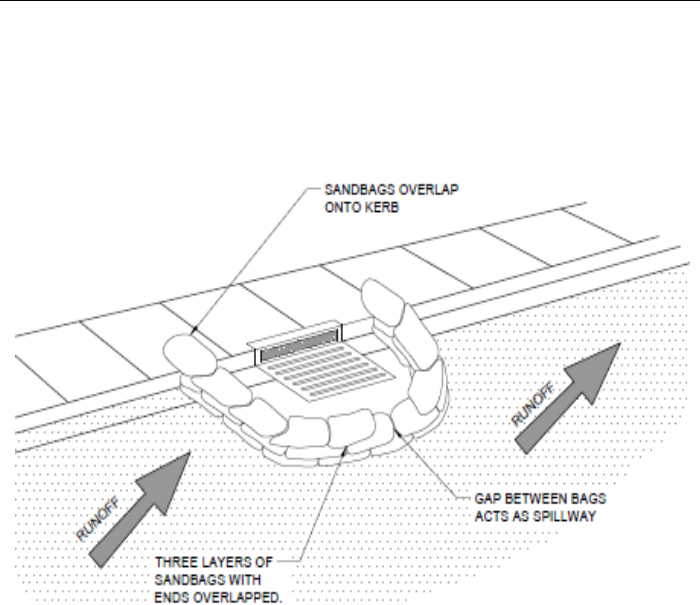
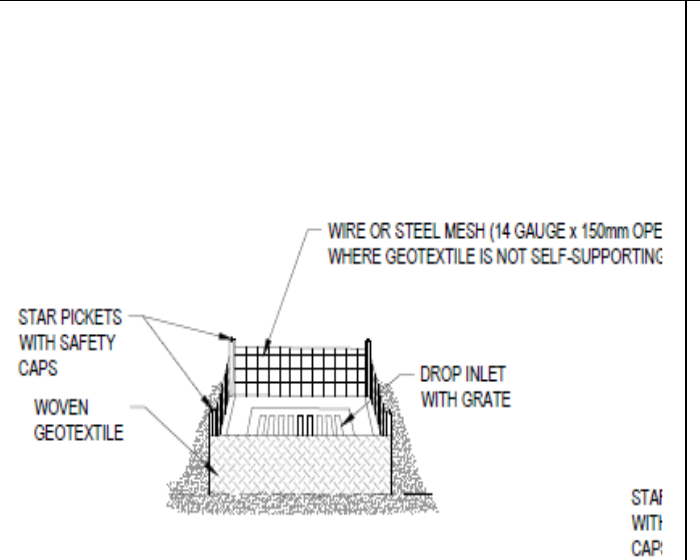
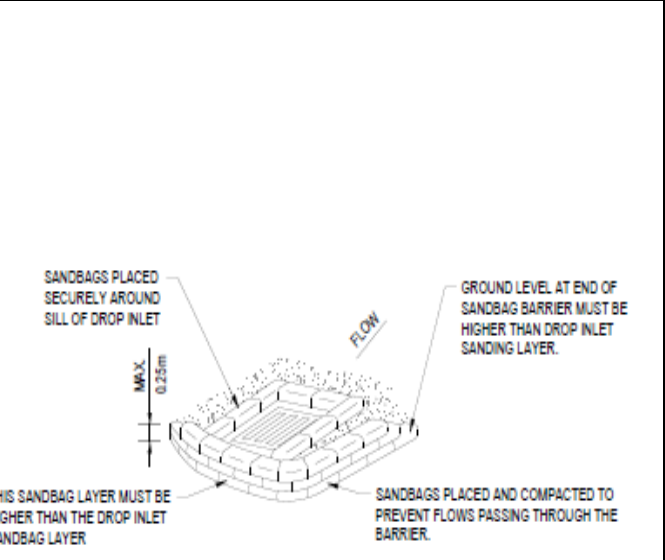
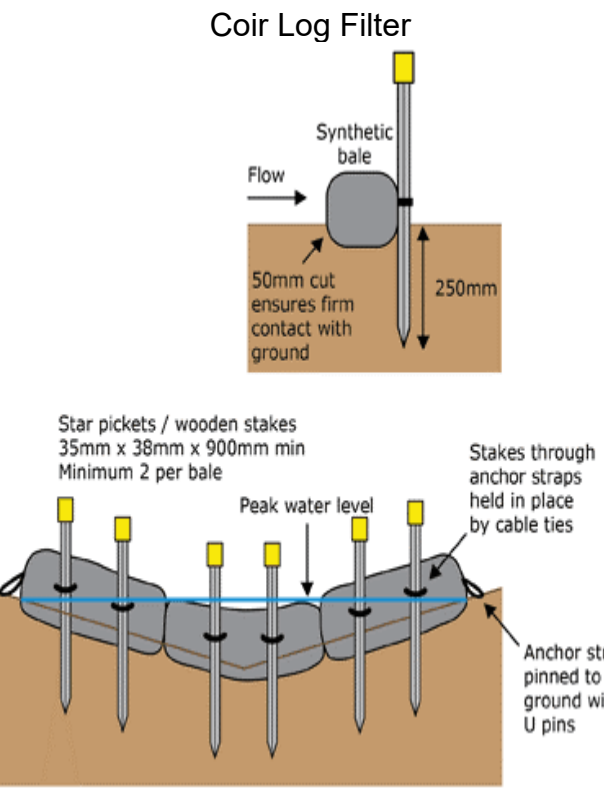
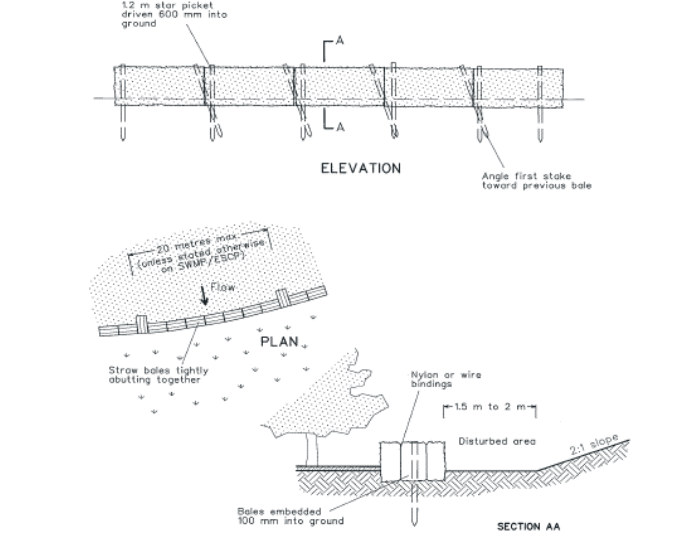
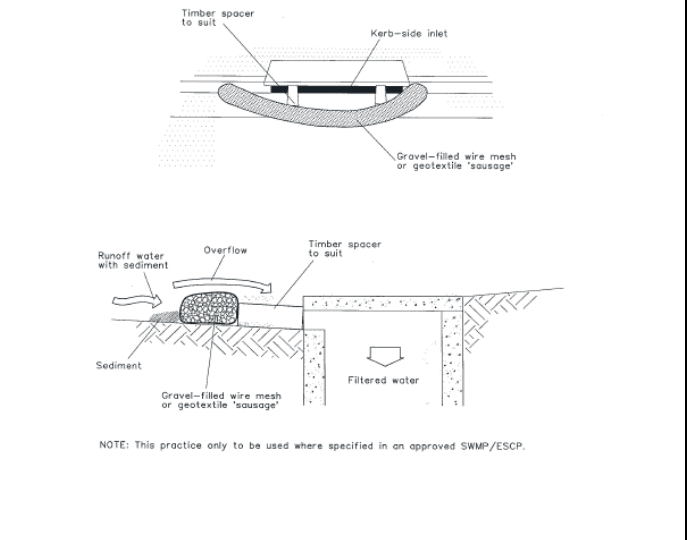
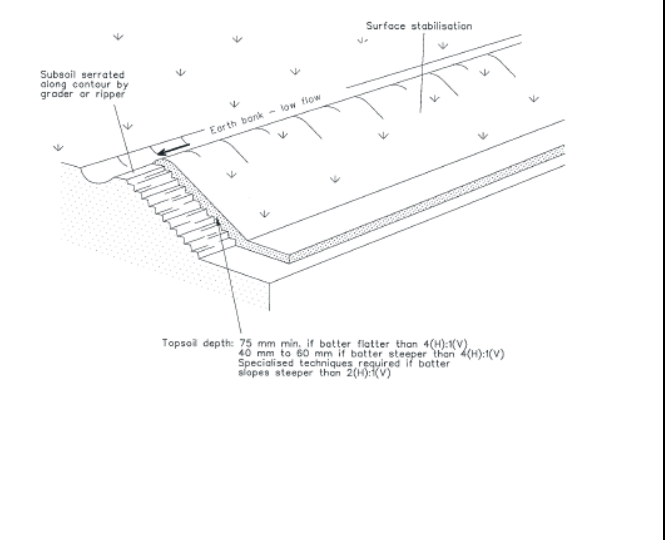


Standard Drawings

<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.</li><li>Construct on the contour as low, flat, elongated mounds.</li><li>Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.</li><li>Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.</li><li>Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.</li></ol></div> <div>STOCKPILESSD 4-1</div>	<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Remove any rocks, clods, sticks or grass from the ground surface before laying the matting.</li><li>Spread topsoil to at least 75 mm depth.</li><li>Where appropriate, complete fertilising and seeding on a properly prepared seedbed (Standard Drawing 7-1) before laying the matting.</li><li>Ensure the fabric can be continuously in contact with the soil by grading the surface carefully first.</li><li>Lay the matting in "shingle-fashion" with the ends of each upstream roll overlapping the next roll downslope.</li><li>Ensure sufficient staples are used to maintain a good contact between the soil and the matting.</li></ol></div> <div>RECP : SHEET FLOWSD 5-2</div>	<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Remove any rocks, clods, sticks or grass from the surface before laying matting</li><li>Ensure that topsoil is at least 75 mm deep.</li><li>Complete fertilising and seeding before laying the matting.</li><li>Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.</li><li>Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end (Standard Drawing 5-7b).</li><li>Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.</li><li>Divert water from the structure until vegetation is stabilised properly.</li></ol></div> <div>RECP : CONCENTRATED FLOWSD 5-7</div>	<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.</li><li>Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.</li><li>Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.</li><li>Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.</li></ol></div> <div>ROCK CHECK DAMSD 5-4</div>
<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Build with gradients between 1 percent and 5 percent.</li><li>Avoid removing trees and shrubs if possible - work around them.</li><li>Ensure the structures are free of projections or other irregularities that could impede water flow.</li><li>Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.</li><li>Ensure the banks are properly compacted to prevent failure.</li><li>Complete permanent or temporary stabilisation within 10 days of construction.</li></ol></div> <div>EARTH BANK (LOW FLOW)SD 5-5</div>	<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent</li><li>Avoid removing trees and shrubs if possible - work around them.</li><li>Ensure the structures are free of projections or other irregularities that could impede water flow.</li><li>Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.</li><li>Ensure the banks are properly compacted to prevent failure.</li><li>Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).</li><li>Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.</li><li>Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.</li><li>Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.</li></ol></div> <div>EARTH BANK (HIGH FLOWS)SD 5-6</div>	<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Strip the topsoil, level the site and compact the subgrade.</li><li>Cover the area with needle-punched geotextile.</li><li>Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.</li><li>Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.</li><li>Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence</li></ol></div> <div>Stabilised topsoil diversion bank</div>	<div><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Strip the topsoil, level the site and compact the subgrade.</li><li>Cover the area with needle-punched geotextile.</li><li>Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.</li><li>Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.</li><li>Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence</li></ol></div> <div>STABILISED SITE ACCESSSD 6-14</div>

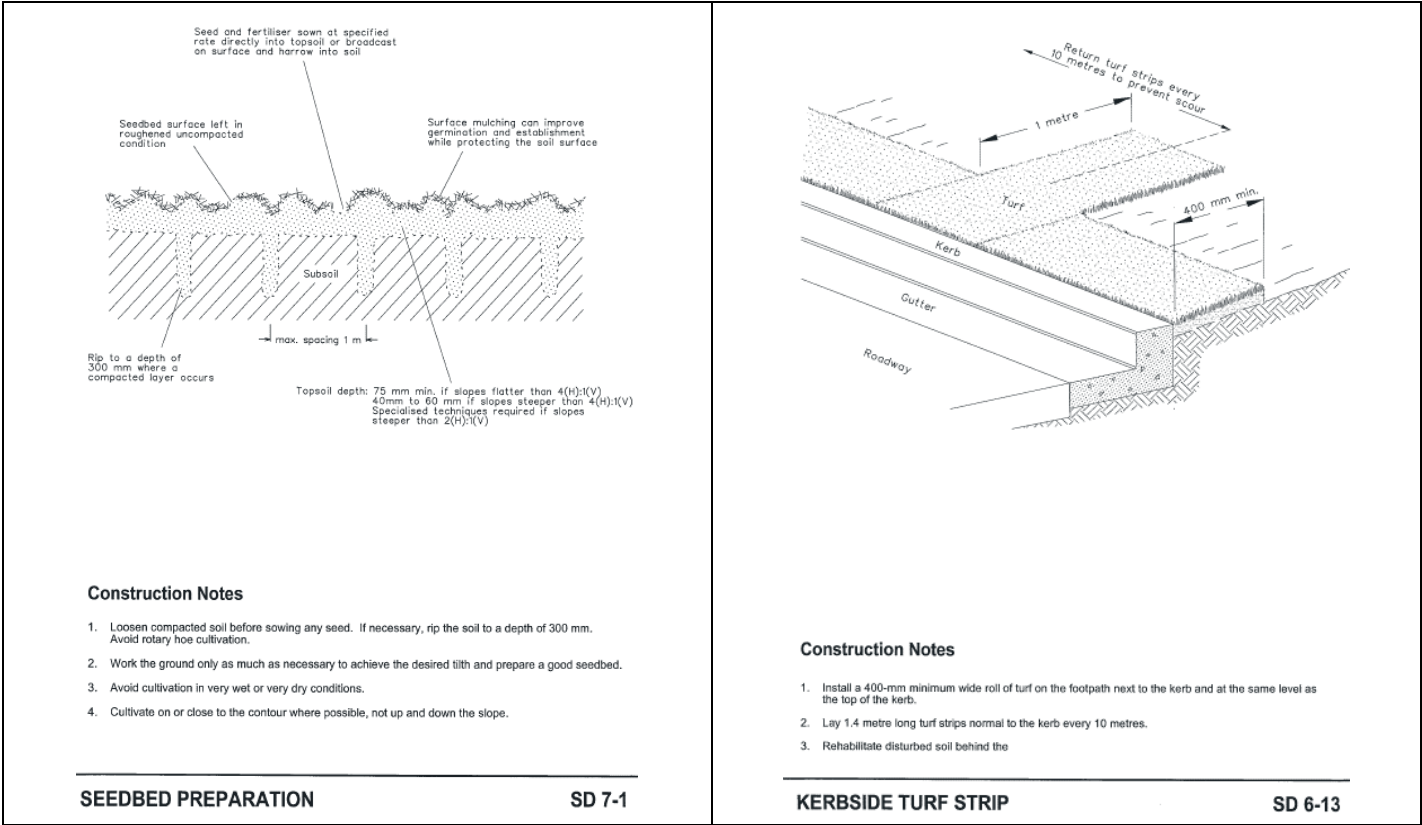


Standard Drawings

<div><p><b>SECTION DETAIL</b></p><p>1.5 m star pickets at max. 2.5 m centres</p><p>500 mm to 600 mm</p><p>600 mm min.</p><p>Self-supporting geotextile</p><p>Direction of flow</p><p>On soil, 150 mm x 100 mm trench with compacted backfill and on rock, set into surface concrete</p><p>Disturbed area</p><p>Undisturbed area</p><p>Direction of flow</p><p>1.5 m star pickets at max. 2.5 m centres</p><p>20 m max. (unless stated otherwise on SWMP/ESCP)</p><p>Flow</p><p>Min. 1.5 m</p><p>Star pickets at maximum 2.5 m spacings</p><p><b>PLAN</b></p><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.</li><li>Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.</li><li>Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.</li><li>Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.</li><li>Join sections of fabric at a support post with a 150-mm overlap.</li><li>Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.</li></ol><p><b>SEDIMENT FENCE</b></p><p><b>SD 6-8</b></p></div>	<div><p><b>SANDBAGS OVERLAP ONTO KERB</b></p><p><b>STAR PICKETS WITH SAFETY CAPS</b></p><p><b>WOVEN GEOTEXTILE</b></p><p><b>DROP INLET WITH GRATE</b></p><p><b>WIRE OR STEEL MESH (14 GAUGE x 150mm OPE WHERE GEOTEXTILE IS NOT SELF-SUPPORTING)</b></p><p><b>STAIR WITH CAP</b></p><p><b>GEOTEXTILE INLET FILTER (SD 6-12) - PERSPECTIVE</b></p><p><b>NTS</b></p><p><b>SANDBAG SEDIMENT TRAP FOR KERB INLET</b></p><p><b>NTS</b></p><p><b>THREE LAYERS OF SANDBAGS WITH ENDS OVERLAPPED</b></p><p><b>GAP BETWEEN BAGS ACTS AS SPILLWAY</b></p><p><b>RUNOFF</b></p><p><b>RUNOFF</b></p></div>	<div><p><b>STAR PICKETS WITH SAFETY CAPS</b></p><p><b>WOVEN GEOTEXTILE</b></p><p><b>DROP INLET WITH GRATE</b></p><p><b>WIRE OR STEEL MESH (14 GAUGE x 150mm OPE WHERE GEOTEXTILE IS NOT SELF-SUPPORTING)</b></p><p><b>STAIR WITH CAP</b></p><p><b>GEOTEXTILE INLET FILTER (SD 6-12) - PERSPECTIVE</b></p><p><b>NTS</b></p></div>	<div><p><b>SANDBAGS PLACED SECURELY AROUND SILL OF DROP INLET</b></p><p><b>MAX. 0.25m</b></p><p><b>GROUND LEVEL AT END OF SANDBAG BARRIER MUST BE HIGHER THAN DROP INLET SANDING LAYER.</b></p><p><b>FLOW</b></p><p><b>SANDBAGS PLACED AND COMPACTED TO PREVENT FLOWS PASSING THROUGH THE BARRIER.</b></p><p><b>THIS SANDBAG LAYER MUST BE HIGHER THAN THE DROP INLET SANDBAG LAYER</b></p><p><b>SEDIMENT BARRIER (SD 5-4) DETAIL</b></p></div>
<div><p><b>Coir Log Filter</b></p><p><b>Synthetic bale</b></p><p><b>Flow</b></p><p><b>50mm cut ensures firm contact with ground</b></p><p><b>250mm</b></p><p><b>Star pickets / wooden stakes 35mm x 38mm x 900mm min Minimum 2 per bale</b></p><p><b>Peak water level</b></p><p><b>Stakes through anchor straps held in place by cable ties</b></p><p><b>Anchor straps pinned to ground with U pins</b></p></div>	<div><p><b>ELEVATION</b></p><p><b>PLAN</b></p><p><b>SECTION AA</b></p><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Construct the straw bale filter as close as possible to being parallel to the contours of the site.</li><li>Place bales lengthwise in a row with ends tightly abutting. Use straw to fill any gaps between bales. Straws are to be placed parallel to ground.</li><li>Ensure that the maximum height of the filter is one bale.</li><li>Embed each bale in the ground 75 mm to 100 mm and anchor with two 1.2 metre star pickets or stakes. Angle the first star picket or stake in each bale towards the previously laid bale. Drive them 600 mm into the ground and, if possible, flush with the top of the bales. Where star pickets are used and they protrude above the bales, ensure they are fitted with safety caps.</li><li>Where a straw bale filter is constructed downslope from a disturbed batter, ensure the bales are placed 1 to 2 metres downslope from the toe.</li><li>Establish a maintenance program that ensures the integrity of the bales is retained - they could require replacement each two to four months.</li></ol><p><b>STRAW BALE FILTER</b></p><p><b>SD 6-7</b></p></div>	<div><p><b>Timber spacer to suit</b></p><p><b>Kerb-side inlet</b></p><p><b>Gravel-filled wire mesh or geotextile 'sausage'</b></p><p><b>Runoff water with sediment</b></p><p><b>Overflow</b></p><p><b>Sediment</b></p><p><b>Filtered water</b></p><p><b>NOTE: This practice only to be used where specified in an approved SWMP/ESCP.</b></p><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Install filters to kerb inlets only at sag points.</li><li>Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.</li><li>Form an elliptical cross-section about 150 mm high x 400 mm wide.</li><li>Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.</li><li>Form a seal with the kerb to prevent sediment bypassing the filter.</li><li>Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.</li></ol><p><b>MESH AND GRAVEL INLET FILTER</b></p><p><b>SD 6-11</b></p></div>	<div><p><b>Surface stabilisation</b></p><p><b>Subsoil serrated along contour by grader or ripper</b></p><p><b>Earth bank - low flow</b></p><p><b>Topsoil depth: 75 mm min. if batter flatter than 4(H):1(V) 40 mm to 60 mm if batter steeper than 4(H):1(V) Specialised techniques required if batter slopes steeper than 2(H):1(V)</b></p><p><b>Construction Notes</b></p><ol style="list-style-type: none"><li>Scarify the ground surface along the line of the contour to a depth of 50 mm to 100 mm to break up any hardsetting surfaces and to provide a good bond between the respread material and subsoil.</li><li>Add soil ameliorants as required by the ESCP or SWMP.</li><li>Rip to a depth of 300 mm if compacted layers occur.</li><li>Where possible, replace topsoil to a depth of 40 to 60 mm on lands where the slope exceeds 4(H):1(V) and to at least 75 mm on lower gradients.</li></ol><p><b>REPLACING TOPSOIL</b></p><p><b>SD 4-2</b></p></div>



Standard Drawings







# **Appendix L     Salinity Management Plan**

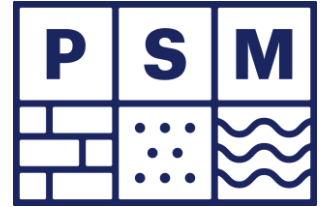
## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





Our Ref: PSM3739-031L

27 May 2022

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Attention: Russell Hogan

Dear Russell

**RE: MIRVAC ASPECT INDUSTRIAL ESTATE -  
788-904 MAMRE ROAD, KEMPS CREEK  
CONSTRUCTION - SALINITY MANAGEMENT PLAN**

## **1. Introduction**

This letter presents Construction Salinity Management Plan for the proposed Aspect Industrial Estate (AIE) development located at 788-904 Mamre Road, Kemps Creek NSW (the Site). This work has been undertaken following Mirvac's request in a meeting on 23 May 2022.

The plan has been prepared to address the requirements in NSW Government Department of Planning and Environment for Aspect Industrial Estate (SSD-10448).

This plan is prepared for the whole AIE and generally adheres to the requirements stipulated in the overarching Construction Environmental Management Plan (CEMP).

### **1.1 Development Overview**

The site is located within the suburb of Kemps Creek, which falls within the Penrith LGA. It is in the Mamre Road Precinct within the broader Western Sydney Employment Area (WSEA) and is currently surrounded by rural land uses.

The site is bounded by Mamre Road to the west and agricultural uses to the north, south and east. The historic land uses on the site include rural residential, grazing, dairy farming, poultry farming and horticulture. This land is identified for future employment land, as this site and the broader Mamre Road Precinct has recently been rezoned to, primarily, IN1 General Industrial under the WSEA State Environmental Planning Policy (SEPP).

The Development Consent for the AIE was granted for the AIE 'Concept Proposal', 'Stage 1 Development' and all subsequent development stages. The Concept Proposal essentially comprises a 'Master Plan' to guide the staged development of AIE and core development controls that will form the basis for design and assessment of future development applications for the site. It includes:

- Buildings, internal road network layout, building locations, gross floor area (GFA), car parking, concept landscaping, building heights, setbacks and built form parameters



- Detailed Stage 1 Development of the AIE including:
  - Pre-commencement works including demolition and removal of existing rural structures, site remediation works as defined within the Remediation Action Plan, and heritage salvage works (if applicable)
  - Subdivision construction works including creation of roads and access infrastructure, clearing of existing vegetation, realignment of existing creek and planting, on-site bulk earthworks, construction of boundary retaining wall, delivery of stormwater infrastructure, trunk service connections, utility infrastructure, boundary stormwater management, fencing and landscaping, construction and dedication of internal road network to Penrith City Council, and construction and operation of signalised intersection with Mamre Road
  - Building works including construction and fit out of two warehouse and distribution buildings in Stage 1 on Warehouses 1 and 3 which will operate 24 hours/day, seven days/week and construction and fit out of a café, which will operate 12 hours/day, seven days/week
  - Subdivision of Stage 1, and Signage.

This plan has been prepared to cover the construction of AIE (Inset 1) by Construction Contractor.



**Inset 1: Aspect Industrial Estate Masterplan.**

## 1.2 Objective of the Construction – Salinity Management Plan

The objective of the Construction Salinity Management Plan (CSMP) is to effectively manage site salinity, to minimise the effect of the proposed development on the salinity processes and to protect the proposed development from salinity damage. All works are to conform with the Western Sydney Salinity Code of Practice June 2003.



## 2. Statutory Requirements

The Development Consent (SSD 10448) requirements stipulated for the construction of AIE, and where they have been addressed in this plan, are shown in Table 1.

**Table 1 – Assessment against SSD 10448 Conditions**

Conditions	PSM Response
<b>Salinity Management</b>  <i>D36. The Applicant must prepare a Salinity Management Plan, which must form part of the CEMP in accordance with Condition E2, that addresses all aspects of the Stage 1 development. The Applicant must implement the most recent revision of the Salinity Management Plan for the duration of construction.</i>	This document is the Construction Salinity Management Plan prepared to address the Condition.

## 3. Project Overview

### 3.1 Surrounding Land Uses

The AIE Site is located within the Mamre Road Precinct, which is a part of the wider Western Sydney Employment Area (WSEA). AIE is surrounded by other rural properties with multiple existing residences located within 100 m of the nearest Site boundary, Inset 2.



**Inset 2: Nearmap Aerial Photograph of the Site.**

### 3.2 Construction Activities

Based on information provided by Mirvac, construction at AIE is scheduled to commence in mid-2022 (tbc) and be completed over a duration between 2-3 years, subject to authority approvals and inclement weather delays. The construction activities will be staged and are summarised in Table 2.



**Table 2 – Construction Staging and Activities**

Stage	Stage Length	Activities
Phase 1	8-12 weeks	Demolition
Phase 2	12-18 months	Excavation
Phase 3	12-24 months	General Construction

#### 4. Relevant Guidelines

Department of Land and Water Conservation 2002 – Site Investigation for Urban Salinity provides the following salinity assessment guide for soil types and soil salinity classes.

**TABLE 6.1 FACTORS FOR CONVERTING EC (1:5) TO EC<sub>e</sub>**

Soil Texture Group <sup>8</sup>	Multiplication Factors <sup>9</sup>
Sands have very little or no coherence and cannot be rolled into a stable ball. Individual sand grains adhere to the fingers.	17 <sup>10</sup>
Sandy loams have some coherence and can be rolled into a stable ball but not to a thread. Sand grains can be felt during manipulation.	14
Loams can be rolled into a thick thread, but this will break up before it is 3-4 mm thick. The soil ball is easy to manipulate and has a smooth spongy feel with no obvious sandiness.	10
Clay Loam can be easily rolled to a thread 3-4 mm thick but will have a number of fractures along its length. The soil is becoming plastic, capable of being moulded into a stable shape.	9
Light clays can be rolled to a thread 3-4 mm thick without fracture. Plastic behaviour evident, smooth feel with some resistance to rolling out.	8.5
Light medium clay is plastic and smooth to the touch and will form a ribbon of 7.5cm.	8
Medium clay handles like plasticine, forms rods without fracture, has some resistance to ribboning shear, ribbons to 7.5cm or more.	7
Heavy clays can be rolled to a thread 3-4 mm thick and formed into a ring in the palm of the hand without fracture. They are smooth and very plastic with a moderate to strong resistance to rolling out.	6

Source: Multiple sources (see below)

**TABLE 6.2: EC<sub>e</sub> VALUES OF SOIL SALINITY CLASSES**

Class	EC <sub>e</sub> (dS/m)	Comments
Non – saline	<2	Salinity effects mostly negligible
Slightly saline	2-4	Yields of very sensitive crops may be affected
Moderately saline	4-8	Yields of many crops affected
Very Saline	8-16	Only tolerant crops yield satisfactorily
Highly saline	>16	Only a few very tolerant crops yield satisfactorily

(1954) Source: Richards,

Separately, Department of Infrastructure, Planning and Natural Resources “Western Sydney Salinity Code of Practice” (March 2003) provides the development management guidelines and recommendations for salinity management in Western Sydney.



## **5. Existing Site Conditions**

### **5.1 Salinity Mapping**

Department of Infrastructure, Planning and Natural Resources (DIPNR) map of Salinity Potential in Western Sydney (2002) shows moderately salinity potential within the AIE site.

### **5.2 Salinity Investigation in 2018 (Ref. PSM3739-004L Rev6)**

PSM have previously undertaken a salinity and sodicity investigation at the Site in 2018 (ref: PSM3739-004L REV6, dated 29 May 2020).

A total of twenty-one (21) disturbed soil samples were collected by a PSM Geotechnical Engineer for testing in an environmental laboratory. Inset 3 present the soil sample locations.

No groundwater was encountered during the investigation.

The disturbed soil samples were sent to a NATA accredited environmental laboratory and the following tests were undertaken:

- Cation Exchange Capacity (CEC) of calcium, magnesium, potassium and sodium
- Exchange sodium percentage
- Salinity (EC 1:5, one-part soil to five parts water)
- Soil pH
- Chlorides
- Sulphates
- Resistivity.

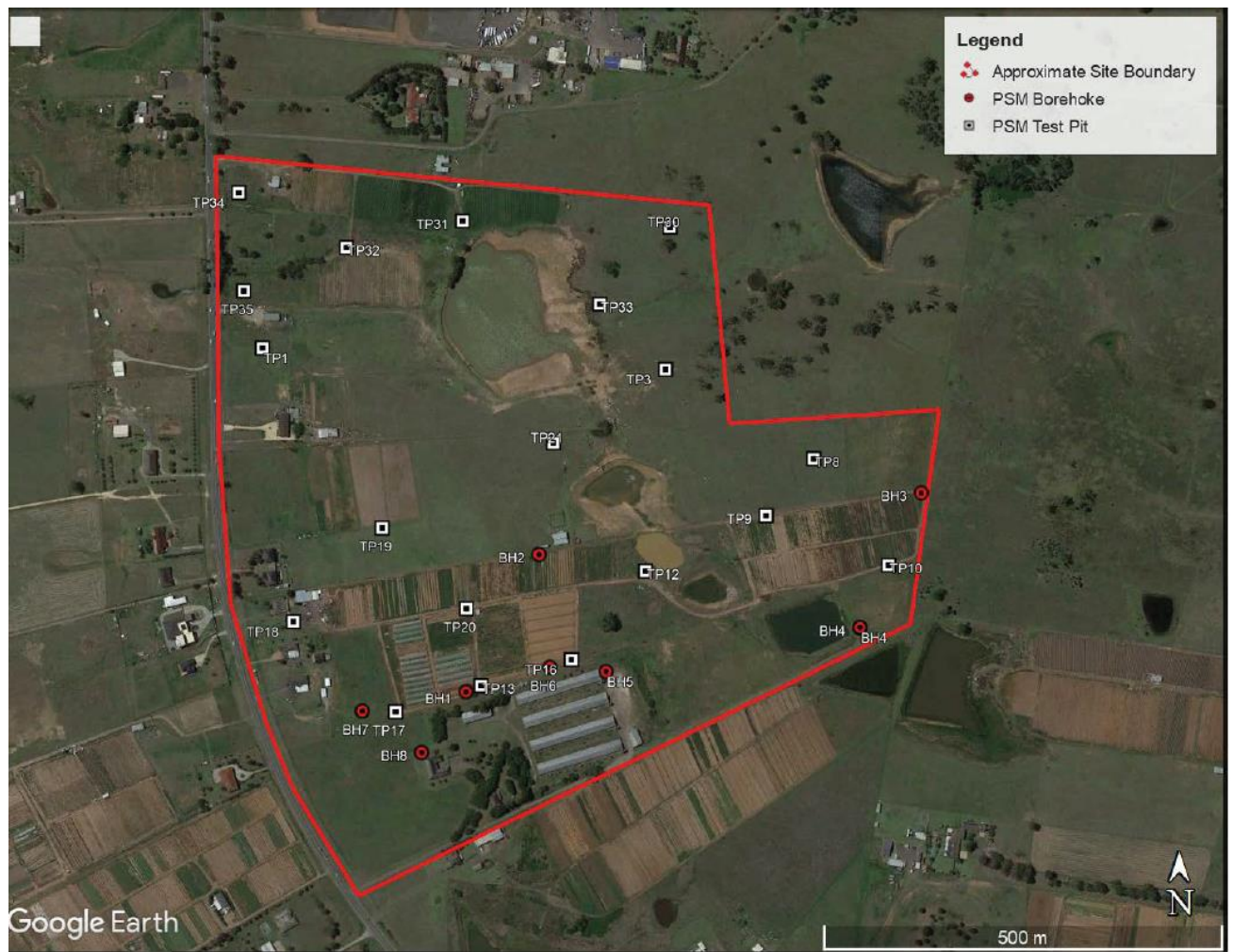
Table 3 presents a summary of the results.



**Table 3 - Laboratory Testing Results**

Sample ID	pH	Electrical Conductivity [µS/cm]	Moisture Content [%]	Chloride by Discrete Analyser [mg/kg]	Soluble Sulfate by ICPAES [mg/kg]	Exchangeable Cations [meq/100g]					ESP [%]
						Ca	Mg	K	Na	CEC	
BH5_4.2m	7.4	106	22.6	690	240	0.6	3.7	0.3	5.3	9.9	53.4
BH5_10.5m	7.4	227	22	280	560	1.1	17.1	0.6	7.8	26.6	29.2
BH4_1.0m	6.0	582	17.3	1200	580	0.9	9	0.1	3.4	13.4	25.2
BH4_5.0m	9.0	245	7.2	430	<100	<0.2	<0.2	<0.2	<0.2	<0.2	-
BH1_4.5m	5.3	594	13.4	820	900	0.2	6.6	0.2	2.8	9.8	28.9
TP16_1.5m	5.0	519	20.5	740	440	<0.1	5.9	0.1	2.1	8.2	25.8
TP17_1.0m	7.0	156	20.1	1060	450	5.4	14.6	0.4	3.3	23.7	14.1
TP10_1.5m	7.0	870	11.0	1410	490	0.6	8.4	0.1	2.0	11.1	17.8
TP18_0.4m	7.2	172	24.0	370	930	9.2	10.8	0.4	1.6	22.0	7.5
TP13_2.8m	5.4	361	13.3	460	320	<0.1	7.6	0.2	3.2	11.0	28.8
TP1_1.5m	8.0	1010	15.0	1730	700	0.3	9.3	0.3	7.1	17.0	41.8
TP21_0.3m	6.0	51	18.4	880	460	4.3	9.8	0.6	0.9	15.6	5.6
TP8_0.3m	8.8	1400	11.8	2460	400	2.0	3.5	<0.2	2.6	8.3	31.6
TP8_2.5m	6.7	41	18.7	960	230	4.2	9.7	0.2	1.1	15.2	7.0
TP3_0.3m	6.6	29	16.8	290	240	3.0	3.7	0.2	0.5	7.4	6.9
TP30_0.1m	6.6	27	9.0	130	30	2.2	6.2	0.2	0.8	9.4	8.6
TP31_1.0m	5.1	601	19.9	1080	200	<0.1	14.8	0.3	9.7	24.8	39.1
TP34_0.1m	7.1	81	13.6	510	70	4.7	10.1	0.6	1.0	16.4	6.2
TP33_0.3m	5.4	774	19.2	1540	<10	1.5	8.0	0.1	4.6	14.2	32.1
TP35_0.7m	5.6	909	14.7	1570	280	1.3	7.3	0.1	7.7	16.5	47.0





### Inset 3: Location of sampling.

The salinity test results, summarised in Table 4 indicate the following:

- pH of the soil samples analysed was in the range of 5.0 to 9.0, with an average of 6.5
- The 1:5 soil to water extraction and subsequent electrical conductivity ( $EC_{1:5}$ ) of the soil samples analysed to be in the range of 27  $\mu S/cm$  to 1400  $\mu S/cm$
- Concentrations of chlorides in samples analysed was in the range of 30 mg/kg to 2460 mg/kg
- Concentrations of soluble sulphate in samples analysed was in the range of less than 20 mg/kg to 930 mg/kg
- Cation Exchange Capacity (CEC) in samples analysed was in the range less than 0.2 meq/100g to 29.4 meq/100g
- Exchange Sodium Percentage (ESP) in samples analysed was in the range of 5.2% to 53.4%.

#### 5.2.1 Salinity Assessment

Site Investigations for Urban Salinity (DLWC 2002) classify soil salinity based on electrical conductivity ( $E_{ce}$ ). The method of conversion from  $EC_{1:5}$  to  $E_{ce}$  (electrical conductivity of saturated extract) is based on DLWC (2002) and given by  $E_{ce} = EC_{1:5} \times M$ , where M is the multiplication factor based on “Soil Texture Group”.

The “Soil Texture Group” of the samples tested were assessed during our investigation. The salinity classification for the soil samples that were tested are presented in Table 4.



**Table 4 - Salinity Classification**

Sample ID	EC1:5 (dS/m)	Soil Type	M	ECe (dS/m)	Salinity Class
BH5_4.2m	0.106	Light Medium Clay	8	0.848	Non-saline
BH5_10.5m	0.227	Light Medium Clay	8	1.816	Non-saline
BH4_1.0m	0.582	Heavy Clay	6	3.492	Slightly Saline
BH4_5.0m	0.245	Light Medium Clay	8	1.96	Non-saline
BH1_4.5m	0.594	Light Medium Clay	8	4.752	Moderately Saline
TP16_1.5m	0.519	Heavy Clay	6	3.114	Slightly Saline
TP17_1.0m	0.156	Heavy Clay	6	0.936	Non-saline
TP10_1.5m	0.870	Heavy Clay	6	5.22	Moderately Saline
TP18_0.4m	0.172	Light Medium Clay	8	1.376	Non-saline
TP13_2.8m	0.361	Heavy Clay	6	2.166	Slightly Saline
TP1_1.5m	1.010	Heavy Clay	6	6.06	Moderately Saline
TP21_0.3m	0.051	Light Medium Clay	8	0.408	Non-saline
TP8_0.3m	1.400	Light Medium Clay	8	11.2	Very Saline
TP8_2.5m	0.041	Heavy Clay	6	0.246	Non-saline
TP3_0.3m	0.029	Light Medium Clay	8	0.232	Non-saline
TP30_0.1m	0.027	Light Medium Clay	8	0.216	Non-saline
TP31_1.0m	0.601	Light Medium Clay	8	4.808	Moderately Saline
TP34_0.1m	0.081	Light Medium Clay	8	0.648	Non-saline
TP33_0.3m	0.774	Light Medium Clay	8	6.192	Moderately Saline
TP35_0.7m	0.909	Light Medium Clay	8	7.272	Moderately Saline

It is assessed that the majority of the soils on site are classified as “non-saline to moderately saline”, except for the one sample from TP8 that is very saline. We note that TP8 is located in the proposed fill area.

We have referred to Clause 4.8.2 of Australian Standard AS3600-2009 “Concrete Structures” and note that the assessed soil electrical conductivity (ECe) is less than the upper limit of the “B1” exposure classification.

### 5.2.2 Sodicity

Sodicity provides a measure of the likely dispersion on wetting and to shrink/swell properties of a soil. Soil sodicity is classified based on the Exchangeable Sodium Percentage (ESP) which is the amount of exchangeable sodium as a percentage of the Cation Exchange Capacity (DLWC, 2002).

The Exchangeable Sodium Percentages calculated from these laboratory results, ranging from 5.6% to 53.4%, indicates that the soils on site range from sodic to highly sodic when compared to criteria listed in “Site Investigations for Urban Salinity”, DLWC (2002).



## **6. Construction Salinity Management Strategies – Mitigation Measures**

### **6.1 Development Components**

This SMP addresses the components of the proposed development at construction stage for the permanent works. Salinity management regarding the following development components are provided in the following sections:

- Earthworks
- Imported soils
- Gardens and landscaped areas
- Roads, footpaths and hardstand areas
- Surface water, stormwater and drainage
- Durability of concrete structures in contact with the ground
- Durability of steel structures in contact with the ground.

### **6.2 Earthworks**

We understand the proposed earthworks will comprise up to approximately 15 m deep cut and 9 m deep fill in some areas. The construction of the earthworks should consider the following strategies:

- Importation of soil as per Section 6.3 of this letter
- Vegetation cover should be estimated and maintained on permanent batters upon completion to control erosion
- The final surface of all areas of the development should be graded to prevent the ponding of surface water
- Erosion control of temporary batters, stockpiles and disturbed areas should be planned prior to undertaking the earthworks and implemented during the earthworks. Consideration should be given to:
  - Grading and sealing partially completed surfaces
  - Installation of clearly visible fencing and traffic control measures to prevent unnecessary trafficking of areas and ensuring site disturbance
  - Establishing set vehicular access points and roads
  - Protecting stockpiles (temporary vegetation or mulching) where these are to be left in place for long durations.
- Sediment control shall be implemented by means of sediment traps and silt fencing where considered necessary
- Dust suppression using water carts will avoid over-watering and only use sufficient water to manage dust rise. Surface ponding will be avoided during dust suppression
- Water used for construction purposes (e.g. to achieve adequate compaction rates) will be applied sparingly.

### **6.3 Importation of Soil**

It may be required to import soil onto site. Materials to be imported to site should be assessed for suitability for the intended use. Very to high saline soils shall not be imported to site.

#### **6.3.1 Salinity Testing**

Salinity testing shall be undertaken on imported soil and in accordance with “Site Investigations for Urban Salinity”, Department of Land and Water Conservation (2002) – Refer to Section 4. Material with  $EC_e > 8$  dS/m; i.e. very to high saline shall not be imported.



#### 6.4 Gardens and Landscaped Areas

The proposed development will result in the majority of the site comprising roads, footpaths, and hardstand areas. Garden and landscaped areas are likely to be of limited extent. The construction of the gardens and landscaped areas should consider the following:

- Irrigation of rehabilitated or landscaped areas will utilize low-water-use fixtures such as drippers, sub-surface irrigation or similar. Water will be applied sparingly and only in quantities sufficient to promote plant growth. Subsoil moisture will be physically checked (through visual observation) regularly during irrigation to ensure watering rates are not excessive
- Selection of plant species should consider the soil conditions, including moderate salinity, relatively poor fertility and clayey low permeability soil profiles. Promotion of successful revegetation is likely to require use of nutrient rich topsoil. Saline topsoils should not be imported to site
- Potential for water logging should be minimised by:
  - Adopting plant species with minimal watering requirements
  - Adopting 'waterwise' gardening principles
  - Minimising use of potable water in landscaped areas
  - Properly designed and implemented irrigation systems
  - Establishment of perennial species and deep rooted trees.

#### 6.5 Roads, Footpaths and Hardstand Areas

The construction of roads, footpaths and hardstand areas should consider the following measures:

- Roads, footpath and hardstand surfaces should be graded, and the grades maintained at all times to prevent ponding of surface water at locations where this can result in infiltration into the underlying soils (e.g. pavement joints)
- Connections between the roads, footpath and hardstand surfaces and the surface water and stormwater drainage infrastructure should be designed, constructed and maintained to restrict infiltration into underlying soils
- Services that are to be located below the roads, footpath and hardstand surfaces should be installed, where practical, at the time of construction
- Provision for a damp-proof course or membrane beneath slabs should be considered by the slab designer.

#### 6.6 Surface Water, Stormwater and Drainage

The design and construction of surface water, stormwater and drainage measures should consider the following:

- Disturbance of natural drainage patterns should be reduced. Where these are disturbed or altered appropriate artificial drainage should be installed
- Stormwater and surface water should be managed to restrict infiltration
- Temporary water retaining structures used during construction should be managed to restrict infiltration
- Stormwater and surface water infrastructure should be designed and constructed to minimise the likelihood of leakage
- Guttering and down pipes should be connected and maintained
- Surface water runoff should be directed around all exposed surfaces, temporary stockpiles and landscaped areas
- Disturbance to the natural hydrological system shall be minimised by maintaining good surface drainage and reducing water logging on the site



- Groundwater recharge is to be minimised to the extent it does not adversely impact groundwater dependent ecosystems downstream.

### 6.7 Durability of Concrete Structures in Contact with The Ground

In designing structural concrete elements in contact with the ground the design should consider the results of the salinity assessment and the durability requirements in AS2159:2009 Piling “Design and Installation” and AS3600:2018 “Concrete Structures”.

Both these standards provide guidance on minimum concrete grade/strength and minimum cover requirements.

Based on the salinity and aggressivity test results (ref. PSM3739-004L REV6, dated 29 May 2020), it is recommended that:

- The design of structural concrete members in contact with the ground (excluding piles) adopt a “B1” exposure classification as defined in AS3600:2009
- The design of concrete cast in situ piles adopt a “mild” classification as defined in AS2159:2009.

### 6.8 Durability of Steel Structures in Contact with The Ground

Table 6.5.2(C) of Australian Standard AS2159:2009, Piling – Design and Installation provides criteria for exposure classification for steel piles based on resistivity, soil and groundwater pH, and chlorides in soil and groundwater. On the basis of soil chlorides, resistivity and pH testing completed we assess the exposure classification for steel piles in the soil to be “Non-aggressive”.

**Yours Sincerely**



**AGUSTRIA SALIM**  
**PRINCIPAL**

### References

1. DIPNR (2003c). Salinity Potential in Western Sydney. NSW Department of Infrastructure, Planning and Natural Resources, Sydney.
2. WSROC (2003). Western Sydney Salinity Code of Practice. Western Sydney Regional Organisation of Councils Ltd.
3. DIPNR, 2002, Site Investigation for Urban Salinity





# **Appendix M   Groundwater Management Plan**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



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**Aspect Industrial Estate – Warehouse 2 SSD  
Groundwater Management Plan Cover Letter**

Our Ref: 30130654\_L13\_B  
Date: 15 June 2023

Dear Susan,

## 1 Introduction

Arcadis Australia Pacific Pty Ltd (**Arcadis**) was engaged by Mirvac Projects Pty Ltd (**Mirvac**) to prepare a Groundwater Management Plan (**GMP**) (Arcadis. 2022. *Groundwater Management Plan – Rev 4 Final*) for the proposed Aspect Industrial Estate, located at lots 1 - 5 DP1285305 Mamre Road, Kemps Creek NSW (**the Site**).

The Site comprises an approximate area of 56.3 ha and is located within the Penrith City Council Local Government Area (**LGA**). The Site is currently zoned as IN1 General Industrial land within the Broader Western Sydney Employment Area stipulated within NSW Government. 2022. *State Environmental Planning Policy (Western Sydney Employment Area) 2009* (as updated 2022) (**SEPP WSEA**).

Arcadis understands that Mirvac requires this cover letter to address the Secretary's Environmental Assessment Requirements (**SEARs**) for the Warehouse 2 State Significant Development (**SSD**) (SSD-58257960) which is located on the Site.

A copy of the Arcadis 2022 GMP is provided as **Attachment A**.

## 2 Warehouse 2 SSD

Concept consent was granted for the development of Aspect Industrial Estate by way of SSD-10448 on 24 May 2022. The Warehouse 2 SSD involves the preparation of a subsequent stage SSDA for the development of the warehouse building, on Lot 2 of Aspect Industrial Estate, Mamre Road Kemps Creek, for the purpose of a warehouse and distribution centre.

Information provided on the proposed redevelopment gleaned from the Warehouse 2 Drawings Package (SBA Architects. 2023. *Aspect Industrial Estate, Lots 1-5 DP 1285305 Mamre Road, Kemps Creek – Lot 2 Site & Warehouse Floor Plan* and AT&L. 2022. *Aspect Industrial Estate Mamre Road, Kemps Creek Stage 1, Bulk Earthworks Contour Plan – Rev R*) includes the following:

- Construction of a single-level warehouse (height 13.7 m) with:
  - A 22,595 m<sup>2</sup> warehouse space
  - 1,500 m<sup>2</sup> office
  - 200 m<sup>2</sup> dock office
- Minor earthworks required to create a level pad.
- On-lot infrastructure to be installed at Lot 2.
- Construction of hardstand areas to facilitate truck manoeuvring west of the warehouse building.



- Landscaping along site frontages and within the car park area.
- Use of Warehouse 2 for warehouse and distribution purposes 24 hours a day / 7 days a week.

***The above Warehouse 2 design results in impacts associated with the management of stormwater, traffic generation, amenity, noise, earthworks and landscaping. However, they do not significantly impact the scope, findings or overall validity of the Arcadis 2022 GMP. Therefore, Arcadis considers that the Arcadis 2022 GMP remains appropriate to address SEARs requirements for the Warehouse 2 SSD, as detailed above.***

For completeness, Arcadis have reviewed the revised the Bulk Earthworks Level (proposed final site level) compared to the highest recorded groundwater depth table (Table 3-1 of the GMP) in light of Warehouse 2 design changes as presented below in **Table 1**.

*Table 1 Bulk Earthworks Level compared to highest recorded groundwater depth (mAHD)*

Future Lot	Final Site Level (mAHD)	Highest Groundwater Contour Level (mAHD)	Groundwater Interception Risk (<2.0 m)
2	48.60	46.00	No

**Notes**

Groundwater levels were obtained from groundwater contouring undertaken as part of the DSI. Groundwater levels area therefore indicative only.

***Based on the revised bulk earthworks levels and the inferred groundwater contours, Lot 2 does not have the potential to encounter groundwater during site development (based on the proposed final site level.***

***Given the minimal interaction of groundwater with the proposed civil work depths and with low hydraulic conductivity of the shale soils across the site, Arcadis considers it unlikely that the groundwater volume extracted would exceed the trigger volume of 3ML/year to require water access licence from WaterNSW (Water Management (General) Regulation 2018).***

The Warehouse 2 Drawings Package is provided as **Attachment B**.

### 3 NSW Aquifer Interference Policy (AIP)

As recommended by the NSW Department of Planning and Environment following the review of a previous modification (MOD 3), an assessment of the activities against the ‘minimal impact considerations’ of the NSW Aquifer Interference Policy (AIP) has been undertaken.

The *Water Management Act 2000* includes the concept of ensuring “no more than minimal harm” for both the granting of water access licences and the granting of approvals. The NSW Department of Primary Industries (2012). *NSW Aquifer Interference Policy (AIP)* includes minimal impact considerations relating to watertable and groundwater pressure drawdown and changes in groundwater and surface water quality. The AIP establishes ‘minimal impact considerations’ for groundwater categories of both ‘highly productive’ and ‘less productive’ groundwater.

The AIP defines highly productive groundwater based on the following criteria:

1. Has total dissolved solids (**TDS**) of less than 1,500 mg/L, and
2. Contains water supply works that can yield water at a rate greater than 5 L/sec.

As stated in the GMP, groundwater at the Site is present within Bringelly Shale, which typically yields low volumes of saline groundwater. Shale generally has low water transmitting properties, displaying a very low primary porosity with most of the flow being via saturated structural features such as fractures, joints and laminations. Furthermore, water quality parameters recorded during previous groundwater sampling at the Site indicated brackish water, with electrical conductivity (**EC**) ranged between 14,068 – 21,256 µS/cm or approximately 7,737– 11,691 mg/L (assuming 0.55 µS/cm of EC approximates 1mg/L of TDS). Hence, this TDS



result is above the criteria for a highly productive groundwater source and therefore it is reasonable to assess the Site under a 'less productive' minimal impact consideration.

The AIP further defines categories for less productive groundwater which includes the following:

- Alluvial.
- Porous rock.
- Fractured rock.

Given the groundwater is located within the Bringelly Shale, 'fractured rock' is considered the most appropriate category.

There are two levels of minimal impact considerations. The AIP states:

*"...if the predicted impacts are less than the Level 1 minimal impact considerations, then these impacts will be considered as acceptable."*

**Table 2** provides an assessment of the level 1 watertable, water pressure and water quality minimal impact considerations for the 'less productive' groundwater source in 'porous or fractured rock' category, associated with the Warehouse 2 package design.



Table 2 Assessment of Minimal Impact Considerations for Less Productive Water Source

Porous or Fractured Rock Water Source	
Minimal Impact Consideration (Level 1)	Assessment
<p><b><u>Water Table</u></b></p> <p><b>Level 1.</b> Less than or equal to 10% cumulative variation in the water table, allowing for typical climatic “post-water sharing plan” variations, 40m from any:</p> <p>(a) high priority groundwater dependent ecosystem; or</p> <p>(b) high priority culturally significant site; listed in the schedule of the relevant water sharing plan.</p> <p>A maximum of a 2m decline cumulatively at any water supply work.</p> <p><b><u>Water Pressure</u></b></p> <p><b>Level 1.</b> A cumulative pressure head decline of not more than a 2m decline, at any water supply work.</p>	<p>The Site is located in the NSW Government (2011). <i>Greater Metropolitan Region Groundwater Source Water Sharing Plan</i> (the Water Sharing Plan). Within the Water Sharing Plan, the project footprint is subject to the rules of the Sydney Basin Central Groundwater source which details the recommended management approaches of surface and groundwater connectivity and protection of water quality.</p> <p>The closest high priority groundwater dependent ecosystem in the Sydney Basin Central Groundwater sources, as listed in Schedule 4 of the Water Sharing Plan, is located at Botany Wetlands, approximately 30 km from the Site, outside of the extent of any potential cumulative drawdown associated with the Warehouse 2.</p> <p>No high priority culturally significant sites are listed in the Water Sharing Plan.</p> <p>The proposed activities are not expected to result in greater than 3ML/year of groundwater extracted or removed from the Site. Any water extracted would be collected and directed to a water storage pond where upon on-site reuse options would be considered. Hence, the Warehouse 2 activities are considered highly unlikely to result in a cumulative head decline greater than 2m at any supply work.</p> <p>Based on the watertable and water pressure assessment above, it is considered the level 1 criteria for both is adequately satisfied.</p>
<p><b><u>Water Quality</u></b></p> <p><b>Level 1.</b> Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40m from the activity.</p>	<p>The groundwater at the Site is brackish and not considered to be of beneficial use for drinking purposes. Further, no ground water bores have been identified within 2km of the Site for authorised extraction purposes.</p> <p>As stated in the Arcadis (2022) GMP, in the event that groundwater is encountered, it will be collected and directed to a water storage pond, where upon on-site reuse options would then be considered. Further, given the nature and extent of contamination identified in soils across the Site and the Bringelly Shale’s low water transmitting properties it is considered unlikely that the proposed activities in the Warehouse 2 design would significantly impact groundwater, to lower the current beneficial use category of the underlying water source.</p> <p>Based on the water quality assessment above, it is considered the level 1 criteria is adequately satisfied.</p>

**Based on the above assessment, the predicted impacts of the Warehouse 2 design are less than the Level 1 minimal impact considerations, hence, considered as acceptable in accordance with the requirements of the AIP.**



## 4 Closing

Arcadis completed a detailed review of the Warehouse 2 drawings for the Aspect Industrial Estate and considers the existing Arcadis 2022 GMP appropriate to address the SEARs requirements for the Site.

We trust the addition of this cover letter to the Arcadis 2022 GMP meets your requirements for the project. Should you have any queries or wish to discuss any points further, please do not hesitate to contact the undersigned.

Kind regards,

**Arcadis Australia Pacific Pty Ltd**



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Enclosures:

- Attachment A – Groundwater Management Plan
- Attachment B – Warehouse 2 Drawings Package



# Attachment A

## Groundwater Management Plan



# GROUNDWATER MANAGEMENT PLAN – REV 4

Aspect Industrial Estate, Mamre Road, Kemps Creek, NSW

Prepared for Mirvac Projects Pty Ltd

02 MAY 2022





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# GROUNDWATER MANAGEMENT PLAN

## Aspect Industrial Estate, Mamre Road, Kemps Creek, NSW

Rev 4

**Author** Maddy Phillips



**Checker** Matthew Gibbs



**Approver** Simon Spyrdz



**Report No** 10035157\_GMP

**Date** 2/05/2022

**Revision Text** Rev 4

This report has been prepared for Mirvac Office and Industrial Pty Ltd in accordance with the terms and conditions of appointment in the Consultant Agreement for Lots 54-58 (DP 259135) Mamre Road, Kemps Creek – Phase 2 DSI, FIP, UFP, Dam Decommissioning Strategy, Groundwater Management Plan dated 24 September 2019. Arcadis Australia Pacific Pty Limited (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

## REVISIONS

Revision	Date	Description	Prepared by	Approved by
A	1/11/2019	Draft for client review	PM	DT
B	12/05/2020	Draft for client review	CL	CL
C	9/10/2020	Review of Legislation Amendment	BK	BV
Rev 4	02/05/2022	Updated with revised bulk earthworks levels and PSM 2021 data	MP	SS



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# APPENDICES

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# 1 INTRODUCTION

Arcadis Australia Pacific (Arcadis) was engaged by Mirvac Office and Industrial (Mircvac) to prepare a Groundwater Management Plan (GMP) to support the proposed Aspect Industrial Estate development located at Lots 54-58 DP259135 Mamre Road, Kemps Creek, NSW 2178 (the site). The location of the site is illustrated in Figure 1, Appendix A.

The site comprises an approximate area of 56.3 ha and is located within the Penrith City Council Local Government Area (LGA). The site is currently zoned as RU2 Rural residential land under Penrith City Council Local Environmental Plan (LEP) 2010.

The site is currently unzoned within the Broader Western Sydney Employment Area stipulated within State Environmental Planning Policy (Western Sydney Employment Area) 2009 (SEPP WSEA). Arcadis is anecdotally aware that the strategic intent is for this land to be zoned for employment purposes.

Mircvac require the following documentation to support a State Significant Development (SSD) application relevant to the site:

- Detailed Site Investigation (DSI).
- Fill Importation Protocol (FIP).
- Unexpected Finds Protocol (UFP).
- Dam Decommissioning Strategy (DDS).
- Groundwater Management Plan (GMP).

This GMP is one of five reports that Arcadis has prepared for submission to Mircvac to support the industrial redevelopment.

A remediation action plan (RAP) may also be required under the Secretary's Environmental Assessment Requirements (SEARs).

## 1.1 Background

The site has approx. 950 m of frontage to Mamre Road, with a proposed signalised intersection providing vehicular access via Mamre Road to the M4 Motorway and the Great Western Highway to the north and Elizabeth Drive to the south. Known historical land uses at the site include: rural residential, grazing, dairy farming, poultry farming and horticulture.

Ministerial Local Planning Direction 3.5 precludes future residential development of the site due to its proximity to the Western Sydney Airport ANEF 20 noise contour. However, future land uses relevant to employment generating purposes are consistent with the approved 2020 amendment to the SEPP WSEA and the 2018 Western Sydney Aerotropolis Land Use and Infrastructure Implementation Plan (LUIIP) Stage 1: Initial Precincts.

The proposed redevelopment of the site will facilitate land uses consistent with commercial and industrial use, as prescribed in the National Environmental Protection Measure as amended in 2013 (NEPC, 2013) and will involve the following activities:

- Demolition and removal of existing rural structures.
- Heritage salvage works (if applicable).
- Clearing of existing vegetation on the subject site and associated dam dewatering and decommissioning.
- Realignment of existing creek.
- On-site bulk earthworks including any required ground dewatering.
- Importation, placement and compaction of soil material, consisting of;
  - Virgin Excavated Natural Material (VENM) within the meaning of the POEO Act; and/or



- Excavated Natural Material (ENM) within the meaning of the NSW Environmental Protection Agency's (EPA) Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the POEO (Waste) Regulation 2014 – The Excavated Natural Material Order 2014; and/or
- Materials covered by a specific NSW EPA Resource Recovery Order and Exemption which are suitable for their proposed use.
- Boundary retaining walls.
- Catchment level stormwater infrastructure, trunk services connections, utility infrastructure, roads and access infrastructure (signalised intersection with Mamre Road) associated with Stage 1.
- Construction fit out and 24 hours a day / 7 day per week use of industrial warehouse and distribution buildings within Stage 1.
- Detailed earthworks, stormwater, services and utility infrastructure associated with the construction of industrial logistics and warehouse buildings within Stage 1.
- Boundary stormwater management, fencing and landscaping.
- Staged subdivision of Stage 1.

Information provided to Arcadis by Orion Consulting (Orion), on behalf of Mirvac, indicates that earthworks undertaken as part of site redevelopment works will not require importation of significant volumes of fill material, as the bulk earthworks plan has been designed to achieve an overall cut/fill net balance for the development, whilst taking into consideration possible future planning modifications.

## 1.2 Purpose of this document

The purpose of this GMP is to describe the requirements for ongoing management at the Site which is proposed to undergo development for industrial and/or commercial land uses. It is expected that this GMP will form part of an overarching Construction Environmental Management Plan (CEMP) that will manage environmental considerations during the construction phase.

This GMP has been prepared with due consideration of the results from a site investigation undertaken at the site in October 2019 (Arcadis 2019).

## 1.3 Objectives

The objectives of the GMP are to document a procedure that ensures that exposure of identified receptors to impacted groundwater is minimised, and to comply with regulatory requirements. Specifically, the objectives are:

- Outline the geology and hydrogeology of the site;
- Assess if groundwater dewatering will be required during the re-development;
- If dewatering is to occur develop a dewatering strategy that meets the requirements of relevant policy and legislation;
- Outline any licensing requirements;
- Estimate the volume of groundwater that may be extracted during the redevelopment; and
- Assess whether there are any further investigations required to assess potential groundwater impacts.

## 1.4 Scope of Work

To complete the objectives, Arcadis undertook the following scope to develop the GMP:

- Reviewed relevant reports to establish site characteristics relevant to groundwater considerations, reviewed the baseline groundwater analytical data and determined the likely groundwater flow direction;
- Reviewed concept architectural drawings and preliminary design plans;



- Review geotechnical investigation letter report (PCM, 2019);
- Reviewed the groundwater results from the DSI (Arcadis, 2019);
- Prepared a site-specific Groundwater Management Plan (GMP) detailing the following:
  - Entity responsible for ensuring the GMP is implemented;
  - The location and frequency of monitoring;
  - The Chemicals of Potential Concern (CoPC) which require ongoing analysis; and
  - The triggers and contingency plans for additional monitoring/remediation.
- Development of this GMP.

## 1.5 Proposed Redevelopment

The proposed site development will change the land-use from rural residential and farming to commercial and industrial use. Arcadis understands that the redevelopment will involve demolition of all infrastructure at the site including buildings, sheds, chicken coups, fencing and farm dams.

The new buildings to be constructed are understood to be single storey industrial warehouses built on a concrete slab. It is further understood that the slabs are to be elevated above the existing ground level founded on reworked soil from the site, negating the requirement to excavate for building foundations. Orion, on behalf of Mirvac, has indicated that significant volumes of imported fill will not be required for the earthworks undertaken as part of the site redevelopment works. No basements are to be excavated.



## 2 SITE IDENTIFICATION

The location and layout of the site are shown in Figures 1 and 2, Appendix A. The site details are provided in Table 2-1 below and described in detail in the following sections.

Table 2-1 Site Detail Summary

Item	Details
Address	804-882 Mamre Road, Kemps Creek, NSW, 2178
Lot and plan	Lots 54 to 58 DP259135
Local government area	Penrith City Council
Current land use	Rural residential properties
Current zoning	IN2: General Industrial
Proposed land use	Site is proposed to be redeveloped to an industrial and/or commercial land use (employment purposes)
Site coordinates Approx. centre of site (GDA 2020 UTM 56 H)	293603 m E 6250023 m S
Land area (m <sup>2</sup> )	Approx. 563,000 m <sup>2</sup> (57 ha)

An overview of the site condition and surrounding environment is provided in Section 4. Site history information is provided in Section 5.

### 2.1 Current Site Use

The site was historically used for light agricultural purposes (i.e. grazing, historical dairy farming, poultry farming and horticulture). Arcadis understands, the site was purchased by Mirvac Projects Pty Ltd to be redeveloped into an industrial/commercial property for employment purposes.

### 2.2 Proposed Site Use

The site is proposed to be redeveloped into a warehouse and distribution centres, including 11 warehouse and office combined compounds.

Bulk earthworks, including both cutting and filling of the site, will be required as part of the proposed industrial development.

### 2.3 Surrounding Land Use

The following current land uses have been identified immediately surrounding the site:

- North – rural residential properties,
- South – rural residential properties, market gardens
- East – rural residential properties
- West – Mamre road, with rural residential properties located immediately west of Mamre Road



## 3 SITE CONDITION AND SURROUNDING ENVIRONMENT

### 3.1 Topography

The site slopes down to the south west and has an elevation of approx. 37 to 50 m relative level to the Australian Height Datum (RL mAHD). The site exists within a generally flat alluvial plain with localised undulating rises/falls, generally sloping toward Kemps Creek/South Creek to the west.

### 3.2 Geology

The 1:100,000 Geological Survey of NSW map of Sydney indicates the site is underlain by Bringelly Shale of the Wianamatta Group. This is described as comprising shales, carbonaceous clay, laminate and coal.

The eSPADE NSW Soil and Land Information database indicates that the site is underlain by Blacktown and Luddenham Soil Landscapes.

The soils encountered during fieldwork conducted by Arcadis in October 2019 aligned with the above descriptions and were described as:

- Fill material generally comprising topsoil and brown silty clay to a typical depth of 0.2m below ground level (m bgl) and a maximum depth of 1.2m bgl (in TP110 and MW01); and
- Natural material generally comprising slightly stiff, orange to brown clay with grey mottling turning into grey to brown weathered shale.

### 3.3 Hydrogeology

Groundwater is present within the Bringelly Shale. Typically, the Bringelly yields low volumes of saline groundwater. Shale generally has low water transmitting properties, displaying a very low primary porosity with most of the flow being via saturated structural features such as fractures, joints and laminations. Groundwater can be perched at the base of the weathered soil profile along the interface with fresh bedrock. The regional aquifer within the shale is often confined or partially confined and rises once intersected in a borehole.

A review of NSW Department of Primary Industries Office of Water records for groundwater bores within a 2,000 m radius of the site did not identify groundwater boreholes around the site. This is consistent with the groundwater within the shale being of moderate salinity, low yielding and a general abundance of surface water.

### 3.4 Hydrology

A generally north south oriented drainage line bisects the site along which the five dams have been constructed.

Observations were made during field work conducted in October 2019. The five dams were being used for stock watering and irrigation of crops and chicken sheds.

The site is predominately surfaced with grass cover, and as such, it is anticipated surface water generated during periods of rainfall will likely infiltrate at a rate reflective of the silty clay topsoil permeability. During periods of heavy or prolonged rainfall, excess water is likely to result in overland flow and traverse south-west towards Kemps Creek, following the topographic gradient. A portion of the overland flow is also likely to be captured by the existing on-site dams.

The nearest surface water bodies include several small dams on neighbouring properties and Kemps Creek, which is located approx. 600 m to the west of the site. Kemps Creek drains into South Creek approx. 900 m west of the site, before ultimately discharging into the Hawksbury River located approx. 26 km north of the site.



### 3.5 Acid Sulfate Soil Risk

Acid sulfate soils (ASS) are generally associated with low-lying coastal areas, including estuarine flood plains, rivers and creeks.

JBS&G, 2019 stated that since the site is not located near the coast and the elevation is in excess of 40 m AHD the likelihood of ASS within the study area is low.

Salts are naturally present in soil, bedrock and groundwater. In western Sydney salts naturally occur within the Ashfield Shale and are mobilised in the subsurface by the movement of groundwater. When saline groundwater is present close to the surface the salts can precipitate on the ground as the saline groundwater is drawn to the surface by fluctuating water tables combined with capillary action. Seepage of saline groundwater can cause corrosion of building materials, inhibit growth of most plant species except for highly salt tolerant vegetation, contributing to increased soil erosion. Salinity hazard mapping indicates the site is of moderate salinity potential due to the site being located on Ashfield Shale (DIPNR, 2012). Off site adjacent to drainage lines the salinity potential is considered high as the saline groundwater becomes shallower with an increased potential of the water table intersecting the ground surface.

### 3.6 Summary of Previous Investigations and Design Information

#### 3.6.1 Preliminary Site Investigation (JBS&G 2019)

In January 2019, JBS&G conducted a Preliminary Site Investigation (PSI) with limited soil sampling at the site.

The JBS&G review of the site history indicated that the site was historically used for light agricultural purposes (i.e. grazing, historical dairy farming, poultry farming and horticulture).

The findings of the desktop study (confirmed by detailed site inspections completed by JBS&G on 30 November 2018 and 16 January 2019) identified current and potential historical sources of on-site contamination. The sources of potential contamination were associated with the following storage, handling and uses on the site:

- Pesticides/herbicides used in former and current market gardens;
- Potential biological impacts from livestock/poultry farming;
- Potential use of hazardous building materials (asbestos, lead based paints, PCBs) in historic and current site structures resulting in localised impacts to soils in proximity to the location of site structures;
- Potential hydrocarbon and pesticide contamination from the storage of materials and consumables at various locations across the site area (former and current sheds).
- Fill materials of unknown origin; and
- Potential asbestos containing materials (ACM) in irrigation lines (conduits).

JBS&G collected soil samples from a total of 38 locations across the site (29 soil boreholes, two test pits and seven stockpiles). The results from the samples collected by JBS&G have been summarised below:

- Elevated Total Recoverable Hydrocarbon (TRH) concentrations were identified in stained soils below a fuel drum (sample BH10 at 0.1m). This impact was limited in lateral extent and did not appear to migrate vertically, based on visual observations of stained soil;
- A small number of heavy metal impacts to surface soils were also identified but were not considered to pose unacceptable ecological health risks under the proposed land use;
- Anthropogenic materials at some locations were present in quantities that may pose an aesthetic concern for sensitive land uses. JBS&G however noted that with the proposed land use (commercial/industrial), these materials may be retained beneath hardstand without any further management. The impacts identified were typical of historical land uses; and



- Trace level friable asbestos was identified at one location (HA13) adjacent to historical structures, which were observed to contain possible ACM sheet board. JBS&G noted that there was the potential for ACM to be present within site structures and in soil in the vicinity of the structures.

JBS&G concluded that whilst the investigation identified localised surficial soil impacts at the site, the investigation did not identify widespread contamination which may preclude future redevelopment of the site. Identified soil impacts are considered representative of common contaminants and historical land use activities which can be readily dealt with during the DA stage for redevelopment and assessment for site suitability. JBS&G also recommended that a Hazardous Building Material Survey (HBMS) be undertaken prior to any demolition of existing site structures.

### 3.6.2 Detailed Site Investigation (Arcadis 2019)

During October 2019, Arcadis undertook a Detailed Site Investigation (DSI) which involved intrusive works to assess soil, groundwater and surface water on site for contaminants of potential concern (CoPC) identified in the PSI.

Review of previous site reports, observations from site walk overs on 8<sup>th</sup>, 9<sup>th</sup>, 16<sup>th</sup> and 23<sup>rd</sup> October 2019 and analytical results from soil, surface water, groundwater and potentially asbestos containing material (PACM) indicated that impact at the site is unlikely to be wide-spread. Observations were consistent with the JBS&G findings.

The results from the samples collected by Arcadis have been summarised below:

- Soil samples were taken from 15 test pits and six monitoring wells. One sample reported an outlier exceedance of benzo(a)pyrene at MW02\_2.0, however this exceedance was considered an anomaly and does not represent the concentration of benzo(a)pyrene in natural soil materials, nor does it present a risk when compared to ecological screening levels.
- Three soil samples collected from areas adjacent to treated timber posts were assessed, with one sample (SO01) which exceed the NSW EPA General Solid Waste CT1 criteria for nickel.
- Groundwater was encountered in groundwater well at depths ranging from 37.9 m AHD to 57.2 m AHD across the site. Is it anticipated that the higher groundwater table is perched and localised.
- All surface waters reported analytes below the adopted criteria.
- Surface waters reported elevated pH and electrical conductivity when compared to the adopted criteria.
- A small number of heavy metal impacts to groundwater were observed and these were attributed to the elevated background concentrations of metals in on-site clay soils.
- Potential asbestos containing material (PACM) reported positive identification of asbestos at three out of four samples locations. No PACM was observed on roads or access tracks, with identified material adjacent current or former structures.

Based on the findings of the DSI, the site was deemed suitable from a contamination perspective for the proposed development as an industrial estate, pending the removal of identified asbestos containing material and the issuing of a clearance certificate to soil surfaces. Arcadis recommended that a HAZMAT survey and an asbestos register should be developed for the site prior to demolition works, asbestos removal works should be undertaken and a clearance certificate issued post demolition and that a site unexpected finds protocol should be implemented prior to any intrusive works. Arcadis also recommended that on-site surface water should be measured after a significant rainfall event and compared to previously recorded the observations to observed water quality prior to dam de-watering. Accordingly, there is potential for unexpected finds, including contamination or waste, which may be encountered during demolition or earthworks at the site.



### 3.6.3 Geotechnical Investigation (PSM, 2020)

Pells Sullivan Meynink (PSM) prepared a Geotechnical Investigation Letter Report (PSM, 2020), which included an additional three geotechnical investigations undertaken 30 November 2018, 04 December 2018 and 16 January 2019.

- The geotechnical investigations comprised an inspection of site conditions including:
  - Geology
  - Surface conditions
  - Subsurface conditions
  - Groundwater
- Excavation of 19 test pits to depths of between 1.6 m and 3.5 m.
- Drilling of eight boreholes to depths of between 3.7 m and 15.0 m.
- Five bulk soil samples were recovered for California Bearing Ratio (CBR)
- Twenty-one samples were analysed for:
  - Cation Exchange Capacity (CEC) of calcium, magnesium, potassium and sodium
  - Exchange sodium percentage (ESP)
  - Salinity
  - Soil pH
  - Chlorides
  - Sulphates
  - Resistivity

A summary of results from the investigation indicate the following:

- pH of the soil samples ranged from 5.0 to 9.0, with an average of 6.6
- The electrical conductivity ( $EC_{1.5}$ ) of the soil samples was in the range of 27  $\mu S/cm$  to 1,400  $\mu S/cm$ .
- Concentrations of chlorides in samples were in the range of 130 mg/kg to 2,460 mg/kg.
- Concentrations of soluble sulfate in samples were in the range of <100 mg/kg to 930 mg/kg.
- CEC in samples was in the range of <0.2 meq/100g to 26.6 meq/100g.
- ESP was in the range of 5.6% to 53.4 %.
- The majority of soils on site were classified as “on-saline to moderately saline” except for one sample from TP8 that is very saline. TP8 is located within a fill area.
- Groundwater was observed a 3.0 m bgl in BH5 and at 3.0 m in TP1, TP32 and TP35. It is considered that there may possibly be perched water tables. Groundwater was not observed at any other location.

### 3.6.4 Additional Geotechnical Investigation (PSM, 2021)

PSM prepared an Additional Geotechnical Investigation Letter Report (PSM, 2021) which included advancement of 11 boreholes (**BHs**) to a maximum depth of 17.0 mbgl undertaken between 10 and 15 November 2021.

A summary of results from the additional geotechnical investigation include:

- Water seepage observed at BH06 at 3.5 mbgl (prior to rock coring).
- Water seepage observed at BH11 at 9.0 mbgl.



Arcadis notes that BH06 and BH11 are located in future Lots 7 and 4 respectively, in areas where between 8.0 and 10.0 m of cut is required.

The remaining nine (9) BHs advanced by PSM did not encounter groundwater and were located in the area of future Lots 4, 5, 6, 7, 8 and 11.

### 3.6.5 Civil Infrastructure Drawings

The Aspect Industrial Estate stage 1 Civil Works Package drawings were initially reviewed to assess proposed cut and fill locations against groundwater depths to determine potential groundwater interference.

Arcadis understands bulk earthworks levels were revised to achieve a balanced cut to fill development, whilst taking into consideration possible future planning modifications. Revised bulk earthworks levels are shown in the following drawings provided to Arcadis by Orion Consulting, on behalf of Mirvac, on 22 March 2022:

- AT&L, *Mirvac-Aspect Industrial Estate-Mamre Road, Kemps Creek Stage 1-Comparison Bulk Earthworks Cut/Fill Plan – Drawing No. 18-596-SKC121*, 16 February 2022.
- AT&L, *Mirvac-Aspect Industrial Estate-Mamre Road, Kemps Creek Stage 1-Bulk Earthworks Contour Plan – Drawing No. 18-596-C1020*, 10 February 2022.
- AT&L, *Mirvac-Aspect Industrial Estate-Mamre Road, Kemps Creek Stage 1-Bulk Earthworks Cut/Fill Plan – Drawing No. 18-596-C1025*, 10 February 2022.

Copies of these drawings showing the revised bulk earthworks levels are provided as **Appendix A**.

A summary review of the design plans indicates proposed cutting beneath existing ground level at the following locations:

- Typical Road Sections Sheet 2: Utility footing excavations to 1200mm
- Typical Sections Sheet 1: Section 3 – cut beneath existing surface.
- Typical Sections Sheet 2: Future Lot 4 – Section 8
- Typical Sections Sheet 3: Future Lot 4 – Section 9
- Typical Sections Sheet 3: Future Lot 5 – Sections 10, 11 and 12
- Typical Sections Sheet 4: Future Lot 7 – Section 13
- Typical Sections Sheet 4: Future Lot 5 – Section 14
- Typical Sections Sheet 4: Future Lot 9 – Section 16
- Bulk Earthworks Cut/Fill Plan – Cut on Lots 3, 4, 6, 7, 8, 9, 10 and 11<sup>1</sup>

The finished level for the proposed future lots ranges from approx. RL 47.80 to 52.60 m AHD.

Table 3-1 below presents the bulk earthworks level at each lot (Bulk Earthworks Cut/Fill Plan) along with the highest groundwater contour level available (Figure 2, Appendix A).

Table 3-1 Bulk Earthworks Level compared to highest recorded groundwater depth (mAHD)

Future Lot	Finish Level (m AHD)	Highest Groundwater Contour Level (m AHD)	Groundwater Interception Risk (<2.0 m)
1	47.80	44.00	No
2	48.20	46.00	No
3	49.00	49.00*	Yes
4**	57.00	56.00	Yes

<sup>1</sup> Arcadis notes that the revised Bulk Earthworks Cut/Fill Plan show an overall Cut/Fill balance of -5,614 m<sup>3</sup> for the development of the Site.



Future Lot	Finish Level (m AHD)	Highest Groundwater Contour Level (m AHD)	Groundwater Interception Risk (<2.0 m)
5	57.00	56.00	Yes
6	56.00	53.00	No
7**	52.60	53.00*	Yes
8	50.00	51.00*	Yes
9	51.60	46.00	No
10	52.30	49.00	No
11	52.60	52.00	Yes

**Notes**

Groundwater levels were obtained from groundwater contouring undertaken as part of the DSI. Groundwater levels are therefore indicative only.

\* Indicates groundwater levels are within 0.2 m of the finish level or above the finish level.

\*\* Indicates groundwater (perched water and/or contiguous aquifer) was encountered during PSM 2021 Additional Geotechnical Investigation within this Future Lot.

The groundwater data set used during this assessment was that from Arcadis (2019) and PSM (2019). It should be noted that these investigations were not comprehensive hydrogeological studies.



## 4 CONCEPTUAL SITE MODEL

A Conceptual Site Model (CSM) describes the potential environmental and human health risks of identified areas of possible soil and groundwater contamination. The CSM outlines the complete and/or potential pathways between the known or potential source(s) and the receptor(s).

Based on the information available for the site from the JBS&G PSI (January 2019) and the Arcadis DSI (October 2019), the following preliminary CSM has been prepared.

### 4.1 Source

Potential sources of contamination at the site and the associated contaminants of potential concern (CoPC) are listed below in Table 3-1.

Table 4-1 Potential On-Site Contaminant Sources

Source	Associated Chemicals	CoPC
Historic and current market gardens and livestock/poultry farming	Pesticides, herbicides	Pesticides, herbicides
Hazardous building materials in historic and current site structures and in the irrigation lines (conduits)	Asbestos containing materials (ACM), lead based paints, electrical components containing Polychlorinated Biphenyls (PCBs)	Asbestos, lead, PCBs
Storage of various materials (such as fuel drums) and consumables in historic and current sheds across the site	Total Recoverable Hydrocarbons (TRHs), pesticides, herbicides	TRHs, pesticides, herbicides
Fill materials of unknown origin	Asbestos, ash, slag, construction waste, demolition waste	Heavy metals, TRH, BTEX, PAHs, organochlorine pesticides (OCPs), organophosphate pesticides (OPP), polychlorinated biphenyls (PCBs), phenols and asbestos

#### Note

\* From the results of the groundwater samples collected in October 2019, it was found that some wells exceeded the ANZG (2018) (95% protection for Fresh Water) and the NEPC (2013) (GILs for Fresh Waters) for some metals. These metals were determined to be of background origin and are not considered a potential contaminant source.

### 4.2 Potentially Affected Media

The potentially affected media at the site includes:

- Soil;
- Groundwater; and
- Surface water (in the dams).

### 4.3 Pathways

Pathways or transport mechanisms by which receptors may be exposed to contamination on and off-site include:

- Direct contact with contaminated soil/groundwater;
- Ingestion of dust/abstracted groundwater;
- Inhalation of asbestos fibres; and
- Groundwater flow off-site.



## 4.4 Receptors

Potential receptors to contamination include:

- Demolition/construction workers;
- Future site users;
- Surrounding residents;
- Environmental receptors (Kemps Creek and South Creek); and
- Groundwater use (off-site).

## 4.5 Exposure Assessment

Based on the preliminary CSM discussed in Section 3.1 to Section 3.4, the potential for contamination to be present at the site is considered to be **Moderate**. This level of contamination risk can be minimised or removed if precautionary measures are taken. The potentially complete and incomplete pathways are discussed in more detail in the Table 3-2 below.



Table 4-2 Exposure Assessment

Source	Pathway	Receptor	Exposure Assessment	Pathway completeness
Market gardens and livestock/poultry farming	Direct contact	Demolition/construction workers, future site users	Demolition and construction workers developing the site will come into contact with potentially contaminated soil. Workers in service trenches may also encounter groundwater. Depending on the landscaping of the proposed developed on the site, future site workers may be directly exposed to potentially contaminated soil via open grass areas.	<b>Based on the DSI results presented herein, this pathway is incomplete. An UFP Is required during construction works.</b>
		Surrounding residents	Surrounding residents will not come into direct contact with any potentially contaminated soil or groundwater. No groundwater abstraction wells were noted around the site.	<b>The pathway is incomplete.</b>
	Ingestion	Demolition/construction workers, surrounding residents, future site user	Demolition/construction workers and surrounding residents have the potential to be exposed to dust and/or groundwater during the construction phase of the proposed development. Depending on the landscaping of the proposed developed on the site, future site workers may also be directly exposed to potentially contaminated dust via open grass areas.	<b>The pathway is potentially complete and should be managed during construction works with a CEMP and UFP.</b>
Hazardous building materials	Direct contact, inhalation of asbestos fibres	Demolition/construction workers	If any hazardous building materials are present in the currently existing structures, demolition/construction workers may be exposed during demolition works.	<b>The pathway is potentially complete and should be managed through a CEMP during construction works as well as a HAZMAT Assessment.</b>
		Surrounding residents, future site residents	Surrounding residents will not be allowed access onto the site and therefore will not come into contact with any hazardous building materials. Additionally, hazardous materials should be removed from the site before the construction of the proposed boarding home, therefore future residents will not be exposed.	<b>The pathway is incomplete.</b>
	Ingestion	Demolition/construction workers	Demolition/construction workers may be at risk of ingesting hazardous materials during intrusive site construction works.	<b>Based on the DSI results presented herein, this pathway is incomplete.</b>
		Surrounding residents, future site residents	These receptors will not come into contact with any hazardous building materials during or after construction.	<b>The pathway is incomplete.</b>



Source	Pathway	Receptor	Exposure Assessment	Pathway completeness
Storage of various materials (such as fuel drums) and consumables	Direct contact, ingestion	Demolition/ construction workers, future site users	Demolition and construction workers developing the site will come into contact with potentially contaminated soil. Additionally, future site workers may be directly exposed to potentially contaminated soil via open grass areas.	<b>The pathway is potentially complete and should be managed through a CEMP during construction works.</b>
		Surrounding residents	Surrounding residents will not come into direct contact with any potentially contaminated soil or groundwater. No groundwater abstraction wells were noted around the site.	<b>The pathway is incomplete.</b>
Fill materials	Direct contact, ingestion	Demolition/ construction workers, future site users, surrounding residents	Demolition and construction workers developing the site will come into contact with underlying fill during the construction phase. Depending on the landscaping of the proposed developed on the site, future site workers may be directly exposed to potentially contaminated soil via open grass areas. Surrounding residents have the potential to be exposed to dust during the construction phase.	<b>Based on the results presented herein, this pathway is incomplete.</b>
		Inhalation of asbestos fibres	Demolition/construction workers may be exposed to fragments of asbestos in the fill material during demolition works. If the fill is still present and/or exposed on the site after completion of the proposed development, future site workers may also be exposed via open grassed areas.	<b>The pathway is potentially complete and should be managed during construction works through an UFP and a CEMP. HAZMAT assessment prior to demolition is recommended.</b>
		Surrounding residents	Surrounding residents will not come into contact with any fill material during or after construction.	<b>The pathway is incomplete.</b>
Contaminated groundwater	Direct contact	Demolition/ construction workers	Demolition and construction workers developing the site may come into contact with potentially contaminated groundwater during excavation of service trenches and/or during earthworks.	<b>The pathway is potentially complete.</b>
	Ingestion	Future site users, surrounding residents	Future site users and surrounding residents will not come into contact with any groundwater during or after construction, as groundwater is not to be extracted on-site.	<b>The pathway is incomplete.</b>



Source	Pathway	Receptor	Exposure Assessment	Pathway completeness
	Groundwater r flow	Environmental receptors (e.g. Kemps Creek and South Creek)	Kemps Creek and South Creek are located down gradient of the site and therefore are potential receptors to contaminated groundwater.	<b>The pathway is potentially complete.</b>
		Off-site groundwater users	No groundwater boreholes were present within a 2000m radius of the site; therefore, it is unlikely that off-site receptors will come into contact with any potentially contaminated groundwater.	<b>The pathway is incomplete.</b>



## 5 LEGISLATION AND POLICY

### 5.1 Legislative Framework

Groundwater in NSW is regulated by DPIE-Water under the *Water Act 1912* (NSW) (Water Act), the *Water Management Act 2000* (NSW) (WMA, 2000) and Water Management (General) Regulation, 2011. The WMA, 2000 is gradually replacing the planning and management frameworks in the Water Act, although some provisions of the Water Act remain in operation. The WMA, 2000 regulates groundwater extraction under the NSW Aquifer Interference Policy (AIP), 2012.

- A water access licence to take water.
- A water supply works approval to construct a work.
- A water use approval to use the water.

The AIP (NSW DPI, 2012 and NoW 2012) explains the process of administering water policy under the WM Act for activities that interfere with the aquifer. In accordance with the AIP an activity that results in the loss of water from the environment, a water access licence (WAL) is required, unless the activities are considered to be of 'minimal impact'.

Under the AIP groundwater inflows are considered as a minimal impact activity in the construction of trenching and costeaning. In addition, very small water takes up to 3 ML/year are also considered minimal impact activities as long as the water volume can be substantiated (Dent, et al., 2015).

The project is located in the *Greater Metropolitan Region Groundwater Source Water Sharing Plan* (the Plan) (NoW 2011) which commenced on 1 July 2011. Within the Plan, the project footprint is subject to the rules of the Sydney Basin Central Groundwater Source which outline the recommended management approaches of surface and groundwater connectivity and protection of water quality.

### 5.2 Assessment Criteria

Groundwater quality is screened against the following guidelines:

- ANZG (2018) Guidelines for Fresh and Marine Water Quality - 95% protection for Fresh Water;
- NEPC (2013) Guideline on Investigation Levels for Soil and Groundwater – Groundwater Investigation Level for Fresh Waters; and
- NHMRC (2008) Guidelines for Managing Risks in Recreational Water – Primary Contact Recreation.



## 6 2019 GROUNDWATER MONITORING EVENT

A summary of the information collected during the groundwater monitoring event conducted by Arcadis in October 2019 is provided in this section.

### 6.1 Groundwater Levels and Flow Direction

Groundwater standing water levels were measured in newly installed wells (monitoring wells MW01 to MW06) constructed across the site (Arcadis, 2019). Groundwater levels measured in October 2019 ranged between 2.52 and 8.31 metres below ground level. Review of this data indicates that the standing water levels are shallowest along the central drainage line and as expected becomes deeper higher in the catchment to the east and west. During the drilling program groundwater was intersected at depths deeper than the measured standing water levels (ranging between 2.3 and 6.8 metres). The difference between the standing water level and water strike indicates the groundwater within the shale is partially confined. Consequently, excavations across the site are likely to intersect groundwater at depths deeper than the measured standing water levels.

Reduced standing water levels ranged from 37.98 and 57.18 mAHD. These groundwater elevations indicate groundwater flow is towards the northwest, in the direction of Kemps Creek. Groundwater contours and flow direction are presented in Figure 2, Appendix A.

Groundwater level observations are summarised in Table 6-1. The monitoring wells are screened within the shale and weathered shale.

Table 6-1 Groundwater Monitoring Well Observations

Well	Date	X (UTM 56 – GDA94)	Y (UTM 56 – GDA94)	Elevation (m TOC-AHD)	Depth to water (m TOC)	DTB (TOC)	Standing Water Level (m AHD)
MW01	16.10.19	6253425	294732.3	42.198	4.220	9.057	37.978
MW02	16.10.19	6253413	295305.1	51.525	3.249	11.795	48.276
MW03	23.10.19	6252758	294943.7	61.429	8.310	11.100	53.119
MW04	16.10.19	6252998	295177.3	51.168	3.636	9.045	47.532
MW05	16.10.19	6253089	295271.7	49.925	2.527	9.458	47.398
MW06	16.10.19	6253158	295551.8	62.123	4.946	11.390	57.177

#### Notes

Top of casing (TOC)  
Australian Height Datum (AHD)  
Geocentric Datum of Australia 1994 (GDA94)  
Universal Transverse Mercator (UTM) [Zone 56]

#### 6.1.1 Groundwater Level Fluctuations

Fluctuations in groundwater must also be considered as a rise in groundwater level will increase the risk of groundwater being encountered during the site redevelopment works. It is noted Western Sydney is experiencing drought conditions and consequently groundwater levels would be expected to be lower than usual. No historical groundwater level monitoring is known to have been undertaken at the site.

Groundwater level fluctuations within the Bringelly Shale would be expected to naturally fluctuate between 0.5 and 1 metre. Thus, following prologued heavy rainfall groundwater levels would be expected to rise. However due to the clayey hard pan nature of the weathered shale soil profile and the low water transmitting properties of the shale groundwater infiltration will be limited, restricting groundwater level rises.

### 6.2 Groundwater Quality

Groundwater extracted during sampling was observed to be of moderate to low turbidity at most locations. One exception was MW06, which displayed very low turbidity.



No sheens or odours were observed in purged groundwater except MW01 which held a biogenic sheen. These sheens are often naturally associated with groundwater derived from shale and rare due to the organic content within the shale, rather than being indicative of hydrocarbon contamination. No wells were purged dry and well recharge was observed to be adequate for peristaltic pump sampling.

## 6.2.1 Physico-Chemical Parameters

Water quality parameters recorded during the groundwater sampling are provided in the following table.

Table 6-2 Groundwater Monitoring Well Field Quality Parameters

Well	pH	Temperature (°C)	Electrical Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Redox Potential (mV)*	Comments
MW01	6.921	15.5	14,068	1.22	346.1	Biogenic sheen, no odour
MW02	6.81	17.8	19,646	1.06	328.6	No sheen, no odour
MW03	6.68	21.1	21,256	7.48	364.6	No sheen, no odour
MW04	6.44	19.2	18,636	1.58	347.1	No sheen, no odour
MW05	6.55	19.2	19,783	0.64	357.1	No sheen, no odour
MW06	6.96	20.3	16,288	3.2	324.1	Clear, no sheen, no odour

### Notes

\*199mV has been added to all redox field measurements to convert to standard hydrogen electrode (SHE)

Based on the physico-chemical data collected during groundwater sampling, the following conclusions have been made:

- pH values indicate that the groundwater is neutral;
- Electrical conductivity ranged from 14,068–21,256  $\mu\text{S}/\text{cm}$ , indicating brackish water;
- Dissolved oxygen ranges from 0.64 to 7.48 mg/L, indicating a low level of dissolved oxygen within the groundwater aquifer.
- Oxygen reduction potential (ORP) ranged between 324.1 mV and 364.6 mV, indicating a moderate to high (positive) ORP, suggesting an oxidative environment.

## 6.2.2 Analytical Results

The groundwater analytical results are provided in Table 6-3.

Table 6-3 Groundwater Exceedance Analytical Results

Analyte	Guideline Value (mg/kg)	Min ( $\mu\text{g}/\text{L}$ )	Max ( $\mu\text{g}/\text{L}$ )	Locations Exceeding Adopted Criteria
Cadmium	0.2 (DGVs, GILs)	<0.2	0.3	MW03, MW04
Copper	1.4 (DGVs, GILs)	<1	2	MW03
Zinc	8 (DGVs, GILs)	<5	47	MW02, MW03, MW04, MW06



Exceedances of the adopted groundwater quality criteria (as specified in Section 5.2) were identified for cadmium, copper and zinc. Total recoverable hydrocarbons C<sub>10</sub>-C<sub>16</sub> and >C<sub>10</sub>-C<sub>16</sub> less naphthalene (F2) reported 70 µg/L, above the Limits of Reporting (LOR) of 50 µg/L. All other analytes (filtered metals, TRHs, BTEX, PAHs, PCBs and OC & OP pesticides) reported less than LOR.

The minor exceedances for dissolved metals is typical of natural background levels and consistent with previous groundwater monitoring from the Bringelly Shale conducted at Badgerys Creek (PPK, 1998).

Summary tables displaying reported analyte concentrations screened against the adopted criteria are provided in Error! Reference source not found.. Laboratory reports are provided in **Appendix C**.

### 6.3 Measurement of Hydraulic Conductivity

Rising head slug tests were conducted as part of the DSI (Arcadis, 2019) to measure the hydraulic conductivity of the shale. The tests were conducted in monitoring wells MW01 and MW02, located in the north of the site. The results are presented in **Error! Reference source not found.** and confirm the Bringelly Shale has low water transmitting properties. These low values of hydraulic conductivity are consistent with other measurements within the Bringelly Shale (PPK, 1998).

The slug test methodology, analysis and results are provided in the DSI (Arcadis, 2019).

Table 6-4 Aquifer Hydraulic Conductivity

Well	Hydraulic Conductivity using Bouwer & Rice (m/d)	Hydraulic Conductivity using Hvorslev (m/d)
MW01	2.03 x 10 <sup>-1</sup>	2.60 x 10 <sup>-1</sup>
MW02	7.16 x 10 <sup>-2</sup>	9.02 x 10 <sup>-2</sup>

### 6.4 Expected Volume of Groundwater to be Extracted

With a knowledge of the local hydrogeology (Sections 6.1 and 6.2) and the general building construction plans the volume of groundwater to be extracted can be estimated.

Standing groundwater levels measured at the site in October 2019 are known to range between 2.52 and 8.31 metres below ground level (mbgl). Once details of the buildings design are known, standing water levels beneath the buildings can be estimated with more confidence. During the drilling program groundwater was intersected at depths deeper than the measured standing water levels (ranging between 2.3 and 6.8 metres).

The only other known intrusive works likely to be conducted at the site are the installation of service trenches to install utilities such as stormwater, sewer, electricity, power, gas and telecommunications. Typically, these service trenches are excavated no deeper than two metres.

***Based on the revised bulk earthworks levels, the inferred groundwater contours and the PSM 2021 geotechnical investigation, Lots 3, 4, 5, 7, 8, and 11 have the potential to encounter groundwater (either perched or contiguous aquifer) during site development (based on final site level and/or presence of service trenches/footings, which may extend up to 2.0 m below final bulk earthworks level).***

In the event that groundwater is encountered the groundwater inflow is dependent upon a number of factors including the depth of the water table intersected, the hydraulic conductivity of the shale, length of the trench/excavation and the duration the excavation is open. Given that the water table is known to be low compared to the base of the trenches and the hydraulic conductivity of the shale is low groundwater inflows would be expected to be low. The length of the trenches is currently unknown but wouldn't be expected to be more than two kilometres. Similarly, the duration that the trench is open is dependent upon the speed of the construction workers but wouldn't be expected to be open for more than 4 weeks.



In the event that groundwater is encountered the extracted groundwater volume would be required to be measured with a flow meter. The groundwater would be collected and directed to a water storage pond where upon on-site reuse options would be considered as outlined in Section 8.1.1.

As outlined in Section 4.1, a WAL will only be required if groundwater is intersected and exceeds the inflow criteria of 3ML/year.



## 7 ROLES AND RESPONSIBILITIES

The roles and responsibilities regarding the implementation of this GMP on the site is summarised in the table below.

Table 7-1      *Roles and Responsibilities*

Entity	Role	Responsibility
NSW Department of Natural Resources	Approves the development of the site.	<ul style="list-style-type: none"> <li>• Provide approval for the GMP</li> <li>• Undertake the steps outlined in this GMP</li> </ul>
Mirvac (and Mirvac sub-contractors)	Land developer	<ul style="list-style-type: none"> <li>• Developer of the site</li> <li>• Ensure that the requirements outlined within this GMP for the ongoing management of the Site are complied with</li> </ul>
Nominated Environmental Consultant (if required)	Provision of environmental expertise.	<ul style="list-style-type: none"> <li>• Carry out groundwater scope of works</li> <li>• Provision of report to Mirvac and Department of Natural Resources</li> </ul>
DPIE Water*	To provide water obstruction licensing.	<ul style="list-style-type: none"> <li>• To provide water obstruction licensing if greater than 3ML/year of groundwater is intersected and removed from the site.</li> </ul>

**Note**

\*This entity will only need to undertake their roles and responsibilities if groundwater is encountered at the site in excess of 3ML/year.



## 8 GROUNDWATER MANAGEMENT

Based on the outcomes of the DSI (Arcadis, 2019) and Arcadis' understanding of the redevelopment works groundwater has the potential to be intersected for certain lots as outlined in Table 3-1.

In event that groundwater is intersected during Stage 1 of the redevelopment works, the following management measures should be applied.

### 8.1 During Construction

A review of the known redevelopment construction strategy indicates that groundwater has the potential to be encountered based on revised bulk earthworks levels and the construction of service trenches. In this event the following management measures as outlined in Table 8-1 are recommended.

Table 8-1 Management Measures for Intersected Groundwater During Construction

Management Measure	Description
Pump groundwater from the excavated area	Intersected groundwater should be pumped from the excavated service trenches and stored in a discharge basin on-site.
Monitor volume of extracted groundwater	The volume of groundwater extracted should be monitored and recorded to assess if the volume extracted does not exceed the 3 ML/year where a WAL is required. If groundwater volumes are higher than expected and it appears that the 3ML/year criteria may be exceeded a WAL application should be completed and submitted to DPIE Water.
Monitor groundwater quality of the extracted groundwater	<p>To assess if the removed groundwater is suitable for on-site re-use, groundwater quality should be monitored for the following parameters:</p> <ul style="list-style-type: none"> <li>• pH;</li> <li>• Salinity; and</li> <li>• Metals.</li> </ul> <p>Groundwater will be screened against the adopted guidelines which are outlined in Section 4 of this report.</p> <p>Groundwater treatment may be required before re-using on site to reduce the pH or salinity. The pH is likely to approach neutral due to aeration caused by pumping. Salinity can be lowered by mixing with dam water. Alternatively, the groundwater could be discharged to stormwater or sewer once this infrastructure is installed with appropriate authorisation from Council or Sydney Water respectively.</p>
Monitor groundwater in the existing groundwater wells around the site	If groundwater is intersected during construction works, a round of groundwater level monitoring of the groundwater wells on-site should be triggered to assess any impacts on the water table.

#### 8.1.1 Intersected Groundwater Re-Use

Groundwater re-use options, subject to meeting the adopted groundwater quality guidelines are presented in Table 8-2. These re-use options are consistent with the surface water re-use options as outlined in the Dam Decommissioning Strategy report.



Table 8-2 *Intersected Groundwater Re-Use Options*

Option	Name	Option Description
1	Dust suppression	The intersected groundwater can be used to spray water across the site for dust suppression during the earthworks and construction phases.
2	On-site irrigation	The groundwater can be circulated around the site for irrigation purposes.
3	Wheel washing	The groundwater can be utilised to spray trucks down before they leave the site to reduce tracking of mud and dirt off-site.
4	Topping up neighbouring dams	The groundwater from the on-site dams can be pumped into off-site neighbouring dams, subject to the dam owner's approval.
5	Discharge to the on-site sediment basin	As a contingency, if there is excess groundwater, an option is to discharge to the on-site sediment basin. The water will have to be flocculated and the water quality monitored. If the water is in accordance with the Australian and New Zealand Guidelines for Fresh Water Quality 95% species protection (ANZG 2018), then the water can be discharged to South Creek via Kemps Creek.

**Note**

These re-use options are viable only if the groundwater meets the adopted criteria.

## 8.1.2 Intersected Groundwater Treatment or Disposal

If, however, the intersected groundwater does not meet the water quality adopted criteria it must be managed appropriately. Groundwater treatment or disposal options are outlined in Table 8-3.

It should also be noted that groundwater will not be extracted for water management purposes during or after construction.

Table 8-3 *Intersected Groundwater Treatment or Disposal Options*

	Option	Option Description
1	Treatment (for turbidity)	For excess turbidity issues, the groundwater should be treated by allowing it to settle in the sedimentation pond and then flocculating if the suspended solids do not precipitate out.
2	Treatment (for pH)	If the intersected groundwater has an acidic pH value, lime should be added as a treatment. For alkaline pH aerating the water is likely to reduce the pH.
3	Treatment (for saline groundwater)	If the intersected groundwater is saline, then it can be mixed with onsite surface water from the dams in order to dilute the salinity.
4	Disposal	If treatment options are not suitable, the intersected groundwater (likely to be of low volume) could be tanked offsite for disposal. Alternatively, the groundwater could be detained onsite for discharge to either stormwater or sewer once this infrastructure has been installed on-site and authorisation from Council or Sydney Water respectively is provided.

## 8.1.3 Records

The following records relating to groundwater management and monitoring are to be maintained by Mirvac or their on-site representative:

- Spill or incident reports;
- Groundwater inflows into excavations;
- Intersected groundwater quality;
- Groundwater treatment (if necessary);
- Groundwater disposal (if necessary); and



- Groundwater level monitoring if triggered.

All records are to be maintained in compliance with record keeping requirements as outlined in the CEMP.

## 8.2 Post Construction

Based on revised bulk earthworks levels, the inferred groundwater contours, and the PSM 2021 geotechnical investigation, Lots 3, 4, 5, 7, 8 and 11 have the potential to encounter groundwater (either perched or contiguous aquifer) during site development (based on final site level and/or presence of service trenches/footings, which may extend up to 2.0 m below final bulk earthworks levels). In light of this, consideration should be given to permanent/ongoing groundwater management approaches including civil engineering (drainage, groundwater management system, etc.) and building and foundation design including subsurface infrastructure.

Consideration should be given to ongoing impacts to the local hydrogeological regime which may need to be managed in accordance with the requirements set out by Water NSW and relevant NSW regulations, including but not limited to *Water Act 1912* (NSW) (Water Act), the *Water Management Act 2000* (NSW) (WMA, 2000) and Water Management (General) Regulation, 2011.

Further assessment of groundwater and/or hydrogeological modelling should be considered to provide a better understanding on likelihood of encountering groundwater and volume of water ingress.



## 9 REFERENCES

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PSM (2022), *Mirvac Aspect Industrial Estate – 788-904 Mamre Road, Kemps Creek Results of Additional Geotechnical Investigation – Southern PAD, RW21 and RW22 (Factual Report)*



## **APPENDIX A FIGURES**



10035157 - Aspect Industrial Estate - Groundwater Management Plan



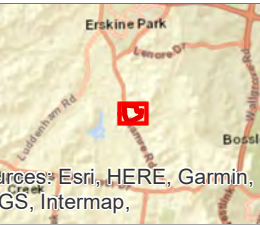
Legend

- Site Boundary
- Lot Boundaries

1:4,130 at A3

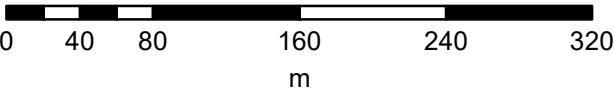


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Coordinate System: GDA 1994 MGA Zone 56  
Date issued: October 24, 2019



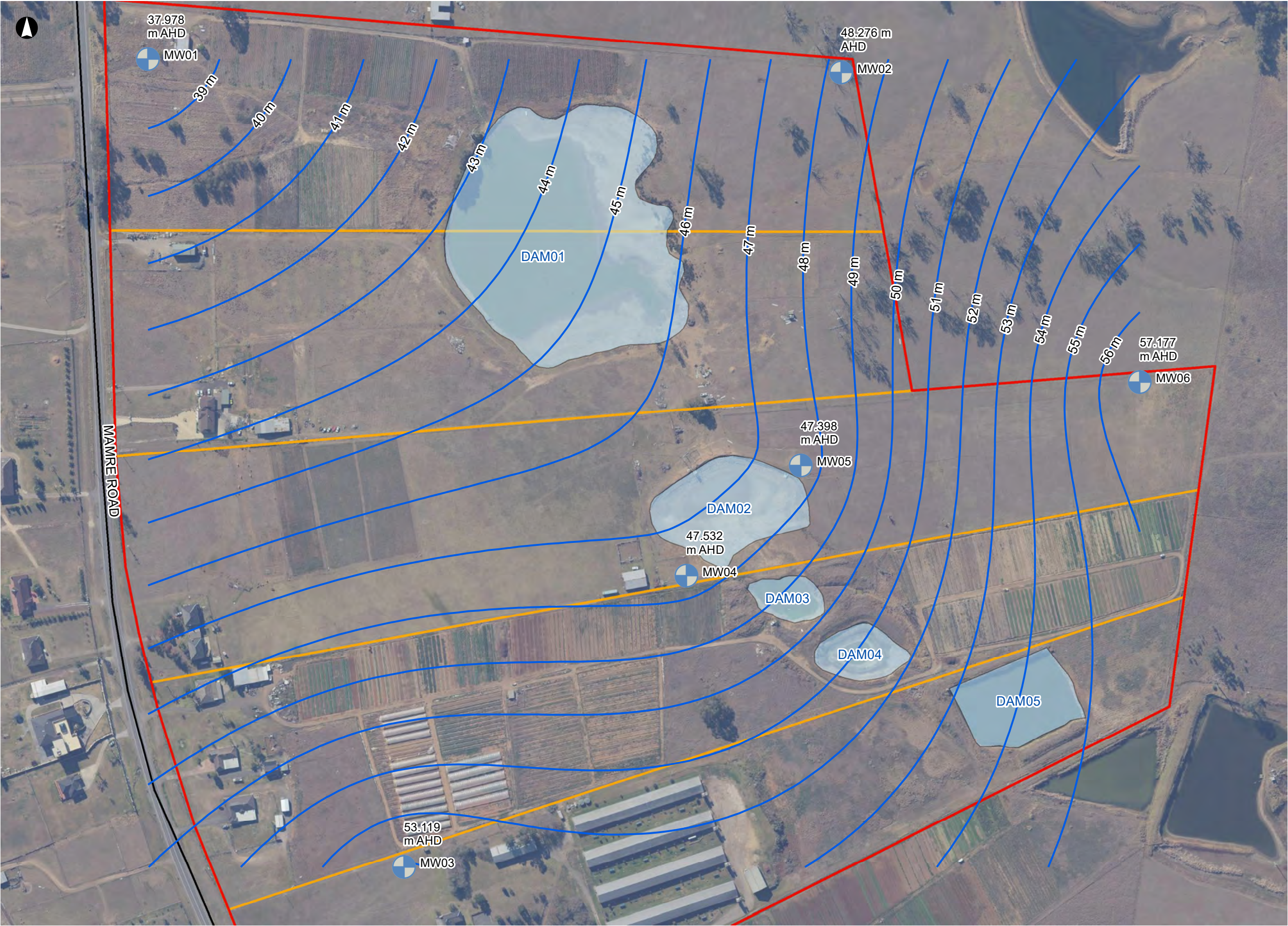
Sources: Esri, HERE, Garmin, CS, Intermap,

Figure 1 - Site Overview





10035157 - Aspect Industrial Estate - Groundwater Management Plan



Legend

- Groundwater Wells
- Groundwater Contours (m AHD)
- Dams
- Site Boundary
- Lot Boundaries

1:3,100 at A3



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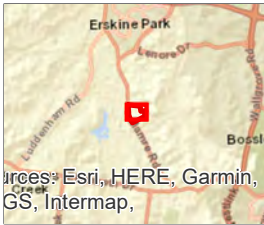
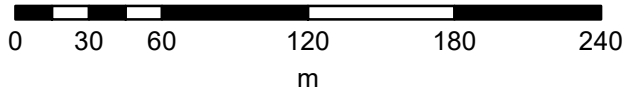


Figure 2 - Groundwater Contours





10035157 - Aspect Industrial Estate - Groundwater Management Plan

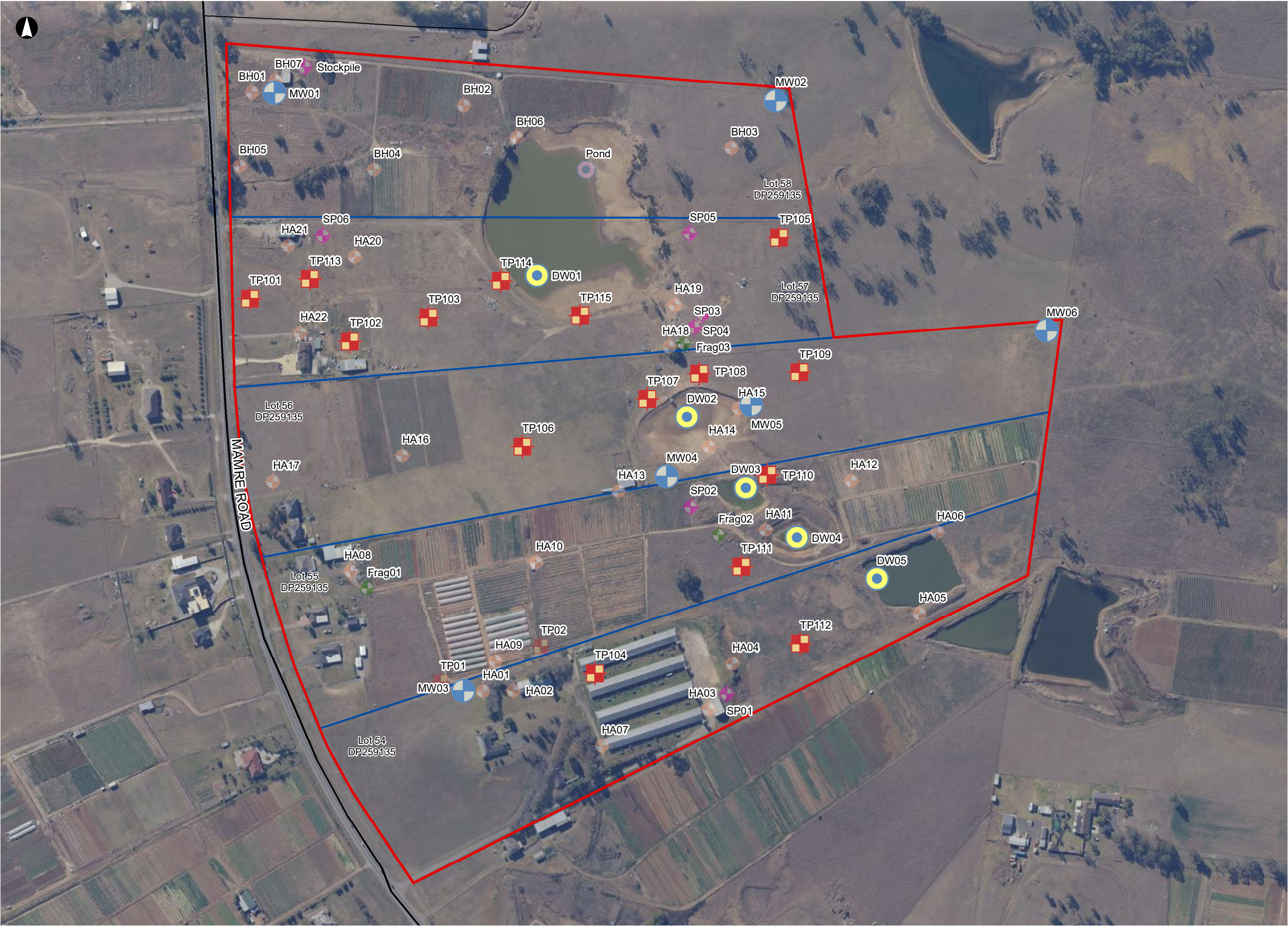
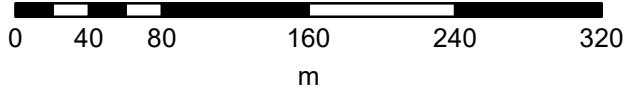
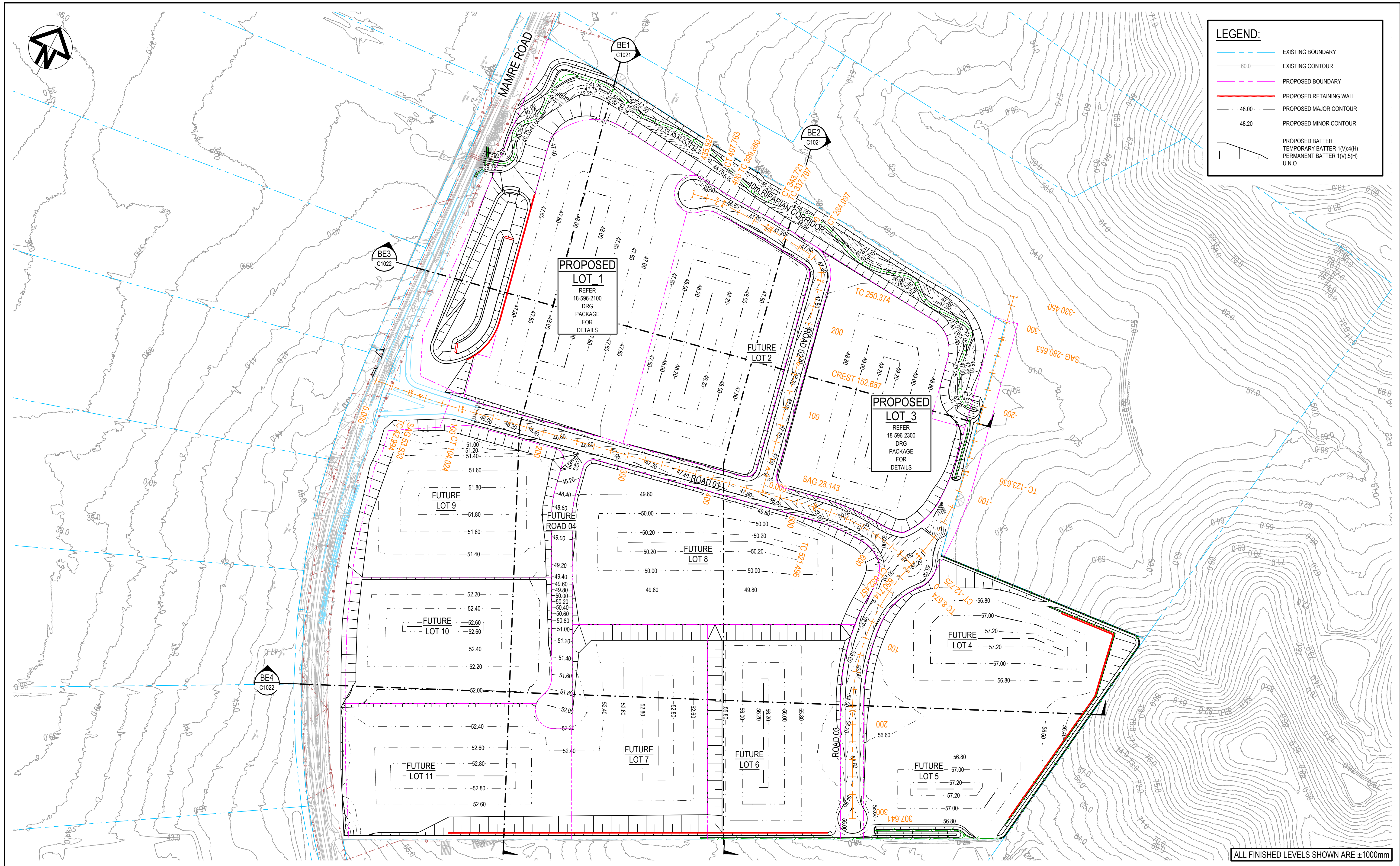


Figure 3 - Previous and Current Sample Locations







**LEGEND:**

- EXISTING BOUNDARY
- EXISTING CONTOUR
- PROPOSED BOUNDARY
- PROPOSED RETAINING WALL
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED BATTER  
TEMPORARY BATTER 1(V):4(H)  
PERMANENT BATTER 1(V):5(H)  
U.N.O

Bar Scales			Client			Scales			Drawn			Project			Civil Engineers and Project Managers		
						1:2000			Designed			ASPECT INDUSTRIAL ESTATE MAMRE ROAD, KEMPS CREEK STAGE 1					
THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L						Grid MGA			Checked			Title			Status		
						Height Datum AHD			Approved			BULK EARTHWORKS CONTOUR PLAN			FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION		
F ISSUED FOR DEVELOPMENT APPLICATION 10-02-22												Project - Drawing No.			18-596-C1020		
E ISSUED FOR DEVELOPMENT APPLICATION 03-02-22												Issue			F		
D ISSUED FOR DEVELOPMENT APPLICATION 08-10-21																	
C ISSUED FOR DEVELOPMENT APPLICATION 15-10-20																	
B ISSUED FOR DEVELOPMENT APPLICATION 12-10-20																	
A ISSUED FOR DEVELOPMENT APPLICATION 15-05-20																	
Issue Description Date																	









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0 50 100 150 200m		1 : 2000 @ A1		mirvac		1:2000		KR		ASPECT INDUSTRIAL ESTATE MAMRE ROAD, KEMPS CREEK STAGE 1		at&l	
						Grid MGA		Designed KR		Title		Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
						Height Datum AHD		Checked DS		COMPARISON BULK EARTHWORKS CUT/FILL PLAN		Status	
P1 ISSUED FOR INFORMATION		16-02-22						Approved AM				FOR AINFORMATION NOT TO BE USED FOR CONSTRUCTION	
Issue Description		Date								Project - Drawing No.		A1	
										18-596-SKC121		Issue	
												P1	



## **APPENDIX B ANALYTICAL TABLES**



Summary of Analytical Results -  
Groundwater

	Metals																TPH					TRH						
	Arsenic	Arsenic (Filtered)	Cadmium	Cadmium (Filtered)	Chromium (III+VI)	Chromium (III+VI) (Filtered)	Copper	Copper (Filtered)	Lead	Lead (Filtered)	Mercury	Mercury (Filtered)	Nickel	Nickel (Filtered)	Zinc	Zinc (Filtered)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	C6-C10	>C6-C10 less BTEX (F1)	C10-C16	>C10-C16 less Naphthalene (F2)	C16-C34	C34-C40	>C10 - C40 (Sum of total)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	0.2	0.2	1	1	1	1	1	1	0.1	0.1	1	1	5	5	20	50	100	100	100	20	20	50	50	100	100	100
ANZG (2018) Freshwater 95% toxicant DGVs			0.2 <sup>#1</sup>	0.2 <sup>#1</sup>			1.4 <sup>#1</sup>	1.4 <sup>#1</sup>	3.4 <sup>#2</sup>	3.4 <sup>#2</sup>	0.6 <sup>#3</sup>	0.06 <sup>#3 #7</sup>	11 <sup>#3</sup>	11 <sup>#3</sup>	8 <sup>#4</sup>	8 <sup>#4</sup>												
NHMRC 2008 Primary Contact Recreation	100 <sup>#5</sup>	100 <sup>#5</sup>	20 <sup>#5</sup>	20 <sup>#5</sup>	500 <sup>#6</sup>	500 <sup>#6</sup>	20000 <sup>#5</sup>	20000 <sup>#5</sup>	100 <sup>#5</sup>	100 <sup>#5</sup>	10 <sup>#5</sup>	10 <sup>#5</sup>	200 <sup>#5</sup>	200 <sup>#5</sup>														
NEPM 2013 Table 1C GILs, Fresh Waters			0.2 <sup>#8</sup>	0.2 <sup>#8</sup>			1.4 <sup>#8</sup>	1.4 <sup>#8</sup>	3.4 <sup>#8</sup>	3.4 <sup>#8</sup>	0.06 <sup>#9</sup>	0.06 <sup>#9</sup>	11 <sup>#8</sup>	11 <sup>#8</sup>	8 <sup>#8</sup>	8 <sup>#8</sup>												

Field_ID	Sampled_Date_Time																												
MW01	16-Oct-19	-	<1	-	<0.2	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	<20	<50	<100	<100	<100	<20	<20	<50	<50	<100	<100	<100
MW02	16-Oct-19	-	<1	-	<0.2	-	<1	-	<1	-	<1	-	<0.1	-	9	-	10	<20	<50	<100	<100	<100	<20	<20	<50	<50	<100	<100	<100
MW03	23-Oct-19	-	<1	-	0.3	-	<1	-	2	-	<1	-	<0.1	-	4	-	12	<20	<50	<100	<100	<100	<20	<20	70	70	<100	<100	<100
MW04	16-Oct-19	-	<1	-	0.3	-	<1	-	<1	-	<1	-	<0.1	-	3	-	9	<20	<50	<100	<100	<100	<20	<20	<50	<50	<100	<100	<100
MW05	16-Oct-19	-	<1	-	<0.2	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	<20	<50	<100	<100	<100	<20	<20	<50	<50	<100	<100	<100
MW06	16-Oct-19	-	3	-	<0.2	-	<1	-	<1	-	<1	-	<0.1	-	2	-	47	<20	<50	<100	<100	<100	<20	<20	<50	<50	<100	<100	<100

Statistical Summary		0	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	6	6	6	6	6	6	6	6	6	6	6	
Number of Results		0	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	6	6	6	6	6	6	6	6	6	6	6	
Number of Detects		0	1	0	2	0	0	0	1	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	1	1	0	0	0
Minimum Concentration		ND	<1	ND	<0.2	ND	<1	ND	<1	ND	<0.1	ND	<1	ND	<5	<20	<50	<100	<100	<100	<20	<20	<50	<50	<100	<100	<100	<100	
Minimum Detect		ND	3	ND	0.3	ND	ND	ND	2	ND	ND	ND	ND	2	ND	9	ND	ND	ND	ND	ND	ND	ND	70	70	ND	ND	ND	
Maximum Concentration		0	3	0	0.3	0	<1	0	2	0	<1	0	<0.1	0	9	0	47	<20	<50	<100	<100	<100	<20	<20	70	70	<100	<100	<100
Maximum Detect		ND	3	ND	0.3	ND	ND	ND	2	ND	ND	ND	ND	9	ND	47	ND	ND	ND	ND	ND	ND	ND	70	70	70	ND	ND	ND
Average Concentration			0.92		0.17		0.5		0.75		0.5		0.05		3.2		14	10	25	50	50	50	10	10	33	33	50	50	50
Median Concentration			0.5		0.1		0.5		0.5		0.5		0.05		2.5		9.5	10	25	50	50	50	10	10	25	25	50	50	50
Standard Deviation			1		0.1		0		0.61		0		0		3.2		17	0	0	0	0	0	0	0	18	18	0	0	0
Number of Guideline Exceedances		0	0	0	6	0	0	0	1	0	0	0	6	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)		0	0	0	2	0	0	0	1	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Description  
NEPM 2013 Table 1C GILs, Fresh Waters:A Apply to typical slightly-moderately disturbed systems  
B From ADWG  
C May not protect key species from chronic toxicity

Env Stds Comments  
#1:Very high reliability  
#2:Moderate reliability  
#3:Low reliability  
#4:High reliability  
#5:ADWG 2015 Health  
#6:NHMRC 2008 Risk in Recreational Water  
#7: ANZG (2018) Freshwater 99% toxicant DGVs  
#8:Values calculated using hardness of 30 mg/L CaCO3. Refer ANZECC & ARMCANZ (2000) for site specific hardness guidance  
#9:Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance.  
#10:Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.



Summary of Analytical Results -  
Groundwater

ARCADIS Design & Consultancy for natural and built assets	BTEX						PAH																Phenols	
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b,h,i)perylene	Benzo(b-i)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)	Phenolics Total
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	2	1	3	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	50
ANZG (2018) Freshwater 95% toxicant DGVs	950 <sup>#2</sup>				350 <sup>#3</sup>															16 <sup>#3</sup>				
NHMRC 2008 Primary Contact Recreation	10 <sup>#5</sup>	8000 <sup>#5</sup>	3000 <sup>#5</sup>			6000 <sup>#5</sup>				0.12 <sup>#7</sup>	0.1 <sup>#6</sup>													
NEPM 2013 Table 1C GILs, Fresh Waters	950				350															16				

Field_ID	Sampled_Date_Time																							
MW01	16-Oct-19	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
MW02	16-Oct-19	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
MW03	23-Oct-19	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
MW04	16-Oct-19	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
MW05	16-Oct-19	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
MW06	16-Oct-19	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-

Statistical Summary																								
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<2	<1	<3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.5	0.5	0.5	1	0.5	1.5	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	
Median Concentration	0.5	0.5	0.5	1	0.5	1.5	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Description  
NEPM 2013 Table 1C GILs, Fresh Waters:A Apply to typ  
B From ADWG  
C May not protect key species from chronic toxicity

Env Stds Comments  
#1:Very high reliability  
#2:Moderate reliability  
#3:Low reliability  
#4:High reliability  
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#7: ANZG (2018) Freshwater 99% toxicant DGVs  
#8:Values calculated using hardness of 30 mg/L CaCO3.  
#9:Chemical for which possible bioaccumulation and se  
#10:Figure may not protect key species from chronic to



Summary of Analytical Results -  
Groundwater

ARCADIS Design & Consultancy for natural and built assets	PCBs								Organochlorine Pesticides																											
	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	a-BHC	Aldrin	Dieldrin	Aldrin + Dieldrin	b-BHC	chlordan	d-BHC	DDD	4,4-DDE	DDT	DDT+DDE+DDD	Endrin ketone	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic				
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	ug/L	ug/L				
EQL	1	1	1	1	1	1	1	1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10	1	1				
ANZG (2018) Freshwater 95% toxicant DGVs				0.6 <sup>#3</sup>		0.03 <sup>#2</sup>								0.08 <sup>#2</sup>				0.01 <sup>#2</sup>						0.02 <sup>#2</sup>		0.2 <sup>#2</sup>	0.09 <sup>#2</sup>			0.2 <sup>#2</sup>						
NHMRC 2008 Primary Contact Recreation												3 <sup>#5</sup>		20 <sup>#5</sup>				90 <sup>#5</sup>								100 <sup>#5</sup>	3 <sup>#5</sup>									
NEPM 2013 Table 1C GILs, Fresh Waters				0.3 <sup>#9</sup>		0.01 <sup>#9</sup>								0.03 <sup>#9</sup>				0.006 <sup>#9</sup>						0.01 <sup>#9</sup>		0.2	0.01 <sup>#9</sup>			0.1 <sup>#9</sup>						

Field_ID	Sampled_Date_Time																																
MW01	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW02	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW03	23-Oct-19	<5	<1	<5	<5	<5	<5	<5	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<1	<1	
MW04	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW05	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW06	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Statistical Summary																																	
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<5	<1	<5	<5	<5	<5	<5	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<1	<1	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration	<5	<1	<5	<5	<5	<5	<5	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<1	<1	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Average Concentration																																	
Median Concentration	2.5	0.5	2.5	2.5	2.5	2.5	2.5	0.5	0.05	0.05	0.05	0.05	0.05	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	5	0.5	0.5
Standard Deviation																																	
Number of Guideline Exceedances	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	1	0	0	0	0	0	1	0	1	1	1	1	0	1	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Description  
NEPM 2013 Table 1C GILs, Fresh Waters:A Apply to typ  
B From ADWG  
C May not protect key species from chronic toxicity

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#1:Very high reliability  
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#8:Values calculated using hardness of 30 mg/L CaCO3.  
#9:Chemical for which possible bioaccumulation and se  
#10:Figure may not protect key species from chronic to



Summary of Analytical Results -  
Groundwater



	Organophosphorous Pesticides																												Pesticides	Herbicides	Halogenated Benzenes				
	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethoprop	Ethion	Fensulfothion	Fenitrothion	Fenthion	EPN	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Naled (Dibrom)	Monocrotophos	Omethoate	Parathion	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Pririmiphos-methyl	Tokuthion	Hexachlorobenzene
	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	ug/L	ug/L	mg/L	µg/L
EQL	2	2	2	20	2	20	2	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	20	0.002	0.1	
ANZG (2018) Freshwater 95% toxicant DGVs	0.02 <sup>#2</sup>			0.01 <sup>#3</sup>					0.01 <sup>#2</sup>		0.15 <sup>#3</sup>					0.2 <sup>#2</sup>			0.05 <sup>#2</sup>						0.004 <sup>#2</sup>										
NHMRC 2008 Primary Contact Recreation	300 <sup>#5</sup>	100 <sup>#5</sup>	20 <sup>#5</sup>	100 <sup>#5</sup>					40 <sup>#5</sup>	50 <sup>#5</sup>	70 <sup>#5</sup>	40 <sup>#5</sup>	10 <sup>#5</sup>	40 <sup>#5</sup>	100 <sup>#5</sup>	70 <sup>#5</sup>	70 <sup>#5</sup>		700 <sup>#5</sup>		7 <sup>#5</sup>	50 <sup>#5</sup>		20 <sup>#5</sup>	10 <sup>#5</sup>	200 <sup>#5</sup>		200 <sup>#5</sup>		9 <sup>#5</sup>		1000 <sup>#5</sup>	900 <sup>#5</sup>		
NEPM 2013 Table 1C GILs, Fresh Waters				0.01 <sup>#9</sup>					0.01		0.15					0.2			0.05						0.004 <sup>#10</sup>										

Field_ID	Sampled_Date_Time																																
MW01	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03	23-Oct-19	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<0.002	<0.1	
MW04	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW05	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW06	16-Oct-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																																					
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Minimum Concentration	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<0.002	<0.1				
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Maximum Concentration	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<0.002	<0.1					
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Average Concentration																																					
Median Concentration	1	1	1	10	1	10	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	0.001	0.05					
Standard Deviation																																					
Number of Guideline Exceedances	1	0	0	1	0	0	0	0	1	0	1	0	1	0	0	1	0	1	1	0	1	0	0	0	1	1	0	0	0	1	0	0	0	1			
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Env Stds Description  
NEPM 2013 Table 1C GILs, Fresh Waters:A Apply to typ  
B From ADWG  
C May not protect key species from chronic toxicity

Env Stds Comments  
#1:Very high reliability  
#2:Moderate reliability  
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#5:ADWG 2015 Health  
#6:NHMRC 2008 Risk in Recreational Water  
#7: ANZG (2018) Freshwater 99% toxicant DGVs  
#8:Values calculated using hardness of 30 mg/L CaCO3.  
#9:Chemical for which possible bioaccumulation and se  
#10:Figure may not protect key species from chronic to



## **APPENDIX C LABORATORY REPORTS**



Arcadis Australia  
Lvl 16/580 George Street  
Sydney  
NSW 2000



NATA Accredited  
Accreditation Number 1261  
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing  
The results of the tests, calibrations and/or  
measurements included in this document are traceable  
to Australian/national standards.

Attention: **Jack Palma**

Report **683212-W**  
Project name **MIRVAC - KEMPS CREEK**  
Project ID **10035157**  
Received Date **Oct 17, 2019**

Client Sample ID			MW01 Water	MW02 Water	MW04 Water	MW05 Water
Sample Matrix			S19-Oc26968	S19-Oc26969	S19-Oc26970	S19-Oc26971
Eurofins Sample No.			Oct 16, 2019	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
<b>BTEX</b>						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	82	87	89	89
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>						
Acenaphthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Acenaphthylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benz(a)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(a)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(b&j)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(g,h,i)perylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(k)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Chrysene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Dibenz(a,h)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Fluorene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001



Client Sample ID			MW01 Water	MW02 Water	MW04 Water	MW05 Water
Sample Matrix			S19-Oc26968	S19-Oc26969	S19-Oc26970	S19-Oc26971
Eurofins Sample No.			Oct 16, 2019	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019
Date Sampled						
Test/Reference	LOR	Unit				
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>						
Indeno(1.2.3-cd)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Naphthalene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Phenanthrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Total PAH*	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
2-Fluorobiphenyl (surr.)	1	%	63	63	68	67
p-Terphenyl-d14 (surr.)	1	%	75	54	86	60
<b>Heavy Metals</b>						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	0.0003	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.009	0.003	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.010	0.009	< 0.005

Client Sample ID			MW06 Water	DW01 Water	DW02 Water	DW03 Water
Sample Matrix			S19-Oc26972	S19-Oc26973	S19-Oc26974	S19-Oc26975
Eurofins Sample No.			Oct 16, 2019	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
<b>BTEX</b>						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	97	94	93	96



Client Sample ID			MW06 Water S19-Oc26972 Oct 16, 2019	DW01 Water S19-Oc26973 Oct 16, 2019	DW02 Water S19-Oc26974 Oct 16, 2019	DW03 Water S19-Oc26975 Oct 16, 2019
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
4,4'-DDD	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
4,4'-DDE	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
4,4'-DDT	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibutylchloroendate (surr.)	1	%	-	83	67	54
Tetrachloro-m-xylene (surr.)	1	%	-	58	94	82
<b>Organophosphorus Pesticides</b>						
Azinphos-methyl	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002



Client Sample ID			MW06 Water S19-Oc26972 Oct 16, 2019	DW01 Water S19-Oc26973 Oct 16, 2019	DW02 Water S19-Oc26974 Oct 16, 2019	DW03 Water S19-Oc26975 Oct 16, 2019
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Organophosphorus Pesticides</b>						
Methyl parathion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	-	69	77	81
<b>Polychlorinated Biphenyls</b>						
Aroclor-1016	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	-	83	67	54
Tetrachloro-m-xylene (surr.)	1	%	-	58	94	82
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>						
Acenaphthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Acenaphthylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benz(a)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(a)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(b&j)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(g,h,i)perylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(k)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Chrysene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Dibenz(a,h)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Fluorene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Indeno(1,2,3-cd)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Naphthalene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Phenanthrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Total PAH*	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
2-Fluorobiphenyl (surr.)	1	%	78	93	78	66
p-Terphenyl-d14 (surr.)	1	%	64	90	73	74
Phenolics (total)	0.05	mg/L	-	< 0.05	< 0.05	< 0.05



Client Sample ID			MW06 Water S19-Oc26972 Oct 16, 2019	DW01 Water S19-Oc26973 Oct 16, 2019	DW02 Water S19-Oc26974 Oct 16, 2019	DW03 Water S19-Oc26975 Oct 16, 2019
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Heavy Metals</b>						
Arsenic (filtered)	0.001	mg/L	0.003	0.001	0.002	0.002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	< 0.001	0.002	0.002
Zinc (filtered)	0.005	mg/L	0.047	< 0.005	< 0.005	< 0.005

Client Sample ID			DW04 Water S19-Oc26976 Oct 16, 2019	DW05 Water S19-Oc26977 Oct 16, 2019	QA1 Water S19-Oc26978 Oct 16, 2019	RINSATE Water S19-Oc26979 Oct 16, 2019
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
<b>BTEX</b>						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	95	81	87	-
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	-	-
4,4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4,4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4,4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	-	-
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	-	-



Client Sample ID			DW04 Water S19-Oc26976 Oct 16, 2019	DW05 Water S19-Oc26977 Oct 16, 2019	QA1 Water S19-Oc26978 Oct 16, 2019	RINSATE Water S19-Oc26979 Oct 16, 2019
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Organochlorine Pesticides</b>						
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	-	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Toxaphene	0.01	mg/L	< 0.01	< 0.01	-	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	114	58	-	-
Tetrachloro-m-xylene (surr.)	1	%	78	82	-	-
<b>Organophosphorus Pesticides</b>						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Bolstar	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	-	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Coumaphos	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-S	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-O	0.002	mg/L	< 0.002	< 0.002	-	-
Diazinon	0.002	mg/L	< 0.002	< 0.002	-	-
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	-	-
Dimethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Disulfoton	0.002	mg/L	< 0.002	< 0.002	-	-
EPN	0.002	mg/L	< 0.002	< 0.002	-	-
Ethion	0.002	mg/L	< 0.002	< 0.002	-	-
Ethoprop	0.002	mg/L	< 0.002	< 0.002	-	-
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenthion	0.002	mg/L	< 0.002	< 0.002	-	-
Malathion	0.002	mg/L	< 0.002	< 0.002	-	-
Merphos	0.002	mg/L	< 0.002	< 0.002	-	-
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Mevinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	-	-
Naled	0.002	mg/L	< 0.002	< 0.002	-	-
Omethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Phorate	0.002	mg/L	< 0.002	< 0.002	-	-
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	-	-
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	-	-
Ronnel	0.002	mg/L	< 0.002	< 0.002	-	-
Terbufos	0.002	mg/L	< 0.002	< 0.002	-	-



Client Sample ID			DW04 Water	DW05 Water	QA1 Water	RINSATE Water
Sample Matrix			S19-Oc26976	S19-Oc26977	S19-Oc26978	S19-Oc26979
Eurofins Sample No.			Oct 16, 2019	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019
Date Sampled						
Test/Reference	LOR	Unit				
<b>Organophosphorus Pesticides</b>						
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Tokuthion	0.002	mg/L	< 0.002	< 0.002	-	-
Trichloronate	0.002	mg/L	< 0.002	< 0.002	-	-
Triphenylphosphate (surr.)	1	%	88	60	-	-
<b>Polychlorinated Biphenyls</b>						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	-	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	114	58	-	-
Tetrachloro-m-xylene (surr.)	1	%	78	82	-	-
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>						
Acenaphthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Acenaphthylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benz(a)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(a)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(b&j)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(g,h,i)perylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(k)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Chrysene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Dibenz(a,h)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Fluorene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Indeno(1,2,3-cd)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Naphthalene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Phenanthrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Total PAH*	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
2-Fluorobiphenyl (surr.)	1	%	67	66	89	-
p-Terphenyl-d14 (surr.)	1	%	56	61	70	-
Phenolics (total)	0.05	mg/L	< 0.05	< 0.05	-	-
<b>Heavy Metals</b>						
Arsenic	0.001	mg/L	-	-	0.004	< 0.001
Arsenic (filtered)	0.001	mg/L	0.001	0.002	-	-
Cadmium	0.0002	mg/L	-	-	< 0.0002	< 0.0002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	-	-
Chromium	0.001	mg/L	-	-	< 0.001	< 0.001
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Copper	0.001	mg/L	-	-	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Lead	0.001	mg/L	-	-	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Mercury	0.0001	mg/L	-	-	< 0.0001	< 0.0001



<b>Client Sample ID</b>			<b>DW04</b>	<b>DW05</b>	<b>QA1</b>	<b>RINSATE</b>
<b>Sample Matrix</b>			<b>Water</b>	<b>Water</b>	<b>Water</b>	<b>Water</b>
<b>Eurofins Sample No.</b>			<b>S19-Oc26976</b>	<b>S19-Oc26977</b>	<b>S19-Oc26978</b>	<b>S19-Oc26979</b>
<b>Date Sampled</b>			<b>Oct 16, 2019</b>	<b>Oct 16, 2019</b>	<b>Oct 16, 2019</b>	<b>Oct 16, 2019</b>
Test/Reference	LOR	Unit				
<b>Heavy Metals</b>						
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Nickel	0.001	mg/L	-	-	0.004	< 0.001
Nickel (filtered)	0.001	mg/L	0.001	0.002	-	-
Zinc	0.005	mg/L	-	-	0.032	< 0.005
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	-	-

<b>Client Sample ID</b>			<b>R20 TS</b>	<b>TB</b>
<b>Sample Matrix</b>			<b>Water</b>	<b>Water</b>
<b>Eurofins Sample No.</b>			<b>S19-Oc26980</b>	<b>S19-Oc26981</b>
<b>Date Sampled</b>			<b>Oct 16, 2019</b>	<b>Oct 16, 2019</b>
Test/Reference	LOR	Unit		
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>				
Naphthalene <sup>N02</sup>	0.01	mg/L	88	< 0.01
TRH C6-C10	0.02	mg/L	72	< 0.02
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	-	< 0.02
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>				
TRH C6-C9	0.02	mg/L	71	< 0.02
<b>BTEX</b>				
Benzene	0.001	mg/L	93	< 0.001
Toluene	0.001	mg/L	95	< 0.001
Ethylbenzene	0.001	mg/L	91	< 0.001
m&p-Xylenes	0.002	mg/L	88	< 0.002
o-Xylene	0.001	mg/L	95	< 0.001
Xylenes - Total	0.003	mg/L	90	< 0.003
4-Bromofluorobenzene (surr.)	1	%	98	87



## Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.  
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	7 Days
Eurofins   mgt Suite B7 (filtered metals/PAH trace level)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	14 Days
Polycyclic Aromatic Hydrocarbons (Trace level) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water (trace)	Melbourne	Oct 21, 2019	7 Days
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Oct 21, 2019	28 Days
Eurofins   mgt Suite B15			
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)	Melbourne	Oct 21, 2019	7 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8081)	Melbourne	Oct 21, 2019	7 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)	Melbourne	Oct 21, 2019	7 Days
Phenolics (total) - Method: LTM-INO-4050 Total Phenolics in Waters and solids by CFA	Melbourne	Oct 21, 2019	7 Days
Eurofins   mgt Suite B7 (PAH trace level)			
Metals M8 - Method:	Melbourne	Oct 21, 2019	180 Days



**Company Name:** Arcadis Australia  
**Address:** Lvl 16/580 George Street  
Sydney  
NSW 2000  
  
**Project Name:** MIRVAC - KEMPS CREEK  
**Project ID:** 10035157

**Order No.:**  
**Report #:** 683212  
**Phone:** 02 8907 9000  
**Fax:**

**Received:** Oct 17, 2019 4:33 PM  
**Due:** Oct 24, 2019  
**Priority:** 5 Day  
**Contact Name:** Jack Palma

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos Absence / Presence	HOLD	Phenolics (total)	Metals M7	Metals M8	Eurofins   mgt Suite B15	Moisture Set	BTEXN and Volatile TRH	Eurofins   mgt Suite B7 (PAH trace level)	Eurofins   mgt Suite B7 (filtered metals/PAH trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X									
Brisbane Laboratory - NATA Site # 20794															
Perth Laboratory - NATA Site # 23736															
External Laboratory															
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID										
1	MW01	Oct 16, 2019		Water	S19-Oc26968										X
2	MW02	Oct 16, 2019		Water	S19-Oc26969										X
3	MW04	Oct 16, 2019		Water	S19-Oc26970										X
4	MW05	Oct 16, 2019		Water	S19-Oc26971										X
5	MW06	Oct 16, 2019		Water	S19-Oc26972										X
6	DW01	Oct 16, 2019		Water	S19-Oc26973			X			X				X
7	DW02	Oct 16, 2019		Water	S19-Oc26974			X			X				X
8	DW03	Oct 16, 2019		Water	S19-Oc26975			X			X				X
9	DW04	Oct 16, 2019		Water	S19-Oc26976			X			X				X



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Sample Detail						Asbestos Absence / Presence	HOLD	Phenolics (total)	Metals M7	Metals M8	Eurofins   mgt Suite B15	Moisture Set	BTEXN and Volatile TRH	Eurofins   mgt Suite B7 (PAH trace level)	Eurofins   mgt Suite B7 (filtered metals/PAH trace level)
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>							X	X	X	X	X	X	X	X	X
<b>Sydney Laboratory - NATA Site # 18217</b>						X									
<b>Brisbane Laboratory - NATA Site # 20794</b>															
<b>Perth Laboratory - NATA Site # 23736</b>															
10	DW05	Oct 16, 2019		Water	S19-Oc26977			X			X				X
11	QA1	Oct 16, 2019		Water	S19-Oc26978									X	
12	RINSATE	Oct 16, 2019		Water	S19-Oc26979					X					
13	TS	Oct 16, 2019		Water	S19-Oc26980								X		
14	TB	Oct 16, 2019		Water	S19-Oc26981								X		
15	SO01	Oct 16, 2019		Soil	S19-Oc26982				X			X			
16	SO02	Oct 16, 2019		Soil	S19-Oc26983		X								
17	SO03	Oct 16, 2019		Soil	S19-Oc26984				X			X			
18	SO04	Oct 16, 2019		Soil	S19-Oc26985				X			X			
19	SO05	Oct 16, 2019		Soil	S19-Oc26986		X								
20	ASB01	Oct 16, 2019		Building Materials	S19-Oc26987	X									



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Sample Detail						Asbestos Absence / Presence	HOLD	Phenolics (total)	Metals M7	Metals M8	Eurofins   mgt Suite B15	Moisture Set	BTEXN and Volatile TRH	Eurofins   mgt Suite B7 (PAH trace level)	Eurofins   mgt Suite B7 (filtered metals/PAH trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X									
Brisbane Laboratory - NATA Site # 20794															
Perth Laboratory - NATA Site # 23736															
21	ASB02	Oct 16, 2019		Building Materials	S19-Oc26988	X									
22	ASB03	Oct 16, 2019		Building Materials	S19-Oc26989	X									
23	ASB04	Oct 16, 2019		Building Materials	S19-Oc26990	X									
Test Counts						4	2	5	3	1	5	3	2	1	10



## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**\*\*NOTE:** pH duplicates are reported as a range NOT as RPD

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

**MPN/100mL:** Most Probable Number of organisms per 100 millilitres

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.3
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NC</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

### QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.



**Quality Control Results**

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
<b>Method Blank</b>							
<b>BTEX</b>							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
<b>Method Blank</b>							
<b>Organochlorine Pesticides</b>							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4,4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>Organophosphorus Pesticides</b>							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	



Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
<b>Method Blank</b>							
<b>Polychlorinated Biphenyls</b>							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>							
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>							
Acenaphthene	mg/L	< 0.00001			0.00001	Pass	
Acenaphthylene	mg/L	< 0.00001			0.00001	Pass	
Anthracene	mg/L	< 0.00001			0.00001	Pass	
Benz(a)anthracene	mg/L	< 0.00001			0.00001	Pass	
Benzo(a)pyrene	mg/L	< 0.00001			0.00001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.00001			0.00001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Chrysene	mg/L	< 0.00001			0.00001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.00001			0.00001	Pass	
Fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Fluorene	mg/L	< 0.00001			0.00001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.00001			0.00001	Pass	
Naphthalene	mg/L	< 0.00001			0.00001	Pass	



Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	mg/L	< 0.00001			0.00001	Pass	
Pyrene	mg/L	< 0.00001			0.00001	Pass	
Total PAH*	mg/L	< 0			0.00001	Pass	
<b>Method Blank</b>							
Phenolics (total)	mg/L	< 0.05			0.05	Pass	
<b>Method Blank</b>							
<b>Heavy Metals</b>							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
<b>LCS - % Recovery</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	%	85			70-130	Pass	
TRH C6-C10	%	98			70-130	Pass	
TRH >C10-C16	%	76			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	%	95			70-130	Pass	
TRH C10-C14	%	79			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>BTEX</b>							
Benzene	%	92			70-130	Pass	
Toluene	%	89			70-130	Pass	
Ethylbenzene	%	82			70-130	Pass	
m&p-Xylenes	%	81			70-130	Pass	
Xylenes - Total	%	82			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Organochlorine Pesticides</b>							
Chlordanes - Total	%	114			70-130	Pass	
4,4'-DDD	%	104			70-130	Pass	
4,4'-DDE	%	105			70-130	Pass	
4,4'-DDT	%	97			70-130	Pass	
a-BHC	%	113			70-130	Pass	
Aldrin	%	94			70-130	Pass	
b-BHC	%	110			70-130	Pass	
d-BHC	%	112			70-130	Pass	
Dieldrin	%	90			70-130	Pass	
Endosulfan I	%	93			70-130	Pass	
Endosulfan II	%	104			70-130	Pass	
Endosulfan sulphate	%	94			70-130	Pass	
Endrin	%	94			70-130	Pass	



Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde			%	126			70-130	Pass	
Endrin ketone			%	104			70-130	Pass	
g-BHC (Lindane)			%	124			70-130	Pass	
Heptachlor			%	95			70-130	Pass	
Heptachlor epoxide			%	97			70-130	Pass	
Hexachlorobenzene			%	114			70-130	Pass	
Methoxychlor			%	86			70-130	Pass	
LCS - % Recovery									
Organophosphorus Pesticides									
Diazinon		%	115				70-130	Pass	
Dimethoate		%	80				70-130	Pass	
Ethion		%	110				70-130	Pass	
Fenitrothion		%	103				70-130	Pass	
Methyl parathion		%	102				70-130	Pass	
Mevinphos		%	98				70-130	Pass	
LCS - % Recovery									
Polychlorinated Biphenyls									
Aroclor-1260		%	120				70-130	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons (Trace level)									
Acenaphthene		%	79				70-130	Pass	
Acenaphthylene		%	77				70-130	Pass	
Anthracene		%	72				70-130	Pass	
Benz(a)anthracene		%	99				70-130	Pass	
Benzo(a)pyrene		%	101				70-130	Pass	
Benzo(b&j)fluoranthene		%	77				70-130	Pass	
Benzo(g,h,i)perylene		%	78				70-130	Pass	
Benzo(k)fluoranthene		%	89				70-130	Pass	
Chrysene		%	82				70-130	Pass	
Dibenz(a,h)anthracene		%	93				70-130	Pass	
Fluoranthene		%	77				70-130	Pass	
Fluorene		%	83				70-130	Pass	
Indeno(1.2.3-cd)pyrene		%	72				70-130	Pass	
Naphthalene		%	86				70-130	Pass	
Phenanthrene		%	83				70-130	Pass	
Pyrene		%	82				70-130	Pass	
LCS - % Recovery									
Phenolics (total)		%	100				70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic		%	95				80-120	Pass	
Cadmium		%	97				80-120	Pass	
Chromium		%	97				80-120	Pass	
Copper		%	96				80-120	Pass	
Lead		%	95				80-120	Pass	
Mercury		%	95				75-125	Pass	
Nickel		%	95				80-120	Pass	
Zinc		%	97				80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16		W19-Oc25712	NCP	%	90		70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					



Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	W19-Oc25712	NCP	%	95		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>				Result 1				
Naphthalene	S19-Oc26969	CP	%	72		70-130	Pass	
TRH C6-C10	S19-Oc26969	CP	%	94		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>				Result 1				
TRH C6-C9	S19-Oc26969	CP	%	95		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>BTEX</b>				Result 1				
Benzene	S19-Oc26969	CP	%	98		70-130	Pass	
Toluene	S19-Oc26969	CP	%	97		70-130	Pass	
Ethylbenzene	S19-Oc26969	CP	%	94		70-130	Pass	
m&p-Xylenes	S19-Oc26969	CP	%	90		70-130	Pass	
o-Xylene	S19-Oc26969	CP	%	92		70-130	Pass	
Xylenes - Total	S19-Oc26969	CP	%	91		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>				Result 1				
Acenaphthene	B19-Oc28739	NCP	%	85		70-130	Pass	
Acenaphthylene	B19-Oc28739	NCP	%	91		70-130	Pass	
Anthracene	B19-Oc28739	NCP	%	81		70-130	Pass	
Benz(a)anthracene	B19-Oc28739	NCP	%	77		70-130	Pass	
Benzo(a)pyrene	B19-Oc28739	NCP	%	84		70-130	Pass	
Benzo(b&j)fluoranthene	B19-Oc28739	NCP	%	76		70-130	Pass	
Benzo(g,h,i)perylene	B19-Oc28739	NCP	%	87		70-130	Pass	
Benzo(k)fluoranthene	B19-Oc28739	NCP	%	106		70-130	Pass	
Chrysene	B19-Oc28739	NCP	%	100		70-130	Pass	
Dibenz(a,h)anthracene	B19-Oc28739	NCP	%	73		70-130	Pass	
Fluoranthene	B19-Oc28739	NCP	%	92		70-130	Pass	
Fluorene	B19-Oc28739	NCP	%	98		70-130	Pass	
Indeno(1,2,3-cd)pyrene	B19-Oc28739	NCP	%	121		70-130	Pass	
Naphthalene	B19-Oc28739	NCP	%	73		70-130	Pass	
Phenanthrene	B19-Oc28739	NCP	%	84		70-130	Pass	
Pyrene	B19-Oc28739	NCP	%	87		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Organochlorine Pesticides</b>				Result 1				
4,4'-DDE	M19-Oc18417	NCP	%	90		70-130	Pass	
a-BHC	M19-Oc18417	NCP	%	111		70-130	Pass	
Aldrin	M19-Oc18417	NCP	%	75		70-130	Pass	
b-BHC	M19-Oc18417	NCP	%	94		70-130	Pass	
d-BHC	M19-Oc18417	NCP	%	99		70-130	Pass	
Dieldrin	M19-Oc18417	NCP	%	85		70-130	Pass	
Endosulfan I	M19-Oc18417	NCP	%	83		70-130	Pass	
Endosulfan II	M19-Oc18417	NCP	%	88		70-130	Pass	
Endrin	M19-Oc18417	NCP	%	87		70-130	Pass	
Endrin aldehyde	M19-Oc18417	NCP	%	82		70-130	Pass	
g-BHC (Lindane)	M19-Oc18417	NCP	%	122		70-130	Pass	
Heptachlor	M19-Oc18417	NCP	%	71		70-130	Pass	
Heptachlor epoxide	M19-Oc18417	NCP	%	74		70-130	Pass	
Hexachlorobenzene	M19-Oc18417	NCP	%	124		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Organophosphorus Pesticides</b>				Result 1				
Diazinon	B19-Oc28018	NCP	%	99		70-130	Pass	
Dimethoate	B19-Oc28018	NCP	%	75		70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethion	B19-Oc28018	NCP	%	90			70-130	Pass	
Fenitrothion	B19-Oc28018	NCP	%	108			70-130	Pass	
Methyl parathion	B19-Oc28018	NCP	%	91			70-130	Pass	
Mevinphos	B19-Oc28018	NCP	%	103			70-130	Pass	
<b>Spike - % Recovery</b>									
				Result 1					
Phenolics (total)	S19-Oc26973	CP	%	106			70-130	Pass	
<b>Spike - % Recovery</b>									
				Result 1					
<b>Heavy Metals</b>									
				Result 1					
Arsenic (filtered)	S19-Oc26975	CP	%	92			70-130	Pass	
Cadmium (filtered)	S19-Oc26975	CP	%	88			70-130	Pass	
Chromium (filtered)	S19-Oc26975	CP	%	93			70-130	Pass	
Copper (filtered)	S19-Oc26975	CP	%	90			70-130	Pass	
Lead (filtered)	S19-Oc26975	CP	%	88			70-130	Pass	
Mercury (filtered)	S19-Oc26975	CP	%	80			70-130	Pass	
Nickel (filtered)	S19-Oc26975	CP	%	88			70-130	Pass	
Zinc (filtered)	S19-Oc26975	CP	%	90			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>				Result 1	Result 2	RPD			
Naphthalene	S19-Oc26968	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S19-Oc26968	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S19-Oc28806	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>				Result 1	Result 2	RPD			
TRH C6-C9	S19-Oc26968	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S19-Oc28806	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S19-Oc28806	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S19-Oc28806	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
<b>Duplicate</b>									
<b>BTEX</b>				Result 1	Result 2	RPD			
Benzene	S19-Oc26968	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S19-Oc26968	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S19-Oc26968	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S19-Oc26968	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S19-Oc26968	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S19-Oc26968	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
<b>Duplicate</b>									
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>				Result 1	Result 2	RPD			
Acenaphthene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Acenaphthylene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Anthracene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benz(a)anthracene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(a)pyrene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(b&j)fluoranthene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(g,h,i)perylene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(k)fluoranthene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Chrysene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Dibenz(a,h)anthracene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Fluoranthene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Fluorene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Naphthalene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Phenanthrene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Pyrene	B19-Oc28738	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	



Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4,4'-DDD	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDE	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDT	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
a-BHC	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Aldrin	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
b-BHC	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
d-BHC	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Dieldrin	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan I	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan II	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan sulphate	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin aldehyde	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin ketone	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
g-BHC (Lindane)	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor epoxide	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Hexachlorobenzene	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Methoxychlor	M19-Oc24938	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos	M19-Oc24938	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos-methyl	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Coumaphos	M19-Oc24938	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-S	M19-Oc24938	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-O	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Diazinon	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dichlorvos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dimethoate	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Disulfoton	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
EPN	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethoprop	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethyl parathion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenitrothion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fensulfothion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenthion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Malathion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Merphos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methyl parathion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Mevinphos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Monocrotophos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Naled	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Omethoate	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Phorate	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Pirimiphos-methyl	M19-Oc24938	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass



Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Tokuthion	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	M19-Oc24938	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1221	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1232	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1242	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1248	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1254	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1260	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Total PCB*	M19-Oc24938	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Phenolics (total)	S19-Oc26973	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	S19-Oc26975	CP	mg/L	0.002	0.002	1.0	30%	Pass
Cadmium (filtered)	S19-Oc26975	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium (filtered)	S19-Oc26975	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	S19-Oc26975	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead (filtered)	S19-Oc26975	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	S19-Oc26975	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	S19-Oc26975	CP	mg/L	0.002	0.002	4.0	30%	Pass
Zinc (filtered)	S19-Oc26975	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass



## Comments

### Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

### Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

## Authorised By

Ursula Long	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)



### Glenn Jackson General Manager

**Final report - this Report replaces any previously issued Report**

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.



Arcadis Australia  
Lvl 16/580 George Street  
Sydney  
NSW 2000



NATA Accredited  
Accreditation Number 1261  
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing  
The results of the tests, calibrations and/or  
measurements included in this document are traceable  
to Australian/national standards.

Attention: **Jack Palma**

Report **684323-W**  
Project name **MIRVAC - KEMPS CREEK**  
Project ID **10035157**  
Received Date **Oct 24, 2019**

Client Sample ID			<b>MW03</b>
Sample Matrix			<b>Water</b>
Eurofins Sample No.			<b>S19-Oc37310</b>
Date Sampled			<b>Oct 23, 2019</b>
Test/Reference	LOR	Unit	
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
<b>BTEX</b>			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	83
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>			
Naphthalene <sup>N02</sup>	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	0.07
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	0.05	mg/L	0.07
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
<b>Organochlorine Pesticides</b>			
Chlordanes - Total	0.001	mg/L	< 0.001
4,4'-DDD	0.0001	mg/L	< 0.0001
4,4'-DDE	0.0001	mg/L	< 0.0001
4,4'-DDT	0.0001	mg/L	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001



<b>Client Sample ID</b>			<b>MW03</b>
<b>Sample Matrix</b>			<b>Water</b>
<b>Eurofins Sample No.</b>			<b>S19-Oc37310</b>
<b>Date Sampled</b>			<b>Oct 23, 2019</b>
Test/Reference	LOR	Unit	
<b>Organochlorine Pesticides</b>			
Endrin	0.0001	mg/L	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001
Toxaphene	0.01	mg/L	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001
Dibutylchloredate (surr.)	1	%	140
Tetrachloro-m-xylene (surr.)	1	%	135
<b>Organophosphorus Pesticides</b>			
Azinphos-methyl	0.002	mg/L	< 0.002
Bolstar	0.002	mg/L	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002
Coumaphos	0.02	mg/L	< 0.02
Demeton-S	0.02	mg/L	< 0.02
Demeton-O	0.002	mg/L	< 0.002
Diazinon	0.002	mg/L	< 0.002
Dichlorvos	0.002	mg/L	< 0.002
Dimethoate	0.002	mg/L	< 0.002
Disulfoton	0.002	mg/L	< 0.002
EPN	0.002	mg/L	< 0.002
Ethion	0.002	mg/L	< 0.002
Ethoprop	0.002	mg/L	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002
Fenitrothion	0.002	mg/L	< 0.002
Fensulfothion	0.002	mg/L	< 0.002
Fenthion	0.002	mg/L	< 0.002
Malathion	0.002	mg/L	< 0.002
Merphos	0.002	mg/L	< 0.002
Methyl parathion	0.002	mg/L	< 0.002
Mevinphos	0.002	mg/L	< 0.002
Monocrotophos	0.002	mg/L	< 0.002
Naled	0.002	mg/L	< 0.002
Omethoate	0.002	mg/L	< 0.002
Phorate	0.002	mg/L	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02
Pyrazophos	0.002	mg/L	< 0.002
Ronnel	0.002	mg/L	< 0.002
Terbufos	0.002	mg/L	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002
Tokuthion	0.002	mg/L	< 0.002



<b>Client Sample ID</b>			<b>MW03</b>
<b>Sample Matrix</b>			<b>Water</b>
<b>Eurofins Sample No.</b>			<b>S19-Oc37310</b>
<b>Date Sampled</b>			<b>Oct 23, 2019</b>
Test/Reference	LOR	Unit	
<b>Organophosphorus Pesticides</b>			
Trichloronate	0.002	mg/L	< 0.002
Triphenylphosphate (surr.)	1	%	20
<b>Polychlorinated Biphenyls</b>			
Aroclor-1016	0.005	mg/L	< 0.005
Aroclor-1221	0.001	mg/L	< 0.001
Aroclor-1232	0.005	mg/L	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005
Total PCB*	0.001	mg/L	< 0.001
Dibutylchloroendate (surr.)	1	%	140
Tetrachloro-m-xylene (surr.)	1	%	135
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>			
Acenaphthene	0.00001	mg/L	< 0.00001
Acenaphthylene	0.00001	mg/L	< 0.00001
Anthracene	0.00001	mg/L	< 0.00001
Benz(a)anthracene	0.00001	mg/L	< 0.00001
Benzo(a)pyrene	0.00001	mg/L	< 0.00001
Benzo(b&j)fluoranthene	0.00001	mg/L	< 0.00001
Benzo(g,h,i)perylene	0.00001	mg/L	< 0.00001
Benzo(k)fluoranthene	0.00001	mg/L	< 0.00001
Chrysene	0.00001	mg/L	< 0.00001
Dibenz(a,h)anthracene	0.00001	mg/L	< 0.00001
Fluoranthene	0.00001	mg/L	< 0.00001
Fluorene	0.00001	mg/L	< 0.00001
Indeno(1,2,3-cd)pyrene	0.00001	mg/L	< 0.00001
Naphthalene	0.00001	mg/L	< 0.00001
Phenanthrene	0.00001	mg/L	< 0.00001
Pyrene	0.00001	mg/L	< 0.00001
Total PAH*	0.00001	mg/L	< 0.00001
2-Fluorobiphenyl (surr.)	1	%	71
p-Terphenyl-d14 (surr.)	1	%	66
<b>Heavy Metals</b>			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	0.0003
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	0.002
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.004
Zinc (filtered)	0.005	mg/L	0.012



## Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.  
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 24, 2019	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 24, 2019	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 24, 2019	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 24, 2019	
Polycyclic Aromatic Hydrocarbons (Trace level) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water (trace)	Melbourne	Oct 25, 2019	7 Days
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Oct 24, 2019	28 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Oct 24, 2019	7 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Oct 24, 2019	7 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Oct 24, 2019	7 Days



**Company Name:** Arcadis Australia  
**Address:** Lvl 16/580 George Street  
Sydney  
NSW 2000  
  
**Project Name:** MIRVAC - KEMPS CREEK  
**Project ID:** 10035157

**Order No.:**  
**Report #:** 684323  
**Phone:** 02 8907 9000  
**Fax:**

**Received:** Oct 24, 2019 9:26 AM  
**Due:** Oct 25, 2019  
**Priority:** 1 Day  
**Contact Name:** Jack Palma

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Eurofins   mgt Suite B15	Eurofins   mgt Suite B7 (filtered metals/PAH trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	MW03	Oct 23, 2019		Water	S19-Oc37310	X	X
Test Counts						1	1



## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**\*\*NOTE:** pH duplicates are reported as a range NOT as RPD

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

**MPN/100mL:** Most Probable Number of organisms per 100 millilitres

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.3
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NC</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

### QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.



**Quality Control Results**

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
<b>Method Blank</b>							
<b>BTEX</b>							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
<b>Method Blank</b>							
<b>Organochlorine Pesticides</b>							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4,4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>Organophosphorus Pesticides</b>							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	



Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
<b>Method Blank</b>							
<b>Polychlorinated Biphenyls</b>							
Aroclor-1016	mg/L	< 0.005			0.005	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>							
<b>Polycyclic Aromatic Hydrocarbons (Trace level)</b>							
Total PAH*	mg/L	< 0			0.00001	Pass	
<b>Method Blank</b>							
<b>Heavy Metals</b>							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
<b>LCS - % Recovery</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	%	100			70-130	Pass	



Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	78			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>BTEX</b>							
Benzene	%	95			70-130	Pass	
Toluene	%	92			70-130	Pass	
Ethylbenzene	%	90			70-130	Pass	
m&p-Xylenes	%	89			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Xylenes - Total	%	90			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	%	86			70-130	Pass	
TRH C6-C10	%	102			70-130	Pass	
TRH >C10-C16	%	84			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Organochlorine Pesticides</b>							
Chlordanes - Total	%	99			70-130	Pass	
4,4'-DDD	%	103			70-130	Pass	
4,4'-DDE	%	104			70-130	Pass	
4,4'-DDT	%	92			70-130	Pass	
a-BHC	%	88			70-130	Pass	
Aldrin	%	97			70-130	Pass	
b-BHC	%	101			70-130	Pass	
d-BHC	%	93			70-130	Pass	
Dieldrin	%	103			70-130	Pass	
Endosulfan I	%	105			70-130	Pass	
Endosulfan II	%	102			70-130	Pass	
Endosulfan sulphate	%	95			70-130	Pass	
Endrin	%	106			70-130	Pass	
Endrin aldehyde	%	91			70-130	Pass	
Endrin ketone	%	101			70-130	Pass	
g-BHC (Lindane)	%	94			70-130	Pass	
Heptachlor	%	91			70-130	Pass	
Heptachlor epoxide	%	104			70-130	Pass	
Hexachlorobenzene	%	83			70-130	Pass	
Methoxychlor	%	95			70-130	Pass	
Toxaphene	%	101			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Organophosphorus Pesticides</b>							
Diazinon	%	90			70-130	Pass	
Dimethoate	%	87			70-130	Pass	
Ethion	%	115			70-130	Pass	
Fenitrothion	%	90			70-130	Pass	
Methyl parathion	%	90			70-130	Pass	
Mevinphos	%	116			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Polychlorinated Biphenyls</b>							
Aroclor-1260	%	86			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Heavy Metals</b>							
Arsenic (filtered)	%	100			70-130	Pass	
Cadmium (filtered)	%	100			70-130	Pass	
Chromium (filtered)	%	101			70-130	Pass	
Copper (filtered)	%	100			70-130	Pass	



Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)			%	100			70-130	Pass	
Mercury (filtered)			%	93			70-130	Pass	
Nickel (filtered)			%	100			70-130	Pass	
Zinc (filtered)			%	97			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Spike - % Recovery</b>									
<b>Heavy Metals</b>				Result 1					
Arsenic (filtered)	S19-Oc38762	NCP	%	116			70-130	Pass	
Cadmium (filtered)	S19-Oc38762	NCP	%	97			70-130	Pass	
Chromium (filtered)	S19-Oc38762	NCP	%	95			70-130	Pass	
Copper (filtered)	S19-Oc38762	NCP	%	86			70-130	Pass	
Lead (filtered)	S19-Oc38762	NCP	%	92			70-130	Pass	
Mercury (filtered)	S19-Oc38762	NCP	%	100			70-130	Pass	
Nickel (filtered)	S19-Oc38762	NCP	%	83			70-130	Pass	
Zinc (filtered)	S19-Oc38762	NCP	%	84			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Heavy Metals</b>				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Oc37310	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S19-Oc37310	CP	mg/L	0.0003	0.0003	13	30%	Pass	
Chromium (filtered)	S19-Oc37310	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Oc37310	CP	mg/L	0.002	0.002	11	30%	Pass	
Lead (filtered)	S19-Oc37310	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S19-Oc37310	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S19-Oc37310	CP	mg/L	0.004	0.004	3.0	30%	Pass	
Zinc (filtered)	S19-Oc37310	CP	mg/L	0.012	0.011	13	30%	Pass	



## Comments

### Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

### Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

## Authorised By

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
Joseph Edouard	Senior Analyst-Organic (VIC)



**Glenn Jackson**

**General Manager**

Final report - this Report replaces any previously issued Report

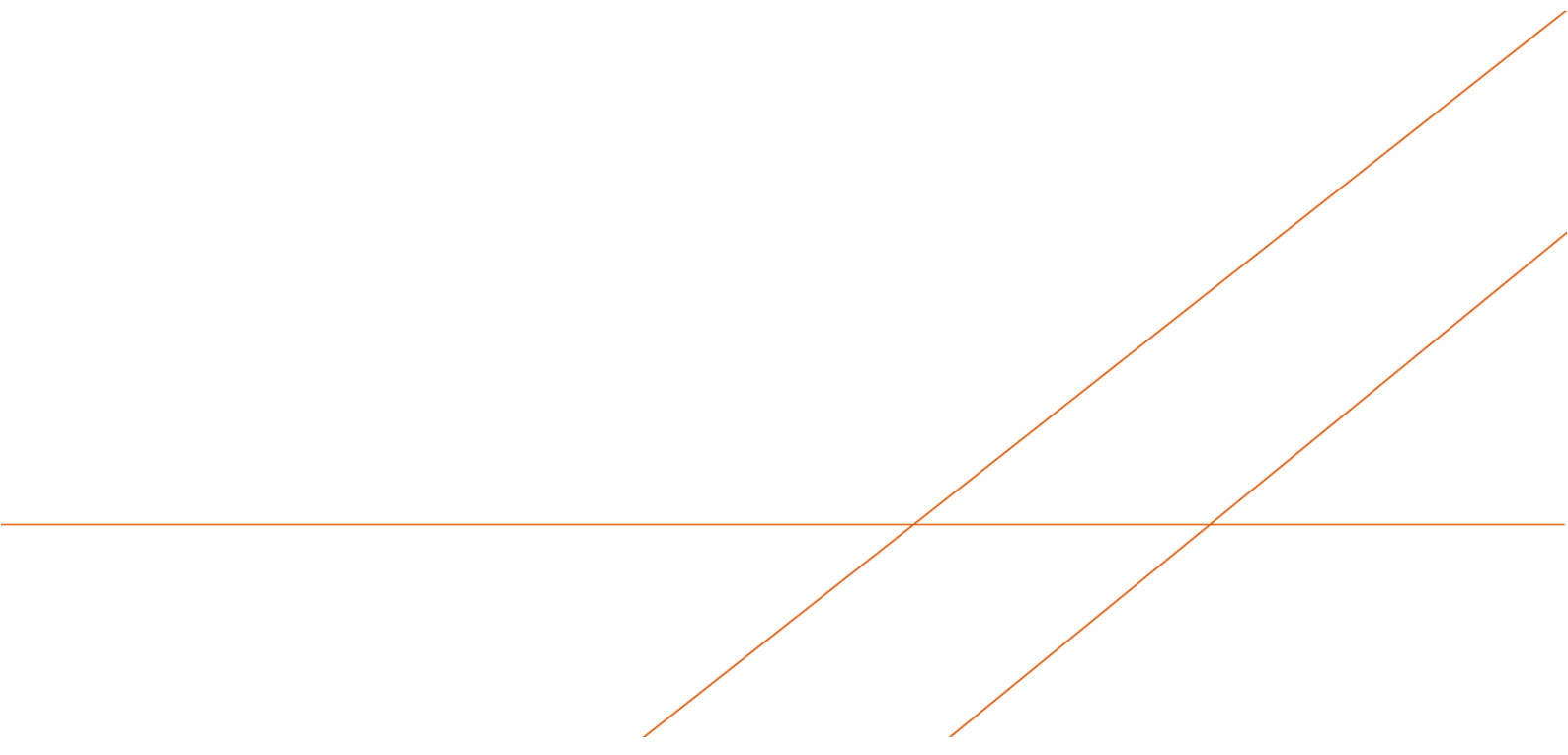
- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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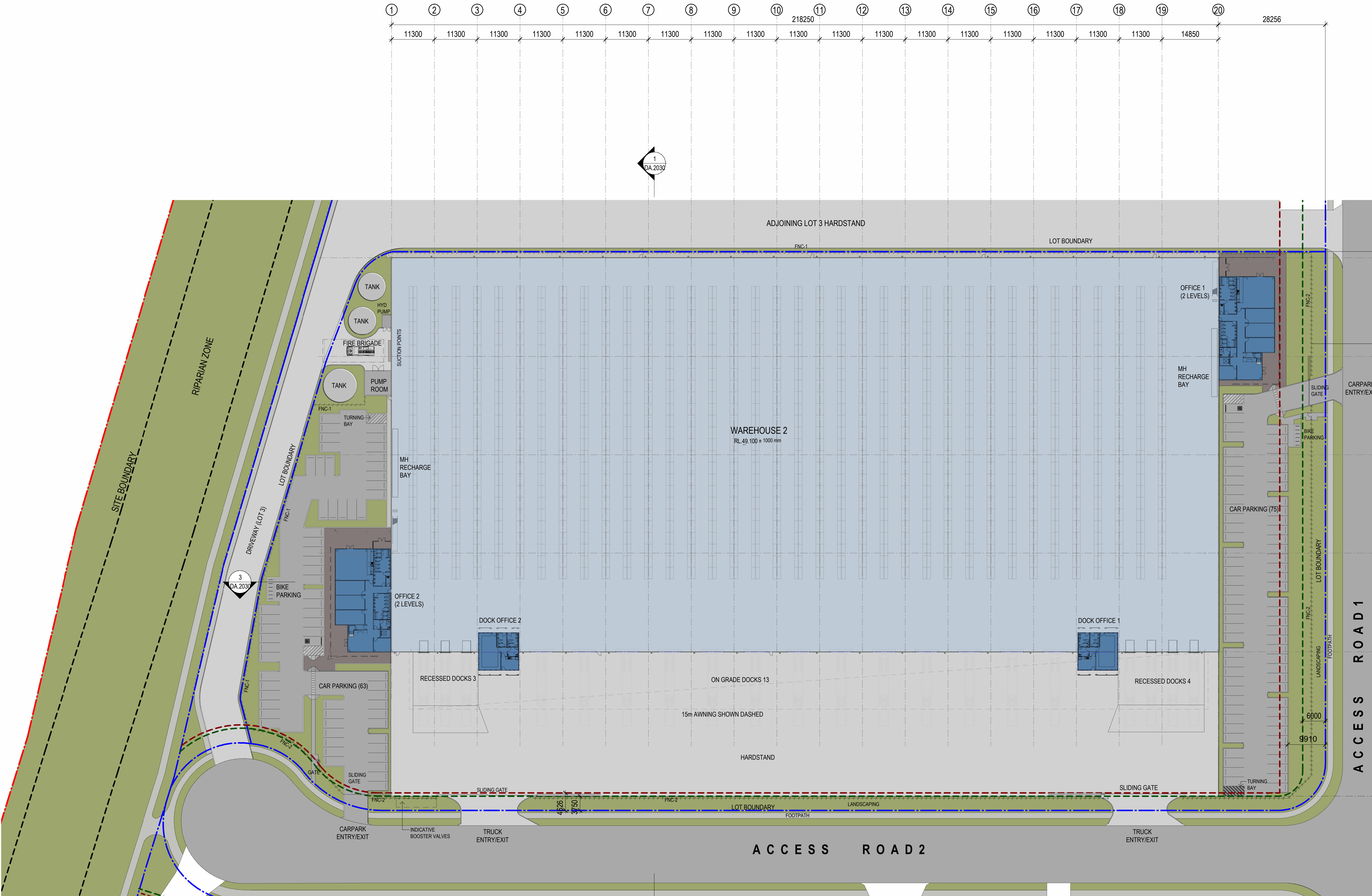


# Attachment B

## Warehouse 2 Drawings Package



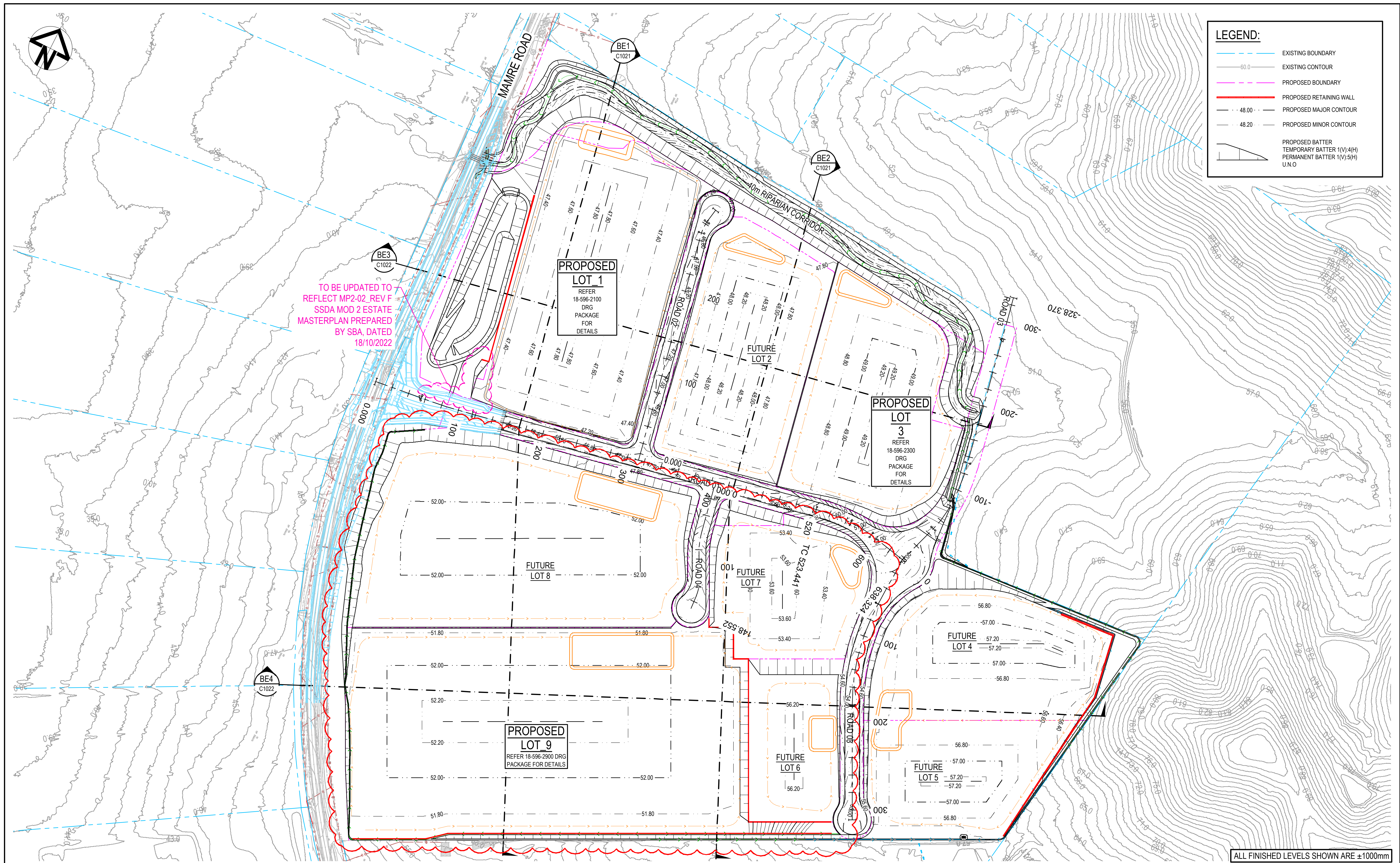
SITE LEGEND	
----	FNC-1 CHAINMESH FENCE
----	FNC-2 PALISADE FENCE
----	FNC-3 POST & RAIL FENCE
---	RETAINING WALL
---	SLIDING GATE
---	GATE
---	PEDESTRIAN GATE
---	TELESCOPIC GATE
---	SITE BOUNDARY
---	LOT BOUNDARY
---	BUILDING SETBACK
---	LANDSCAPE SETBACK
---	ROAD LINES RESERVE



LOT 2 GFA AREA SCHEDULE	
GROSS FLOOR AREA DEFINED AS PER PENRITH LEP 2010	
SITE AREA	40,172 m <sup>2</sup>
OFFICE 1 (2 LEVELS)	750 m <sup>2</sup>
OFFICE 2 (2 LEVELS)	750 m <sup>2</sup>
DOCK OFFICE 1	100 m <sup>2</sup>
DOCK OFFICE 2	100 m <sup>2</sup>
WAREHOUSE	22,595 m <sup>2</sup>
TOTAL GFA	24,295 m <sup>2</sup>
SITE COVERAGE	60 %
CARPARKING SPACES REQUIRED	113
CARPARKING SPACES PROVIDED	138

DA ISSUE





R	ISSUED FOR DEVELOPMENT APPLICATION	31-10-22
Q	ISSUED FOR DEVELOPMENT APPLICATION	24-10-22
P	ISSUED FOR DEVELOPMENT APPLICATION	29-09-22
O	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
Issue	Description	Date

Bar Scales
<div><div></div><div>050100150200m</div></div> <div>1 : 2000 @ A1</div>

THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L

Client

Scales

1:2000

Grid

MGA

Height Datum

AHD

Drawn

KR

Designed

KR

Checked

AT

Approved

AM

Project

ASPECT INDUSTRIAL ESTATE  
MAMRE ROAD,  
KEMPS CREEK  
STAGE 1

Title

BULK EARTHWORKS  
CONTOUR PLAN

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Status

FOR APPROVAL  
NOT TO BE USED FOR CONSTRUCTION

Project - Drawing No.

18-596-C1020

Issue

R

A1





# **Appendix N    Waste Management Plan**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



# Aspect Industrial Estate: Warehouse 2 – Waste Management Plan

A Submission to Mirvac Projects Pty Ltd

14<sup>th</sup> June 2023






### Prepared by

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### Revision History

Rev	Date	Status	Author	Approver	Signature
0.1	14/02/2023	Draft	Louisa McMullan	James Cosgrove	-
0.2	16/02/2023	Review	James Cosgrove	Louisa McMullan	-
0.3	14/06/2023	Final	-	James Cosgrove	

### Disclaimer

This report has been prepared by Mike Ritchie and Associates Pty Ltd – trading as MRA Consulting Group (MRA) – for Mirvac Projects Pty Ltd. MRA (ABN 13 143 273 812) does not accept responsibility for any use of, or reliance on, the contents of this document by any third party.

In the spirit of reconciliation MRA Consulting Group acknowledges the Traditional Custodians of country throughout Australia and their connection to land, sea and community. We pay our respects to Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging.



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## Glossary

Terminology	Definition
AIE	Aspect Industrial Estate
AS	Australian Standard
C&D	Construction and Demolition
DCP	Development Control Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
LGA	Local Government Area
MGB	Mobile Garbage Bin
MRP	Mamre Road Precinct
MSW	Municipal Solid Waste
PCC	Penrith City Council
PDGP	Penrith Development Control Plan 2014
PLEP	Penrith Local Environmental Plan 2010
SEPP	State Environmental Planning Policy
WMP	Waste Management Plan
WSA	Western Sydney Aerotropolis
WSEA	Western Sydney Employment Area
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area



# 1 Introduction

MRA Consulting Group (MRA) was engaged by Mirvac to assist with the provision waste consultancy services related to the proposed State Significant Development Application SSD-58257960 at the Aspect Industrial Estate (AIE) site. The site is located at 804-882 Mamre Road, Kemps Creek and situated in the Penrith City Council Local Government Area (LGA).

This waste management plan responds to the SSD-58257960 SEARs noted below:

Waste Management – including:

- details of the quantities and classification of all waste streams to be generated on site during the development
- details of waste storage, handling and disposal during the development
- details of the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste and Sustainable Materials Strategy 2041.

The Penrith Development Control Plan 2014 (PDCP), including the Mamre Road Precinct DCP 2021 lists the following objectives related to waste management, which have each been addressed in this WMP:

- a) To facilitate sustainable waste management in accordance with ESD principles.
- b) To manage waste in accordance with the 'Waste Hierarchy' to:
  - Avoid producing waste in the first place;
  - Minimise the amount of waste produced;
  - Re-use items as many times as possible to minimise waste;
  - Recycle once re-use options have been exhausted; and
  - Dispose of what is left, as a last resort, in a responsible way to appropriate waste disposal facilities.
- c) To achieve waste minimisation targets as set out in the Waste Avoidance and Resource Recovery Act 2001 and NSW Waste Avoidance and Resource Recovery Strategy (2007) (*superseded by the NSW Waste and Sustainable Materials Strategy 2041*).
- d) To support the circular economy in line with the NSW Circular Economy Policy Statement.



## 2 Background

### 2.1 Description of Proposed Development

Consent for the concept plan at the site was granted for the development of AIE by way of SSD-10448 on 24 May 2022. This proposal involves the preparation of a subsequent stage SSDA for the development of the warehouse building, on Lot 2 of Aspect Industrial Estate, Mamre Road Kemps Creek, for the purposes of 'warehouse and distribution centre'.

Generally, the proposed development on Lot 2 within AIE includes minor on lot earthworks, installation of on-lot infrastructure, and the construction of a warehouse, landscaping, hardstand and car parking. The lot location and built form configuration will align with that intended to be established under the SSD-10448 MOD 2 (approved by DPE 30th November 2022).

Warehouse 2 on AIE Lot 2 is proposed to be used for warehouse and distribution premises 24 hours a day 7 days a week. The design includes:

- a 22,595sqm warehouse space,
- 1,500sqm office,
- 200sqm dock office and
- 138 car parking spaces.

No specific operator has been secured for Warehouse 2 as yet.

### 2.2 Location

The development site is located in the suburb of Kemps Creek, situated in the Penrith City Council area, at 804-882 Mamre Road (Figure 1).

The site is identified as Lots 1-5 DP 1285305. The site was rezoned on the 12th June 2020, from RU2 (according to PLEP) to IN1 (General Industrial) with a small sliver of land zoned E2 (Environmental Conservation) under the under the *State Environmental Planning Policy (Western Sydney Employment Area) 2009* (WSEA SEPP).

Surrounding land zoning is largely IN1 with some smaller areas of E2 (Environmental Conservation) zoning.



Figure 1: Proposed Development site at 788-864 Mamre Road and surrounds



Source: Nearmap, 2022.

Figure 2: AIE - General Site Plan



Source: SBA Architects, 2023.



## 2.3 Waste Management Strategies

Waste management for the site considers better practice, necessary equipment, and integration with other guidance documents including the NSW Waste and Sustainable Materials Strategy 2041 (2021), and National Waste Policy: Less Waste, More Resources (DEE, 2018). The key policy aims that are considered are:

- Avoidance (to prevent the generation of waste);
- Reduce the amount of waste (including hazardous waste) for disposal;
- Manage waste as a resource; and
- Ensure that waste treatment, disposal, recovery and re-use are undertaken in a safe, scientific and environmentally sound manner.

The site is subject to the Penrith Development Control Plan (PDCP) and the Mamre Road Precinct DCP (2021).

## 2.4 Assumptions

This report is a WMP, forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the final design set for the development plan from the project architect, SBA Architects (13 June 2023);
- Waste generation volumes are based existing waste data provided by the future tenant, as well as consideration of waste generation rates outlined in NSW EPA *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*, and waste management equipment and infrastructure recommendations have been made according to estimated waste generation and PDCP waste guideline suggestions; and
- This WMP is a living document and therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology.



## 3 Construction and Demolition

Construction and demolition activities at the site will generate a range of wastes, commonly referred to as Construction and Demolition (C&D) waste. Throughout the development process, all materials generated on site will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or unsuitable for reuse or resource recovery. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

Waste storage of C&D waste during construction and demolition operations will involve stockpiling of excavated and reusable material, and placement of skip bins for separation of mixed C&D materials for recycling. A skip bin for residual waste or contaminated material will also be made available at the site for disposal where necessary. Skip bins may require alternative placement during construction operations as space becomes restricted, to facilitate safe and efficient storage of materials. Skip bins and stockpiles should be placed within property boundaries to avoid illegal dumping.

The quantities, densities and bulking factors for waste and recyclables will differ on site based on actual materials and handling practices employed. Demolition and excavation waste estimations have been addressed separately to construction waste estimations for the proposed development, to better inform resource recovery opportunities for waste material generated during each stage of the development.

C&D waste storage areas will be kept clear and tidy to maintain vehicular access, encourage separation of waste materials and for WHS reasons. Site waste management principles and facilities will be a focus for the induction of all construction or other contractors working at the site.

### 3.1 Demolition Waste

Demolition has been addressed for the site as part of the Stage 1 State Significant Development Application (SSDA). No changes to demolition and site preparation works are proposed through this application.

### 3.2 Construction Waste

Table 1 below describes the estimated waste quantities through the construction phases of Warehouse 2. The table highlights appropriate management methods for material types expected to be generated through construction.

All construction waste materials will be appropriately reused, recycled or disposed of where necessary (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to landfill if contaminated).



**Table 1: Construction waste generation estimates**

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Excavation	Minor	✓	✓	✓	Onsite: Reuse for fill and levelling. Offsite: Removed from site for reuse as recycled fill material or soil. Disposal: Removal of any contaminated material for appropriate treatment or disposal.
Concrete	1,000– 1,800m <sup>3</sup>	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D Processor: crushing and recycling for recovered products.
Bricks/pavers	10-20m <sup>3</sup>	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D Processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Timber	<10m <sup>3</sup>	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse. C&D Processor: recovery and recycling for recovered product (e.g. mulch) or organics processing.
Metal (ferrous and non-ferrous)	10-20m <sup>3</sup>	-	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse. C&D Processor: metals recovery and recycling.
Plasterboard	20 - 40m <sup>3</sup>	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery.



Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
					Reuse/recycling: surplus and offcut material returned to manufacturer for reuse where possible or sent to a suitable recycling facility for processing and recovery.
Glass	<10m <sup>3</sup>	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. Glass recycler: recovery and recycling.
Fixtures and fittings	Minor	✓	✓	-	On site: reuse wherever possible or return to manufacturer. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. C&D Processor: recovery and recycling.
Floor coverings	40 - 60m <sup>3</sup>	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. C&D Processor: recovery and recycling.
Packaging (used pallets, pallet wrap)	1,000-2,000m <sup>3</sup>	✓	✓	-	Reuse: returned to manufacturer for reuse where possible. On site: to be separated wherever possible to enhance resource recovery. C&D processor: recycling of timbers and plastic.
Garden organics	Minor	✓	✓	-	Minimal garden organic waste from landscaping.



Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
					Organics Processor: Storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment.
Recyclable Containers	<5m <sup>3</sup>	-	✓	-	Commercial contractor: recycling.
Paper/ cardboard	20-50m <sup>3</sup>	-	✓	-	Commercial contractor: recycling of fibres with segregation of paper, cardboard or other streams.
Residual waste	50m <sup>3</sup>	-	-	✓	Separate recyclables where possible and disposal at principal licensed waste facility.
Hazardous/ special waste (e.g. spills and contaminated wastes)	Unknown	-	-	✓	Appropriate management methods specified by a licensed asbestos and site hygienist should hazardous or special waste be found at the site.



### 3.3 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 2).

**Table 2: Waste service contractors and facilities**

Role	Details
<b>Recommended Waste Collection Contractor</b>	<p>The following are local skip bin operators for consideration in the management of excavation and construction waste for the site:</p> <ul style="list-style-type: none"> <li>• Transwaste Skips;</li> <li>• Orange Skip Bins;</li> <li>• Phillips Skip Bins;</li> <li>• BinsExpress Skip Bins;</li> <li>• Pro Skips; or</li> </ul> <p>Or another supplier as elected by the building contractor.</p>
<b>Principal Off-Site Recycler</b>	<p>The following are local C&amp;D processing facilities for consideration in the management of C&amp;D waste generated at the site:</p> <ul style="list-style-type: none"> <li>• Bingo Eastern Creek;</li> <li>• Cleanaway Kemps Creek Resource Recovery Park;</li> <li>• Cleanaway St Marys Industrial and Technical Waste Services; or</li> </ul> <p>another appropriate facility as elected by the waste management contractor.</p>
<b>Principal Licensed Landfill Site</b>	<p>Bingo Eastern Creek, or other appropriate facility as elected by the waste management contractor.</p>

### 3.4 Site documentation

This WMP will be retained on-site during the demolition, excavation and construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers).

Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder.

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date;
- Description of waste and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name.

Waste management documentation, the logbook and associated dockets and receipts must be made available for inspection by an authorised Council Officer at any time during site works.



## 4 Operational Waste Management

Ongoing waste management requirements for the subject facility will result from the daily operation of the on-site activity, being generally distribution warehouse and ancillary office use.

### 4.1 Estimated Waste and Recycling Generation

#### 4.2 Warehouse 2

Warehouse 2 is a speculative build and therefore no specific tenant has been identified for the site. Waste generation rates for general warehouse and office uses have been derived from the PDCP and NSW EPA guidelines where the PDCP does not provide specific reference to a use (Table 3). Estimated generation volumes are based on a seven – day per week operation.

**Table 3: Model waste generation rates according to PDCP**

Premises type/use	Waste generation rate (L/100m <sup>2</sup> /day)	Recycling generation rate (L/100m <sup>2</sup> /day)	Weekly Waste Volume (L)	Weekly Recycling Volume (L)
Office (1,700m <sup>2</sup> )	10	10	1,190	1,190
Warehouse (22,595m <sup>2</sup> )	10	10	15,817	15,817
<b>Weekly totals</b>			<b>17,007L</b>	<b>17,007L</b>

#### 4.3 Waste Storage Requirements

Waste storage requirements have been derived from expected weekly waste volumes described in Table 3. A separate waste management area will be allocated for each Warehouse tenancy within the industrial site and has been denoted on plans in Appendix A. Storage areas will be sized and located to accommodate necessary waste storage bins and other associated waste management equipment according to estimated site waste generation rates outlined earlier in Section 4.2.

Individual tenancies will be responsible for retaining smaller internal bins for each relevant waste stream which can then be emptied into larger bins for collection as necessary. Internal bins should be retained in the offices and warehouse floor and any other areas where waste will be generated in large quantities without direct access to the building waste storage area. Staff will be responsible for transferring waste from each unit to the recycling collection bins and general waste bins or compactor for each warehouse.

Table 4 below outlines the number and type of waste management containers that may be suitable for the proposed industrial uses, including frequency of waste collection by a private waste contractor.

**Table 4: Industrial unit waste storage and collection options**

Area	Waste Stream	Bin Type / Collection Frequency
<b>Warehouse 2</b>	General waste	1 x 4.5m <sup>3</sup> / collected four times per week
	Paper/Cardboard Recycling	1 x 4.5m <sup>3</sup> / collected twice per week
	Comingled Recycling	1 x 4.5m <sup>3</sup> / collected twice per week

*\*Paper and cardboard recycling volumes have been estimated as representing approximately 50% of the total recycling waste stream, as this material can be further source separated to increase recycling rates and recovery targets.*



### Front-Lift Bins collected on a regular basis

Site management may elect to incorporate regular collection of bulk waste (front lift) bins for the management of general waste and recycling onsite.

These are calculated assumptions and actual requirements will be dependent on the waste generated by the associated industrial tenancies once operation has commenced. With the presence of food in the waste, more frequent collections may be required to prevent odour.

### Waste Compaction Units

If required, space is available external to the warehouse which can be allocated for a waste compactor. The waste compactor may be a hook-lift or Roll-On Roll-Off (RORO) unit which is collected at a schedule agreed with the elected private waste contractor. This type of compactor has a capacity of 10,000L and a compaction ratio of 5:1. A fully loaded and compacted unit would therefore have a capacity of 50,000L. A compactor of this size typically has a footprint of 9.2m<sup>2</sup> (see Appendix B for further details).

Large volumes of recycling waste are expected to be generated as a result of onsite warehouse activity. Equipment to reduce volumes of cardboard and plastic waste will allow the number of bins required onsite to be reduced.

### Cardboard Baler

A paper and cardboard baler may be appropriate for use in each of the industrial units as this material is typically bulky and easily separated from other recycling streams. Paper and cardboard is also valuable as a separated commodity and may be able to be collected for free or sold for a profit, rather than incurring a fee for collection. Further information and examples of commercial cardboard balers is included in Appendix B.

## 4.4 Waste Management Equipment

A range of bins may be utilised at the site for the management of different waste streams. It is expected that the site will make use of mobile bins and bulk bins, the specifications of which are outlined in Table 5 and Table 6 according to the NSW EPA (2019) *Guidelines for Waste Management in New Developments*.

**Table 5: Mobile garbage bin specifications**

Bin Capacity	140L	240L	360L	660L	1,100L
Height (mm)	1,065	1,080	1,100	1,250	1,470
Depth (mm)	540	735	885	850	1,245
Width (mm)	500	580	600	1,370	1,370
Footprint (m <sup>2</sup> )	0.27	0.43	0.53	1.16	1.71

**Table 6: Bulk bin dimensions**

Bin Capacity	1.5m <sup>3</sup>	2m <sup>3</sup>	3m <sup>3</sup>	4.5m <sup>3</sup>	6m <sup>3</sup>
Height (mm)	910	1,250	1,225	1,570	1,650
Depth (mm)	905	935	1,505	1,605	1,850
Width (mm)	1,800	1,800	1,800	1,800	2,000
Footprint (m <sup>2</sup> )	1.63	1.68	2.71	2.89	3.70

All bins will be in accordance with AS4123.7-2006 mobile waste containers – colour, markings, and designation requirements. Private bins shall be labelled to identify the waste generator and site address.



Bins will be serviced by the contracted WSP according to the agreed collection schedule upon commencement of operation.

#### **4.5 Bulky Waste Management**

Site tenancies are expected to generate some bulky waste items (fit-out, whitegoods, etc), including items that would be returned to suppliers from deliveries (such as pallets, crates, etc). Additional space for the storage of bulky waste items will be available for each tenancy, nearby the bin storage areas.

Bulky waste will be serviced as required and can be organised between tenants and their waste contractor(s). Bulky waste collection vehicles will be similar in size to those that will provide waste collection for general waste and recycling and therefore, no additional access considerations are likely to be necessary for bulky waste collection access.



## 5 Site Waste Management Systems

### 5.1 Waste Management System Summary

The various waste streams generated on-site are summarised as follows:

- **Waste:** General waste shall be placed within a tied plastic bag prior to transferring into the general waste bin or waste compactor. Receptacles will be situated in each designated waste management and storage area for individual industrial units;
- **Commingled recyclables:** All recyclables will be stored in commingled bins (including paper, cardboard, mixed plastic, glass, aluminium, steel). All recyclables should be decanted loose (not bagged) with containers un-capped, drained and rinsed prior to disposal into the recycling bin.
- **Paper and cardboard:** Based on *BinTrim: Reducing business waste (NSW EPA, 2017)*, Paper and cardboard can represent more than 75% of all recyclables generated by various commercial and industrial uses. It may be suitable for industrial unit tenancies to incorporate a separate paper and cardboard collection or cardboard baler to reduce waste collection costs and improve resource recovery potential. All cardboard should be flattened prior to placement into a cardboard bin or baler.
- **Film Plastic:** Some industrial tenancy uses may produce a significant amount of plastic film waste which can be managed with a separate collection. A 1m<sup>3</sup> bag and frame setups are considered appropriate for film plastic and can be collected by a range of major waste contractors and specialist service providers.
- **Timber Waste:** Pallets (treated and untreated), sawdust and offcuts are common manufacturing waste outputs. Introducing a separate timber organics waste service can reduce size of general waste bin and increase business recycling.
- **Garden Waste:** Minimal garden waste is expected to be generated on site. Any garden waste generated through the maintenance of landscaped areas around the site would be managed and removed by the landscape management contractor.
- **Food Waste:** Management methods such as composting or vermiculture are considered impractical due to the nature of the site. Alternative methods such as a separate food organics collection may be applicable for sites generating a substantial amount of food waste.
- **Other (Problem) Waste:** The disposal of hard, bulky, liquid or potentially hazardous wastes shall be organised between industrial tenants and their respective waste contractors as necessary. Collection would need to be coordinated between tenancies and their contracted WSP.

### 5.2 Collection Method and Loading Areas

Based on the anticipated waste generation rates for the site, a private contractor will be required to collect waste generated at the site. Tenants will be responsible for engaging and maintaining a waste collection contract for the regular servicing of waste generated at each industrial unit and other relevant uses. Mirvac will include general waste management details in lease agreements according to this waste management plan.

The recommended arrangements access and collection servicing for the site are as follows:

- Entrance to the site via Mamre Road;
- Collection of general waste and recycling front lift bins will occur directly from each building waste storage area;
- Collection and replacement of waste compactors (where required):
  - Drop off and collection of waste compactors will occur outside of regular business hours to minimise impact on staff and visitors to the site, as well as local residents (timings to be determined in service contract);
  - The contractor will initially drop off an empty waste compactor to replace the full one (one for each industrial unit);
  - Site management is to indicate the correct waste compactor receiving general waste, through the form of temporary signage and restriction of access to full compactor;
  - The contractor will return to collect the full waste compactors in a timely manner.



- Steel front lift bins shall be collected by a front-lift vehicle. Due to their weight, steel bin will be stored in a position that minimises the need to shift bins to/from the collection vehicle. Typical front-lift vehicle dimensions are as follows:
  - 11.5m length,
  - 6m operational height, and
  - 30 tonne gross vehicle mass.
- Any plastic wheelie bins (240L - 1100L) shall be collected by a rear-lift vehicle (similar vehicle to collect cardboard, e-waste and film plastic bales) with typical dimensions as follows:
  - 8.8 – 11.5m length,
  - Maximum 4m operational height, and
  - 24 tonne gross vehicle mass.
- Identifiable areas will be required where users, visitors and WSP staff can recognise and avoid any risk associated with moving vehicles, and bin moving and handling;
- Exit from the site will be via the exit point back onto Mamre Road.

**Note:** Compaction of refuse and the breaking up of bottles will not occur in the vehicle while the collection vehicle is standing stationary at or near the site.

Table 7 below outlines relevant requirements and specifications related to the use of collection points and loading areas.

**Table 7: Collection points and loading areas requirements and specifications**

Component	Requirement	Specification
Collection point	Allow safe waste collection and loading operations	<ul style="list-style-type: none"> <li>- Adequate clearance and manoeuvring space;</li> <li>- Sufficient clearance for the safe handling of materials and equipment; and</li> <li>- Loading bays do not impede upon traffic and pedestrian safety.</li> </ul>
Vehicle loading space	Space for adequate lift clearance	<ul style="list-style-type: none"> <li>- Adequate operational clearance for bin lifting mechanisms.</li> </ul>
Operating times	Appropriate collection times to limit noise and traffic disturbance	<ul style="list-style-type: none"> <li>- Collection times will be arranged during off-peak traffic times to ensure minimal disturbance to site users and general traffic flows associated with the use of the site.</li> </ul>

### 5.3 Site Waste Management Responsibilities

Site tenancy users will be responsible for general operation of waste management systems, maintaining waste management contracts, maintaining waste storage areas and associated waste contamination reduction.

Should any issues impacting on the operational efficiency, safety and suitability of waste management be identified, site users should inform their waste contractor to revise waste management procedures as necessary.

Site tenants will be responsible for the following with regards to waste management:

- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information to users outlining:
  - Waste management system and use/location of associated equipment,
  - Sorting methods for recycled waste, awareness of waste management procedures for waste minimisation, maximising recovery and reducing contamination of recyclables,
  - Improving facility management results (lessen equipment damage, reduce littering, and achieve cleanliness).
- Making information available to users, site staff and visitors about waste management procedures;
- Ensuring correct signage is installed and maintained in waste storage and service areas;



- Encouraging waste avoidance and achievement of resource recovery targets;
- Providing operational management for delivery of waste objectives;
- Holding a valid and current contract with licensed collector(s) for waste and recycling collection;
- Ensuring waste service providers access the site appropriately;
- Ensuring timing of waste collections does not clash with peak traffic periods in relation to general operation of the site tenancies;
- Organising waste, recycling and bulky pick-ups by elected contractor for the site (if not directly managed by site users);
- Organising, maintaining and cleaning the waste storage and service areas;
- Using contracts to define the allocation of responsibilities with cleaners and users;
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry; and
- Ensuring all tenants do not prevent or impede correct access of the site for waste collection.
- Holding a valid and current contract with a licensed collector for any specialty waste collections and disposal;
- Allocating space for a dedicated and enclosed waste and recycling storage area for intermediate storage before disposal to designated waste storage areas;
- Disposing of waste and recycling at their designated building's waste storage area;
- Maintaining general cleanliness when using waste storage areas to prevent the occurrence of odour, vermin or amenity issues;
- Notify site management of waste storage use and efficiency should additional bins or services be required (that are covered under general waste arrangement as outlined in lease agreements);
- Notify site management hazards or damages related to the building waste storage areas, including but not limited to:
  - Damaged bins,
  - Illegally dumped items,
  - Apparent miss-use of waste storage areas (such as vandalism, contamination, etc), and
  - Odour, vermin or amenity issues.

## 5.4 Waste Storage and Recycling Areas

The waste storage areas provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. Waste storage areas must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties. The waste storage areas are to be constructed to improve amenity, minimise odour, protect surrounding areas and promote user safety. Construction must conform to Building Code of Australia, Australian Standards and local laws. Specifications include:

- Sited away from areas of high pedestrian traffic to minimise odour and amenity impacts;
- Enclosed to minimise exposure and reduce risk of odour and amenity impacts;
- Signage for safety and waste bin identification;
- Safety precautions, staff training and signage for plant;
- Noise attenuation for waste management and waste storage areas that limits effects to residents from compactor, bin transfer and collection vehicle noise;
- Floors constructed of concrete or other approved solid, impervious material that can be cleaned easily;
- Adequate supply of water with hose cock as close as practicable to the doorway or storage area;
- Ventilation in accordance with Australian Standards AS1668; and
- Security and lighting.

Additional measures shall be put in place for the wash bay, and Area B which will be entirely enclosed:

- Light colour finish for all room surfaces;



- Smooth, even surface covered with vertical wall and plinth faces;
- Grading and draining to an approved drainage fitting located in the room;
- Doorway ramp (if not level);
- Close fitting and self-closing door; and
- Suitable construction including limited entry paths to prevent vermin.

## 5.5 Signage

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia 1994).

Signage will be designed to consider language and non-English speaking backgrounds, vision impairment and accessibility. Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in each waste storage area indicating:

- Garbage is to be bagged and placed into waste bins;
- Details regarding acceptable recyclables and the location of their respective receptacles;
- Commingled recyclables are to be disposed of loose (not bagged);
- No standing and danger warnings applying to the area surrounding waste storage and collection areas;
- Contact details for arranging the disposal of bulky items;
- Information on keeping the areas tidy.

## 5.6 Prevention of Pollution and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), site tenants shall be responsible for the following:

- Maintenance of open and common site areas;
- Ensuring waste storage areas are well maintained and kept clean, including:
  - Prevention of overflow,
  - Keeping lids closed, and
  - Checking for bung leaks and damage bins.
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, fluorescent tubes, smoke detectors);
- Acting to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

The above will minimise the dispersion of site litter, prevent stormwater pollution and thus, reduce the risk of impact to local amenity and the environment.

## 5.7 Waste Management Plan Revisions

For any relevant future Council requests, changes in legal requirements, changes in the development's needs and/or waste patterns (waste composition, volume, or distribution), or to address unforeseen operational issues, the operator shall be responsible for coordinating the necessary Waste Management Plan revisions, including (where required):

- A waste audit and new waste strategy;
- Revision of the waste system (bin size/quantity/streams/collection frequency);
- Re-education of users/staff;
- Revision of the services provided by the waste collector(s); and
- Any necessary statutory approval(s).



## 6 Access Requirements and Limitations

### 6.1 Best practice requirements

The following best practice methods shall be incorporated where relevant/practicable to ensure site waste management is completed safely and effectively:

- Tenancies shall ensure that bins are not overfilled or overloaded.
- Waste incineration devices are not permitted, and any offsite waste treatment and disposal shall be carried-out in accordance with regulatory requirements.
- For bin traffic areas, should any ramp gradients be present, bin weight, and/or distance can affect the ease/safety of bin transfers. In the case of a potential safety concern, use of a suitable tug or cart will be considered.
- Site tenants and contracted WSPs shall observe all relevant WHS legislation, regulations, and guidelines. The relevant entity shall define their tasks.
- All staff/contractors should be provided with equipment manuals, training, health and safety procedures, risk assessments, and adequate personal protective equipment (PPE) to control/minimise risks/hazards associated with all waste management activities.

### 6.2 Limitations

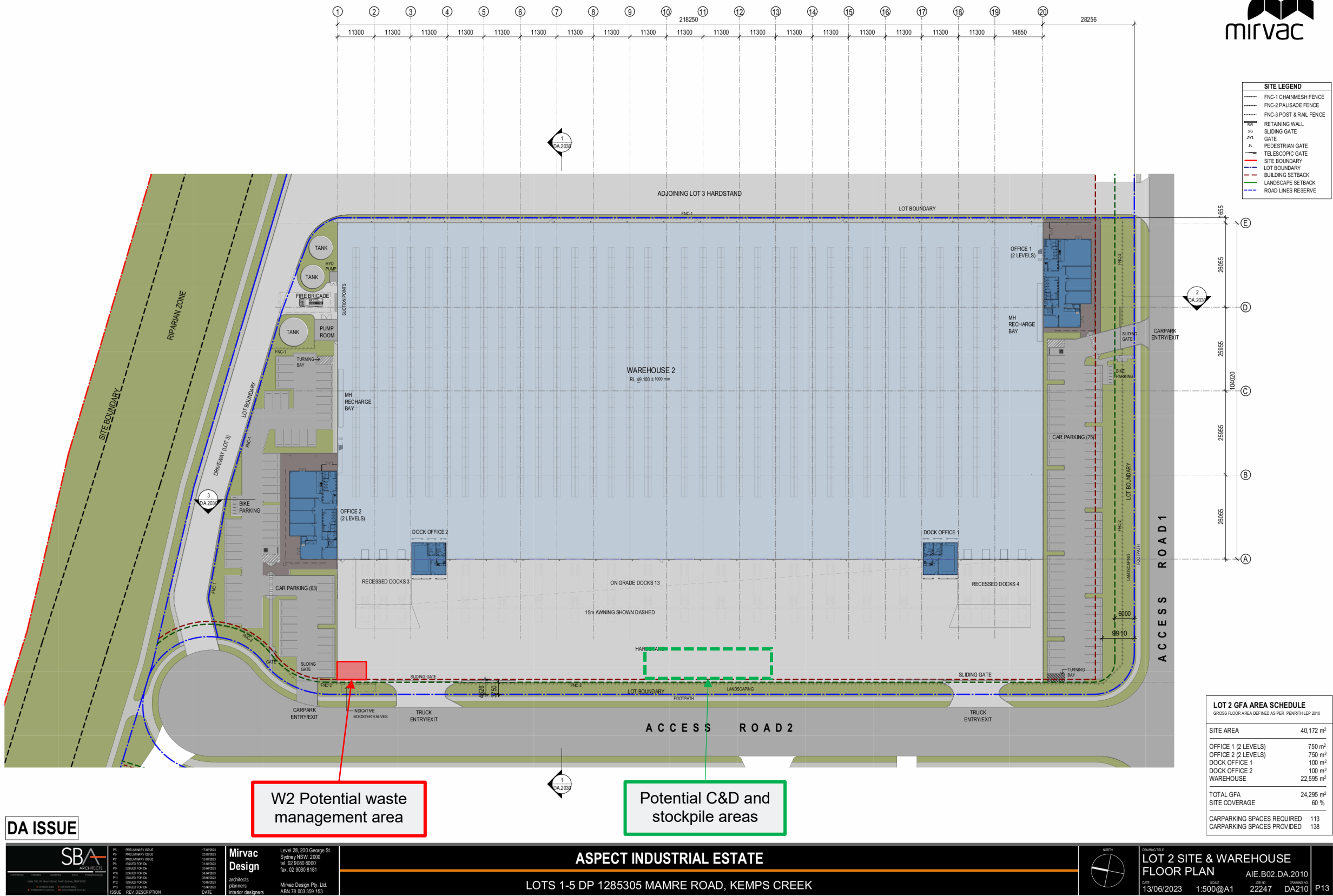
This report is based on the following conditions:

- Waste generation figures outlined in the demolition and construction sections are approximate only and should be confirmed by building and demolition contractors through demolition and construction operations.
- The figures presented in this report are estimates only. The actual amount of waste will depend on the development's occupancy type, occupancy rate, waste generation profile, the user's disposition toward waste and recycling and the overall approach to waste management maintained at the site. Tenancies will adjust their waste management needs based on actual waste and recycling volumes experienced through regular operation (if the actual volumes of the streams are greater than estimated, then the number of bins and/or the number of collections per week shall be increased).
- This report shall not be used to determine/forecast operational costs, or to prepare feasibility studies, or to document operational/safety procedures.











## Appendix B Waste Compaction and Baling Equipment Examples

### Hook-Lift Compactor

A compactor unit will need to be supplied with 3 phase power. Please refer to the below specifications for a compactor unit suitable for this site:



#### DIMENSIONS

Width	1665mm
Length	5320mm
Weight	4.5T
Feed Opening	1500 x 2100
Swept Volume	2.3m3

#### PERFORMANCE

Power Supply	415V 3-phase
Motor	11kW
Cycle Time	55-86 secs
Compaction Force	38T



## Baling Equipment

The table below outlines some equipment suppliers that can offer balers. Please note the list is not exhaustive.

**Table 8: Baling Equipment Details**

Brand	Model	Dimensions
Autobaler	LS 150 (single chamber)	H: 3100mm W: 1000mm D: 1250mm Bale weight: <100kg
	Ti 350 - Ti 500	H: 2025mm to 2030mm W: 2250mm D: 1470mm to 1850mm Bale weight: between 300kg to 550kg
Miltek	H500 - H600	H: 3100mm to 2170mm W: 1600mm to 1890mm D: 1300mm to 1400mm Bale weight: between 350kg to 500kg
WasTech	B50	H: 3180mm W: 1860mm D: 1055mm Bale weight: between 400kg to 500kg



## Appendix C Standard Signage

### Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW Office of Environment and Heritage (NSW OEH 2008b).

Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

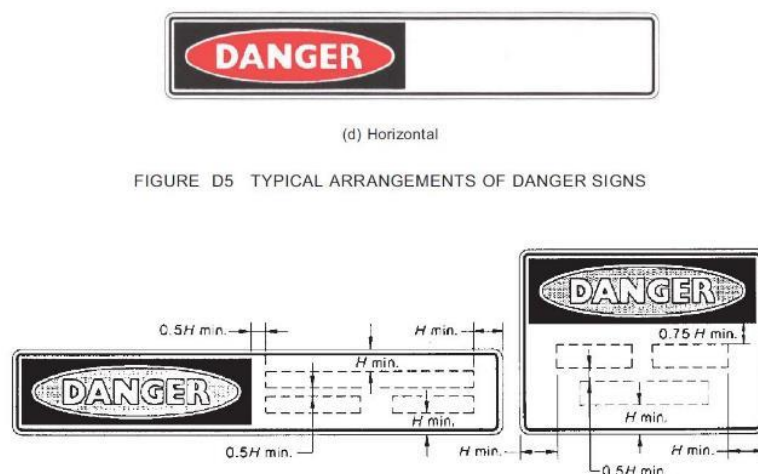
Figure 3: Examples of standard signage for bin uses



### Safety Signs

The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.

Figure 4: Example and layout of safety signage





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# Appendix O    Vegetation Management Plan

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



A stylized topographic map with green contour lines is positioned on the left side of the page, extending from the top left towards the bottom left.

# Aspect Industrial Estate- Flora and Fauna Management Plan

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**Mirvac Projects Pty Ltd**

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## DOCUMENT TRACKING

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This document has been prepared by Eco Logical Australia Pty Ltd with support from Mirvac Projects Pty Ltd

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Template 2.8.1



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## Abbreviations

Abbreviation	Description
All	All Site Personnel
BC Act	<i>Biodiversity Conservation Act 2016</i>
DPIE	Department of Planning, Industry and Environment
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
FFMP	Flora and Fauna Management Plan
PM	Project Manager
SE	Site Ecologist
SS	Site Supervisor
SSD	State Significant Development



# 1. Introduction

## 1.1 Consent

SSD-10448 has received the Response to Submissions (RTS) from the Department of Planning, Industry and Environment (DPIE) for the development of the Aspect Industrial Estate (Lots 54 to 58 DP 259135) (Figure 1).

The preparation of a Flora and Fauna Management Plan (FFMP) has been requested by Penrith City Council. This FFMP has been prepared for the associated construction works for the proposed development, such that it:

- identifies measures to protect the environment
- defines roles and responsibilities during proposed works
- identifies any external approvals needed
- identifies consultation and communication needs
- describes the monitoring and reporting regime.

The FFMP has been prepared based on the findings of the Biodiversity Development Assessment Report (BDAR) (ELA 2020) and in accordance with the NSW Department of Planning, Industry and Environment (DPIE) *Code of Practice for Injured, Sick and Orphaned Protected Fauna 2011*. The FFMP will be revised and necessary approvals sought if the scope of works change.



## 1.2 Project Background

### 1.2.1 Biodiversity Values

#### 1.2.1.1 Vegetation Communities

Two vegetation communities have been identified within the development site, which are both listed Threatened Ecological Communities (TECs) under both the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The vegetation communities present, associated Plant Community Type (PCT) and conservation listing are outlined in Table 1 below and shown in Figure 1.

**Table 1: Vegetation communities within the development site**

Vegetation Community	PCT ID	PCT Name	BC Act Listing	EPBC Act Listing	Area (ha)
River-flat Eucalypt Forest	835	Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats	Endangered	Critically Endangered	0.29
Cumberland Plain Woodland	849	Grey Box – Forest Red Gum grassy woodland on flats	Critically Endangered	Critically Endangered	0.84

#### 1.2.1.2 Threatened Species

Potential habitat for a range of threatened species was identified within the development site, as outlined in Table 2.

**Table 2: Potential threatened species habitat within the development site**

Species	Common Name	BC listing	EPBC Listing	Potential Habitat within Development Site
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	E	E	Marginal foraging habitat present within the development site.
<i>Circus assimilis</i>	Spotted Harrier	V	-	Marginal foraging habitat present within the development site.
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	E	Marginal foraging habitat present within the development site.
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	V	Marginal foraging habitat present within the development site.
<i>Grevillea juniperina</i> subsp. <i>juniperina</i>	Juniper-leaved Grevillea	V	-	Marginal habitat present within the development site.
<i>Haliaeetus leucogaster</i>	White-bellied Sea Eagle (Foraging)	V	-	Dams present within development site, which may present foraging habitat
<i>Hieraaetus morphnoides</i>	Little Eagle (Foraging)	V	-	Marginal foraging habitat present within the development site.
<i>Ixobrychus flavicollis</i>	Black Bittern	E	CE	One record within a 5 km radius of the development site, and dams present which represent marginal foraging habitat



Species	Common Name	BC listing	EPBC Listing	Potential Habitat within Development Site
<i>Lathamus discolor</i>	Swift Parrot (Foraging)	V	-	Marginal foraging habitat present within the development site.
<i>Lophoictinia isura</i>	Square-tailed Kite (Foraging)	V	-	Marginal foraging habitat present within the development site.
<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i> - endangered population	-	E2	-	Marginal habitat present within the development site.
<i>Marsdenia viridiflora</i> R. Br. subsp. <i>viridiflora</i> population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas	-	E	-	Marginal habitat present within the development site.
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	V	-	Marginal foraging habitat present within the development site.
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat (foraging)	V	-	Marginal foraging habitat present within the development site.
<i>Miniopterus australis</i>	Little Bent-winged Bat (Foraging)	V	-	Marginal foraging habitat present within the development site.
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat (Foraging)	V	-	Marginal foraging habitat present within the development site.
<i>Myotis macropus</i>	Southern Myotis	V	-	Potential roosting habitat present within the development site. (hollow-bearing trees).
<i>Neophema pulchella</i>	Turquoise Parrot	V	-	Marginal foraging habitat present within the development site.
<i>Ninox strenua</i>	Powerful Owl (Foraging)	V	-	Marginal foraging habitat present within the development site.
<i>Persicaria elatior</i>	Tall Knotweed	E	V	Marginal habitat present within the development site.
<i>Petroica boodang</i>	Scarlet Robin	V	-	Marginal foraging habitat present within the development site.
<i>Petroica phoenicea</i>	Flame Robin	V	-	Marginal foraging habitat present within the development site.
<i>Pimelea spicata</i>	Spiked Rice-flower	E	V	Suitable habitat not present due to the highly degraded nature and maintained understorey of the development site. However, a conservative approach was taken and this species was included in the targeted survey for the BDAR. No individuals were recorded.



Species	Common Name	BC listing	EPBC Listing	Potential Habitat within Development Site
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox (Foraging)	V	V	Marginal foraging habitat present within the development site.
<i>Pultenaea pedunculata</i>	Matted Bush-pea	V	V	Suitable habitat not present due to the highly degraded nature and maintained understorey of the development site. However, a conservative approach was taken and this species was included in the targeted survey for the BDAR. No individuals were recorded.
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	V	-	Marginal foraging habitat present within the development site.
<i>Stagonopleura guttata</i>	Diamond Firetail	V	-	Marginal foraging habitat present within the development site.
<i>Tyto novaehollandiae</i>	Masked Owl (Foraging)	V	-	Marginal foraging habitat present within the development site.

Only one threatened fauna species, *Myotis macropus* (Southern Myotis) was identified within the development site.



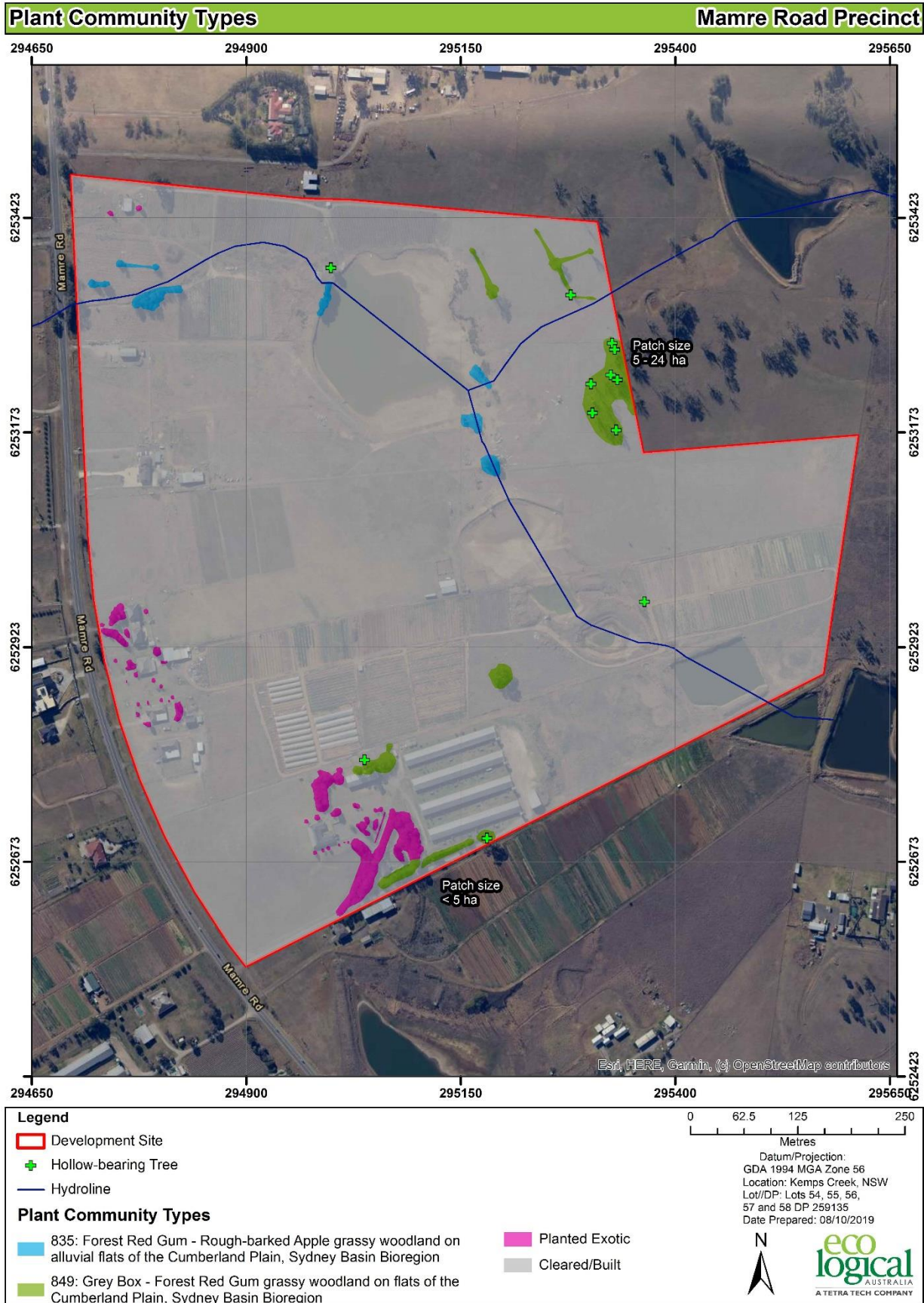


Figure 1: Plant Community Types within the development site



## 2. Implementation and Operation

### 2.1 Flora and Fauna Management Program

Safeguards to manage potential flora and fauna impacts are detailed in Table 3, together with who is responsible for their implementation and at what stage of works.

Person responsible for implementation: PM – Project Manager; SS – Site Supervisor; SE – Site Ecologist; SAE – Site Aquatic Ecologist; All – All Site Personnel

**Table 3: Flora and Fauna Management Plan**

Environmental Action	Timeframe	Monitoring	Responsible Person
<b>OBJECTIVE: GENERAL</b>			
All project staff and contractors will be inducted on the biodiversity sensitivities of the work site(s) and relevant safeguards prior to commencement.	Prior to works	Induction Records	PM
Work site will be delineated and 'no go' zones around the perimeter of the project site will be marked prior to commencement of works.	Prior to works	Weekly checklist, after rainfall or changed in site conditions	PM, SS
If required, Penrith City Council will be notified immediately of any complaints in relation to management of biodiversity issues.	As required	Complaint Register	SS
<b>OBJECTIVE: REDUCE HARM TO BIODIVERSITY</b>			
Future landscaping contractors to undertake an environmental awareness induction prior to commencement of works within the study area.	Prior to works	Induction records, weekly checklist	SS, SE
Prior to clearance of the vegetation in the development area, collectable floristic material such as native species seed stock and woody fruit of all native species will be collected for use in landscaping works within the development site. Refer to Appendix H for further information.	Prior to works	Weekly checklist	PM, SS, SE
Survey efforts identified 12 hollow-bearing trees within the development site (Figure 1). The site ecologist it to be present during removal of identified hollow-bearing trees. Hollow-bearing trees should be removed in the following manner: <ul style="list-style-type: none"> <li>Check for fauna in the zone of disturbance before clearing</li> <li>Remove all non-hollow bearing vegetation prior to the removal of the habitat trees</li> </ul>	Prior to works	Weekly checklist	PM, SS, SE



Environmental Action	Timeframe	Monitoring	Responsible Person
<ul style="list-style-type: none"> <li>After clearing, re-check to ensure no fauna have become trapped or injured during clearing operations. Any fauna found should be safely located to nearby habitat.</li> <li>Leave habitat tree standing for at least one night after clearing of non-hollow bearing trees to allow any fauna the opportunity to remove themselves after site disturbance.</li> <li>Before felling the habitat tree, engage a climbing arborist to sectionally lop and lower branches one at a time.</li> <li>Re-check after felling the habitat tree to ensure no fauna have become trapped or injured during clearing operations. Any fauna found should be safely located to nearby habitat.</li> <li>If taking the habitat tree down in stages, the non-hollow-bearing branches should be removed before the hollow-bearing branches are removed.</li> <li>Take care when moving equipment near vegetation to be retained.</li> <li>Rather than mulching or burning cleared vegetation, logs from the felled trees should be retained and distributed into the proposed Vegetation Management Plan area where it would not be considered a fire hazard. This would provide additional potential habitat for ground dwelling fauna such as reptiles and small mammals.</li> </ul> <p>If native fauna is identified during clearance surveys within the project site, the Fauna Rescue and Release Procedure found in Appendix E must be adhered to.</p>			
A short report detailing the pre-clearance and clearance works is to be provided to Penrith City Council within 10 days of completion.	During construction	Weekly checklist	PM, SE
The identified hollow-bearing trees should be replaced with an artificial hollow or nest box after removal or removed hollows should be placed within the Vegetation Management Plan area or nearby Council reserves (if requested by Penrith City Council). This is to be done under the direction of the Site Ecologist. If further hollows are identified during pre-clearance or clearance surveys and are proposed to be removed, the replacement with artificial hollows or nest boxes will be required. Three nest boxes for every tree hollow will be required.	During construction, completion of works	Weekly checklist	SS, SE
Ensure that no plant, equipment or stockpiles are positioned under the drip line of retained along the boundary of the development site trees.	During construction	Weekly checklist	SS, All
During any hollow-bearing tree removal, an experienced wildlife handler is to be present to re-locate any displaced fauna that may be disturbed during this activity. Any injured fauna is to be appropriately cared for and released on site where appropriate. Refer to Appendix E for further details.	During construction	Weekly checklist	SS, SE



Environmental Action	Timeframe	Monitoring	Responsible Person
The site ecologist is to be present during removal of identified hollow-bearing trees to relocate any identified fauna. If fauna is found on the construction site during construction works, stop work – all native fauna is protected. Do not touch animal but wait for it to leave. If injured fauna is found, the site ecologist is to relocate to the nearest local vet or call WIRES or a rescue agency. If a threatened fauna species is identified, stop works and notify Penrith City Council. Refer to Appendix F for further guidance.	During construction	Weekly checklist	All
<p>To reduce the spread of pathogens and diseases, ensure Arrive Clean, Leave Clean Guidelines (Department of the Environment, 2015) are adhered to:</p> <ul style="list-style-type: none"> <li>Ensure all clothing, hats, footwear, tools, equipment, machinery and vehicles are free of mud, soil and organic matter before entering and exiting bushland</li> <li>Ensure any soil, plants or other materials entering the site are certified free of weeds and pathogens.</li> </ul> <p>A dedicated washdown location, at the entry/exit of the site is to be determined prior to construction works. If weeds or pathogens are known to be present within the development site, Appendix G must be adhered to.</p>	During construction	Weekly checklist	SS, All
<b>OBJECTIVE: REDUCE HARM TO AQUATIC BIODIVERSITY</b>			
<p>As part of the dam dewatering process, a number of steps are required to minimise harm to aquatic biodiversity. The aquatic fauna relocation must only be performed by a person with one of the following licenses/approvals:</p> <ul style="list-style-type: none"> <li>Section 37 <i>Fisheries Management Act 1994</i> (for fish)</li> <li>Biodiversity Conservation Licence – <i>Biodiversity Conservation Act 2016</i> (for turtles, frogs, wetland birds)</li> <li>Animal Research Authority (issued by the Secretary's Animal Care &amp; Ethics Committee).</li> </ul> <p>The Aquatic Ecologist undertaking the aquatic fauna relocation is to notify NSW Fisheries of the activity 48 hours prior to fish relocation (unless an agreement is in place), including locations of dewatered and relocation sites (see regional office contacts <a href="https://www.dpi.nsw.gov.au/contact-us/local-office">https://www.dpi.nsw.gov.au/contact-us/local-office</a>). Fisheries require permits to be carried by the licensed ecologist, who should also display a sign clearly showing licence number (if working in public areas, especially when releasing fauna to local creek). Detailed aquatic fauna handling procedures are included in Appendix F.</p>	Prior to dewatering commencing and during works	Weekly checklist	SS, SAE
<b>OBJECTIVE: REDUCE SPREAD OF PRIORITY WEEDS</b>			



Environmental Action	Timeframe	Monitoring	Responsible Person
Wash down equipment and vehicles prior to and after use, to manage the introduction and spread of weed propagules.	Prior to works, during construction	Weekly checklist	All
All weeds are to be treated prior to becoming an environmental threat according to best management practices.	During construction, completion of works	Weekly checklist	SS
<b>OBJECTIVE: REDUCE POTENTIAL NOISE IMPACTS TO NATIVE FAUNA</b>			
If practical, avoid simultaneous operation of noisy plant within discernible range of vegetation outside of the development site.	During construction	Weekly checklist	All
Works will only occur during the following times: Monday to Friday 7:00 am to 5:00 pm, Saturday 8:00 am to 1:00 pm. Works will not operate after sunset to minimise indirect impacts to threatened fauna species in proximity.	During construction	Weekly checklist	SS
Maximise the distance between noisy plant items and nearby residential receivers and potential fauna habitat.	During construction	Weekly checklist	All
Orient equipment such as offensive noise carriers away from residential receivers and potential fauna habitat.	During construction	Weekly checklist	All
Plant used intermittently is to be throttled or shut down when not required.	During construction	Weekly checklist	All



## 2.2 Structure and Responsibility

The organisation chart outlined in Figure 2 identifies the reporting lines for the key contractor and sub-contractor personnel responsible for environmental management, as well as the Penrith City Council interface. Details of personnel responsibilities are outlined in Table 4. Contact details for these personnel are included in Appendix C.

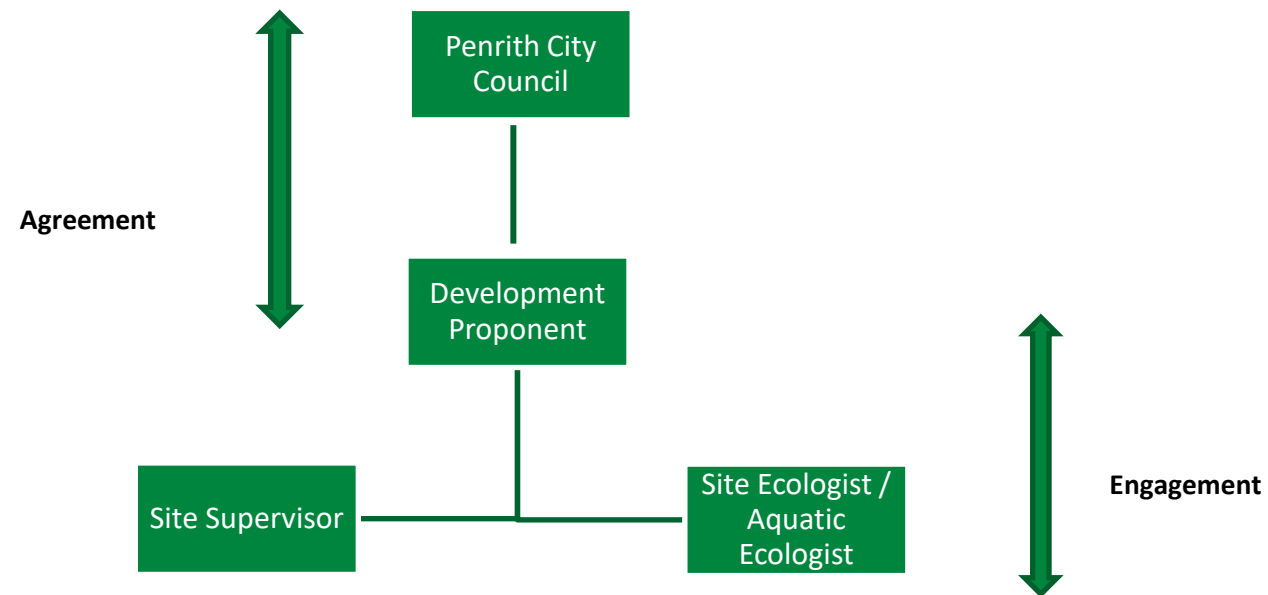


Figure 2 Project organisation chart



Table 4 Responsibilities of personnel

Role	Name, Position and Company	Responsibility
Project Manager	XXX XXX	<ul style="list-style-type: none"> <li>Reviews DA Conditions of Consent and FFMP.</li> <li>Notifies Penrith City Council of changes to the project scope of works and updates the FFMP, if required.</li> <li>Requires the contractor to adhere to the approved works.</li> <li>Accountable for contractor's and subcontractor's environmental performance.</li> <li>Reports any non-compliance to Penrith City Council.</li> </ul>
Site Supervisor	XXX Construction Contractor	<ul style="list-style-type: none"> <li>Issues stop work orders, if required.</li> <li>Records any community complaints (Appendix B) and notifies Project Manager.</li> <li>Responsible for site management, FFMP compliance, including subcontractors.</li> <li>Facilitates environmental induction and toolbox talks for site personnel.</li> <li>Undertakes minimum of weekly environmental inspections (or after environmental conditions change).</li> <li>Ensures proponent, Penrith City Council and community are notified of commencement of works.</li> <li>Initiates corrective actions.</li> <li>Reports FFMP non-conformances to the Project Manager.</li> <li>Reports incidents.</li> <li>Notifies the Project Manager if the FFMP needs revising.</li> </ul>
Staff	Construction Contractor & Ecologist Contractor	<ul style="list-style-type: none"> <li>Comply with the FFMP.</li> <li>Monitor and maintain controls.</li> <li>Report breaches of the FFMP and potential / actual incidents to Site Supervisor</li> <li>Report incidents.</li> <li>Stop work and reports to Site Supervisor in the event of unexpected finds (e.g. native fauna).</li> <li>Record any community complaints and notify the Site Supervisor (Appendix B).</li> </ul>



Name	Position / Company	Signature	Date
	Project Manager		
	TBC		
	Site Supervisor / Contractor		
	TBC		
	Staff		
	TBC		
	Staff		
	TBC		
	Staff		
	TBC		
	Staff		
	TBC		
	Staff		
	TBC		
	Staff		
	TBC		
	Staff		
	TBC		
	Site Ecologist		
	TBC		



Appendix B Complaints Recording Template

Date	Received by phone / email / letter	Complaint	Name	Address	Contact	Follow-up Actions	Date Complete



## Appendix C Phone and Emergency Contact List

Organisation	Name	Position	Contact Number
<b>Project Contacts</b>			
TBC	TBC	Project Manager	XX
TBC	TBC	Site Supervisor	XX
TBC	TBC	Site Ecologist	XX
Penrith City Council		Natural Resources Department	02 4732 7777
<b>Emergency Contacts</b>			
Emergency Services	-	-	000
Mount Druitt Hospital	-	-	02 9881 1555
Environment Protection Authority	-	-	131 555
SafeWork NSW	-	-	131 050
Fire and Rescue NSW	-	-	02 9265 2999
State Emergency Services (SES)			132 500
WIRES	-	-	1300 094 737
Origin Energy			132 461
Energy Australia			133 466
Transgrid System Operations			1800 027 253 / 9284 300
Police Assistance Line (PAL)			131 444
Gas – Agility			131 909
Poisons Information			131 126
Telstra			132 200
RMS			132 213



## Appendix D Site Biodiversity Inspection Checklist (Weekly)

### Constructor Details Site Supervisor - Environmental Checklist

Project Title: Aspect Industrial Estate

Site Inspected: Mamre Road, Kemps Creek

Time & Date:

Weather:

#### Biodiversity

- All collectable floristic material such as native vegetation seed stock, woody debris and bush rock has been collected for use in landscaping or relocation to nearby Council reserves. ☐
- No plant, equipment or stockpiles are positioned under the drip line of retained trees. ☐
- The Site Ecologist was present during tree removal and displaced fauna has been relocated. ☐

#### Aquatic Biodiversity

- Aquatic ecologist has been notified of intention to commence dam dewatering, DPI Fisheries notified of intended dewatering works and aquatic fauna relocation location has been chosen ☐
- Erosion and sediment controls downstream of dam water irrigation areas are installed correctly ☐
- Aquatic Ecologist completed capture and relocation of aquatic fauna ☐

#### Priority Weeds

- Equipment and vehicles have been washed down prior to and after use, to manage the introduction and spread of weed propagules and pathogens in accordance with Appendix G. ☐

#### Noise

- Simultaneous operation of noisy plants within discernible range of a sensitive receiver has been avoided. ☐
- The distance between noisy plant items and nearby residential receivers and potential fauna habitat has been maximised. ☐
- Equipment such as offensive noise carriers have been oriented away from residential receivers and potential fauna habitat. ☐
- Plants used intermittently have been throttled or shut down when not required. ☐

Inspected by:

Signature:

Actions:

By Who:

Date Completed:



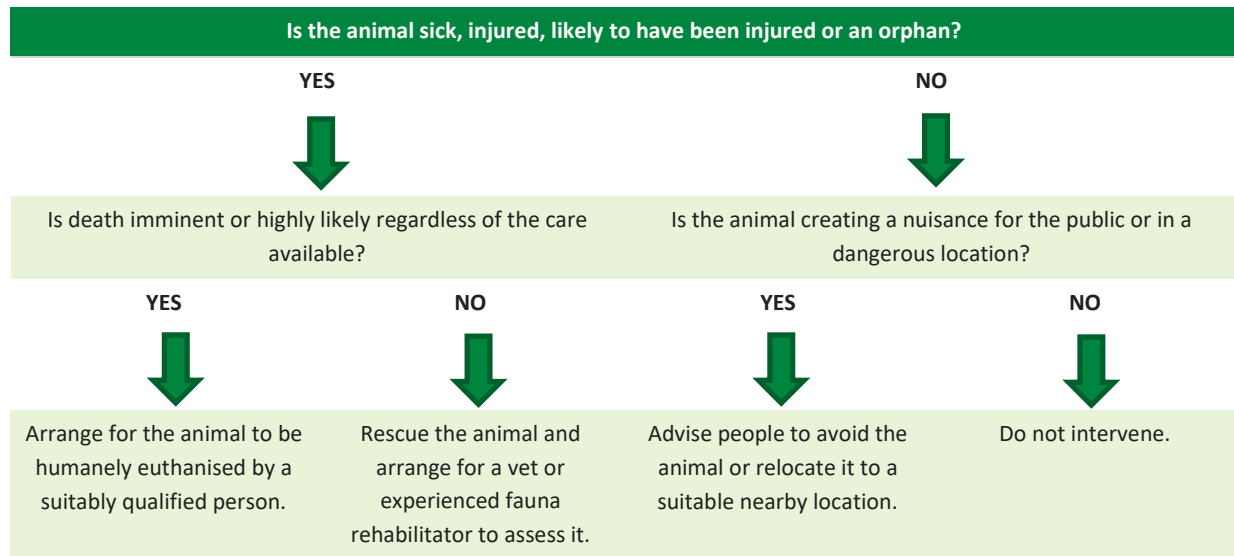
## Appendix E Fauna Rescue and Release Procedure

The following Fauna Rescue and Release Procedure has been prepared in accordance with the NSW Department of Planning, Industry and Environment *Code of Practice for Injured, Sick and Orphaned Protected Fauna 2011*.

### NATIVE FAUNA ENCOUNTER

If native fauna (including threatened fauna) is encountered during pre-clearance or clearance surveys, the decision tree outlined in Table 5 should be adhered to.

**Table 5: Decision tree on how to respond to a native fauna encounter**



### RESCUING OF NATIVE FAUNA

If rescuing of the animal is chosen to be the most suitable option, the following must be adhered to:

- Assessment of all risk to fauna from environmental hazards and from capture.
- Confirmation that the correct rescue equipment for the type and size of fauna is at hand.
- Confirmation that a sufficient number of trained personnel for that species and size are present.

### TRANSPORTATION OF RESCUED NATIVE FAUNA

When transporting the rescued native fauna to a veterinary surgery or rehabilitation facility such as WIRES, the following must be adhered to:

- Ensure transport methods and container sizes are appropriate for the species, size, strength and temperament of fauna. This may include incorporating padding walls and ensuring no ingestible surfaces are present. Containers must also be designed and positioned so breathing is not restricted.
- Transportation containers are kept at an appropriate temperature for the species (note a range of 25 – 27°C is appropriate for most species and ages; 31°C is appropriate for unfurred joeys and 21°C is appropriate for echidnas, platypuses and frogs).
- Transportation containers are well ventilated.
- Ensure containers holding snakes and bats include a visible warning label outlining the danger.



- Ensure transportation containers are not left in the back of uncovered utility vehicles or car boots.
- During transportation, adult fauna should not be fed or watered during trips lasting less than a few hours. Dependent young may require feeding during shorter trips.
- Attain approval by a veterinarian before use of medication to facilitate transport.
- Ensure fauna transport is the sole purpose of the trip.

#### RELOCATION OF NATIVE FAUNA

If the encountered native fauna does not require rescuing however, is required to be located outside of the construction site, the following must be adhered to:

- A suitable environment must be identified prior to relocation, this is one that:
  - Contains appropriate habitat and adequate good resources.
  - Is occupied by members of the same species.
  - Does not place the animal at a high risk of injury.
  - Is not outside of an area which the fauna would not normally cross (i.e. brush-tail possums rarely move more than 50 m however; wombats have a radius of approximately 50 km).



## Appendix F Aquatic Fauna Handling Procedures

During dam dewatering, an aquatic ecologist should be on site to handle aquatic fauna in line with the following procedures.

### CAPTURE

Fish are to be collected by hand nets during the dewatering process. This is most effective when the water is <0.3 m deep. Dissolved oxygen concentration will drop rapidly as water volume decreases, especially in warm water or if lots of fish are present. Larger bodied fish should be targeted first. Wetland birds will scavenge for small fish in the shallows (e.g. Gambusia). Most small fauna will likely remain uncaptured in the dam until the water becomes very shallow (especially eels and turtles). Eels are best captured by large hand nets in water <0.3 m deep, although they burrow into mud. When the water is extremely low, turtles and fish may head towards the intake pump (placed in deepest part). This area should be monitored to intercept fauna (e.g. stand in water next to intake). Turtles will burrow into mud and may require observation and rescue the following morning but can also move themselves to suitable nearby habitat if an escape ramp is graded. For safety, at least two people are required when wading and handling heavy tubs of water/fish up banks (excavator can dig access steps/ramp).

### RELOCATE

Native fish healthy enough for relocation are to be contained and transported in an aerated tub/bucket/tank to an appropriate dam/lake/waterhole/creek. NSW Fisheries advise that the host location should be large enough to accommodate additional fish, especially predatory eels. If a large number of predatory fish such as Longfin Eels are captured during the aquatic fauna relocation process, an additional release point may be required. Tubs should not be overstocked or left in direct sun for extended periods. Aeration can be provided by battery aquarium pumps or manual turbulence if only stored for a short period. Turtles can be transported in a shaded tub with a wet hessian bag placed inside for moisture and support during transport. Tadpoles and frogs can be transported in small buckets.

### RELEASE

Water from the receiving waterbody should be mixed slowly over 5 - 10 minutes with the tank water to allow fish to acclimatise to the new water quality. Care should be taken when releasing fauna not to also transfer weeds or invasive species (e.g. Carp eggs and Gambusia). Animals should be transferred via hand nets, rather than directly pouring them from the tub. Eels can be released on land a few metres from edge and pointed towards the water. The number of each species are to be counted upon release and later incorporated into the summary report.

### PESTS

Exotic fish (e.g. Carp, Gambusia, Goldfish, Redfin Perch, Spotted Livebearer) are to be intercepted, euthanised and disposed of in accordance with the ecologist's Animal Research Authority (issued by the Secretary's Animal Care & Ethics Committee). Exotic *Trachemys scripta* (Red-eared Slider Turtle) are to be contained humanely and Department of Planning, Industry and Environment (DPIE) immediately notified (Environment Line - 131 555). They will collect the live turtle from the ecologist. A tally of the number and species of animals euthanised would be recorded and later incorporated into the summary report.



### POST-DEWATERING

An escape ramp should be graded to allow trapped fauna to escape overnight. Sediment should be left overnight to allow hidden fauna to emerge unless the ecologist confirms there are no fauna remaining (site-specific assessment). Earthworks staff should notify the appointed aquatic ecologist if stranded fish or turtles are observed post-dewatering.

### REPORTING

The Aquatic Ecologist should prepare a summary report suitable for submission to Penrith Council within seven days of completing the aquatic fauna relocation works. The report would detail that the works have been completed in accordance with the Dam Dewatering Plan and would include information relating to the location of the dam dewatering works, the licences held by the staff involved in the works, the number and type of native species relocated, location of release point/s for native fauna and the number and type of exotic species dispatched.



## Appendix G Introduction and Spread of Weed and Pathogens Procedure

Construction works on development sites have the potential to introduce and promote the spread of weed species. This procedure is intended to prevent or minimise the spread of priority weed species. During construction, the Project Manager and Site Supervisor should adhere to best practice methods for weed management, which include:

- Mowing or slashing areas infested with weeds before they seed. This may reduce the propagation of new plants.
- Program works from least to most weed infested areas.
- Clean machinery, vehicles and footwear before moving to a new location.
- Securely cover loads of weed-contaminated material to prevent weed plant material falling or blowing off vehicles.
- Dispose of weed-contaminated soil at an appropriate waste management facility.
- Remove weeds immediately onto suitable trucks and dispose of without stockpiling.

### WEED MANAGEMENT PLAN

If the development site is highly infested, a Weed Management Plan may be warranted as a sub-plan to the Construction Environmental Management Plan, which may include:

- Identification and description of weed infested areas within the site.
- Recommendations for managing weeds.
- Weed control methods.
- Measures to prevent the spread of weeds.
- A monitoring program to measure the success of weed management.
- Communication strategies to improve contractor awareness of weeds and weed management.

Pathogens are agents such as bacterium, virus or fungus that cause disease in flora and fauna, which are spread on footwear, vehicles or machinery. The four most common pathogens found in NSW include:

- **Phytophthora (*Phytophthora cinnamomi*):** A soil-borne fungus that attacks the roots of native plant species, causing them to rot and eventually die.
- **Chytrid fungus (*Batrachochytrium dendrobatidis*):** A waterborne fungus that affects native frog species.
- **Myrtle rust (*Uredo rangellii*):** An introduced fungus that attacks young leaves, shoot tips and stems of Myrtaceous plants (such as Bottle Brush, Tea Tree, Lilly Pilly and Turpentine), eventually killing the plant.

Construction works on development sites have the potential to promote the spread of pathogens. This procedure is intended to prevent or minimise the spread of pathogens if they have been identified within the development site. If the occurrence of pathogens is known within the locality, a test for presence through soil or water tests should first be undertaken. If pathogens are present, during construction, the Project Manager and Site Supervisor should adhere to best practice methods for pathogens (Table 6).



Table 6: Best practice hygiene protocols to prevent the spread of pathogens

Pathogen	Best Practice Hygiene Protocols
<b>Phytophthora</b>	<ul style="list-style-type: none"> <li>Minimise work during excessively wet or muddy conditions.</li> <li>Programming of works should always move from uninfected areas to infected areas.</li> <li>Set up exclusion zones with fencing and signage to restrict access into contaminated areas.</li> <li>All personnel (including visitors) to be inducted on Phytophthora management measures for the site. Provide vehicle wash down facility.</li> <li>Restrict vehicles to designated tracks, trails and parking areas.</li> <li>Provide parking and turn-around points on hard, well-drained surfaces.</li> <li>Provide boot wash down facility.</li> <li>Restrict personnel to designated tracks and trails.</li> <li>Use a certified supply of plants and soil that is disease-free.</li> <li>Retain all potentially affected materials within the contaminated area.</li> <li>Ensure stockpiles of mulch, topsoil and fill material are separated to avoid potential contamination and spread.</li> </ul>
<b>Chytrid Fungus</b>	<ul style="list-style-type: none"> <li>Minimise work during excessively wet or muddy conditions.</li> <li>Programming of works should always move from uninfected areas to infected areas.</li> <li>Set up exclusion zones with fencing and signage to restrict access into contaminated areas.</li> <li>All personnel (including visitors) to be inducted on chytrid management measures for the site.</li> <li>Provide vehicle wash down facility.</li> <li>Restrict vehicles to designated tracks, trails and parking areas.</li> <li>Provide parking and turn-around points on hard, well-drained surfaces.</li> <li>Provide boot wash down facility.</li> <li>Disinfect with cleaning products containing benzalkonium chloride or 70% methylated spirits in 30% water.</li> <li>Disinfect hands or change gloves between the handling of individual frogs and between each site.</li> <li>Only handle frogs when necessary. Use the 'one bag-one frog' approach.</li> <li>To avoid cross contamination, generally avoid transferring water between two or more separate waterbodies.</li> </ul>
<b>Myrtle Rust</b>	<ul style="list-style-type: none"> <li>To determine if Myrtle Rust is known within the locality of the development site, the following should be undertaken: <ul style="list-style-type: none"> <li>Use of The DPI Myrtle Rust Management Zone map (<a href="http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/zones">www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/zones</a>)</li> <li>Consultation with Penrith City Council for additional rust records and risk assessments.</li> <li>Photograph potentially infected plants and send to: <a href="mailto:biosecurity@industry.nsw.gov.au">biosecurity@industry.nsw.gov.au</a> for confirmation.</li> </ul> </li> <li>Programming of works should always move from uninfected areas to infected areas.</li> <li>Set up exclusion zones with fencing and signage to restrict access into contaminated areas.</li> <li>All personnel (including visitors) to be inducted on Myrtle rust management measures for the site.</li> <li>Provide vehicle wash down facility.</li> <li>All vehicles and machinery to be washed with Truckwash® (or equivalent).</li> <li>Restrict vehicles to designated tracks, trails and parking areas.</li> <li>For medium-long term projects, install a concrete wash down bay which will capture the water in a trench or bunded area.</li> <li>Water used for wash downs must not be used for dust control.</li> <li>Personnel working in an infected site should shower and launder clothes (especially hats) before moving to another bushland site.</li> <li>Provide boot wash down facility.</li> </ul>



Pathogen	Best Practice Hygiene Protocols
	<ul style="list-style-type: none"> <li>• Footwear and equipment to be cleaned of soil/mud then sprayed with 70% methylated spirits in 30% water.</li> <li>• Use a certified supply of plants and soil that is disease-free (the Australian Nursery Industry <i>Myrtle Rust Management Plan</i> (McDonald 2011) provides best practice Myrtle rust management that is to be expected from suppliers).</li> <li>• Plant material should be buried on site if possible.</li> <li>• Do not dispose of waste at another bushland site.</li> <li>• Buried material sites must be mapped to prevent re-exposure, especially if located near utility easements.</li> <li>• If material cannot be buried advice should be sought from Penrith City Council.</li> </ul>



## Appendix H Re-Use of Floristic Material and Native Habitat Features Strategy

### COLLECTION OF FLORISTIC MATERIAL

The vegetation within the development site conforms to two TECs (Cumberland Plain Woodland and River-flat Eucalypt Forest). Therefore, if requested by Penrith City Council, native seed collection may be required prior to construction to later be used in the Vegetation Management Plan area or a nearby Council reserve. If this is the case, the following should be adhered to:

- Seed should first be collected from all areas that are to be cleared as part of the project. By selecting a seed source that is from plants growing in similar environmental conditions nearby, the plants should be naturally adapted to local conditions and more likely to survive and prosper in proposed re-use areas.
- Carry out all seed collection in accordance with the Florabank Guidelines (Florabank, 2000) and Model Code of Practice (Mortlock, 1998). Experienced and licensed seed collectors should carry out the seed collection.

### RELOCATION OF WOODY DEBRIS AND BUSH ROCK

Many native fauna species utilise woody debris and bush rock for shelter, basking to hide from predators, find food and avoid extreme weather. When woody debris and bush rock are required to be removed from a development site, consideration should be given to finding suitable locations for re-use of these important habitat features.

Term	Definition
<b>Woody Debris</b>	Trees and wood, whether living or dead, at least 100 mm in diameter and 500 mm long, including hollows.
<b>Bush Rock</b>	Loose rock occurring on rock or soil surfaces.

Prior to relocation of woody debris found within the development site, consultation should be undertaken with Penrith City Council and the site ecologist to determine a suitable location for re-use to ensure it does not have a negative impact on the receiving environment. For example, in areas of high-quality bushland, there may already be enough suitable hollows, fallen logs or bush rock and adding more may cause unnecessary disturbance or create a fire hazard.

If a suitable relocation area (such as the Vegetation Management Plan area) has been agreed upon by Penrith City Council and the proponent, the Project Manager and Site Supervisor should ensure the following best practice methods are undertaken during relocation:

- Removal, stockpiling, transportation and relocation of woody debris and/or bush rock is carried out in a manner that minimises disturbance to native vegetation (including the canopy, shrubs, dead trees, fallen timber and groundcover species) or bush rock.
- The spread of any weeds or pathogens that may be in the soil is avoided when relocating woody debris and bush rock from stockpiles.



- The Site Ecologist is consulted with to provide advice on positioning woody debris and bush rock in designated relocation areas.
- Topsoil disturbance is kept to a minimum and is not heaped up against woody debris or bush rock because of the potential to provide habitat for rabbits.
- Woody debris is placed evenly across the site.
- Where woody debris is to be mulched the Project Manager and/or Site Supervisor should ensure that weeds are separated from native vegetation.

### USE OF NEST BOXES

Nest boxes can be used to provide supplementary breeding habitat and shelter for hollow-dependant fauna where hollows have been removed. If requested by Penrith City Council, nest boxes may be required to be installed as a replacement for the removal of the identified hollow-bearing trees. Generally, it is recommended that three nest boxes are installed for every hollow-bearing tree removed.

If the installation of nest boxes is required, the following must be considered in consultation with the Site Ecologist:

- The target species.
- The tree hollow preferences of native hollow-dependant fauna known or likely to occur in the locality.
- The sizes, types and quantities of potential tree hollows to be removed.
- The sizes, types and quantities of tree hollows existing in adjacent areas.
- The design, materials and quantity of nest boxes required.
- Whether the nest boxes are required to fill a short-term gap in the availability of hollows (e.g. during construction) or to compensate for the long term reduced availability of hollows.
- Monitoring and maintenance of the nest boxes.









# **Appendix P    Flora and Fauna Management Plan**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



A stylized topographic map with green contour lines is positioned on the left side of the page, extending from the top left towards the bottom left.

# Aspect Industrial Estate - Vegetation Management Plan

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**Mirvac Projects Pty Ltd**

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## DOCUMENT TRACKING

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Template 2.8.1



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## Abbreviations

Abbreviation	Description
BC Act	<i>Biodiversity Conservation Act 2016</i>
DA	Development Application
ELA	Eco Logical Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
MZ	Management Zone
NRAR	Natural Resources Access Regulator
NVR	Native Vegetation Retention
PCT	Plant Community Type
RFEF	River-flat Eucalypt-forest
VMP	Vegetation Management Plan
WM Act	<i>Water Management Act 2000 (NSW)</i>
WoNS	Weed of National Significance



# 1. Introduction

This vegetation management plan (VMP) has been prepared by Eco Logical Australia Pty Ltd (ELA) on behalf of Mirvac Projects Pty Ltd (Mircvac) for the proposed Aspect Industrial Estate development at Mamre Road, Kemps Creek (Lots 54-58 DP 259135) (Figure 1). This site is located within the Penrith City Council Local Government Area (LGA).

## 1.1 Background

The site is to be redeveloped for offices, warehouses, carparks and associated infrastructure including access roads and stormwater infrastructure. The site will also contain landscaped areas and a conservation riparian corridor.

There are two mapped unnamed waterways within the Aspect Industrial Estate development area. The first order watercourse mapped within the south east and centre of the development area did not meet the definition of a watercourse (Figure 2). A defined channel was observed within the north western section of the development area, where the second order watercourse was mapped (Figure 2).

As part of the proposed Aspect Industrial Estate development, Mirvac wish to realign the validated second order watercourse through the construction of a swale. The civil designs and the typical riparian corridor cross section can be found in Appendix A.

This VMP has been prepared in accordance with the *Guidelines for Vegetation Management Plans on Waterfront Land* (Office of Water, 2012) and has been prepared in consideration of Penrith City Council's Development Control Plan 2014. This VMP has also been prepared based on current best practice and is consistent with the Natural Resources Access Regulator (NRAR) Guidelines, including provision of indicative costs for management actions.

## 1.2 Objectives of the Vegetation Management Plan

The overall objectives of the VMP are to establish native species cover and density along the realigned riparian corridor by revegetation works. The initial maintenance period will run for five years or until the objectives and performance criteria outlined in this VMP are met. The objectives for the VMP are summarised in Table 1.



**Table 1: VMP Objectives**

Objectives	Approach
Reinstate native vegetation along the realigned watercourse and maintain ecological health (species composition and structure) within 5 years.	<ul style="list-style-type: none"> <li>• Rehabilitate and revegetate riparian corridor using appropriate native species</li> <li>• Maintenance weed control</li> <li>• Control of priority and environmental weeds and prevent new outbreaks</li> <li>• Assist in the natural regeneration of species across the VMP area</li> <li>• Addition of logs and artificial hollows</li> </ul>
Stabilise bed and bank along 800 m of realigned creek.	<ul style="list-style-type: none"> <li>• Sandstone boulders or blocks used to protect the outside of the channel meander in the north west area of the site</li> <li>• 'Soft engineering' approach with a focus on planting locally native species</li> </ul>

### 1.3 Key Terms

For the purpose of this VMP, the following terminology has been adopted:

- Subject site: Lots 54 – 58 DP 259135
- Development area: The proportion of the study area to be developed, specifically the proposed lots and roads. This area is outside the scope of the VMP area.
- VMP area: The proportion of the study area to be rehabilitated and conserved by this VMP specifically.





Figure 1: Location of development and VMP areas



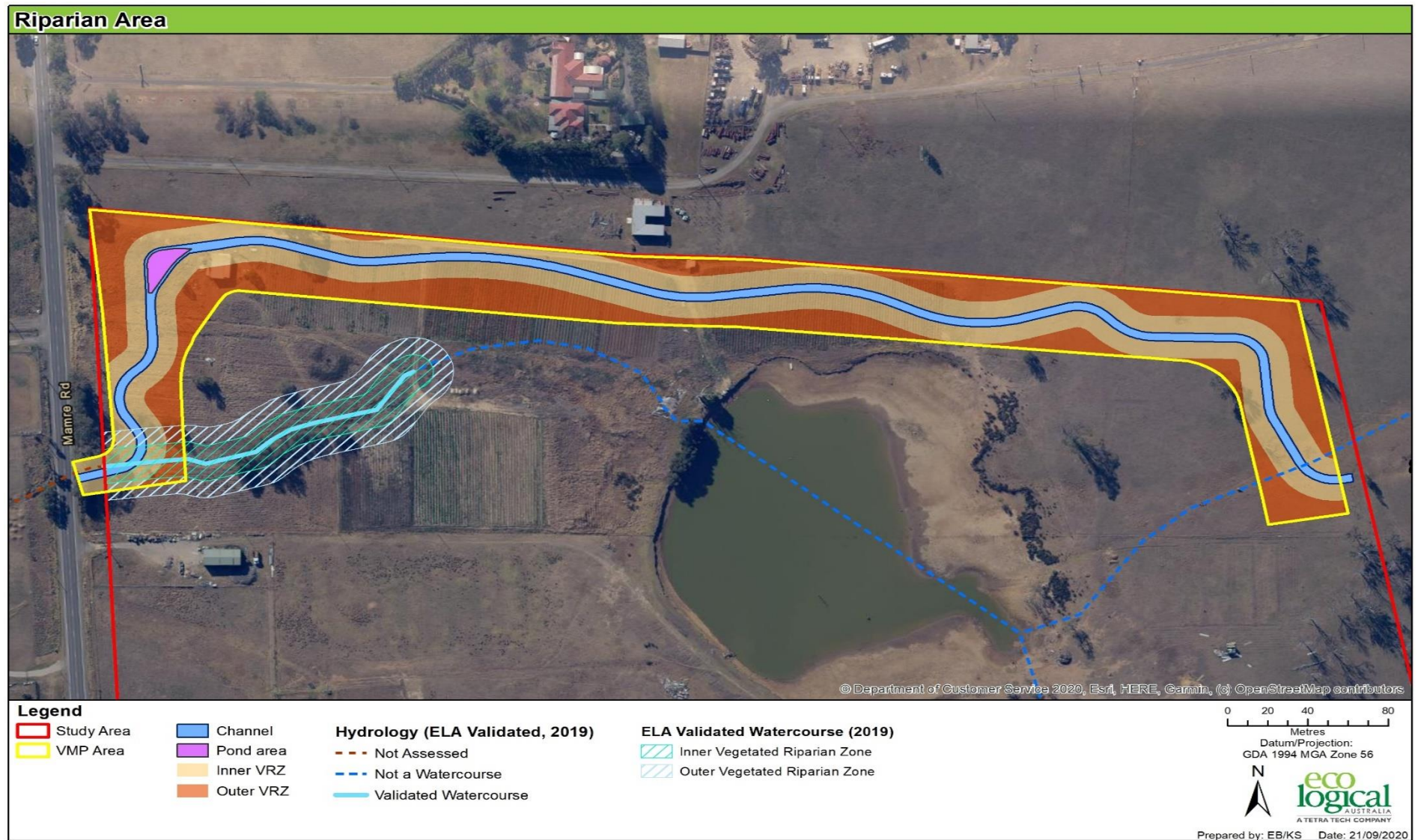


Figure 2: Validated watercourses within the VMP area



## 2. Description of the Environment

### 2.1 Location

The study area is located within the Penrith City Council LGA. It is bound by Mamre Road to the west and rural land to the east, north and south. The site is currently zoned IN1 (General Industrial), E2 (Environmental Conservation) with a small part zoned as SP2 (Infrastructure) in accordance with the *State Environmental Planning Policy (Western Sydney Employment Area) 2009* (WSA SEPP).

### 2.2 Soils and Topography

The topography of the study area gently slopes to the west to South Creek. The VMP area is located on both the Blacktown and South Creek residual soil landscapes. The Blacktown soil landscape is characterised by undulating slopes on soils derived from Wianamatta Group shales. The South Creek soil landscape is characterised by floodplains, valley flats and drainage depressions, which are usually flat with incised channels.

### 2.3 Drainage and Hydrology

There are two mapped unnamed waterways within the Aspect Industrial Estate development area, which are tributaries of South Creek. Within the development area there are also six farm dams, most of which have limited adjoining riparian and / or fringing vegetation and poor aquatic habitat values.

The first order watercourse mapped within the south east and centre of the development area had no indicative features of a waterway. A defined channel was observed along the mapped second order watercourse within the north western section of the development area (Figure 2). The defined watercourse started downstream of the sixth dam, starting at a patch of *Phragmites australis* (Common Reed) and flowing through the site in a westerly direction towards Mamre Road.

Downstream of the area of *P. australis*, the channel passed through an area of dense *Cenchrus clandestinus* (Kikuyu Grass) and scattered *Casuarina glauca* (Swamp She-oak) trees at the top of the creek bank. Roughly 20 m upstream of the Lot 58 boundary fence, the channel widens to approximately 2.5 m and there was a small amount of standing water in the creek line. There was a break in the riparian vegetation in this section of the watercourse, with no *C. glauca* present at the top of bank. However, there was more instream vegetation including the native species *Persicaria decipiens* (Slender Knot weed), *Alternanthera* sp. and the exotic species *Rumex crispus* (Curled Dock).

At the western extent of Lot 58, the creek flows under Mamre Road through three box culverts, each approximately 0.8 m high and 1.5 m wide. Each culvert has a brick wingwall extending out to the northern and southern end. This area also appeared to collect roadside drainage from the north and south of Lot 58 along Mamre Road.

Further information can be found in the Aspect Industrial Estate Riparian Assessment (ELA, 2020).



## 2.4 Vegetation Communities

### 2.4.1 River-Flat Eucalypt Forest

The remnant native vegetation community PCT 835: *Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion* was present along the validated second order watercourse in poor condition. PCT 835 is listed as *River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* Endangered Ecological Community (EEC) under the BC Act 2016. River-flat Eucalypt Forest on site consisted of a canopy dominated by *C. glauca*, an absent midstorey and an understorey comprised of predominately exotic species including *Plantago lanceolata* (Plantain), *Senecio madagascariensis* (Fireweed), *Paspalum dilatatum* (Common paspalum) and *Cirsium vulgare* (Spear thistle).

### 2.4.2 Cleared/Exotic

The cleared land within the VMP area was dominated by exotic species including *P.lanceolata*, *S. madagascariensis*, *P. dilatatum* and *C. vulgare*.

## 2.5 Flora Species

A total of 17 flora species were identified within the VMP area during the site inspection, of which one was a native species and 16 were exotic species (Appendix B).

No threatened flora species were recorded within the VMP area during the field inspection.

## 2.6 Priority Weeds

Sixteen exotic species were recorded in the VMP area. One of these is a listed priority weed in the Greater Sydney region under the *Biosecurity Act 2015* and one of these is listed as a Weed of National Significance (WoNS). WoNS and priority weeds including their required duties under the *Biosecurity Act 2015* are shown in Table 2.

Appropriate control measures for priority and environmental weeds are provided in Appendix D.

**Table 2: Priority weed species recorded in the study area**

Scientific Name	Common Name	WoNS	Priority Level	Priority Weed Objective
<i>Senecio madagascariensis</i>	Fireweed	Yes	State	Asset Protection



### 3. Management Zones

The VMP area of approximately 3.34 ha, will be entirely managed. The management works for this VMP are focused on weed control and revegetation. The VMP area consists of four management zones as identified below and in Figure 3.

- Zone 1: Low Flow Channel with Aquatic Macrophytes – Weed Control and Aquatic Macrophyte Revegetation
- Zone 2: High Flow Channel with Low Density Plantings
- Zone 3: Embankment with High Density Plantings
- Zone 4: Pond Area with Aquatic Macrophytes

#### 3.1 Management Overview

An assessment of the native resilience and weed densities was conducted during field surveys. The vegetation within the VMP area is in poor condition. Weed densities are high in the ground layer and no mid-storey or canopy exists.

Weeds within the landscaped area adjacent to the VMP area will require maintenance to prevent the continued incursion of weeds into the VMP area. This will best be achieved by regular mowing or ongoing weed control along the interface of the VMP area and the landscape area.

#### 3.2 Management Zones

For the management zones, specific weed control measures and revegetation methods are detailed in Appendix D. Monitoring will be conducted across all zones and will be used to adaptively manage the type and intensity of follow-up treatments.

##### 3.2.1 Management zone 1 (MZ1) – Low Flow Channel with Aquatic Macrophytes - Weed Control and Aquatic Macrophyte Revegetation

###### 3.2.1.1 General Description

This management zone encompasses 1.18 ha of exotic grassland. After the construction of the channel, this zone will be revegetated with native aquatic macrophyte species, creating a low flow channel with a minimum width of 3.75 m.

The low flow channel may be used as a detention basin for sediment during the construction works onsite and be converted into a channel after construction works are finished. All accumulated sediment would need to be removed prior to revegetation. No jute matting is to be installed as this will impact on the filtration of the channel.

Once the low flow channel is constructed, approximately 80% of this zone is expected to require revegetation to reinstate native sedge and rush species. Species selection and placement will be dependent on the final design of the channel. Sedges and rushes will be planted into areas prone to prolonged inundation.

The key management priorities and required management actions are:



- Tubestock planting across the majority of the zone.
- Control of exotic grasses and other exotic species.
- Monitor native vegetation and weed densities.

### 3.2.2 Management Zone 2 (MZ2) – High Flow Channel with Low Density Plantings - Weed Control and River-flat Eucalypt-forest Revegetation

#### 3.2.2.1 General description

This management zone encompasses 0.39 ha of exotic grassland. After the construction of the channel, this zone will be predominantly revegetated with ground cover and mid-storey species consistent with the vegetation community River-flat Eucalypt-forest to compensate for the impact to this community during development. The majority of this zone is expected to require revegetation to reinstate the River-flat Eucalypt-forest vegetation community.

The key management priorities and required management actions are:

- Tubestock planting across entire zone.
- Control of exotic grasses and other exotic species.
- Monitor native vegetation and weed densities.

### 3.2.3 Management Zone 3 (MZ3) – Embankment with High Density Plantings - Weed Control and River-flat Eucalypt-forest Revegetation

#### 3.2.3.1 General description

This management zone encompasses 1.74 ha of exotic grassland. After the construction of the channel, this zone will be entirely revegetated with species consistent with the vegetation community River-flat Eucalypt-forest to compensate for the impact to this community during development. The entirety of this zone is expected to require revegetation to reinstate the River-flat Eucalypt-forest vegetation community, including canopy species.

The key management priorities and required management actions are:

- Tubestock planting across entire zone.
- Control of exotic grasses and other exotic species
- Monitor native vegetation and weed densities

### 3.2.4 Management Zone 4 (MZ4) – Pond Area with Aquatic Macrophytes

#### 3.2.4.1 General description

This zone currently encompasses 0.03 ha of exotic grassland. After construction of the pond area, this zone will be revegetated with native emergent macrophytes.

The construction of the pond will allow for treatment of stormwater quality before it leaves the site.

The key management priorities and required management actions are:

- Tubestock planting across the majority of the zone.
- Control of noxious aquatic species.
- Monitor sediment accumulation within the pond.



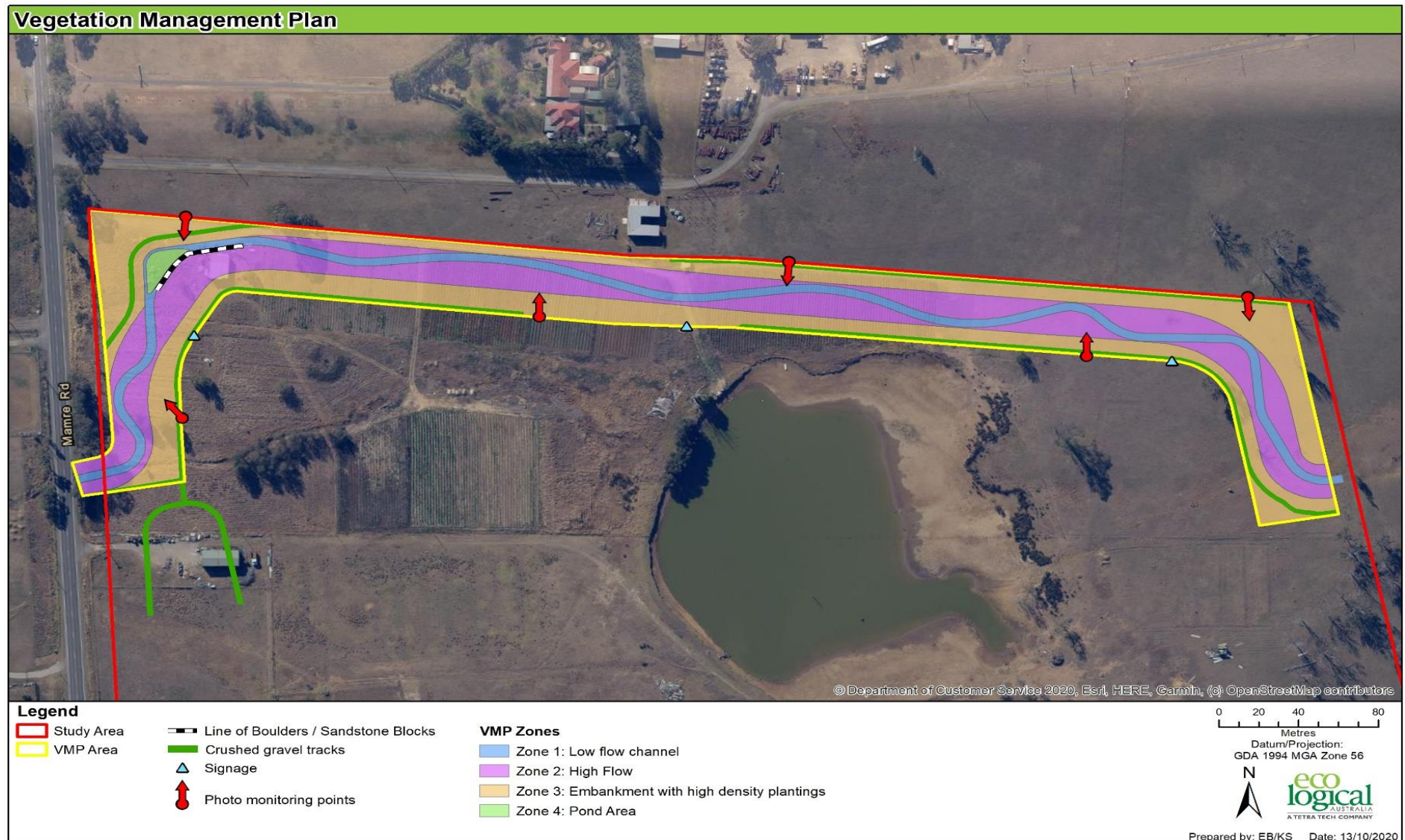


Figure 3: VMP Management Zones



## 4. Construction and Management Works

Preliminary works relating to the VMP are to occur either before or whilst development is occurring onsite. All works are assumed to be undertaken by the developer or the civil construction company.

### 4.1 Earthworks and Construction of the Riparian Channel

During construction activities, all timber from native trees within the development area should be retained onsite, with mulch stockpiled for use within the VMP area, all viable seed and genetic material to be collected and all timber cut into logs to be utilised as habitat for native fauna.

### 4.2 Fencing and Interpretive Signage

After completion of the construction of the riparian corridor, fencing must be installed to prevent encroachment of civil machinery and compaction of soil during the revegetation period. Temporary construction fencing should consist of star pickets with highly visible plastic mesh or similar. Temporary fencing must not be placed outside of the clearing limits.

Temporary informational signage must be installed around the site as needed to convey the works that are being undertaken and the final strategy for the site. The exact information and location of these signs will be determined during implementation works. At a minimum this signage should identify, at all access points to the site and that the riparian area is being managed for conservation purposes. Further signage may include permanent signs describing the natural values of the site and surrounding area.

Permanent fencing should be installed around the northern boundary of the VMP area to delineate the site boundary. It is recommended that a permanent rural-style fence is erected around the remainder of the VMP area to delineate the conservation area.

### 4.3 Installation of Fauna Habitat in the VMP Area

It is recommended that an ecologist undertakes a pre-clearance survey within the proposed development area as per the Flora and Fauna Management Plan (ELA, 2021) to supervise the felling of the 12 hollow-bearing trees proposed to be removed to ensure the protection of native fauna. It is recommended that the removed hollows are relocated to the VMP area for on-ground fauna habitat. Where the removed hollows can't be successfully relocated, nest boxes are to be installed at a ratio of three nest boxes for every one hollow removed.

### 4.4 Vegetation management works

The total VMP area is 3.34 ha and encompasses the area shown in Figure 1. Maintenance weed control and revegetation are to be carried out by a bush regeneration contractor.

#### 4.4.1 Primary and Secondary Weed Control

Depending on the timeframe between the construction of the channel and revegetation works, primary weed removal may be required, prior to revegetation. Secondary and maintenance weed control will be required following revegetation. During these weed control activities, care must be taken to avoid natural regeneration of native species.



#### 4.4.2 Maintenance

Following secondary weed removal and revegetation, all areas will require ongoing maintenance to control weed regrowth from the soil seed bank. Maintenance work is to be undertaken by qualified bush regeneration contractor(s).

Maintenance will be undertaken on a regular basis in the peak growing seasons (spring and summer), with less frequent visits in cooler periods (autumn and winter). Maintenance work will include herbicide spot spraying of emergent weed species. Herbicides must be suitable for use adjacent to a waterway (e.g. Glyphosate Bi-Active).

#### 4.4.3 Revegetation

Revegetation should be undertaken with tube stock at the densities in Table 3. Revegetation should use appropriate native aquatic macrophyte and River-flat Eucalypt-forest species within the VMP area including trees, shrubs and groundcover species as identified in Appendix C and to the specifications included in Appendix D. The recommended species are in accordance with the draft Mamre Road Precinct Development Control Plan 2020, which requires all vegetation works to include endemic tree species and shrubs. It is noted that some species listed in Appendix C have been outlined within the draft Wildlife Management Assessment Report (Avisure, 2020) as undesirable. If this Report is finalised and adopted, changes to the recommended species list may be required to minimise wildlife hazard risk to the Western Sydney Aerotropolis.

All management zones will require revegetation at different densities over the zone. Aquatic macrophytes will be planted in Management Zones 1, 2 and 4, where areas are likely to be regularly inundated. Species from all strata will be planted within Management Zone 3 to increase densities and prevent the incursion of exotic species. Canopy species will be planted in Management Zone 3 where canopy species are currently not present.

Management Zones 3 and 4 will require the installation of jute matting following construction of the channel and prior to revegetation to help stabilise the banks of the channel.

**Table 3: Planting guidelines for Management Zones**

Management Zone	Revegetation Area (m <sup>2</sup> )	Mulch / Jute Matting	Planting Densities				Total Planting Numbers
			Trees (1/15 m <sup>2</sup> )	Shrubs (1/5 m <sup>2</sup> )	Herbs/ Scramblers (1/ m <sup>2</sup> )	Grasses/Sedges /Rushes (5/ m <sup>2</sup> )	
MZ1	3,120	-	0	0	0	15,600	15,600
MZ2	9,440			1,888	18,800	47,200	67,968
MZ3	17,400	Jute matting	1,160	3,480	17,400	87,000	109,040
MZ4	150					750	750
<b>TOTALS</b>	<b>30,110</b>	<b>-</b>	<b>1,160</b>	<b>5,368</b>	<b>36,280</b>	<b>150,550</b>	<b>193,358</b>



## 5. Monitoring and Reporting

The bush regeneration contractor will monitor the vegetation for changes over time. The objective of the monitoring and reporting program is to record changes to the vegetation because of vegetation management works. Monitoring works will require liaison with the land holders, the bush regeneration contractor and the approval agency.

The bush regeneration contractor will establish photo monitoring points and prepare reports to record the progress of their work and demonstrate compliance with the VMP. Photo monitoring points are identified in Figure 3. During the maintenance phase the land manager will complete the reports in consultation with the approval agency. Reports will include a brief work report and an annual audit and assessment of compliance with the performance criteria in Table 4. The requirements of monitoring and reporting are described in detail in the sections below.

### 5.1 Photo Monitoring Points

Photo monitoring points will be established across the VMP area to highlight changes in the vegetation through time. The initial photos must be taken prior to revegetation works commencing, with subsequent photos taken after major management actions are implemented (e.g. tubestock planting) and annually in Spring/Summer. To do this, the bush regeneration contractor needs to establish photo monitoring points as indicated in Figure 3. Installation of photo points should follow the below process:

- place two six-foot star pickets 10 m apart;
- record the location (eastings and northings) of the first star picket with a GPS;
- record the bearing to the second star picket;
- take a digital photo from the first star picket looking towards the second star picket, with the entire length of the second star picket visible in the photo to act as a reference point; and
- label each digital image with a unique reference number that indicates where the photo was taken (i.e. the photo monitoring point) and date it was taken (e.g. 01\_180315 for a photo taken at photo monitoring point 1 on the 15<sup>th</sup> March 2018).

### 5.2 VMP Implementation Reporting

A brief report outlining work undertaken by the bush regeneration contractor will be prepared every six months during the revegetation and primary weed control phases, then yearly throughout the maintenance phase. These reports will be submitted to the land holders committee and Penrith City Council. Reports will include:

- the time period for which the report relates to;
- a summary of works carried out within the period, including the dates and times spent on site doing works;
- an approximation of the time spent on each task;
- a table totalling man hour for each task undertaken on site;
- the qualifications and experience of contractors;
- certification of seed and local provenance stock;
- methods of weed control undertaken, and chemicals used;



- numbers of local provenance tubestock planted or methods;
- photo monitoring results of each of the scheduled stages of the vegetation progress;
- a description of any problems encountered in implementing the works recommended in the VMP and how they were overcome;
- any observations made, including new plant species recorded (native and weed species), comments on rates of regeneration and any problems which impact on the implementation of the VMP; and
- the results of the implementation work, in relation to the relevant performance criteria.

### 5.3 Review of the Vegetation Management Plan

The implementation of this VMP will be reviewed at the end of each year following the completion of the annual monitoring report for the life of this VMP. A review of this VMP should evaluate the effectiveness of the current management strategy and consider appropriate recommendations to achieve the performance criteria for each zone.

### 5.4 Performance Criteria

The progress and compliance with the VMP will be monitored and reviewed annually. This process will involve the bush regeneration contractor and the land holders. As identified in Section 5.2, a report will be prepared commenting on the success of the performance criteria. The performance criteria listed in Table 4 are best practice and are not linked with any specific legislation. Planting guidelines are outlined in Table 3 and recommended species for each vegetation community provided in Appendix C. An adaptive management approach to this site is recommended since techniques may need to be changed or be modified to suit site conditions. This approach allows the contractor to develop and build on site knowledge whilst implementing this VMP. Monitoring will assist in refining VMP actions in subsequent years.



Table 4: Performance criteria

MZ	Year 1	Year 2	Year 3 – 4	Year 5
1	<ul style="list-style-type: none"> <li>• Weed control of all weeds including priority and environmental weeds. Weed cover no greater than 15% across entire zone.</li> <li>• Revegetation of native species completed across the entire zone as per Table 3. 90% survival rate of all plantings at end of Year 1.</li> <li>• All rubbish removed.</li> </ul>	<ul style="list-style-type: none"> <li>• Treatment of new weed breakouts</li> <li>• Weed control of all weeds. Weed cover no greater than 10% across entire zone.</li> <li>• Survival of revegetation plantings maintained at 90%. Replacement plantings* with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Treatment of new weed breakouts</li> <li>• Weed control of all weeds. Weed cover no greater than 5% across entire zone.</li> <li>• Survival of revegetation plantings maintained at 90%. Replacement plantings with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover less than 5% across entire zone.</li> <li>• Survival of revegetation plantings maintained at 90%.</li> </ul>
2	<ul style="list-style-type: none"> <li>• Weed control of all weeds including priority and environmental weeds. Weed cover no greater than 10% across entire zone.</li> <li>• Revegetation of native species completed across the entire zone as per Table 3. 80% survival rate of all plantings at end of Year 1.</li> <li>• All rubbish removed</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover no greater than 5% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 2. Replacement plantings* with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover no greater than 5% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 4. Replacement plantings with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover less than 5% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 5.</li> </ul>
3	<ul style="list-style-type: none"> <li>• Weed control of all weeds including priority and environmental weeds. Weed cover no greater than 30% across entire zone.</li> <li>• Revegetation of native species completed across the entire zone as per Table 3. 80% survival rate of all plantings at end of Year 1.</li> <li>• Jute matt installed across entire zone.</li> <li>• All rubbish removed</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover no greater than 20% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 2. Replacement plantings* with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover no greater than 10% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 4. Replacement plantings with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover less than 5% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 5.</li> </ul>



MZ	Year 1	Year 2	Year 3 – 4	Year 5
4	<ul style="list-style-type: none"> <li>• Weed control of all weeds including priority and environmental weeds. Weed cover no greater than 30% across entire zone.</li> <li>• Revegetation of native species completed across the entire zone as per Table 3. 80% survival rate of all plantings at end of Year 1.</li> <li>• All rubbish removed</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover no greater than 20% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 2. Replacement plantings* with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover no greater than 10% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 4. Replacement plantings with all strata to meet densities in Table 3, if required.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control of all weeds. Weed cover less than 5% across entire zone.</li> <li>• 90% survival rate of all plantings at end of Year 5.</li> </ul>

\*Maintenance replanting is to replace plants by the same species, or where that species is not available, with the same growth form (i.e. tree for tree, etc.) and must not decrease species diversity. Any new species must be from the community being emulated and of local provenance.



## 6. Implementation Schedule and Cost

The estimated cost of implementing this VMP over a five-year period is approximately **\$1,070, 176** (ex GST) (Table 5). Costs may vary significantly over consecutive years of management according to the response to the weed control techniques. Rates and costs are based on estimates of current standard commercial rates and there is potential for variation across the sector. On-going maintenance costs (labour and materials) may also increase over time with inflation. Other assumptions that have been made regarding estimation of costs have been outlined below.

The VMP area is to be maintained in perpetuity, however a minimum standard for the implementation of the VMP for the first five years is provided below in Table 5. This schedule is indicative but sets out the minimum number and timing of visits. This may be amended according to timing of when the VMP works start, however, the performance criteria must be met, and any changes should aim to meet these targets. It should be noted that specific activities must occur during the correct seasons, i.e. planting should only occur during the colder months when temperatures are mild as this will give plants a greater chance of survival.

Monitoring reports are required every six months and annually (see Section 5).

### 6.1 Weed control treatments

Bush regeneration contractors will implement this VMP, including the weed management treatments. These works have been estimated to cost **\$2,000** for a team of four bush regenerators, including a supervisor, per day. The cost of bush regeneration works includes the costs of herbicide, vehicles and equipment which are required to implement the VMP.

### 6.2 Revegetation treatments

Bush regeneration contractors will implement this VMP, including the planting treatments. These costs have been budgeted at an estimated **\$3.50 per tree and shrub** including planting, tree guards, water crystals and initial watering, and an estimated **\$2.50 per grass, sedge and groundcover** including planting, water crystals and initial watering. Initially 193,358 plants will be required at an estimated cost of **\$489,923**. An attrition rate of 10% has been assumed, with replacement estimated at a cost of **\$48,992**.

### 6.3 Site Preparation

Site preparation works are necessary for the successful establishment of revegetation works in areas of low resilience. The extent of preparation will depend on the site condition.

Preparation works should be undertaken prior to revegetation. The area to be revegetated will undergo major disturbance prior to revegetation, hence will require major site preparation works (e.g. topsoil application) to make suitable for revegetation. The application of topsoil has not been costed as part of this VMP. Topsoil importation will be at the cost of the developer or civil construction company.



## 6.4 Planting

Revegetation should be conducted in the colder months (early spring or early autumn) to prevent shock to young saplings and reduce exposure to frost or drought conditions. Water crystals or wetting agents should be added to each plant hole. This will increase the water holding capacity of the soil and reduce watering schedules especially in difficult to access locations. All plants will be irrigated when installed to increase survival rates of revegetation. Depending on the weather, irrigation needs to be undertaken for at least 4 - 6 weeks following planting to aid establishment of the plants.

Tree guards will need to be installed on tubestock plantings in Management Zone 3 to protect tree and shrub seedlings from extreme weather (frosts and heat), herbivorous grazing and herbicide drift during maintenance. The requirement for tree guards will be determined by the bush regeneration contractor during the establishment phase. If used, bio-degradable tree guards are recommended to protect the seedlings, especially those in the more exposed restoration zones. Tree guards have been included in the costings.

Planting of tube-stock for trees and shrubs species and Hiko or Viro cells for grasses and other groundcover species are the preferred methods for revegetation works. Planting densities are provided in Table 3. Herbaceous species will be planted in clumps rather than scattered individuals. The recommended species planting list is available in Appendix C.



Table 5: Indicative implementation costs

Treatment	Preliminary	Establishment	Maintenance					TOTALS
			Year 1	Year 2	Year 3	Year 4	Year 5	
Revegetation								
Seed collection, cleaning, storage	\$16,864							\$16,864
Site Preparation		\$8,425						\$8,425
Jute Matting / Mulch		\$116,100						\$489,923
Tubestock, supply and install		\$489,923						\$398,240
Replacement tubestock, supply and install			\$24,496	\$24,496				\$48,992
Irrigation		\$37,638						\$37,638
Weed control								
Preliminary / primary	\$25,850							\$25,850
Establishment / secondary		\$113,975						\$113,975
Maintenance			\$33,280	\$33,280	\$33,280	\$33,280	\$33,280	\$166,400
Associated costs								
Supervision of Earthworks		\$16,610						\$9,530
Monitoring & Reporting	\$4,200	\$4,200	\$4,200	\$4,200	\$4,200	\$4,200	\$4,200	\$29,400
TOTALS	\$46,914	\$786,871	\$61,976	\$37,480	\$37,480	\$37,480	\$37,480	\$1,070,176



Table 6: Implementation schedule

Treatment	Year 1				Year 2				Year 3				Year 4				Year 5			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Civil Works																				
Bulk earthworks and channel construction																				
Install fencing informational signage																				
Revegetation																				
Seed collection, cleaning, storage																				
Site preparation																				
Install jute matting within management zones one, three and four																				
Tubestock, supply and install																				
Replacement tubestock, supply and install																				
Irrigation																				
Weed control																				
Primary																				
Secondary																				
Maintenance																				
Other works																				
Monitoring and reporting																				



## 7. References

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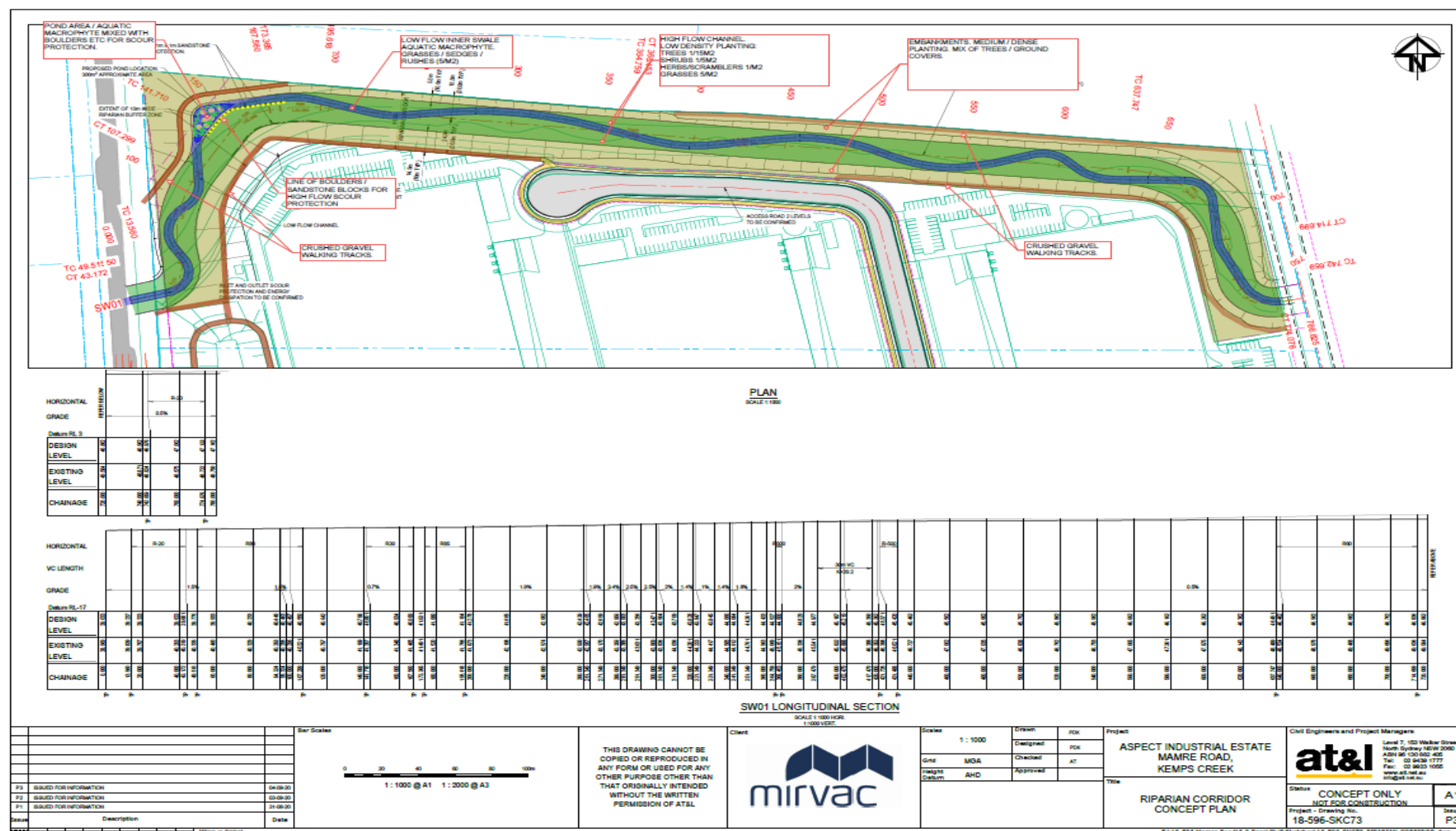
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*PlantNET (The NSW Plant Information Network System)*. Version 2.0 Sydney. <http://plantnet.rbgsyd.nsw.gov.au> (accessed October 2019)



## Appendix A Riparian Channel Civil Designs





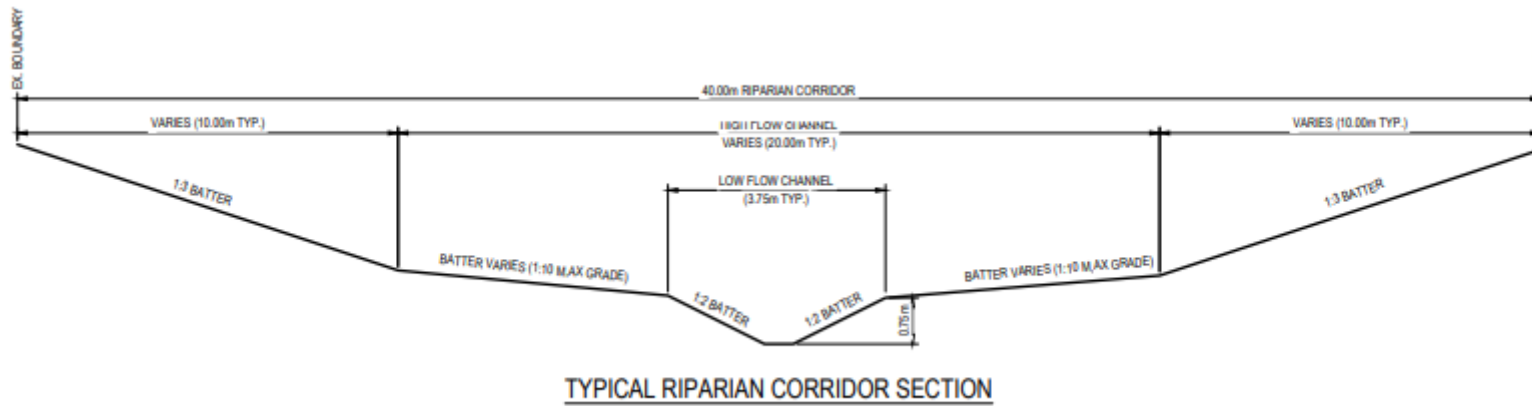


Figure 4: Typical Riparian Corridor Cross Section (AT&L 15 October 2020)



## Appendix B Flora Species

**Table 7: Flora species recorded in the VMP area**

Scientific Name	Common Name	Exotic (*)	Priority Weed	WoNS
<i>Araujia sericifera</i>	Moth Vine	*	PW	
<i>Bromus catharticus</i>	-	*		
<i>Casuarina glauca</i>	Swamp Oak			
<i>Cirsium vulgare</i>	Spear-thistle	*	PW	
<i>Chloris gayana</i>	Rhodes Grass	*		
<i>Cyperus gracilis</i>	Slender Flat Sedge	*		
<i>Hypochaeris glabra</i>	Smooth Cat's Ear	*		
<i>Lepidium bonariense</i>	-	*		
<i>Oxalis perennans</i>	-	*		
<i>Paspalum dilatatum</i>	Dallas Grass	*	PW	
<i>Pennisetum spp.</i>	-	*		
<i>Plantago lanceolata</i>	Plantain	*		
<i>Rumex crispus</i>	Curly Dock	*		
<i>Senecio madagascariensis</i>	Fireweed	*	PW	WoNS
<i>Solanum nigrum</i>	Blackberry Nightshade	*		
<i>Trifolium repens</i>	White Clover	*		
<i>Verbena bonariensis</i>	Verbena	*		



## Appendix C Recommended Planting List

**Table 8: Recommended planting list**

Life form	Scientific Name	Common Name	MZ1 – Low Flow Channel	MZ2 – Pond area	MZ3 – High Flow Channel	MZ4 - Embankment
Tree/Canopy Species	<i>Angophora floribunda</i>	Rough-barked Apple			X	X
	<i>Angophora subvelutina</i>	Broad-leaved Apple			X	X
	<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	River Oak			X	X
	<i>Casuarina glauca</i>	Swamp Oak			X	X
	<i>Eucalyptus amplifolia</i>	Cabbage Gum			X	X
	<i>Eucalyptus moluccana</i>	Grey Box			X	X
	<i>Eucalyptus tereticornis</i>	Forest Red Gum			X	X
Shrub Species	<i>Acacia floribunda</i>	White Sally			X	X
	<i>Acacia parramattensis</i>	Parramatta Wattle			X	X
	<i>Breynia oblongifolia</i>	Coffee Bush			X	X
	<i>Bursaria spinosa</i>	Blackthorn			X	X
	<i>Melaleuca decora</i>	-			X	X
	<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree			X	X
	<i>Ozothamnus diosmifolius</i>	Rice Flower			X	X
	<i>Trema aspera</i>	Native Peach			X	X
Sedges, Rushes, Reeds and Grasses	<i>Carex appressa</i>	Tall Sedge	X	X	X	X
	<i>Cyperus gracilis</i>	Slender Flat sedge	X	X	X	X
	<i>Dichelachne micrantha</i>	Shorthair Plumegrass			X	X



Life form	Scientific Name	Common Name	MZ1 – Low Flow Channel	MZ2 – Pond area	MZ3 – High Flow Channel	MZ4 - Embankment
	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	Tufted Hedgehog Grass			X	X
	<i>Echinopogon ovatus</i>	Forest Hedgehog Grass			X	X
	<i>Eleocharis sphacelata</i>	Tall Spike-rush	X	X	X	X
	<i>Entolasia marginata</i>	Bordered Panic			X	X
	<i>Entolasia stricta</i>	Wiry Panic			X	X
	<i>Gahnia clarkei</i>	Tall Saw-sedge	X	X	X	X
	<i>Imperata cylindrica</i> var. <i>major</i>	Blady Grass	X		X	X
	<i>Isolepis inundata</i>	Swamp Club-sedge	X	X	X	X
	<i>Juncus kraussii</i> subsp. <i>australiensis</i>	Sea Rush	X	X	X	X
	<i>Juncus usitatus</i>	Common Rush	X	X	X	X
	<i>Lomandra filiformis</i>	-			X	X
	<i>Lomandra longifolia</i>	Spiny-head Mat-rush			X	X
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	-			X	X
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Meadow Grass			X	X
	<i>Oplismenus imbecillis</i>	Basket Grass			X	X
	<i>Paspalidium distans</i>	-			X	X
	<i>Schoenoplectus mucronatus</i>	Club Sedge	X	X	X	X
	<i>Schoenoplectus validus</i>	River Club-sedge	X	X	X	X
	<i>Themeda australis</i>	Kangaroo Grass			X	X
Groundcover Species (~0-	<i>Centella asiatica</i>	Indian Pennywort			X	X
	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	Poison Rock Fern			X	X
	<i>Commelina cyanea</i>	Creeping Christian			X	X



Life form	Scientific Name	Common Name	MZ1 – Low Flow Channel	MZ2 – Pond area	MZ3 – High Flow Channel	MZ4 - Embankment
1.5 m) & Vines/Scramblers	<i>Desmodium varians</i>	Slender Tick-trefoil			X	X
	<i>Dichondra repens</i>	Kidney Weed			X	X
	<i>Geranium solanderi</i>	Native Geranium			X	X
	<i>Glycine clandestina</i>	Twining Glycine			X	X
	<i>Glycine microphylla</i>	Small-leaf Glycine			X	X
	<i>Glycine tabacina</i>	-			X	X
	<i>Hardenbergia violacea</i>	Purple Coral Pea			X	X
	<i>Plectranthus parviflorus</i>	Cockspur Flower			X	X
	<i>Solanum prinophyllum</i>	Forest Nightshade			X	X



## Appendix D Techniques and Specifications

Various weed control techniques are required to control weed infestations in natural areas. Weed infestations usually consists of a number of different weed species, densities and weed forms.

Weed control techniques are summarised below. These techniques are guidelines only. An adaptive weed management program should include a combination of different weed control techniques and involves consideration of monitoring and reporting outcomes and potential changes to the weed management program based on those result.

Depending on the area, density and priority, objectives of weed control may change. For example, it may be more cost-effective to contain zones with a high weed infestation but with a low risk of spreading into adjacent habitats or impacting on threatened species or communities, rather than attempting to eradicate all weeds. Alternatively, it is cost effective in the long-term to eradicate weeds in small infestations before they become larger and more widespread.

To effectively manage the issue of weed invasion an understanding of the types of vectors responsible is important. The movement of wind and water is often considered the greatest mode of weed dispersal into new habitats. Water is commonly responsible for the transport of weed propagules along the riparian corridors and contributes to weeds establishing downstream watercourses. However, there are many options for weed dispersal by vectors other than wind or water. A list of some of the potential weed vectors and examples of weeds species is shown the table below.

**Table 9: Weed vectors table**

Vector	Weed Examples	Description	Ecological Implications
Watercourse	Trad	Fleshy stems can be transported along watercourse	Widely dispersed into native and disturbed environments
Drain	Moth Vine	Light feathery capsules float on water	Widely distributed along creek lines and into downstream habitats
Wind	Pampas Grass	Very light seeds are windborne over long distances	Readily invades disturbed open habitats, particularly along road verges
Track	Cobblers Pegs	Burrs stick to animals and humans	Invades disturbed bushland along tracks and is carried into adjacent habitats
Birds	Privet, Blackberry, Lantana	Edible fruits are dispersed over large areas	Birds increase weed dispersal into new habitats
Mammals	Blackberry, Prickly Pear	Eat fruit or transport burrs on fur	Mammals spread seeds or burrs into new habitats
Humans	Cobblers Peg, African Lovegrass	Transport propagules on clothes and shoes	Humans spread seeds or burrs into new habitats



### Hygiene protocols

A strict hygiene protocol must be implemented to control the spread of weed propagules between habitats and the accidental introduction of invasive species into sensitive areas. Best management practices recommend work from should target areas of high native resilience to areas then move towards high weed infestation. Weed propagules may be spread on the clothes or boots of humans or in the soil on vehicles. It is important that all vehicles, especially earth movement, are thoroughly washed down before moving to a new site. This also applies to humans. Clothes must be free of weed propagules before entering a new site.

### Principles of weed control within natural areas

Weed control programmes within natural areas follow the principles of bush regeneration including the Bradley Method and other techniques to promote natural regeneration as described in Buchanan (2000). These are summarised below:

- Where available, refer to best practice guidelines for individual weed species which may need to be adapted to a natural setting and ecological outcome
- Ensure correct plant identification – many weed species are difficult to identify because they resemble native species or typically occur in a vegetative (i.e. non-flowering) form.
- Limit the creation of bare patches of soil and soil disturbance in general, since this will encourage weeds to establish and grow – do not create unnecessary tracks with vehicles or other machinery;
- As a first option for weed control, consider methods that do not use herbicide (e.g. hand pulling and crowning) and which create very little soil disturbance;
- When using herbicides, use the least toxic chemical whenever possible and always follow the instructions;
- When working on or near drainage lines, use an approved herbicide for this environment;
- Refer to Australian Pesticides and Veterinary Medicines Authority (APVMA) website ([www.apvma.gov.au](http://www.apvma.gov.au)) for information on off-label permits;
- Apply herbicides when the plants are actively growing and prior to seed set to achieve the best results;
- Regularly monitor for new infestations; and
- Where woody weeds are providing habitat for native birds and animals, use the drill and fill technique to enable the same structure to remain in situ while the tree or shrub dies – this will enable the plant to provide shelter for a period of time, while giving the birds and animals a chance to move on of their own accord. Where this is not practical considering the size of an infestation consider a mosaic approach to control.



### Integrated Weed Management

Integrated weed management may use a combination of any of the following techniques; mechanical, chemical, manual handling and biological methods. According to the Department of Primary Industries“ (DPI) *Noxious and environmental weed control handbook* the best management practices considers a long-term perspective and does not rely solely on herbicide application (DPI 2010).

Weed control can be broken down into three main categories:

- **Primary Treatment:** the first weeding of the site.
- **Secondary Treatment:** the second weeding of the site which may be very intensive as all regrowing/germinating weeds should be removed before they seed and out-compete native plants.
- **Maintenance/Follow-up Treatment:** every re-weeding of the site after the secondary phase.

The first time an area is weeded (primary treatment) can be labour intensive and time consuming and depending on the target species and site conditions. It may take over several months to complete for one species (Buchanan 2009). In areas of high weed infestation and with no native resilience and/or native plants present, primary weeding may be accelerated as preparatory works for revegetation. However, in areas where native plants may occur, primary weeding should be undertaken at a pace that assists with the natural regeneration of the site.

Secondary treatment of an areas can take longer than primary treatment as new species can be present that more difficult to treat than the original weed (Buchanan 2009). Secondary treatment needs to be carefully timed to:

- Prevent weeds from setting seed;
- Suppress vegetative regrowth while plants are still small; and
- Allow native plants to recruit without being smothered or out-competed by weeds.

However, secondary treatment should allow enough time for the soil profile to recover following primary treatment and the establishment of weed growth from the soil seed bank.

Maintenance treatment refers to weed control that is carried out after the secondary treatment (Buchanan 2009). The goal of follow-up treatments is to remove weedy recruits so that native species can re-colonise the area; frequent visits are likely to be needed at first, although the amount of time and resources used should gradually decrease through time.



## Chemical Weed Control – Herbicide Application

### *Herbicide Selection*

Any herbicide used in weed management activities must be registered for use in the appropriate situation for the species being treated. It is the responsibility of the weed control operator to check that the herbicide intended for use is registered at the time of control. Where herbicide application is used, many hardy species may require re-treatment between six and twelve months after the initial treatment to ensure mortality of individual plants.

### *Spot Spray Application*

Hand operated spray gun connected to a knap-sack or vehicle (e.g. truck, ATV, etc.) mounted herbicide storage tank is used to direct diluted herbicide spray to defined areas. When applied under correct conditions, individual plants or parts of plants may be treated using this method with minimal risk of overspray and non-target damage. Spot spraying is an effective and targeted way of treating weeds on a landscape level, though non-target damage is possible on an individual plant level. This can be mitigated in some situations through the use of selective herbicides.

This method is most suitable for low growing or juvenile grasses, herbs, and woody weeds that have copious, but compact, foliage. In most cases, spot spraying should be undertaken after new growth is produced but before flowering. Because the plant is left *in situ* after spraying, there is potential of seed to mature on the plant if spraying is left to late. In some cases the target plant may also take weeks or months to die off.

### *Boom Spray Application*

A nozzle spray apparatus is connected to the rear of a vehicle-mounted herbicide storage tank to apply a diluted herbicide application. Where terrain is suitable for vehicle access, large areas are typically treated using this technique (e.g. open paddock situation). Boom spraying is a fast and economical way of treating large areas of weeds on a landscape scale. However, boom spraying does not allow the operator to avoid individual plants and so has a high potential for non-target damage. This can be mitigated in some situations through the use of selective herbicides. This method is most suitable for large areas of weed infestation without any native regeneration potential.



**Figure 5: Boomless spray nozzle attached to a truck**



### *Splatter Gun Application*

Individually operated splatter or gas guns are connected to a 5L backpack which may be equipped with a canister of LPG. The handgun applicator is charged with a dose of herbicide and a splatter of low volume-high concentration herbicide solution is applied. The LPG forces the herbicide out of the pack up to several meters distance; however, instead of a fine spray mist, as in the case of spot spray application, the herbicide is applied in a large droplet form leaving a line of herbicide on the plant.

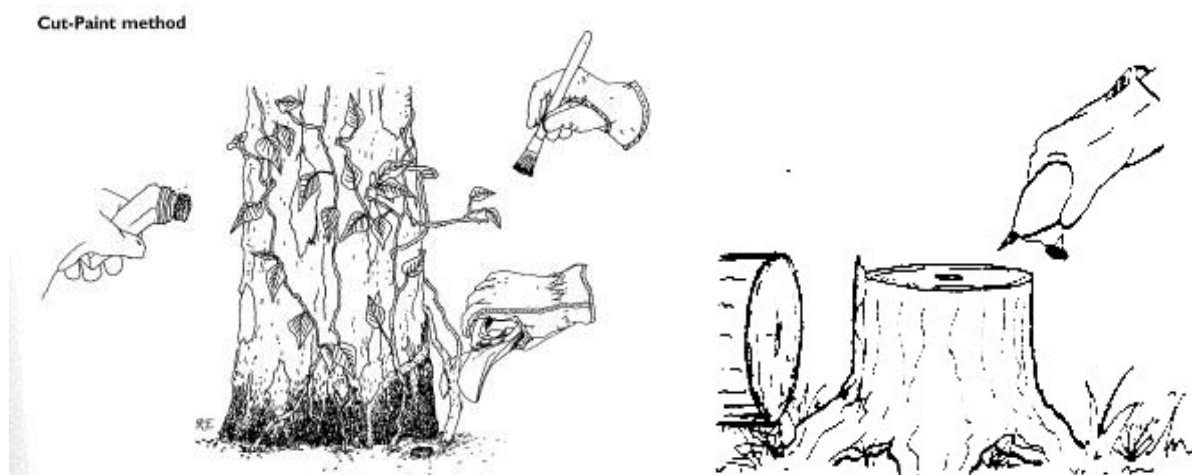
“Stripes” of herbicide are applied across large plants instead of coating all parts of the plant in a fine mist.

Splatter guns are very effective as the application of the herbicide is more directed and produces limited off target damage. This treatment provides a good alternative to spot-spraying where access is difficult or materials have to be carried in, as they use much less water. Splatter guns can also provide an alternative to mechanical removal or herbicide treatments requiring access to the stem of the plant (e.g. cut and paint, drill and frill, etc.) amongst dense, low growing woody weeds such as Bitou and Lantana. This treatment is not effective on vegetation with sparse foliage cover.

### *Cut and Paint*

In the cut and paint treatment, the stem of the plant is cut all the way through and herbicide applied to the stump. The plant should be cut as close to the base as possible, below any branches and the cut should be horizontal. The remaining stump should not exceed 10mm in height. The tools required to make the cut may be a handsaw, secateurs or chainsaw. Any dirt on the stump needs to be removed and the herbicide needs to be directly applied within 30seconds to the stump using a dabber bottle. Some plant species re-sprout after this treatment and follow up work may be required to kill the plant effectively. A non-specific herbicide should be used for the cut and paint method.

The cut and paint method is suitable for the control of woody weeds, large herbaceous weeds and vines/climbers. When done with vines/climbers it is referred to as „skirting“. This treatment is commonly used when the biomass is to be removed from the site following the primary weed control. It is most suitable for plants with a small diameter at the base and a single stem or trunk. Given that to be effective the herbicide has to be applied as soon as possible after cutting, this method is not effective where extensive cutting is required.



**Figure 6: The cut and paint method (Muyt 2001, Sydney Weeds Committee 2013)**



### Drill and Fill

The drill and fill method involves drilling a hole into the base of a tree below any branches with a hand drill using a 9 or 10mm drill bit at an angle of 40-60°. The hole should only penetrate through the sap wood and not through to the heart wood. The hole should then be filled immediately with the appropriate herbicide. An eye dropper or a squeeze bottle with a narrow nozzle can be used to fill the hole. If the plant re-sprouts follow up work will be required to kill the plant. A non-specific herbicide should be used for this treatment method.

The drill and fill method is suitable for woody weeds with a large diameter at ground height or for plants with multiple stems at the base. This control method is useful where dead trees are intended to be left standing as habitat trees and would be a suitable method for the eradication of large Camphor Laurels or Broad-leaved Privet trees, providing the dead trees do not present a hazard to the public at a later stage.

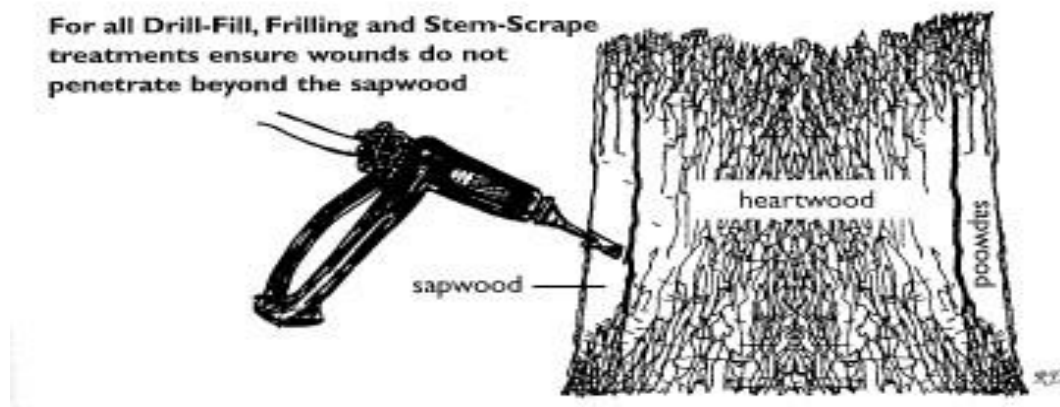
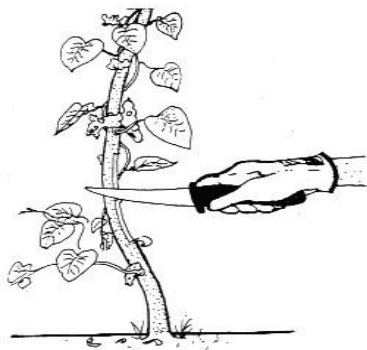


Figure 7: Drill and fill method for large woody trees (Muyt 2001)

### Stem Scrape

The stem scrape method involves using a sharp knife to scrape back the top layer of bark from the vine 20-30cm long. An appropriately mixed herbicide needs to be applied immediately (within 30 seconds) using a dabber bottle. The root system of the plant should not be disturbed until the plant has died as this may reduce the effectiveness of the herbicide. Skirting method may be used in conjunction with stem scrape. This method is especially important to remove large infestations of vines within the canopy layer. Skirting involves cutting the vines within the canopy at chest height. This will allow an increase in the amount of light and resources to the canopy trees through the reduction of vine biomass.



The stem scrape method is most useful when used to treat species that need greater herbicide coverage than can be provided by the cut and pain method (e.g. Green Cestrum, Ochna), or a species that has reproductive material (e.g. tubers) that must be poisoned as well (e.g. Madeira Vine). For the latter, this is especially important if it is not possible to collect the reproductive material. However, for most woody weeds and vines, this method is not necessary.

Figure 8: Stem scrape (Sydney Weeds Committee, 2013)



### Manual and Mechanical Weed Control

This technique physically removes plants from the soil and depending on the weed species may require special conditions for disposal (e.g. some noxious weeds must not be transported off-site and must be disposed of by deep burial). Manual treatment effectively removes the entire plant using hand tools such as shovels or the use of heavy machinery. This technique is most productive when treating small area infestations and successfully removes the entire plant effectively preventing future seed set.

Certain parts of plants may also be targeted for removal to prevent flowering or seed set (i.e. post flowering but prior to mature seed being released from the fruit or seed head). Re-treatment may be required if mature plants have previously released viable seed into the soil which may germinate post soil disturbance.

To reduce the risk of localised increased fuel load no debris should stockpiled on site.

#### Hand Removal / manual methods

Hand removal of weeds involves pulling the plant as close to the base as possible and ensuring the entire tap root is pulled out of the soil. This usually results in soil disturbance and the soil should be replaced and compressed to prevent further weed invasion.

The successful hand removal of some other weeds may require the removal of the plant's roots, bulbs or tubers. This method includes digging and crowning with the use of a hand mattock, knife or trowel. Crowning involves using a knife to cut the roots around the crown of the plant.

The hand removal or pulling of weeds is suitable for many species of weeds as long as they have a shallow root system. This includes woody weeds, grasses and herbaceous species. It is useful for follow up work on woody weeds to control seedlings

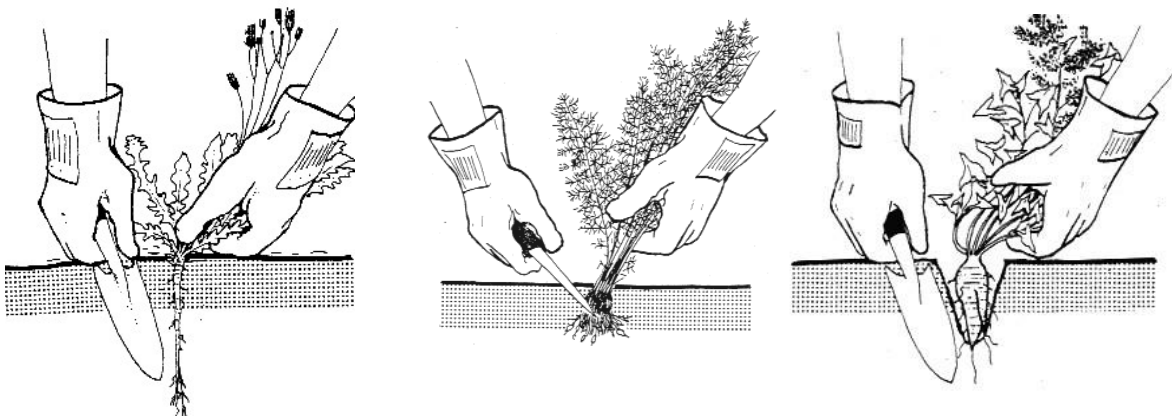


Figure 9: Hand pull (left), crown cut (middle) and rhizome / tuber trace (right) (Sydney Weeds Committee 2013)

#### Mechanical Removal

This technique physically removes or destroys individual plants via a process utilising large machinery or chainsaws. The use of large-scale machinery can be extremely successful for the localised eradication of dense infestations of woody weed species such as African Olive and Blackberry.



Weeds may be grubbed or raked out, and then removed from site or mulched *in situ*. Species such as African Olive will resprout and will require follow up treatment with herbicide.

Mechanical removal is most effective with areas of high weed density, especially with woody weeds where herbicide spray is not practical. Where machinery access is possible, this is preferred as it has the added benefit of being able to mulch the woody weeds *in situ*. However, in creek lines or other steep sites chainsaws can be used to cut down woody weeds. When using chainsaws in this way it is recommended that only the outer layer of woody weeds and the smaller woody weeds in the interior be completely cut down. This will provide access into the interior. The larger woody weeds in the interior of the area should be treated by drill and frill and left standing. This allows for access through the creek line for follow up treatments. It is recommended to leave woody debris *in situ* or spread out loosely. The creation of large piles of woody debris is not recommended as it can impede follow up.

Generally, work sites where this technique is used requires a maintenance component to monitor and control the potential reshooting root material, the germination of residual seed of the weed species and the colonisation of the site by other weed species. In some circumstances the control program requires follow up erosion, weed control, and revegetation programs to mitigate the risk of the aforementioned issues.



**Figure 10: Triter machine mulching African Olive**

### *Slashing*

Slashing involves removing some or all of the vegetative portion of a plant using mechanical blades. The use of machine drawn slashers or on a smaller scale individually operated brush cutters can prove extremely successful in reducing the seed load of key species.

The success of this technique is dependent on the timing of the slashing coinciding with the early flowering of the key species, in turn removing the flower heads prior to seed set. The timely use of slashing when combined with the use of herbicide application can provide an extremely cost effective and environmental favourable program of weed control. Slashing reduces the vegetative material of a plant, encourages new growth and removes dead thatch. All these factors make herbicide spraying after slashing more efficient, effective and economical. It should be noted that as slashing is indiscriminate it



can result in non-target damage. However, unlike herbicide which kills the entire plant slashing only removes the top portion and so can be used around native grasses especially with less risk. This can be further mitigated through setting of the slashing height and timing of the slashing to avoid native seed set.



**Figure 11: Slashing Paspalum amongst native grasses**

### Biological Control

Biological control agents may be used for the management of some weed species. These control agents may have limited effectiveness due to their sensitivity to environmental conditions, and so the efficacy of this control technique depends on the ability of the control agent to establish self-perpetuating populations.

Biological control agents are generally best applied to high density weed infestations and the control agents (eg, Blackberry Rust) may need to be actively bred and reapplied regularly to counter natural mortality and periods of dormancy in target species.

Release of biological controls is particularly effective in treating weed populations in areas of high environmental sensitivity or to assist in the management of the identified weeds as part of a larger scale control program. These agents need to demonstrate high host specificity and pose little or no threat to other desirable plant species. If so, this is an ideal option for use in areas of threatened species or within sensitive habitats such as along water courses. The use of biological controls is strongly regulated to prevent the introduction of pests or diseases which impact on non-target species.

### Herbicide Information

#### *Herbicides*

Herbicide application often forms an important component of an integrated weed management approach and can be the most appropriate method to control some weed species. Many herbicides are harmful not only to plants, but also fauna, particularly fish and amphibians.



Any herbicide used in weed management activities must be registered for use in the appropriate situation for the species being treated. These registration requirements are provided on the product label or an „Off-label Permit“. Some species which are known to be difficult to control may be treated using combinations of herbicides registered for use in „Off-label Permits“ which are issued by the Australian Pesticides and Veterinary Medicines Authority (APVMA). It is the responsibility of the weed control operator to check that the herbicide intended for use is registered at the time of control.

The situation of control should be carefully considered to ensure correct herbicide usage. In all cases the application technique must be aligned to the registration requirements of the individual herbicides selected for the weed control program. Where a sensitive environment coincides with weed infestation only herbicides suitable for use in sensitive areas (as dictated by the product registration) should be used. For example, to target a weed infestation in close proximity to water courses such as a creek line, a product such as Roundup® Biactive® could be used as it is registered for use in this type of situation.

Residual herbicides can be present in the soil profile for several months post application to reduce the incidence of regrowth of the target weed species. A residual selective herbicide would not, however, be appropriate if plans for the area involved revegetation, particularly with species intolerant to the herbicide. This would pose a serious threat to rehabilitation maintenance works where the area was to be revegetated with species which are susceptible to herbicide impact. Application of a residual herbicide may reduce recruitment of these species, further compounding the maintenance issues. In this situation a non-residual herbicide would be recommended to reduce the impact on establishing vegetation.

Herbicides fall into two main categories with regard to their impact on particular plants

- Non-selective herbicides which will, at appropriate rates, kill all plants. Glyphosate is a non-selective herbicide.
- Selective herbicides which will target either grass (monocot) species or broad-leaf (dicot) species.

Herbicide use should occur during the active growing season for plants to encourage the chemical uptake into the plant. Where herbicide application is used, many hardy species may require retreatment between six and twelve months after the initial treatment to ensure mortality of individual plants. Off target damage is common with herbicide use and consideration should be given to the following factors to avoid this damage.

- Correct identification of target species
- Spray drift in high winds
- Environmental conditions at time of application

A number of selective herbicides have been approved for grasses and for broad-leaf species in the NSW Department of Primary Industries (DPI) *Noxious and environmental weed control handbook*.

These selective herbicides represent a range of environmental toxicities and the Material Safety Data Sheets (MSDS) should be referred to in each instance. For instance, Metsulfuron-methyl poses a low risk to the environment, while Triclopyr is considered to be relatively toxic and has the potential to pose



a moderate risk to the environment. Dimethylamine salt is in the same category as triclopyr, but is moderated by mixing it with metsulfuron-methyl.

Registration and records of any herbicide use must be kept in accordance with the NSW *Pesticide Regulation 2009*.

### Herbicides impact on ecosystem

The correct training and appropriate application of herbicides must be followed at all times. There is a high risk of ecological impacts associated with use of herbicides. These risks include accidental death of plants due to spray-drift or due to incorrect handling technique or sensitive plants. There is also evidence that there are indirect impacts on microbats due to herbicide poisoning and reduced numbers of prey items for microbat species. Where possible consider alternative methods to herbicide use.

### Staff Training

All weed control operators must be properly trained and hold required certification e.g. ChemCERT® and comply with requirements of the Pesticides Regulation 2009 (NSW) and Pesticides Act 1999 (NSW).









# **Appendix Q    Unexpected Finds Protocol - Heritage**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



## Aspect Industrial Estate

### Unexpected finds procedure – Aboriginal heritage

If unanticipated suspected Aboriginal heritage items are uncovered at any time throughout the life of the project the following steps would be undertaken.

- Cease all activity in the vicinity of the find
- Leave the material in place and protect it from harm
- Erect a 10 m exclusion zone (temporary fencing/signage)
- Take note of the details of the material and its location, take a photograph of the find *in situ*
- Inform the site manager/area supervisor, who would then inform the superintendent / principal

Once the find has been secured the project archaeologist/ heritage consultant should be contacted to assess the significance of the find and determine management requirements.

If the find is identified as a genuine Aboriginal object:

- Heritage NSW and Deerubbin LALC must be notified and the RAPs for the project consulted.
- A methodology for salvage and long term storage of the find in accordance with its identified significance must be developed in consultation with the RAPs.
- Salvage works in accordance with the methodology should be undertaken.
- The Aboriginal object should be registered on AHIMS.

Works would not recommence until written consent is received from the project archaeologist/heritage consultant.

### Skeletal remains

Suspected human remains would be managed in accordance with the projects unexpected finds procedure. Where suspected human remains are identified during salvage excavation or construction works, all work in that area would cease and the area be cordoned off. Where it is unclear whether the remains are human, a specialist, such as a Physical Anthropologist, would be called to site to confirm.

Where it is either clear that the remains are human, or it has been confirmed by a specialist, the NSW Police and Heritage NSW Environment Line (131 555) will then be notified.

Work will not recommence in the area where skeletal remains have been identified until such time as the relevant approval has been granted.





# **Appendix R    Unexpected Finds Protocol - Contamination**

**Aspect Industrial Estate Construction Environmental  
Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



# UNEXPECTED FINDS PROTOCOL – REV 6.1

Aspect Industrial Estate, Mamre Road, Kemps Creek, NSW

Prepared for Mirvac Projects Pty Ltd

24 FEBRUARY 2023

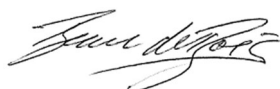


## UNEXPECTED FINDS PROTOCOL

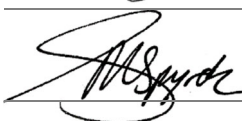
### Aspect Industrial Estate, Mamre Road, Kemps Creek, NSW

Revision 6.1

**Author** Beau Dubois



**Approver** Simon Spyrdz



**Report No** 30136618\_UFP

**Date** 24/02/2023

**Revision Text** Rev 6.1

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A	1/11/2019	Draft for Client Review	D.T.	L.M.
B	22/11/2019	Revised UFP based on Auditor Feedback	D.T.	C.L.
C	9/10/2020	Revised UFP based on 2020 legislation amendment	B.K.	B.V
D	22/04/2022	Revised UFP in response to ER review post DA	MG	MC
5	03/05/2022	Revised with hold point for key stakeholder consultation in response to UF	MG	MC
6	14/02/2023	Revised based on Auditor comments	BD	SS
6.1	24/02/2023	Minor text amendment	BD	SS



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# APPENDICES

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**APPENDIX D MANAGING ASBESTOS IN OR ON SOIL FLOWCHART (SAFework NSW, 2014)**



## 1 INTRODUCTION

Arcadis Australia Pacific (Arcadis) was engaged by Mirvac Office and Industrial (Mirvac) to prepare an Unexpected Finds Protocol (UFP) to support the proposed Aspect Industrial Estate development located at Lots 54-58 DP259135 Mamre Road, Kemps Creek, NSW 2178. The location of the site is illustrated in Figure 1, **Appendix A**, and site features are depicted in Figure 2, **Appendix A**.

In order to obtain a construction certificate and commence construction work, all consent conditions of the Development Approval (DA) must be satisfied. The preparation and implementation of an Unexpected Finds Protocol (UFP) is expected to be required under the DA consent conditions to manage any unexpected finds, including contamination, that may be encountered during bulk earthworks.

### 1.1 Purpose

This protocol outlines the actions which must be implemented in the event that potentially contaminated materials, waste or asbestos is unexpectedly encountered during bulk earthworks and material importation at the site.

### 1.2 Background

The site comprises an approximate area of 56.3 ha and is located within the Penrith City Council Local Government Area (LGA). Known historical land uses at the site include rural residential, grazing, dairy farming, poultry farming and horticulture. The proposed redevelopment of the site will facilitate land uses consistent with commercial and industrial use, as prescribed in the National Environmental Protection Measure as amended in 2013 (NEPC, 2013) and will involve the following activities:

- The demolition and removal of existing rural structures.
- Heritage salvage works (if applicable).
- Clearing of existing vegetation and associated dam dewatering and decommissioning.
- Realignment of existing creek.
- On-site bulk earthworks including any required ground dewatering.
- The importation, placement and compaction of spoil material, consisting of;
  - Virgin Excavated Natural Material (VENM) within the meaning of the Protection of the Environment Operations (POEO) Act; and/or
  - Excavated Natural Material (ENM) within the meaning of the NSW Environmental Protection Agency (EPA) Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the POEO (Waste) Regulation 2014 – The Excavated Natural Material Order 2014; and/or
  - Materials covered by a specific NSW EPA Resource Recovery Order and Exemption which are suitable for their proposed use.
- Boundary retaining walls.
- Catchment level stormwater infrastructure, trunk service connections, utility infrastructure, roads and access infrastructure.
- Stormwater, service and utility infrastructure associated with the construction of industrial logistics and warehouse buildings within Stage 1 of the development.
- Boundary stormwater management, fencing and landscaping.

#### 1.2.1 Preliminary Site Investigation

In January 2019, JBS&G conducted a Preliminary Site Investigation (PSI) with limited soil sampling at the site.

The JBS&G review of the site history indicated that the site was historically used for light agricultural purposes (i.e. grazing, historical dairy farming, poultry farming and horticulture).



The findings of the desktop study (confirmed by detailed site inspections completed by JBS&G on 30 November 2018 and 16 January 2019) identified current and potential historical sources of on-site contamination. The sources of potential contamination were associated with the following storage, handling and uses on the site:

- Pesticides/herbicides used in former and current market gardens.
- Potential biological impacts from livestock/poultry farming.
- Potential use of hazardous building materials (asbestos, lead based paints, PCBs) in historic and current site structures resulting in localised impacts to soils in proximity to the location of site structures.
- Potential hydrocarbon and pesticide contamination from the storage of materials and consumables at various locations across the site area (former and current sheds).
- Fill materials of unknown origin.
- Potential asbestos containing materials (ACM) in irrigation lines (conduits).

JBS&G collected soil samples from a total of 38 locations across the site (29 soil boreholes, two test pits and seven stockpiles). The results from the samples collected by JBS&G have been summarised below:

- Elevated Total Recoverable Hydrocarbon (TRH) concentrations were identified in stained soils below a fuel drum (sample BH10 at 0.1 m). This impact was limited in lateral extent and did not appear to migrate vertically, based on visual observations of stained soil.
- A small number of heavy metal impacts to surface soils were also identified but were not considered to pose unacceptable ecological health risks under the proposed land use.
- Anthropogenic materials at some locations were present in quantities that may pose an aesthetic concern for sensitive land uses. JBS&G however noted that with the proposed land use (commercial/industrial), these materials may be retained beneath hardstand without any further management. The impacts identified were typical of historical land uses.
- Trace level friable asbestos was identified at one location (HA13) adjacent to historical structures, which were observed to contain possible ACM sheet board. JBS&G noted that there was the potential for ACM to be present within site structures and in soil in the vicinity of the structures.

JBS&G concluded that whilst the investigation identified localised surficial soil impacts at the site, the investigation did not identify widespread contamination which may preclude future redevelopment of the site. Identified soil impacts are considered representative of common contaminants and historical land use activities which can be readily dealt with during the DA stage for redevelopment and assessment for site suitability. JBS&G also recommended that a Hazardous Building Material Survey (HBMS) should be undertaken prior to any demolition of existing site structures.

## 1.2.2 Detailed Site Investigation

During October 2019, Arcadis undertook a Detailed Site Investigation (DSI) which involved intrusive works to assess soil, groundwater and surface water on site for contaminants of potential concern (CoPC) identified in the PSI (Arcadis, 2019a).

Review of previous site reports, observations from site walk overs on 8<sup>th</sup>, 9<sup>th</sup>, 16<sup>th</sup> and 23<sup>rd</sup> October 2019 and analytical results from soil, surface water, groundwater and potentially asbestos containing material (PACM) indicated that impact at the site is unlikely to be widespread. These observations were consistent with the JBS&G findings.

The results from the samples collected by Arcadis have been summarised below:

- Soil samples were taken from fifteen (15) test pits and six (6) monitoring wells. One sample reported an outlier exceedance of benzo(a)pyrene at MW02\_2.0. However, this exceedance was considered an anomaly and does not represent the concentration of benzo(a)pyrene in natural soil materials, nor does it exceed the adopted assessment ecological screening criteria.



- Three (3) soil samples collected from areas adjacent to treated timber posts were assessed, with one sample (SO01) which exceeded the NSW EPA General Solid Waste CT1 criteria for nickel (Ni).
- All surface waters reported analytes below the adopted criteria.
- Surface waters reported elevated pH and electrical conductivity when compared to the adopted criteria.
- A small number of heavy metal impacts to groundwater were observed and these were attributed to the elevated background concentrations of metals in on-site clay soils.
- Potential asbestos containing material (PACM) reported positive identification of asbestos at three out of four samples locations. No PACM was observed on roads or access tracks, with identified material adjacent current or former structures.

Based on the findings of the DSI, the site was deemed suitable from a contamination perspective for the proposed development as an industrial estate, pending the removal of identified asbestos containing material and the issuing of a clearance certificate to soil surfaces. Arcadis recommended that a HAZMAT survey and an asbestos register should be developed for the site prior to demolition works, asbestos removal works should be undertaken, and a clearance certificate issued post demolition and that a site unexpected finds protocol should be implemented prior to any intrusive works. Arcadis also recommended that on-site surface water should be measured after a significant rainfall event and compared to previously recorded the observations to observe water quality prior to dam de-watering. Accordingly, there is potential for unexpected finds, including contamination or waste, which may be encountered during demolition or earthworks at the site.

Arcadis recommended the following:

- Completion of a HAZMAT survey and preparation of an asbestos register for the site prior to demolition works. Asbestos removal works should be undertaken, and a clearance certificate issued following demolition.
- Completion of on-site surface water sampling following a significant rainfall event and comparison of data to previously recorded observations to assess for changes in water quality prior to dam de-watering.
- Preparation of an unexpected finds protocol prior to demolition or earthworks commencing at the site.



## 2 SCOPE

This protocol applies to the following activities:

- The demolition and removal of existing structures on-site.
- Clearing of existing vegetation.
- Dam dewatering and decommissioning.
- Importation of fill material to support earthworks undertaken as part of the site redevelopment works.
- Installation of site infrastructure including stormwater, service connections, utilities, roads and access infrastructure.
- Any other activities that have the potential to uncover or encounter contaminated materials, waste or asbestos.



### 3 TRAINING AND INDUCTION REQUIREMENTS

All site-based Mirvac personnel and sub-contractors operating at the site should be inducted and review this protocol.

All site-based personal should understand the potential for unexpected finds, how to identify potentially contaminated materials, waste and asbestos and the procedures for management of unexpected finds.

A hardcopy of this UFP should be retained on-site at all times. Electronic copies of this UFP should be provided to site personnel and sub-contractors, as required.

The site unexpected finds register, and hazardous material register should be updated each time an observation of potentially hazardous or contaminating materials is made.



## 4 PERSONAL PROTECTIVE EQUIPMENT (PPE)

When an unexpected potentially contaminated or hazardous material is found on site, appropriate personal protective equipment (PPE) is to be worn prior to any contamination investigation/management. This may include, but should not be limited to:

- Eye protection e.g. safety glasses or goggles.
- Face mask.
- Steel-toe boots.
- Safety gloves.
- High visibility long-sleeve shirt.
- Long trousers.
- Hard hat if overhead hazards are present.
- P2 respirator if fine materials and dust is present.



## 5 ASSESSMENT GUIDELINES FOR UNEXPECTED FINDS

The site is proposed to be redeveloped for land uses consistent with commercial and industrial uses, as prescribed in the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) as amended in 2013 (NEPM, 2013). Unexpected finds at the site should be assessed and managed in accordance with the criteria contained within following guidelines:

- Heads of EPA Australia and New Zealand (HEPA) (2018) PFAS National Environmental Management Plan.
- National Environmental Protection Council (ASC NEPC) NEPM (2013) HIL-D and HSL-D (Commercial/Industrial) criteria.
- NSW EPA (2014) Waste Classification Guidelines: Parts 1-3.
- NSW EPA Resource Recovery Framework, including current Orders and Exemptions.
- NSW EPA (2022) Contaminated land sampling design guidelines part 1 and part 2.
- NSW EPA (2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.
- NSW EPA (2019a) Standards for Managing Construction Waste in NSW.
- NSW EPA (2019b) Construction and Demolition Waste: A Management Toolkit.
- NSW EPA (2020) Consultants reporting on contaminated land: Contaminated land guidelines.
- Safe Work NSW (2022) How to Safely Remove Asbestos Code of Practice.
- Safe Work NSW (2014) Managing Asbestos in or on Soil.
- WA Health (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.



## 6 PROCEDURE

### 6.1 Identification of Unexpected Finds

Previous environmental investigations completed at the site identified ACM on soil surfaces and trace level asbestos fibres in soils, building materials, stockpiled soil on-site and elevated hydrocarbon concentrations in stained soils (refer to JBS&G, 2019; Arcadis, 2019a). Similar impacts may be observed at other areas of the site during demolition or earthworks at the site.

Unexpected finds may be detected visually, by odour or through laboratory testing. Unexpected finds at the site may include (but are not limited to):

- ACM and/or asbestos in soils. Identified by the presence of suspected ACM (e.g. irrigation pipes or building materials) or detection of asbestos fines (AF) or fibrous asbestos (FA) in laboratory analysis.
- Dangerous Goods, chemical containers, drums or liquid waste including legacy firefighting foams or chemicals used for dust suppression.
- Construction, building and demolition waste.
- Stockpiled soil.
- Ash and slag.
- Historical imported fill material.
- Stained and/or odorous soils impacted by hydrocarbons and/or Volatile Organic Compounds (VOCs).
- Illegally dumped materials.

In situations where any of the above or additional unexpected finds are identified on-site, an exclusion zone should be immediately established, and the unexpected find should be documented and managed in accordance with the procedures outlined below and summarised in **Appendix B**.

***Any unexpected finds are required to be communicated to key stakeholders (Mirvac, Environmental Consultant, Site Auditor, etc.) prior to implementation of appropriate and agreed management measures. These hold points are to satisfy Mirvac's expectations that Unexpected Finds are managed appropriately.***

### 6.2 Unexpected Finds Register

All unexpected finds identified on-site must be recorded in the Unexpected Finds Register provided in **Appendix B**. The Unexpected Finds Register records initial information inclusive of the following:

- Identification number.
- Date.
- GPS location.
- Name of person who identified the unexpected find.
- Material type.
- Approximate area of impacted area or unexpected find.
- Approximate depth of impact.
- Approximate volume.
- Sample identification (if samples were collected).
- Photograph log.



- Notification actions.
- Remedial actions.
- Validation action.
- Laboratory report reference numbers.
- Clearance.
- Comments.
- Status of unexpected find.

An electronic copy of this document should be made available to all site-based personnel and must be maintained during demolition and earthworks. The Unexpected Finds Register should be maintained and regularly backed-up to demonstrate identification, assessment, compliance and validation of all unexpected finds identified at the site.

## 6.3 Assessment of Unexpected Finds

Following documentation of the unexpected find, an assessment of the find should be completed.

Depending on the nature, character and suspected source of the unexpected find, further testing may be required to assess the potential risk to human and ecological receptors.

All testing requirements should be identified, developed and implemented by a suitably qualified environmental consultant in accordance with NSW EPA endorsed guidelines. The NSW EPA Accredited Site Auditor should also be consulted on the investigation and remediation/management of unexpected finds.

Matrix specific procedures for the management of unexpected finds is provided in Sections 6.3.1 – 6.3.5 below. The general, overarching process for managing unexpected finds is summarised in **Appendix C**.

***If management strategy includes off-site disposal of contaminated material, the disposal location and results of testing must be submitted to the Planning Secretary, prior to its removal from site.***

### 6.3.1 Potentially Contaminated Soil and Stockpiled Materials

If potentially contaminated soil or stockpiled soil of unknown origin is encountered on-site, an exclusion zone should be immediately established, and the Site Manager and Environmental Consultant should be notified. Following establishment of a clearly marked exclusion zone, the Unexpected Finds Register should be completed, and the NSW EPA Accredited Site Auditor should be notified.

For non-PACM, an Environmental Consultant should be engaged to sample the stockpile in accordance with the minimum sample frequencies outlined in Table 1. These minimum sampling frequencies have been adopted from the NEPM (2013) and VIC EPA (2009) guidance documents.

Following sampling, if off-site disposal is determined to be the appropriate management measure following review of the risk assessment, waste classification in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums is required prior to off-site disposal.



*Table 1 – Minimum Stockpile Sampling Frequency for non-PACM (VIC EPA, 2009) and Schedule B2 (NEPM, 2013).*

Soil volume (m <sup>3</sup> )	No. of samples
<b>25 or &lt;25</b>	3
<b>50</b>	3
<b>75</b>	3
<b>100</b>	4
<b>125</b>	5
<b>150</b>	6
<b>175</b>	7
<b>200</b>	8
<b>&gt;200</b>	1:25

If in-situ contaminated soil is likely due to the presence of staining, odours or other visual signs of contamination, sampling and analysis should be conducted by an Environmental Consultant in accordance with the minimum sampling frequencies outlined in Table 2. If a smaller suspected point source of contamination is identified, an Environmental Consultant should be consulted to complete appropriate sampling to assess the vertical and lateral extent of impact. The Environmental Consultant will also provide advice regarding an appropriate testing regime for contaminants of potential concern (CoPC) in the suspected contaminated soil.

*Table 2 – Sampling Frequency for Suspected Contaminated Soil (in-situ) (NSW EPA, 1995).*

Size of site (ha)	No. of sampling points	Size of site (ha)	No. of sampling points
<b>0.05</b>	5	<b>0.9</b>	20
<b>0.1</b>	6	<b>1.0</b>	21
<b>0.2</b>	7	<b>1.5</b>	25
<b>0.3</b>	9	<b>2.0</b>	30
<b>0.4</b>	11	<b>2.5</b>	35
<b>0.5</b>	13	<b>3.0</b>	40
<b>0.6</b>	15	<b>3.5</b>	45
<b>0.7</b>	17	<b>4.0</b>	50
<b>0.8</b>	19	<b>4.5</b>	52
<b>0.9</b>	20	<b>5.0</b>	55



If test results indicate that the material presents concentrations of contaminants below the criteria outlined in the relevant guideline (Table 3), the material may be re-used on-site, subject to compliance with NSW regulatory requirements.

If contaminated soil is identified on-site, works should not recommence without inspection by a suitably qualified Environmental Consultant and the consent of the NSW EPA Accredited Site Auditor.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4**.

### 6.3.2 Potential Asbestos Containing Materials

If PACM is unexpectedly identified on-site, the Site Manager, Environmental Consultant and NSW EPA Accredited Site Auditor should be notified. Following notification, an exclusion zone should be immediately established, and the area should be secured by installing warning signs and a temporary barricade (e.g. marker tape) around the affected area to prevent anyone from accidentally disturbing the materials and generating airborne asbestos fibres. To minimise the potential release of fibres into the air, the soil should be kept damp (but not wet) and the area should be covered with plastic sheeting if it is safe to do so (WA Health, 2009). Air quality monitoring for asbestos fibre, dust and other contaminant emissions should be implemented during asbestos remediation works. Additional guidance on air quality monitoring is provided in WA Health (2009) and the site-specific Remediation Action Plan (RAP).

The material should be assessed in accordance with the Safe Work NSW (2014) Guidelines for Managing Asbestos in or on soil, including the SafeWork NSW (2014) *Managing Asbestos in or on Soil* management process flow chart that has been reproduced in **Appendix D**.

A suitably qualified environmental consultant or occupational hygienist should also be engaged to complete an assessment and development of a site-specific Asbestos Management Plan (AMP). An AMP should be prepared in accordance with the ASC NEPM (2013) requirements and best practice guidance provided by the WA Department of Health (WA Health, 2009). In addition, the following guidelines apply to the management of asbestos in NSW:

- Safe Work NSW (2011) How to Safely Remove Asbestos Code of Practice.
- Safe Work NSW (2014) Managing Asbestos in or on Soil.

The following additional requirements also must be considered if asbestos is encountered on-site:

- An asbestos handling procedure should be developed to document the safe handling procedures and controls to be implemented when handling asbestos materials at the Site, with endorsement of the Site Auditor,
- Handling and/or removal of non-friable asbestos materials greater than 10 m<sup>2</sup> must be undertaken under the supervision of a Class B licensed asbestos contractor, followed by a clearance undertaken by a Licenced Asbestos Assessor (LAA).
- Friable materials identified on-site must be handled and/or removed under the supervision of a Class A Licenced Asbestos Contractor, followed by clearance undertaken by a LAA.
- A risk assessment should be undertaken by a suitably experienced environmental consultant to assess unacceptable human health exposure risks if the asbestos material is to be managed and remain on-site.
- Air monitoring for asbestos is required during asbestos management works at the site. Air monitoring for friable asbestos should be supervised by an LAA.

If asbestos is identified on-site, works should not recommence without inspection and clearance provided by a suitably qualified person and liaison with both the Environmental Consultant and NSW EPA Accredited Site Auditor.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4** and guidance provided in the RAP.



#### 6.3.2.1 Management of Asbestos Material

If asbestos materials are encountered on-site, assessment of their potential to be suitably managed and remain on-site, or requirements for remediation and off-site disposal to a licensed facility, is to be undertaken. Where they are assessed as suitable to be managed and remain on-site, a human health risk assessment is to be undertaken to assess the appropriate location/depth for the material to be relocated and placed. This can be applied to soils both identified to comply with and exceed the Health Screening Criteria for asbestos for commercial/industrial land use.

The human health risk assessment is to be undertaken by a suitably experienced environmental consultant and documented in a report. The report should contain a conceptual site model, including an assessment of potential source-pathway-receptor linkages, with recommendations for the preferred management approach for the asbestos material, which must be submitted to the Site Auditor for endorsement.

Where soils are identified to exceed the HSL, but through the application of the human health risk assessment and CSM review, are identified to not pose a risk to the future land use and are therefore suitable for reuse on-site at depth, validation of the relocation works and final placement location should be undertaken as per **Section 6.4.1**.

#### 6.3.3 Waste, Slag, Demolition Waste or Fill Material

If waste, slag or unknown fill material is encountered on-site, an exclusion zone should be immediately established, and the Site Manager, Environmental Consultant and NSW EPA Accredited Site Auditor should be notified. Following establishment of a clearly marked exclusion zone, the Unexpected Finds Register should be updated to include all relevant information.

The identified material should be subsequently inspected and assessed by a suitably qualified environmental consultant. If the material is being disposed off-site, the material should be sampled in accordance with the sample frequencies outlined in Table 1 or Table 2 and assessed in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums.

Alternatively, depending on the nature of the material, a Resource Recovery Order and Exemption may apply and may be used to facilitate off-site reuse of the material. Following assessment, the Environmental Consultant will be able to advise if a Resource Recovery Order and Exemption is applicable.

If waste, slag or unknown fill material is identified on-site, works should not recommence without inspection by a suitably qualified person and liaison with both the Environmental Consultant and NSW EPA Accredited Site Auditor.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4**.

#### 6.3.4 Hazardous Materials, Dangerous Goods or Drums

If suspected hazardous materials, dangerous goods, chemical storage containers or drums be identified on-site, the Site Manager, Environmental Consultant and the NSW EPA Accredited Site Auditor should be immediately notified, and the unexpected find should be recorded in the Unexpected Finds Register.

The nature of the chemical should be identified where practicable and an assessment of the material and surrounding area including underlying soils should be conducted by an appropriately qualified Environmental Consultant.

If aqueous film forming foams (AFFF) used for firefighting or dust suppression are identified on-site, the Environmental Consultant and NSW EPA Accredited Site Auditor should be notified immediately. The material should subsequently be tested for the presence of per- and polyfluoroalkyl substances (PFAS).



An assessment of the surrounding soils should also be conducted in accordance with guidance provided in NSW EPA endorsed guidelines, including the NEPC (2013), the NSW EPA (1995) Sampling Design Guidelines, OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites and NSW EPA (2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997. Any impacted solid material intended for off-site disposal will require assessment in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums prior to off-site disposal at an NSW EPA licenced landfill facility. If PFAS is suspected on-site, the material should also be assessed in accordance with the HEPA (2018) PFAS National Environmental Management Plan.

Following recording in the Unexpected Finds Register, testing of the unexpected find should be arranged in consultation with the Environmental Consultant. The material should be subsequently disposed at an NSW EPA licenced treatment or disposal facility and transported in accordance with the NSW EPA waste tracking requirements.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4**.

### 6.3.5 Suspected Illegal Dumping

If suspected illegal dumping is encountered on-site, an exclusion zone should be established, and the Site Manager, Environmental Consultant and NSW EPA Accredited Site Auditor should be notified. Following establishment of a clearly marked exclusion zone, the Unexpected Finds Register should be updated to include all relevant information.

The illegal dumping incident should also be reported via RIDonline (<https://ridonline.epa.nsw.gov.au/#/home>). When reporting online, the following information will be required:

- Address.
- GPS location.
- Type of waste dumped.
- Photographic evidence.

The NSW EPA should also be contacted to seek clarification on the process to follow prior to the dumped material being inspected and assessed by a suitably qualified environmental consultant. Illegally dumped material will likely be disposed off-site. As such, the material should be sampled in accordance with the sample frequencies outlined in Table 1 and assessed in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums.

## 6.4 Validation of Unexpected Finds

Unexpected finds identified at the site should be managed and documented in accordance with the procedures outlined in Section 6.3.1-6.3.5. Following documentation and management, the unexpected find should be further inspected, photographed and sampled (if necessary) to demonstrate compliance with this UFP and the guidelines listed in Table 3.

Where analytical sampling is required, the Sampling and Analytical Program (SAQP) presented in Table 3 should be followed:



Table 3 – Sampling and Analytical Program for Validation.

Unexpected Find	Validation Area	Sampling frequency	Analytes	Relevant regulatory guidelines
<b>Asbestos</b>	Residual soil underneath area where asbestos was found	Refer to Section 6.4.1	Analysed as per the NEPM (2013) and WA (2009) guidelines for ACM (10 L sample) and AF/FA (500ml sample)	WA Health (2009) and NEPM (2013), Schedules B1 and B2.
<b>Construction and demolition (C&amp;D) waste</b>	Applies directly to C&D waste	Sampling frequency as per NSW EPA (1995) Sampling Design Guidelines and NSW EPA (2014) Waste Classification Guidelines.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (2019 a,b).
<b>Stockpiled soil</b>	Stockpiled soil	Refer to Table 1.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (2014) Waste Classification Guidelines, with sampling frequencies for stockpiled soil determined in accordance with the sampling frequencies stipulated in Table 1.
<b>Residual soil beneath stockpiled soil</b>	Area beneath stockpiled soil, including an additional 5 m buffer	Refer to Table 2.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines.
<b>Contaminated soil (in-situ)</b>	Suspected area/footprint of contaminated soil or excavation area.	Refer to Table 2.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines.



Unexpected Find	Validation Area	Sampling frequency	Analytes	Relevant regulatory guidelines
<b>Stained material and/or soil suspected of being impacted by a chemical spill</b>	Suspected area/footprint of contaminated soil or excavation area.	Refer to Table 2.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines.
<b>Bulk agricultural crop waste</b>	Applies directly to bulk agricultural crop waste	N/A	N/A	Material should be assessed and managed in accordance with NSW EPA (2014) Bulk Agricultural Crop Waste Exemption
<b>Fill material not imported under associated site-specific Imported Fill Protocol (IFP)</b>	Suspected area/footprint of contaminated soil or excavation area.	Refer to Table 1 or 2, whichever applies.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines (in-situ/spread fill) and NSW EPA (2014) Waste Classification Guidelines (ex-situ/stockpiled fill)
<b>Suspected contaminated water or liquid waste</b>	Sediment contained in surface water body or drainage line, or storage area where liquid waste was stored.	A minimum of each of one (1) sample per IBC of liquid waste and/or suspected contaminated water.	Determined in consultation with a suitably qualified Environmental Consultant following identification.	NSW EPA (1995) Sampling Design Guidelines and NSW EPA (2014) Waste Classification Guidelines

### 6.4.1 Validation of Asbestos

Following removal/re-location of asbestos impacted soils, the residual excavation will be validated by the environmental consultant. Validation samples from residual fill will be collected at the rate of at least one sample per 5 m length from each wall of the excavated area, and one sample per 1 m depth interval of each wall and one sample per 10 x 10m grid from the base (WA Health, 2009). The floor and walls of the excavation area should also be visually inspected. If suspected ACM is visually identified, the ACM should be excavated/chased out by the licensed asbestos contractor until no visible ACM remains in surface soils. If laboratory testing results indicate exceedances of the adopted criteria, the soils will be further scraped and sampled until results indicate the concentrations are below the adopted criteria.



In situations where screened stockpiled material requires validation, samples should be collected from the stockpile at a minimum rate of 14 locations per 1,000 m<sup>3</sup> (WA Health, 2009). If the soil is subject to a feeding or conveyor belt process, a minimum of 1 sample per 70 m<sup>3</sup> is required (WA Health, 2009).

Asbestos duplicates will not be collected. Due to its discrete and heterogeneous occurrence in soils (WA Health, 2009) duplicates are not statistically reliable. Therefore, the omission of the duplicates for asbestos analysis is considered to not affect the accuracy of the sampling assessment.

The validation process for asbestos should also include the collection of documentation and evidence of the movement and tracking of soils being managed. Where soils have been re-located and retained on-site, evidence should include but not be limited to, photographs, truck counts, surveys and daily logs. This should be applied to both soils retained on-site and in the event soils are disposed of off-site, additional information such as disposal documents to a licensed waste facility, should be included in addition to the above requirements.

If the material has been assessed as suitable to remain on-site and relocated to an appropriate location, with endorsement by the Site Auditor, the placement location should be surveyed three times with GPS co-ordinates and spot elevations recorded for validation purposes including once initially prior to placement, another survey post-placement of asbestos impacted soils following the placement of a clean soil cover layer and third survey of the finished surface level of the Site to demonstrate the placement depth of the material below surface level has been achieved. The on-site placement location will then be inspected by a Licensed Asbestos Assessor and clearance provided, with endorsement of the Site Auditor.

Validation is discussed in further detail in the site-specific RAP.

## 6.5 Imported Fill Material

Validation of imported material, including VENM, ENM or material subject to a Resource Recovery Order and Exemption should also be undertaken to confirm that contamination has not been introduced to the site during earthworks. Guidance on the import, management and validation of imported fill material is provided in the site-specific Imported Fill Protocol (IFP) (Arcadis, 2019b).

### 6.5.1 Reporting

Following clearance and confirmation that the unexpected find has been appropriately managed. A clearance or validation report should be prepared. This report should include, but not be limited to the following:

- Details of the unexpected find and supporting documentation contained within the Unexpected Finds Register.
- Information regarding the management processes that have been implemented to manage the unexpected find.
- An assessment of any validation testing results against the relevant assessment criteria.
- Information demonstrating that the management of the unexpected find was effective (including test results, statistical analyses and QA/QC).
- Where the requirements of this UFP are not achieved, an explanation for why those requirements were not achieved should be documented and additional site work proposed to achieve the original management objectives (if necessary).



## 7 LIMITATIONS

This Unexpected Finds Protocol has been prepared for use by Mirvac in accordance with the agreed scope of work. Arcadis performed its services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties expressed or implied are made.

Subject to the scope of work, Arcadis' assessment was limited strictly to the subject site and environmental conditions associated with the subject property and does not include evaluation of any other issues. The absence of any identified hazardous or toxic materials should not be interpreted as a guarantee that such materials do not exist on the subject property.

This report does not comment on any regulatory obligations based on the findings. This report relates only to the objectives stated and does not relate to any other work undertaken for the Client. It is a report based on the results and conclusions for the site that were made available to the consultant at the time of writing. These conditions may change with time and space.

All recommendations regarding the property are the professional opinions of the Arcadis personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, Arcadis assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements or sources outside of Arcadis, or developments resulting from situations outside the scope of this project.

Arcadis is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client.



## 8 REFERENCES

- Arcadis (2019a) *Detailed Site Investigation - Aspect Industrial Estate, Mamre Road, Kemps Creek*, 31 October 2019.
- Arcadis (2019b). *Imported Fill Protocol (IFP)*, Aspect Industrial Estate, Mamre Road, Kemps Creek, NSW
- HEPA (2018) *PFAS National Environmental Management Plan*.
- JBS&G (2019) *Preliminary Site Investigation, Mamre Road, Kemps Creek, NSW* 30 January 2019.
- NSW Department of Planning, Industry and Environment (2009) *State Environmental Planning Policy (Western Sydney Employment Area) 2009*, amended 11 June 2020
- National Environment Protection Council (NEPC) (2013) *National Environment Protection Measure (NEPM) 1999*, as amended 2013 – *Assessment of Site Contamination Schedule B (1) and B (2)*.
- NSW Environment Protection Authority (2022) *Contaminated land sampling design guidelines part 1 – application*
- NSW Environment Protection Authority (2022) *Contaminated land sampling design guidelines part 2 – interpretation*
- NSW Environment Protection Authority (2014a) *Waste Classification Guidelines* (2014).
- NSW Environment Protection Authority (2014b) *Resource Recovery Framework*.
- NSW Environment Protection Authority (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*.
- NSW Environment Protection Authority (2019a) *Standards for Managing Construction Waste in NSW*.
- NSW Environment Protection Authority (2019b) *Construction and Demolition Waste: A Management Toolkit*.
- Protection of the Environment Operations (POEO) Act 1997 (Waste) Regulation (2014) *Excavated Natural Material Order 2014*;
- Safe Work NSW (2022) *How to Safely Remove Asbestos Code of Practice*.
- Safe Work NSW (2014) *Managing Asbestos in or on Soil*.
- Victorian Environment Protection Authority (2009) *Industrial Waste Resource Guidelines: Soil Sampling*. Accessed online: <https://ref.epa.vic.gov.au/~media/Publications/IWRG702.pdf> on 21 November 2019.
- WA Health (2009). *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*



## **APPENDIX A FIGURES**

**Figure 1: Site Location**

**Figure 2: Site Layout**



10035157 - Aspect Industrial Estate - Detailed Site Investigation



**Legend**

Site Boundary

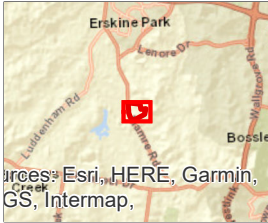
Lot Boundaries

1:4,130 at A3

**mirvac**

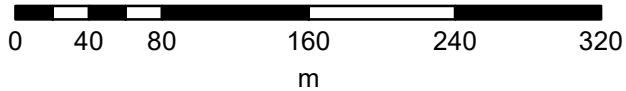
**ARCADIS** Design & Consultancy for natural and built assets

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Coordinate System: GDA 1994 MGA Zone 56  
Date issued: October 24, 2019



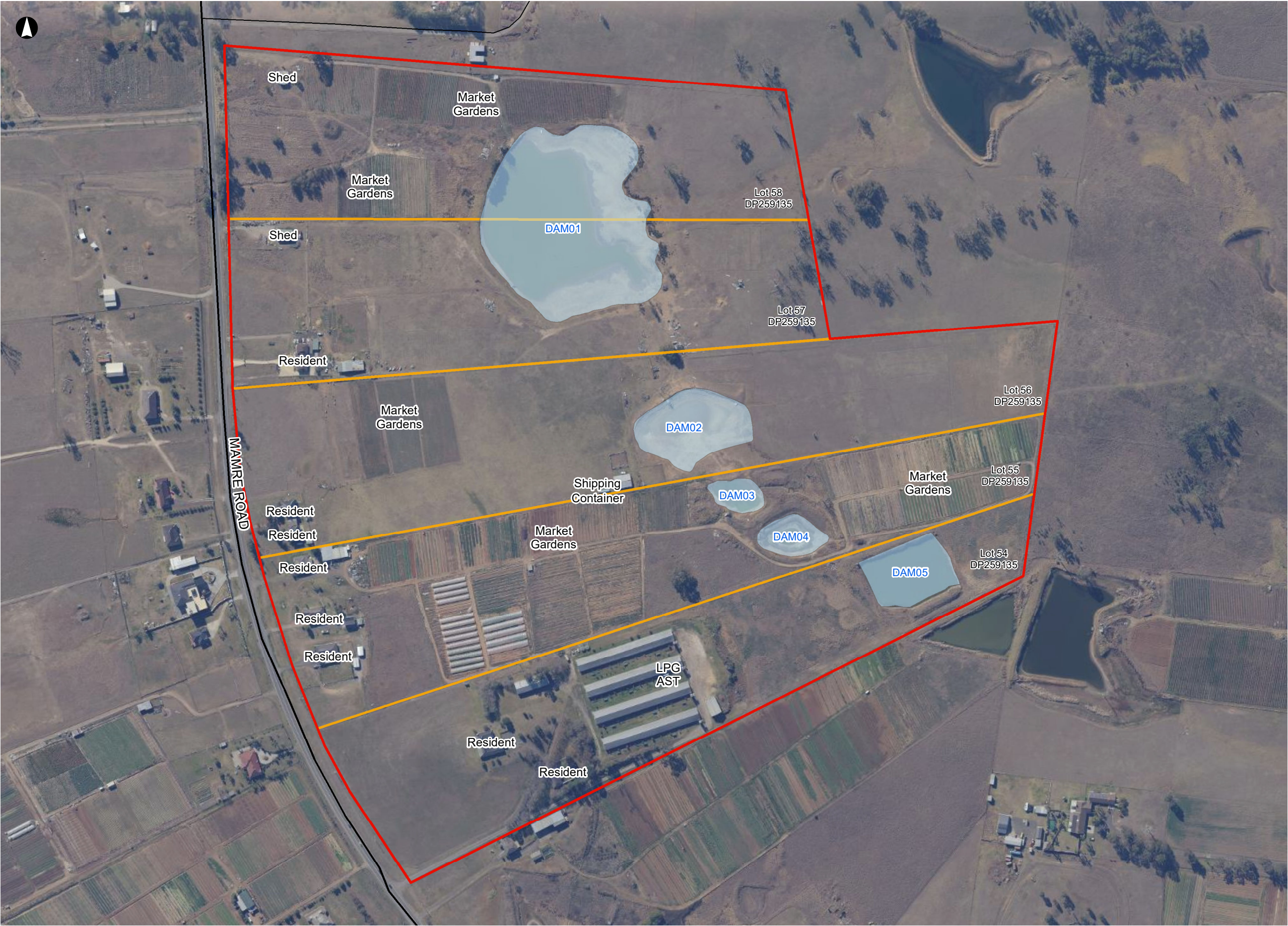
Sources: Esri, HERE, Garmin, CS, Intermap,

Figure 1 - Site Overview





10035157 - Aspect Industrial Estate - Detailed Site Investigation



**Legend**

- Dams
- Site Boundary
- Lot Boundaries

1:4,133 at A3

**mirvac**

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Coordinate System: GDA 1994 MGA Zone 56  
Date issued: October 24, 2019

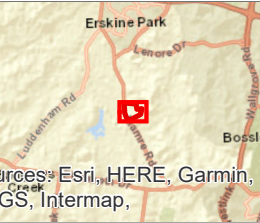
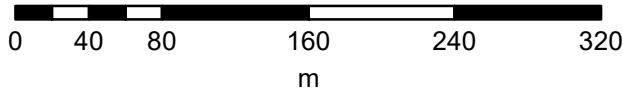


Figure 2 - Site Layout





**APPENDIX B UNEXPECTED FINDS REGISTER**

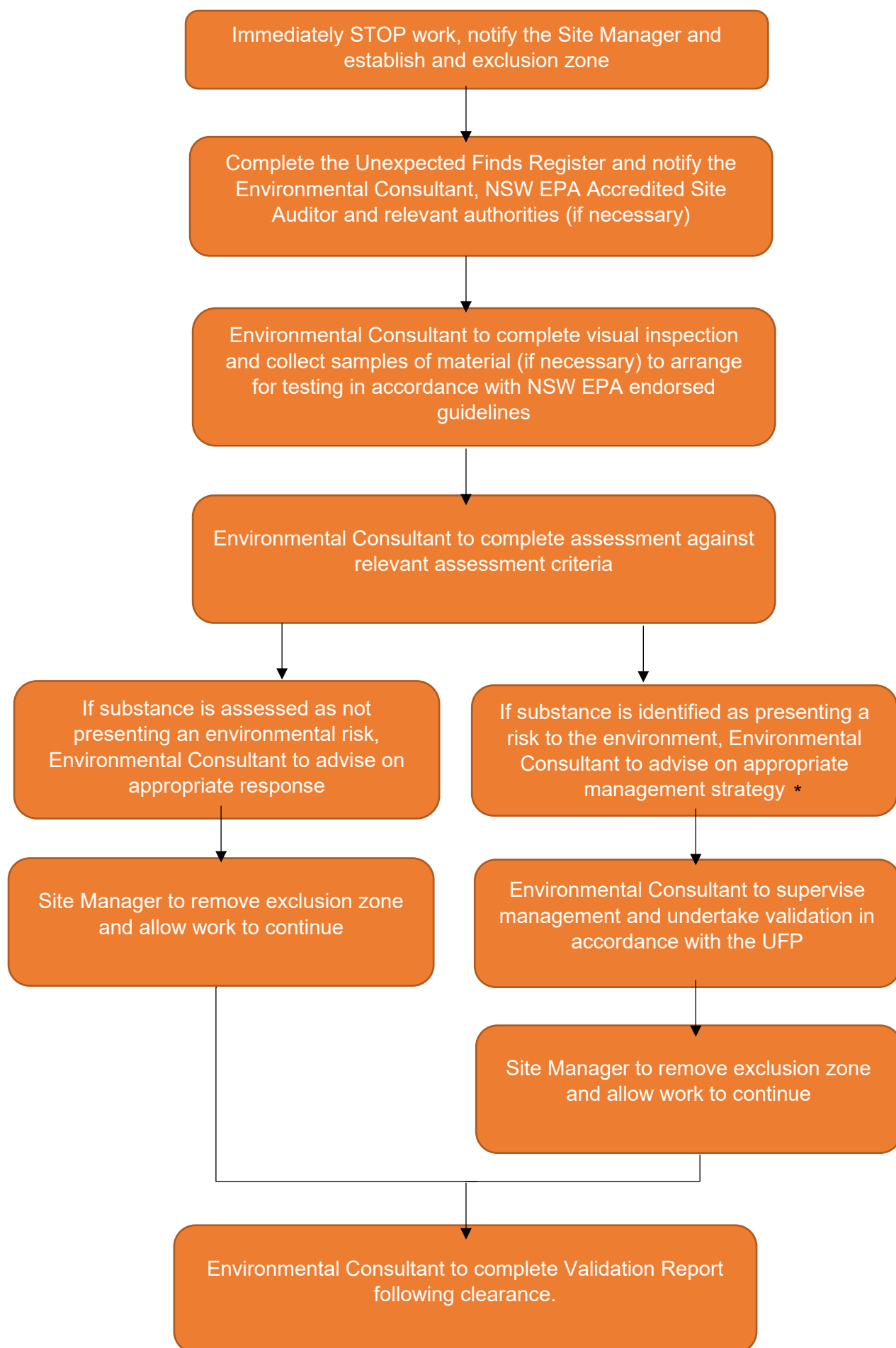


Unexpected Find Information							Assessment			Management Action			Validation					Clearance	Status
ID	Date	GPS	Person who identified UF	Material Type	Approximate area or volume of UF	Approximate depth	Photo No.	Sample ID	Laboratory Report	Notification Actions	Remedial/ Management Action	Validation action	Date	GPS	Person	Sample ID	Laboratory Report	Comments	Closed or ongoing
001																			
002																			
003																			
004																			
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006																			
007																			
008																			
009																			
010																			
011																			
012																			
013																			
014																			



## **APPENDIX C UNEXPECTED FINDS PROTOCOL PROCESS FLOWCHART**



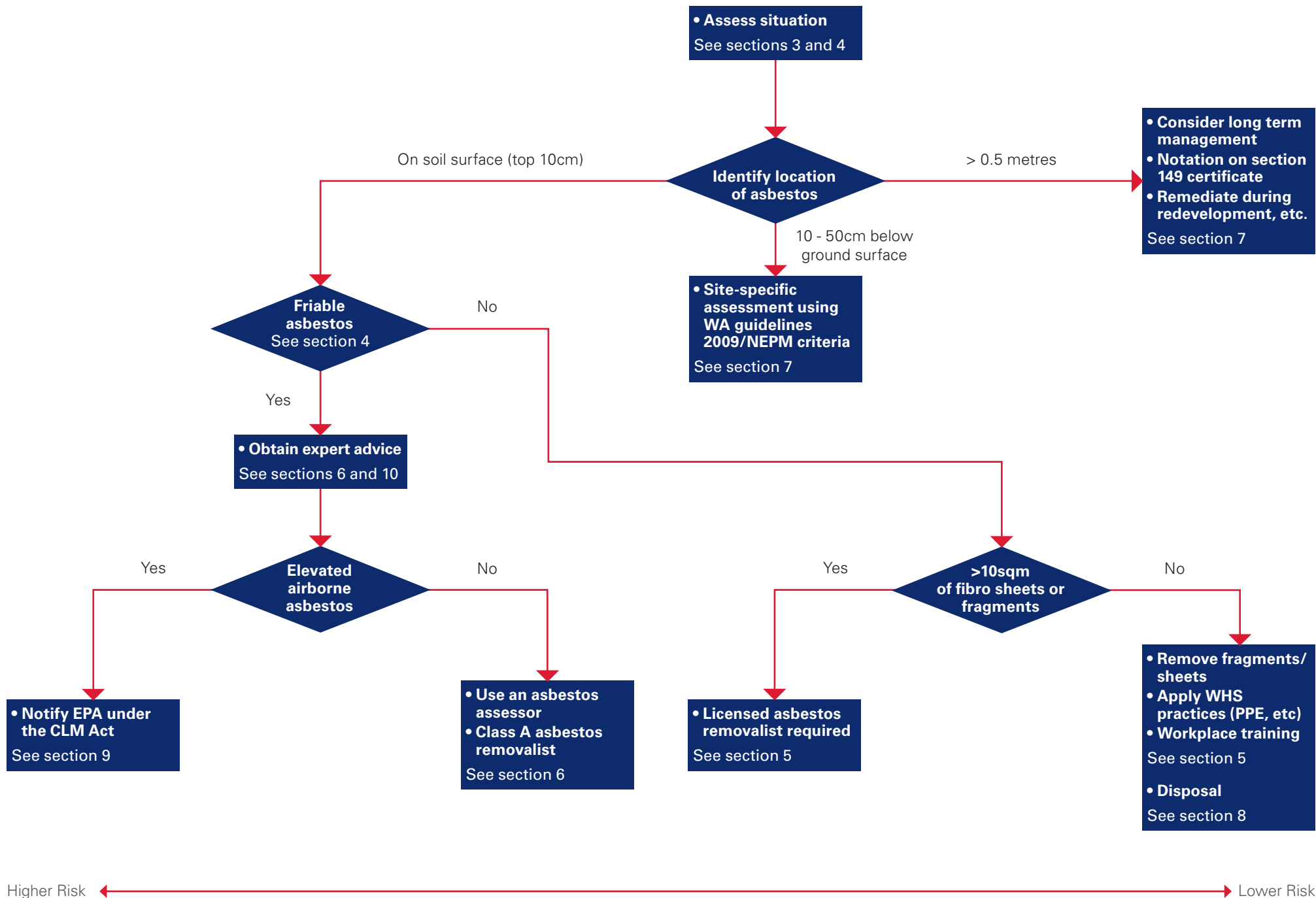


\*If management strategy includes offsite disposal of contaminated material, the disposal location and results of testing must be submitted to the Planning Secretary, prior to its removal from site.



## **APPENDIX D MANAGING ASBESTOS IN OR ON SOIL FLOWCHART**







# ASBESTOS AND DEMOLITION CHECKLIST

OCTOBER 2016

Completed by

Date

Time

Company name

Nominated supervisor

Site address

Contact number

Checklist	WHS Regulation	Yes	No	N/A	Notes/comments
Is the workplace secured from unauthorised access?	298				
Are barricades erected to delineate the asbestos removal area?	469				
Is there adequate signage for asbestos removal work?	469				
Are adequate facilities available for workers (toilets, meal area, drinking water, means to wash hands)?	41				
Is there an adequate first aid kit available?	42				
Is someone trained in first aid?	42				
Is there an emergency plan for the workplace?	43				
Is the designated asbestos supervisor present for friable work?	459 and 529				
Is the designated asbestos supervisor present for non friable work (ie able to arrive at the workplace within 20 minutes)?	459 and 529				
Does the contractor hold the correct licence for the work being undertaken?	485 and 487				



Checklist	WHS Regulation	Yes	No	N/A	Notes/comments
Has licensed asbestos removal work been notified to SafeWork NSW?	142 and 466				
Are work surfaces and access ways clear of debris and trip hazards?	40				
Is there an asbestos removal control plan prepared?	464				
Is the Asbestos Removal Control Plan readily accessible?	465				
Are there arrangements (eg health and safety representative, health and safety committee or other agreed arrangements) to consult with workers on safety matters?	Sections 47 - 49 of the WHS Act				
Have safe work method statements been prepared for high risk construction work?	299				
Is there an asbestos register?	450 and 463				
Has the structure been inspected to determine whether asbestos is present?	451-453				
Do all persons working with asbestos have correct training?	460				
Do all workers have construction induction cards?	316				
Is plant inspected on a regular basis?	213				
Do workers have high risk work licences (if required)?	81				
Is correct personal protective equipment provided, fit tested, and used?	44				
Have all services been disconnected (ie electrical, gas, water, fire)?	163				
Is dust generated by demolition activity being controlled?	35				
If air monitoring is undertaken, is it done by a competent person?	475 and 482				
Are workers prevented from falling through open penetrations and unprotected edges?	78				
Are exclusion zones or overhead protection in place to stop building debris from falling on workers below?	54				
Is a compliant scaffold provided?	225				
Has the handover certificate been provided for the scaffold?	225				



Checklist	WHS Regulation	Yes	No	N/A	Notes/comments
For a Class A Friable Asbestos Removal License holder, is there a current certified safety management system in place?	493				
Are arrangements in place for a clearance inspection to be carried out, after asbestos is removed, by an independent licensed assessor or competent person?	473				
Is asbestos waste and contaminated PPE planned to be disposed of as soon as practicable at a site authorised to accept asbestos waste?	472				
Has notification of asbestos removal been given to the neighbours?	467				
Are there facilities available to decontaminate the following: asbestos removal area, plant used in the asbestos removal area, workers carrying out asbestos removal work, other persons who have access to the asbestos removal area?	471				
Does the licence holder have systems in place for decontamination and annual maintenance of Class H asbestos vacuum cleaners?	35				
Has health monitoring for workers been undertaken by a licensed medical practitioner?	435-444				

### Notes





# **Appendix S    Bushfire Hazard Assessment**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



# Bushfire Hazard Assessment

SSD – 58257960 (Warehouse 2)

Aspect Industrial Estate

Erskine Park

Prepared for

**Mirvac Industrial Developments Pty Ltd**





<b>Project Name:</b>	Aspect Industrial Estate: SSD – 58257960 (Warehouse 2)
<b>Site Details</b>	Aspect Industrial Estate
<b>Client Details:</b>	Susan Paul Development Manager Mirvac  By email:- <a href="mailto:susan.paul@mirvac.com">susan.paul@mirvac.com</a>
<b>BlackAsh Contact Details</b>	
<b>Corey Shackleton</b>	Principal – Bushfire & Resilience
0418 412 118	<a href="mailto:corey.shackleton@blackash.com.au">corey.shackleton@blackash.com.au</a>

Version	Primary Author(s)	Description	Date Completed
0.1	Corey Shackleton	Draft	8 February 2023
0.2	Corey Shackleton	Draft (updated details)	16 June 2023
1.0	Corey Shackleton	Final	16 June 2023
1.1	Corey Shackleton	Final (minor edit)	22 June 2023

**Corey Shackleton / Principal Bushfire & Resilience**

Blackash Bushfire Consulting

B.Sc., Grad. Dip. (Design for Bushfire Prone Areas)

Fire Protection Association of Australia BPAD Level 3 – 34603

**Disclaimer**

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## 1. Summary

Table 1 is a summary of compliance with relevant documents and approaches to limit bushfire attack and meet the requirements of the NSW planning framework for new development in Bushfire Prone Areas.

**Table 1:** Summary

<b>Planning for Bushfire Protection 2019 Classification</b>	"Other" commercial/ industrial
<b>Location</b>	804-882 Mamre Road, Kems Creek
<b>Local Government Area</b>	Penrith City Council
<b>Can this proposal comply with AS3959, 2018</b>	AS3959, 2018 does not apply as a DTS Provision
<b>Does this development comply with the requirements of <i>Planning for Bushfire Protection 2019</i>?</b>	YES
<b>Does this development comply with the Aims and objectives of <i>Planning for Bushfire Protection 2019</i>?</b>	YES
<b>Is referral to the NSW RFS required?</b>	NO

<b>Assessment Framework</b>	<input checked="" type="checkbox"/> <i>Planning for Bushfire Protection 2019</i>
	<input type="checkbox"/> Meets the deemed to satisfy provisions
	<input checked="" type="checkbox"/> Alternate solution/ performance-based assessment



## 2. Introduction

Blackash Bushfire Consulting has been engaged by Mirvac Industrial Developments Pty Ltd to provide a Bushfire Hazard Assessment report to support an application for the State Significant Development Approval for the construction of Warehouse 2 within the Western Sydney Employment Area (WSEA), known as the Aspect Industrial Estate (AIE).

Consent is being sought for the construction of Warehouse 2 which is consistent with Modification 2 (MOD 2 SSD-10448) of the staged development of the land for warehousing and distribution uses.

Industrial development such as the proposed AIE is designated as “other” development in PBP 2019. As “other” development, the proposed development has considerable flexibility and the nature of the development often results in the structures providing a higher degree of bushfire resistance that required by the NSW Rural Fire Service (NSW RFS). As “other” development, a key issue for the proposal will be meeting the aim and objectives of *Planning for Bushfire Protection 2019*.

This report has been completed having regard to Secretary for Planning and Environment's (the Secretary) Environmental Assessment Requirements (SEARs) issued for the proposal on 29 May 2023.

The report also aims to ensure consistency (where appropriate) with the Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting (Version 1.3), dated 18 August 2022.

This assessment has been prepared by Corey Shackleton, Principal Bushfire & Resilience (FPAA BPAD Level 3 Certified Practitioner No. BPD-L3-34603) who is recognised by the NSW RFS as qualified in bushfire risk assessment and have been accredited by the Fire Protection Association of Australia as a suitably qualified consultant to undertake alternative solution proposals.



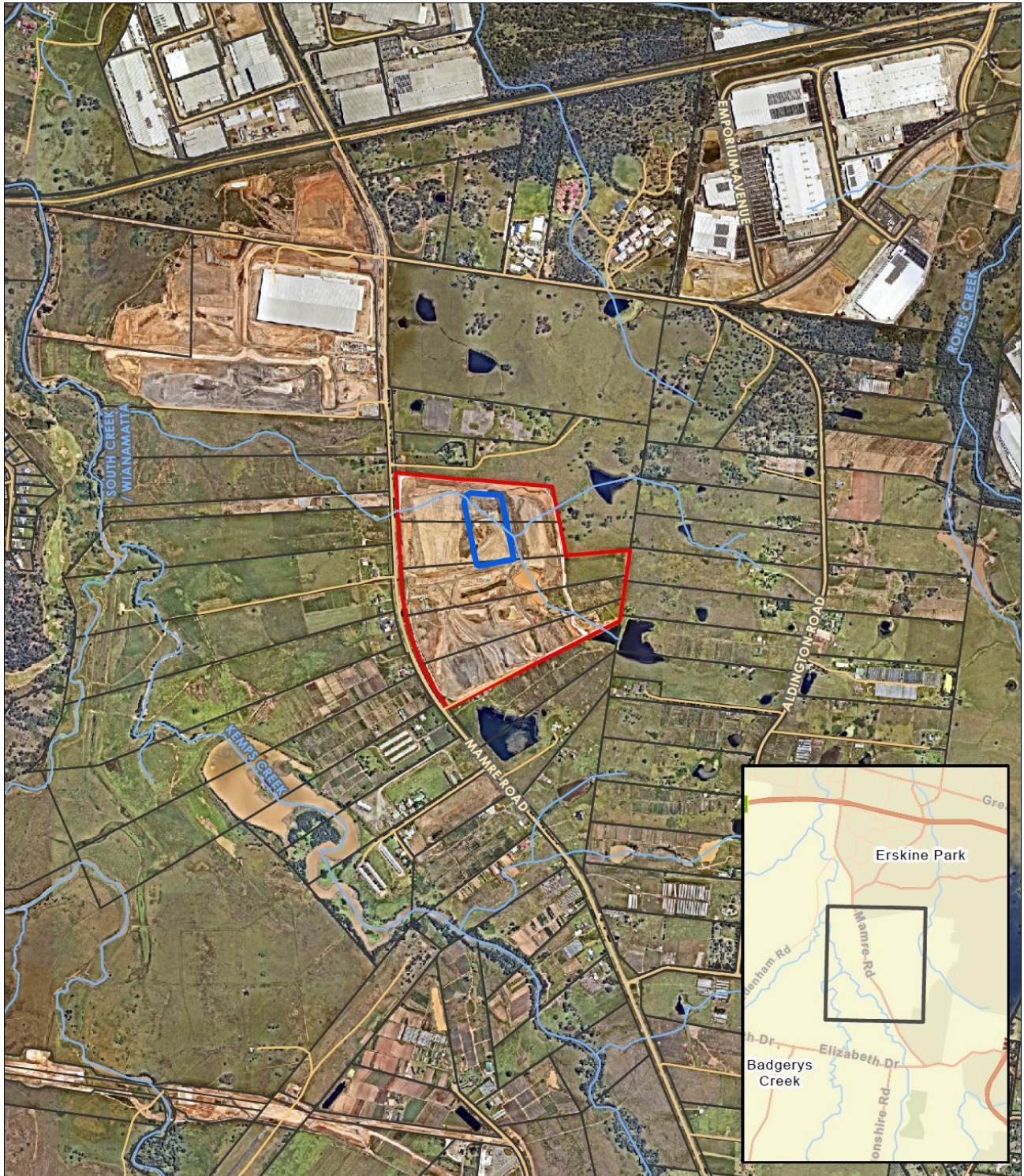
### 3. Site Context

The AIE is shown in Figure 1, located at 804-882 Mamre Road, Kemps Creek and legally described as Lots 1-5 in DP 1285305. The site has an area of approximately 56.3 hectares (ha) and a direct frontage to Mamre Road (refer to Figure 2 below). Most of the site is cleared with scattered vegetation and includes a series of farm dams.

The site is located within the suburb of Kemps Creek, which falls within the Penrith LGA. It is in the Mamre Road Precinct within the broader WSEA and is currently surrounded by rural land uses.

The site is bounded by Mamre Road to the west and agricultural uses to the north, south and east. The historic land uses on the site include rural residential, grazing, dairy farming, poultry farming and horticulture. This land is identified for future employment land, as this site and the broader Mamre Road Precinct has recently been rezoned to, primarily, IN1 General Industrial under the WSEA SEPP.





## Legend

-  Watercourse
-  Subject Land
-  Warehouse
-  Cadastre



Date: 25/01/2023

0 0.25 0.5

Kilometers

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

**Figure 1: Site Location**



## 4. Legislative Framework

The proposed industrial development is designated as “other” development by the PBP 2006 and PBP 2019. The NSW RFS has reviewed PBP 2006 and now released a new document known as *Planning for Bushfire Protection 2019* (PBP 2019) and the NSW RFS has requested that all new proposals are assessed against PBP 2019.

The site is identified as ‘bushfire prone land’ (see Figure 2) for the purposes of Section 10.3 of the *Environmental Planning and Assessment Act, 1979* (EPA Act) and the legislative requirements for development on bushfire prone lands are applicable. All development on bushfire prone land must consider and comply with PBP 2019. However, industrial development has considerable flexibility and the nature of the development often results in the structures providing a higher degree of bushfire resistance than required by the NSW RFS.

As “other” development, the proposed industrial development and future development is addressed through demonstrating compliance with the aim and objectives of PBP.

Under the building classification system within the *National Construction Code* (NCC), Class 5 to 8 buildings include offices, shops, factories, warehouses, public car parks and other commercial and industrial facilities. The NCC does not provide for any bushfire specific performance requirements for these particular classes of building. As such the *Australian Standard for Construction of Buildings in Bushfire Prone Areas* (AS 3959) and the NASH Standard are not considered as a set of ‘deemed to satisfy’ provisions. However, compliance with AS 3959 and NASH should be considered when meeting the aims and objectives of PBP.

Whilst bushfire is not captured in the NCC for Class 5-8 buildings or storage of the pallets, PBP 2019 articulates the following objectives which will be applied in relation to access, water and services, and emergency and evacuation planning:

- to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation;
- to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;
- to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building; and
- provide for the storage of hazardous materials away from the hazard wherever possible.



The general fire safety construction provisions (of the NCC) are taken as acceptable solutions, however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

Because of their size, complexity, importance and/or potential impact, the Department of Planning, Industry and Environment (DPIE) is predominantly responsible for assessing development applications relating to State Significant Development. The Minister for Planning is the consent authority for SSD applications.

Applications designated as state significant projects are exempt from requiring a bushfire safety authority (BFSa). Given their scale however, the requirements of PBP should still be applied, and consultation with the NSW RFS has already occurred as part of the original SSD approval process.

Even where comments are sought at the strategic planning stage, further development applications may need to be referred to the NSW RFS.

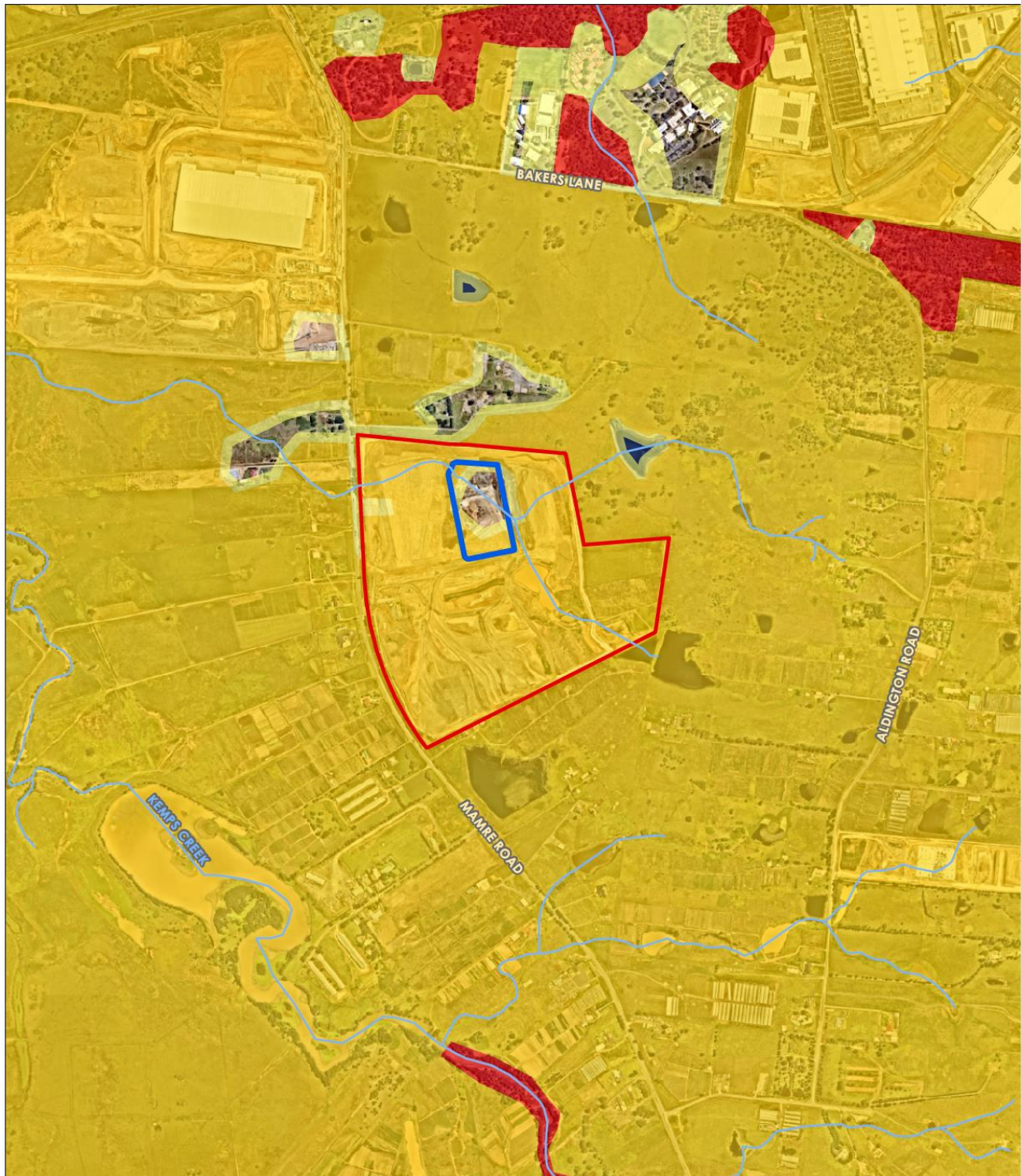
## 5. Bushfire Prone Land

Bushfire prone land maps provide a trigger for the development assessment provisions and consideration of sites that are bushfire prone.




Bushfire prone land (BFPL) is land that has been identified by council, which can support a bushfire or is subject to bushfire attack. Bushfire prone land maps are prepared by local council and certified by the Commissioner of the NSW RFS.

Figure 2 shows the Bushfire Prone Land Map for the site. The extract from the Penrith Bushfire Prone Map shows that the site and surrounds are all Category 2 Bushfire Prone Vegetation. There have been several new developments in the local area and generally the site and surrounds are rural residential, grazing, dairy farming, poultry farming and horticulture. The general area is considered a low bushfire risk.





## Legend

-  Watercourse
-  Subject Land
-  Warehouse 2

## Bushfire Prone Land

-  Vegetation Buffer
-  Vegetation Category 1
-  Vegetation Category 2



Date: 25/01/2023

0 250 500

Meters

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

**Figure 2: Bushfire Prone Land**



## 6. The Proposal

This proposal is to construct Warehouse 2 within the Aspect Industrial Estate at 804-882 Mamre Road, Kemps Creek as per the Concept Consent which was granted by way of SSD-10448 on 24 May 2022.

This proposal involves the preparation of a subsequent stage SSDA for the development of the warehouse building, on Lot 2 of Aspect Industrial Estate, Mamre Road Kemps Creek, for the purposes of 'warehouse and distribution centre'.

Generally, the proposed development on Lot 2 within AIE includes minor on lot earthworks, installation of on-lot infrastructure, and the construction of a warehouse, landscaping, hardstand and car parking. The lot location and built form configuration will align with that intended to be established under the SSD-10448 MOD 2 (approved by DPE 30th November 2022).

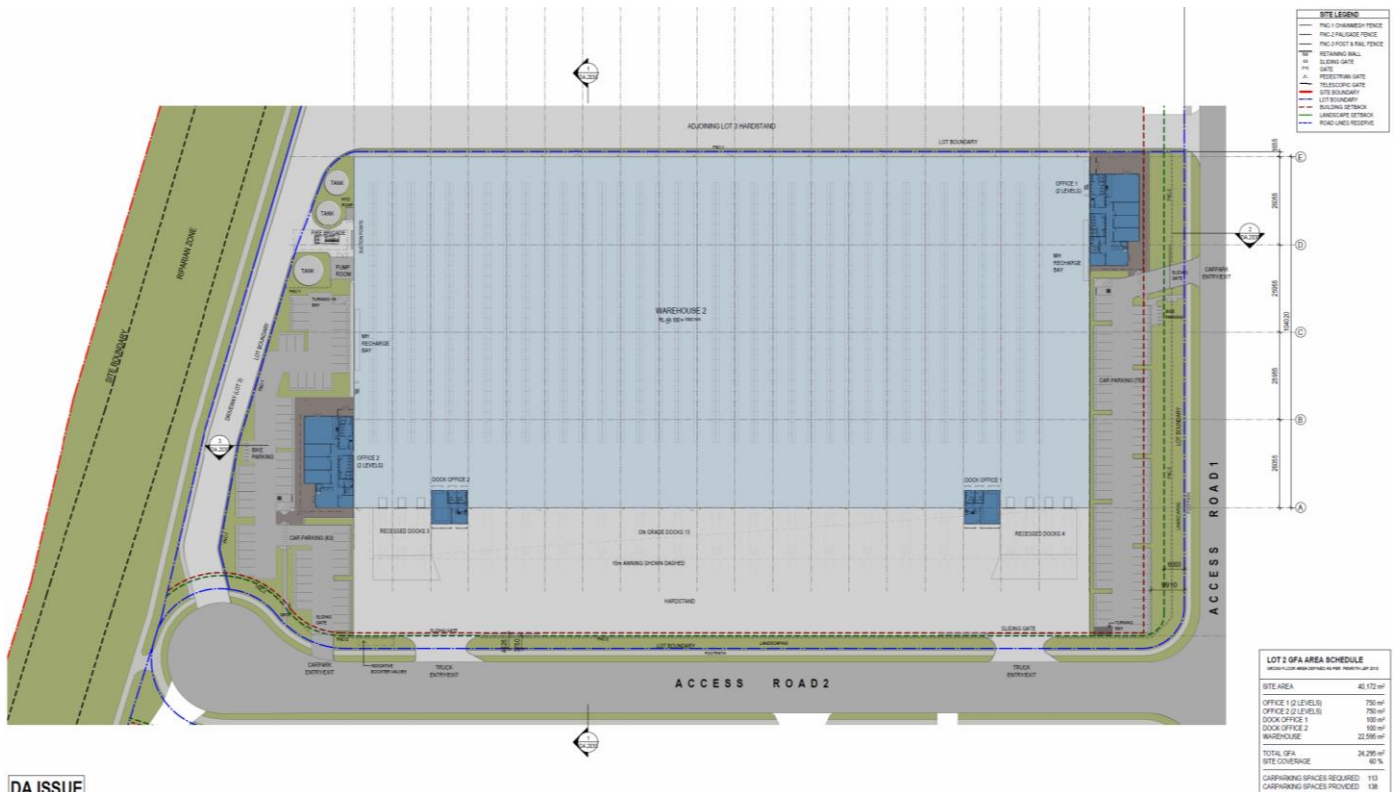
### Warehouse 2

- Warehouse 2 on AIE Lot 2 is proposed to be used for warehouse and distribution premises 24 hours a day 7 days a week. The design includes a 22,595sqm warehouse space, 1,500sqm office, 200sqm dock office and 138 car parking spaces.





**Figure 3:** Aspect Industrial Estate - Masterplan.



**Figure 4:** Proposed Warehouse 2 Layout.



## 7. Site Assessment Methodology

The Bushfire Assessment Report is based on a desktop assessment of the site utilising the following resources:

- *Planning for Bushfire Protection* (NSW RFS, 2019);
- Aerial mapping;
- Site Inspection; and
- Detailed GIS analysis.

The methodology used in this assessment is in accordance with PBP and is outlined in the following sections.

### 7.1. Bushfire Hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone (APZ) locations and dimensions and future building levels.

The vegetation formations (bushfire fuels) and the topography (effective slope) combine to create the bushfire threat that may affect bushfire behaviour at the site and which determine the planning and building response of PBP 2019.

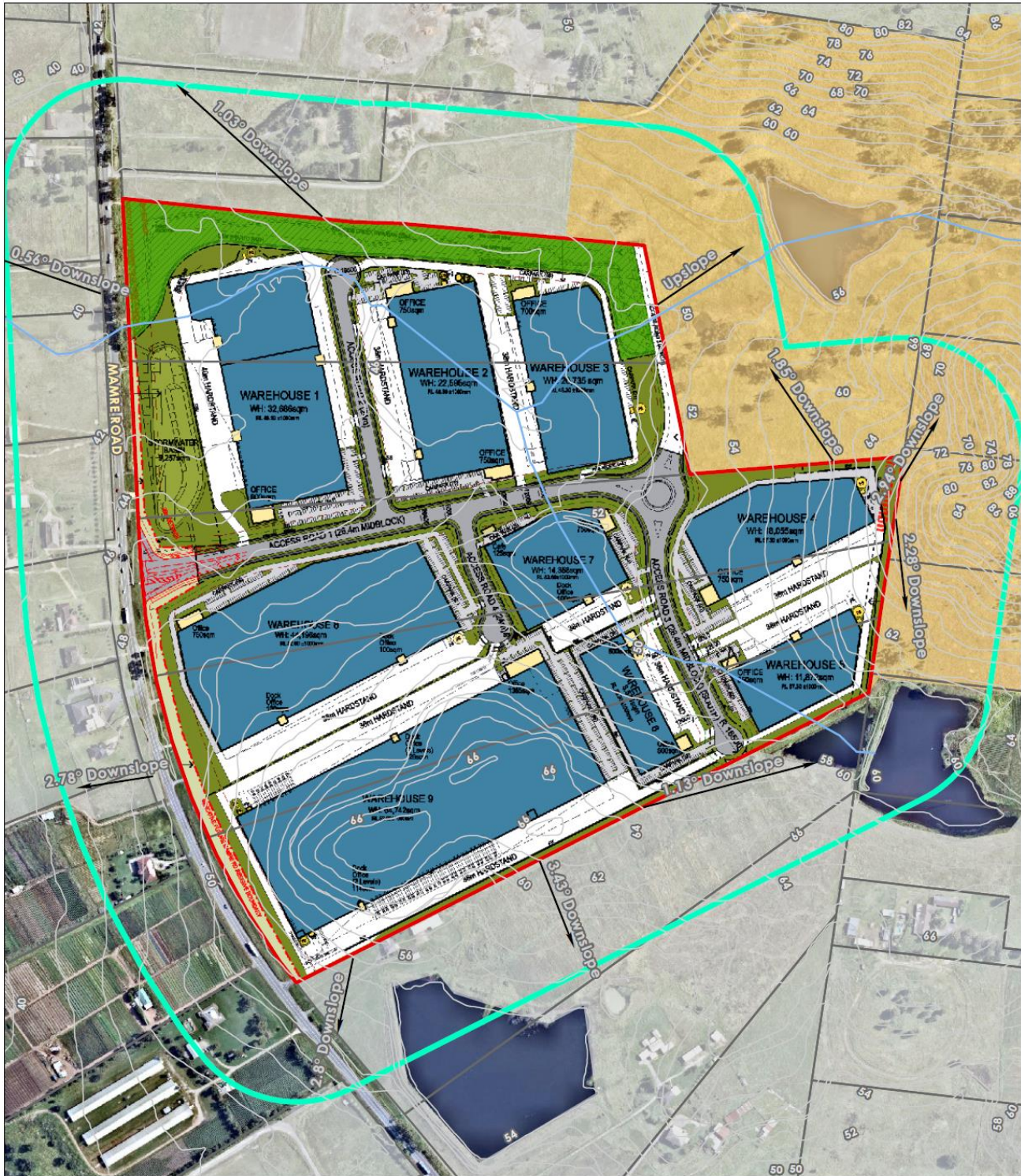
### 7.2. Vegetation

Predominant Vegetation is classified by structure or formation using the system adopted by Keith (2004) and by the general description using PBP 2019. Vegetation types give rise to radiant heat and fire behaviour characteristics.

The predominant vegetation is determined over a distance of at least 140 metres in all directions from the proposed site boundary or building footprint on the development site. Where a mix of vegetation types exist, the type providing the greater hazard is said to predominate.

The land around the AIE site is identified as bushfire prone land (see Figure 2) and is made up of a mixture of grassland to the east and rural residential, grazing, dairy farming, poultry farming and horticulture to the south, west and north (see Figure 5). A narrow (30-40m wide) riparian corridor is proposed to be established along the northern boundary of the site. This will be revegetated in accordance with the Vegetation Management Plan (VMP) and consist of River-flat Eucalypt Forest, which for the purposed of David Keith, is a Coastal Floodplain Forest.





## Legend

- Watercourse
- Contour - 2m
- Subject Land
- Cadastre
- Vegetation Assessment Buffer

## Vegetation Formation

- Isolated River-flat Eucalypt Forest
- Grassland
- Managed Land



DKGIS

Date: 14/06/2023

0 100 200

Meters

Coordinate System: GDA 1994 MGA Zone 56  
Imagery: © Nearmap

**Figure 5: Vegetation and Slope**



### 7.3. Slopes Influencing Bushfire Behavior

The 'effective slope' influencing fire behaviour approaching the sites has been assessed in accordance with the methodology specified within PBP 2019. This is conducted by measuring the worst-case scenario slope where the vegetation occurs over a 100 metre transect measured outwards from the development boundary or the existing/ proposed buildings.

The slopes within and adjoining the site are mild and generally fall downslope from the site (Figure 5).

### 7.4. Fire Weather

The fire weather is dictated by PBP and assumes a credible worst-case scenario and an absence of any other mitigating factors relating to aspect or prevailing winds. The sites have a Fire Danger Index (FDI) of 100 as per PBP 2019.

### 7.5. Asset Protection Zones

An Asset Protection Zone (APZ) is a buffer zone between a bushfire hazard and buildings. The APZ is managed progressively to minimise fuel loads and reduce potential radiant heat levels, flame, smoke and ember attack. The appropriate APZ distance is based on vegetation type, slope and the nature of the development.

The APZ can include roads or properties managed to be consistent with APZ standards set out in NSW RFS document *Standards for Asset Protection Zones*. The APZ provides a fuel-reduced, physical separation between buildings and bush fire hazards is a key element in the suite of bush fire measures and dictates the type of construction necessary to mitigate bushfire attack.

PBP 2019 requires APZs for commercial and industrial development to provide a defensible space and minimises material ignition.

The site will be managed and maintained to prevent the spread of a bushfire towards the building and to prevent the spread of fire onto or from the site in accordance with section 63 of the *Rural Fires Act, 1997* (RF Act). The areas around the buildings is cleared and maintained to mineral earth or non-combustible surfaces and is not a fire hazard.



The table below (Table 2) provide a summary of the APZ and Figure 6 depicts the APZ proposed across the site. The layout proposed provides APZ consistent with the SSD Mod 2 approval, the original Blackash bushfire report and previous advice by the NSW RFS.

**Table 6:** APZ Assessment – Warehouse 2.

Direction	Slope	Vegetation	Flame Zone Width	APZ Proposed
North	2° Downslope	Coastal Floodplain Forest	5 metres*	>12 metres
East	NA	No hazard	NA	NA
South	NA	No hazard	NA	NA
West	NA	No hazard	NA	NA





## Legend

- |  |              |                             |                                     |
|--|--------------|-----------------------------|-------------------------------------|
|  | Watercourse  | <b>Vegetation Formation</b> |                                     |
|  | Contour - 2m |                             | Isolated River-flat Eucalypt Forest |
|  | Subject Land |                             | Grassland                           |
|  | Cadastre     |                             | Managed Land                        |
|  |              |                             | Asset Protection Zone               |



DKGIS

Date: 14/06/2023

0 50 100

Meters

Coordinate System: GDA 1994 MGA Zone 56  
Imagery: © Nearmap

**Figure 6:** Asset Protection Zones.



## 7.6. Bushfire Attack Levels

The Bushfire Attack Level (BAL) is a means of measuring the severity of a buildings or sites potential exposure to ember attack, radiant heat and direct flame contact. In the Building Code of Australia, the BAL is used as the basis for establishing the requirements for residential construction to improve protection of building elements.

The Bushfire Attack Levels to the site has been completed from site-specific radiant heat modelling consistent with Method 2 of AS3959. The BAL for the site is shown in Figure 7.

As "Other" development, the development must comply with objective 3 of PBP 2019 which requires that the development:

3. Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent the likely fire spread to buildings.

Asset Protection Zones (see section 7.5) will be provided around the development that will include perimeter roads and hardstand areas. The buildings will be constructed to meet the relevant requirements of AS3959-2018 as identified in PBP 2019 and through the radiant heat modelling consistent with the methodology in PBP 2019.

The table below (Table 3) provide a summary of the Bushfire Attack Levels while Figure 7 depicts the BAL requirements across the site.

**Table 12:** Bushfire Attack Levels.

Direction	Slope	Vegetation	APZ Proposed	Bushfire Attack Level
North	2° Downslope	Coastal Floodplain Forest	>12 metres	See Figure 7*
East	NA	No hazard	NA	See Figure 7*
South	NA	No hazard	NA	See Figure 7*
West	NA	No hazard	NA	See Figure 7*

### 7.6.1. Radiant Heat Modelling

Detailed radiant heat modelling has been undertaken for the northern elevation of warehouse buildings 1 and 3 due to unique short fire run characteristics. Table 13 below is a summary of the key inputs, while the detailed outputs can be found in Appendix 2.



The riparian corridor is generally 40 metres wide and contains a variety of revegetation, pathways and ponds. However, for the purposes of the SFR modelling, a 50 metre fire run and an assumption that the area is completely revegetated as Coastal Floodplain Forest has been used to create a level of conservatism in the design.

**Table 13:** Radiant heat modelling inputs.

Direction	Slope	Vegetation	Short Fire Run	Comments
North	2°	Coastal Floodplain Forest	50 metres	See Appendix 2 for modelling results

### 7.6.2. Application of AS3959 (2018)

Construction must comply with the corresponding Bushfire Attack Level (BAL) as shown in Figure 7.

The application of each BAL is as defined on Figure 7 and not broadly applied across the entire elevation/building. The construction must comply with corresponding sections of the Australian Standard AS3959-2018 Construction of buildings in bush fire-prone areas or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas – 2014* as appropriate, and Section 7.5 of *Planning for Bush Fire Protection 2019*.

The construction for the remainder of the proposed buildings not denoted with a BAL in Figure 8 is greater than 100 metres from any bushfire hazard. Consistent with AS3959 and PBP 2019, construction greater than 100 metres from a bushfire hazard is classified as BAL-Low. AS3959 describes BAL-Low as:

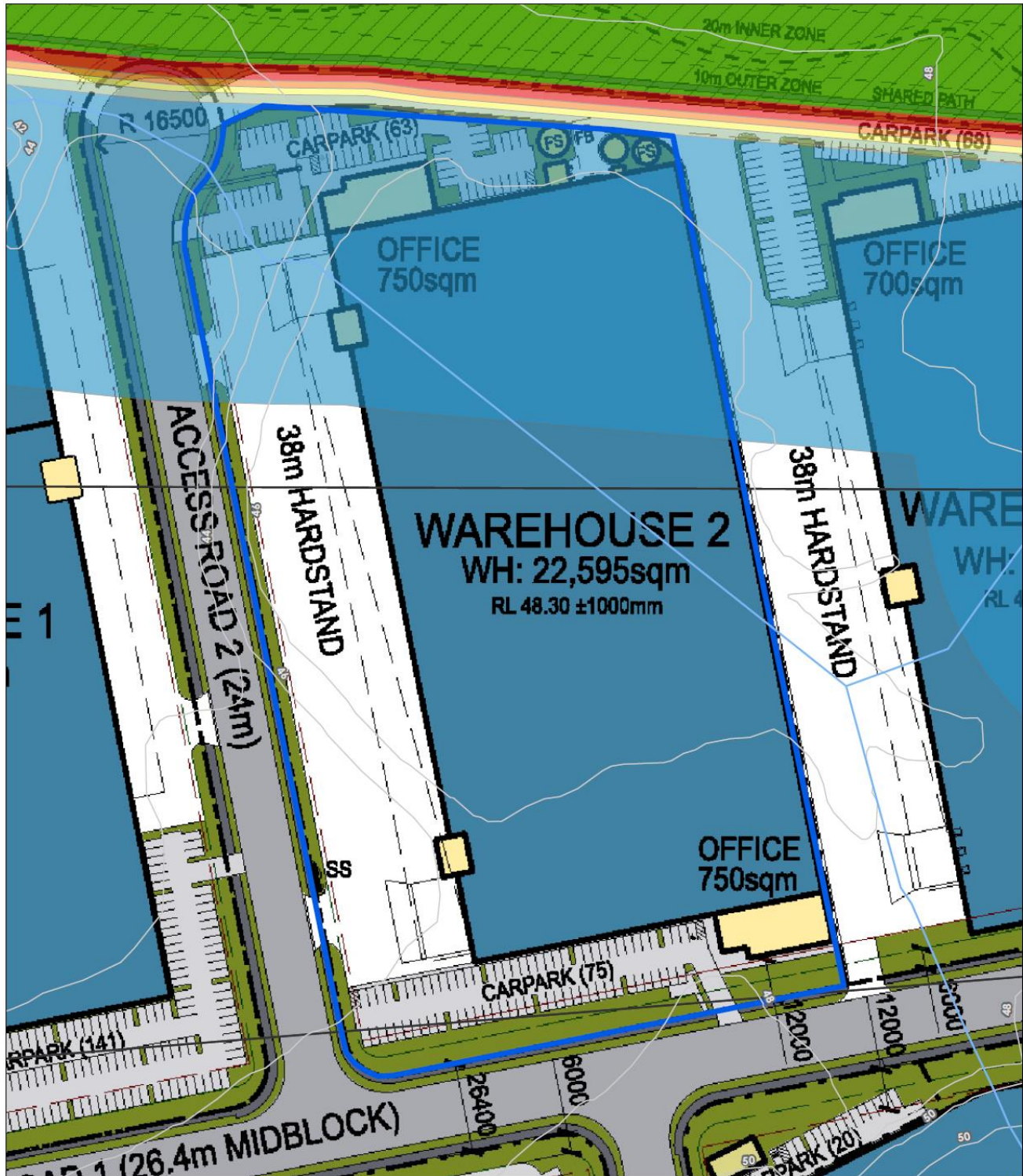
*'There is insufficient risk to warrant specific construction requirements'.*

Therefore, the construction for the remainder of the proposed building not denoted with a BAL in Figure 7, is appropriately BAL-Low.

The construction of the buildings in this manner complies with *Planning for Bush Fire Protection 2019* and the *National Construction Code (NCC)*.

While in AS3959 certain elements of BAL-12.5 may be required to be constructed entirely of non-combustible materials, PBP 2019 does not have any requirements for buildings in BAL-12.5 to be constructed entirely with non-combustible materials, nor does AS3959 and/or the NASH Standard. In this regard, additional construction requirements, beyond AS3959 are unnecessary.





### Legend

- Watercourse
- Contour - 2m
- Subject Land
- Warehouse 2
- Cadastre

### Vegetation Formation

- Isolated River-flat Eucalypt Forest

### Bushfire Attack Level (BAL)

- BAL - Flame Zone
- BAL - 40
- BAL - 29
- BAL - 19
- BAL - 12.5



Date: 14/06/2023

0 25 50  
Meters

Coordinate System: GDA 1994 MGA Zone 56  
Imagery: © Nearmap

**Figure 7: Bushfire Attack Levels**



## 8. Water Supply and Utilities

PBP 2019 (p. 47) requires that adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

Suitable water supply arrangements will be provided for firefighting that meet the NSW RFS requirements. A reticulated water supply for potable water supply and fire hydrants will be extended into the site. The fire-fighting water supply to the new buildings shall comply with the Building Code of Australia [BCA] and A.S. 2419.1 – 2005.

## 9. Access

PBP 2019 requires that the design of access roads enables safe access and egress for people attempting to leave the area while emergency service personnel are arriving to undertake firefighting operations.

**Figure 4** shows the proposed Masterplan including the proposed access within the site.

The AIE has been designed to integrate with the regional road network planned for the Mamre Road Precinct. Access to the site will be directly off Mamre Road, which four internal estate roads providing circulation throughout the development. The concept plan identifies future connection points north and south of the precinct, which facilitates broader road connections across the Mamre Road Precinct.

The proposed internal access roads will be constructed to provide heavy rigid and articulated vehicle access to each of the proposed buildings. This internal road network provides suitable access for fire-fighting appliances like NSW RFS Category 1 Tankers and Fire & Rescue NSW Composite and Aerial Appliances.

Given the comprehensive nature of the road design, access complies with the requirements of PBP 2019.



## 10. Assessment Against the Aim and Objective of PBP

All development in Bushfire Prone Areas needs to comply with the aim and objectives of PBP. Table 14 shows the compliance with PBP.

**Table 14:** Compliance with Aim & Objectives of PBP 2019.

Aim	Meets Criteria	Comment
The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including fire fighters) and to minimise impacts on property from the threat of bushfire, while having due regard to development potential, onsite amenity and the protection of the environment.	Yes	Landscaping, defensible space, access and egress, emergency risk management and construction standards are in accordance with the requirements of PBP and the aims of PBP have been achieved.
Objectives	Meets Criteria	Comment
Afford occupants of any building adequate protection from exposure to a bushfire.	Yes	The development provides opportunity for all occupants to be shielded from any external bushfire. Construction material will comply with the relevant AS3959 requirements.
Provide for a defensible space to be located around buildings.	Yes	Defensible space is provided on all sides of the proposed buildings.
Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent the likely fire spread to buildings.	Yes	The structures are separated from the remnant vegetation areas and provide APZs and commensurate construction in accordance with AS3959.
Ensure that safe operational access and egress for emergency service personnel and occupants is available.	Yes	The site has direct access to public roads, and access and egress for emergency vehicles and evacuation is adequate. A perimeter road is provided around the buildings. The development provides for the movement of heavy articulated trucks about the site.
Provide for ongoing management and maintenance of bushfire protection measures.	Yes	The site will be managed by Mirvac including all APZ and landscaping in accordance with PBP.
Ensure that utility services are adequate to meet the needs of firefighters.	Yes	Utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting).

The suite of bushfire protection measures provided for the proposed development satisfies the objectives for buildings of Class 5-8 under the NCC as identified in section 8.3.1 and 8.3.10 of PBP 2019.



## 11. Recommendations

The following recommendation is made to ensure the Aspect Industrial Estate is provided with adequate bushfire protection in accordance with PBP:

**Recommendation 1:** At the commencement of building works and in perpetuity, an Asset Protection Zone shall be established and maintained as per Figure 6. The APZ shall be established and maintained as an inner protection area as outlined within *Planning for Bushfire Protection 2019* and the NSW RFS document '*Standards for Asset Protection Zones*'.

**Recommendation 2:** Fire hydrants are provided in accordance with Building Code of Australia E1.3, AS2419.1:2005.

**Recommendation 3:** The construction shall comply with the National Construction Code (2019), Australian Standard AS 3959:2018, *Construction of buildings in bush fire-prone areas* and/or NASH Standard (1.7.14 updated), *National Standard Steel Framed Construction in Bushfire Areas* – 2014, and Section 7.5 of *Planning for Bush Fire Protection 2019* on a prescriptive (deemed to satisfy and/or acceptable solution) basis and/or performance basis to the extent shown in Figure 7.



## 12. Conclusion

Blackash Bushfire Consulting have completed a Bushfire Hazard Assessment Report for the industrial development known as the Aspect Industrial Estate. Concept Consent was granted for the development of AIE by way of SSD-10448 on 24 May 2022. This proposal involves the preparation of a subsequent stage SSDA for the development of the warehouse building, on Lot 2 of Aspect Industrial Estate, Mamre Road Kempers Creek, for the purposes of 'warehouse and distribution centre'.

The Warehouse 2 proposal seeks to construct the warehouse at the AIE. The Department of Planning and Environment Secretary's Environmental Assessment Requirements have been assessed and the proposal complies with the requirements of PBP 2019.

The proposed development is industrial development and considered as "other" development in *Planning for Bushfire Protection 2019* and complies with the aim and objectives of that document. This report demonstrates that the proposed development satisfies the requirements of Section 8.3.1 and 8.3.10 of *Planning for Bush Fire Protection 2019*.

This Report is a Bush Fire Hazard Assessment that provides the required information to assist the DPIE and demonstrates compliance with the relevant requirements of *Planning for Bushfire Protection 2019*.



Corey Shackleton | Principal Bushfire & Resilience  
**Blackash Bushfire Consulting**  
B.Sc., Grad. Dip. (Design for Bushfire Prone Areas)  
Fire Protection Association of Australia BPAD Level 3 - 34603





## Appendix 1 References

Australian Building Codes Board Building Code of Australia Volumes 1&2

Councils of Standards Australia AS3959 (2018) – Australian Standard Construction of buildings in bushfire-prone areas

Keith, David (2004) – Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT. The Department of Environment and Climate Change

NSW Rural Fire Service (2015) Guide for Bushfire Prone Land Mapping

NSW Rural Fire Service (NSW RFS). 2006. Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners. Australian Government Publishing Service, Canberra

NSW Rural Fire Service (NSW RFS). 2019. Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.

NSW Government (1979) Environmental Planning and Assessment Act 1979. NSW Government Printer.



## Appendix 2: Radiant Heat Modelling Outputs (BAL Mapping)

**Forest/Woodland - FDF & SFR Calculation page:**

Fire run specifics: Aspect Industrial Estate

**Common and bushfire behaviour contributor inputs:**

Predominant vegetation: Coastal Floodplain Forests - 8.2 & 15.1 - Low - 0m - < 0.9m

Surface & Elevated Fuel Load: 8.2 tph Overall fuel load: 15.1 tph

Average Canopy Height: 20 Metres Fire weather district: 100 FDI

Average elevated fuel height: 0.9 Metres Flame temperature: 1090 Kelvin

Distance to vegetation: 5 Metres Target elevation of receiver: 3 Metres

Effective slope: 2 Degrees Ambient temperature: 308 Kelvin

Site slope: 0 Degrees SFR fire run length: 50 Metres

IF nominal head width: Metres

**Outputs - Fully Developed Fire (FDF)**

Wind Speed: 45 kph

Default elevation of receiver: 4.577 Metres

FDF Flame Angle: 35 Degrees

FDF Flame Length: 9.15 Metres

FDF Intensity: 8813 kW/m

FDF FROS: 1.1296 kph

FDF Flame transmissivity: 0.8993 kW/m

FDF View Factor: 0.8986

**Outputs - Developing Fire Run (DFR)**

Wind speed: 30 kph

Default elevation of receiver: 2.767 Metres

SFR Flame Angle: 61 Degrees

SFR Flame Height: 5.533 Metres

SFR Intensity: 4786 kW/m

SFR FROS: 1.1296 kph

SFR Flame transmissivity: 0.8889 kW/m

SFR View Factor: 0.5270

Calculated SFR Head Width: 18.302 Metres

SFR fire run length: 50 Metres

Approx. SFR travel time: 20:15 min/sec

**SFR Radiant Heat: 35.62 kW/m<sup>2</sup>**

☐ Input cells ☐ Locked output cells

**Glossary of abbreviations/terms:**

tph = tonnes per hectare  
kW/m = Kilowatts per metre  
kW/m<sup>2</sup> = Kilowatts per metre squared  
HFD = Horizontal Flame Depth  
LRV = Low Risk Vegetation

m/h = metres per hour  
FROS = Forward rate of Spread  
kph = kilometres an hour  
FF = Flank Fire  
SFR = Short Fire Run

K = Kelvin  
min = minutes  
sec = seconds  
min/sec = minutes and seconds

Warehouse 2 (North) – BAL-40

**Forest/Woodland - FDF & SFR Calculation page:**

Fire run specifics: Aspect Industrial Estate

**Common and bushfire behaviour contributor inputs:**

Predominant vegetation: Coastal Floodplain Forests - 8.2 & 15.1 - Low - 0m - < 0.9m

Surface & Elevated Fuel Load: 8.2 tph Overall fuel load: 15.1 tph

Average Canopy Height: 20 Metres Fire weather district: 100 FDI

Average elevated fuel height: 0.9 Metres Flame temperature: 1090 Kelvin

Distance to vegetation: 7 Metres Target elevation of receiver: 3 Metres

Effective slope: 2 Degrees Ambient temperature: 308 Kelvin

Site slope: 0 Degrees SFR fire run length: 50 Metres

IF nominal head width: Metres

**Outputs - Fully Developed Fire (FDF)**

Wind Speed: 45 kph

Default elevation of receiver: 4.577 Metres

FDF Flame Angle: 46 Degrees

FDF Flame Length: 9.15 Metres

FDF Intensity: 8813 kW/m

FDF FROS: 1.1296 kph

FDF Flame transmissivity: 0.8882 kW/m

FDF View Factor: 0.6508

**Outputs - Developing Fire Run (DFR)**

Wind speed: 30 kph

Default elevation of receiver: 2.767 Metres

SFR Flame Angle: 65 Degrees

SFR Flame Height: 5.533 Metres

SFR Intensity: 4786 kW/m

SFR FROS: 1.1296 kph

SFR Flame transmissivity: 0.8800 kW/m

SFR View Factor: 0.3615

Calculated SFR Head Width: 18.302 Metres

SFR fire run length: 50 Metres

Approx. SFR travel time: 20:15 min/sec

**SFR Radiant Heat: 24.19 kW/m<sup>2</sup>**

☐ Input cells ☐ Locked output cells

**Glossary of abbreviations/terms:**

tph = tonnes per hectare  
kW/m = Kilowatts per metre  
kW/m<sup>2</sup> = Kilowatts per metre squared  
HFD = Horizontal Flame Depth  
LRV = Low Risk Vegetation

m/h = metres per hour  
FROS = Forward rate of Spread  
kph = kilometres an hour  
FF = Flank Fire  
SFR = Short Fire Run

K = Kelvin  
min = minutes  
sec = seconds  
min/sec = minutes and seconds

Warehouse 2 (North) – BAL-29

**Forest/Woodland - FDF & SFR Calculation page:**

Fire run specifics: Aspect Industrial Estate

**Common and bushfire behaviour contributor inputs:**

Predominant vegetation: Coastal Floodplain Forests - 8.2 & 15.1 - Low - 0m - < 0.9m

Surface & Elevated Fuel Load: 8.2 tph Overall fuel load: 15.1 tph

Average Canopy Height: 20 Metres Fire weather district: 100 FDI

Average elevated fuel height: 0.9 Metres Flame temperature: 1090 Kelvin

Distance to vegetation: 9 Metres Target elevation of receiver: 3 Metres

Effective slope: 2 Degrees Ambient temperature: 308 Kelvin

Site slope: 0 Degrees SFR fire run length: 50 Metres

IF nominal head width: Metres

**Outputs - Fully Developed Fire (FDF)**

Wind Speed: 45 kph

Default elevation of receiver: 4.577 Metres

FDF Flame Angle: 56 Degrees

FDF Flame Length: 9.15 Metres

FDF Intensity: 8813 kW/m

FDF FROS: 1.1296 kph

FDF Flame transmissivity: 0.8775 kW/m

FDF View Factor: 0.5008

**Outputs - Developing Fire Run (DFR)**

Wind speed: 30 kph

Default elevation of receiver: 2.767 Metres

SFR Flame Angle: 68 Degrees

SFR Flame Height: 5.533 Metres

SFR Intensity: 4786 kW/m

SFR FROS: 1.1296 kph

SFR Flame transmissivity: 0.8716 kW/m

SFR View Factor: 0.2410

Calculated SFR Head Width: 18.302 Metres

SFR fire run length: 50 Metres

Approx. SFR travel time: 20:15 min/sec

**SFR Radiant Heat: 17.30 kW/m<sup>2</sup>**

☐ Input cells ☐ Locked output cells

**Glossary of abbreviations/terms:**

tph = tonnes per hectare  
kW/m = Kilowatts per metre  
kW/m<sup>2</sup> = Kilowatts per metre squared  
HFD = Horizontal Flame Depth  
LRV = Low Risk Vegetation

m/h = metres per hour  
FROS = Forward rate of Spread  
kph = kilometres an hour  
FF = Flank Fire  
SFR = Short Fire Run

K = Kelvin  
min = minutes  
sec = seconds  
min/sec = minutes and seconds

Warehouse 2 (North) – BAL-19

**Forest/Woodland - FDF & SFR Calculation page:**

Fire run specifics: Aspect Industrial Estate

**Common and bushfire behaviour contributor inputs:**

Predominant vegetation: Coastal Floodplain Forests - 8.2 & 15.1 - Low - 0m - < 0.9m

Surface & Elevated Fuel Load: 8.2 tph Overall fuel load: 15.1 tph

Average Canopy Height: 20 Metres Fire weather district: 100 FDI

Average elevated fuel height: 0.9 Metres Flame temperature: 1090 Kelvin

Distance to vegetation: 12 Metres Target elevation of receiver: 3 Metres

Effective slope: 2 Degrees Ambient temperature: 308 Kelvin

Site slope: 0 Degrees SFR fire run length: 50 Metres

IF nominal head width: Metres

**Outputs - Fully Developed Fire (FDF)**

Wind Speed: 45 kph

Default elevation of receiver: 4.577 Metres

FDF Flame Angle: 65 Degrees

FDF Flame Length: 9.15 Metres

FDF Intensity: 8813 kW/m

FDF FROS: 1.1296 kph

FDF Flame transmissivity: 0.8637 kW/m

FDF View Factor: 0.3743

**Outputs - Developing Fire Run (DFR)**

Wind speed: 30 kph

Default elevation of receiver: 2.767 Metres

SFR Flame Angle: 71 Degrees

SFR Flame Height: 5.533 Metres

SFR Intensity: 4786 kW/m

SFR FROS: 1.1296 kph

SFR Flame transmissivity: 0.8600 kW/m

SFR View Factor: 0.1713

Calculated SFR Head Width: 18.302 Metres

SFR fire run length: 50 Metres

Approx. SFR travel time: 20:15 min/sec

**SFR Radiant Heat: 11.20 kW/m<sup>2</sup>**

☐ Input cells ☐ Locked output cells

**Glossary of abbreviations/terms:**

tph = tonnes per hectare  
kW/m = Kilowatts per metre  
kW/m<sup>2</sup> = Kilowatts per metre squared  
HFD = Horizontal Flame Depth  
LRV = Low Risk Vegetation

m/h = metres per hour  
FROS = Forward rate of Spread  
kph = kilometres an hour  
FF = Flank Fire  
SFR = Short Fire Run

K = Kelvin  
min = minutes  
sec = seconds  
min/sec = minutes and seconds

Warehouse 2 (North) – BAL-12.5





# Appendix T    Fire Safety Strategy

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





Core Engineering Group • Fire • Risk • Emergency Management

Mirvac  
Level 28, 200 George Street  
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22 June 2023 | Final Issue | Report No. F201262\_WH2\_FSS\_02

# Fire Safety Strategy

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## Report Details

Project: WH2  
Lots 1–5 DP1285305 Mamre Road, Kemps Creek

Document: Fire Safety Strategy

Report No.: F201262\_WH2\_FSS\_02

## Report Revision History

REV	DATE ISSUED	COMMENT	PREPARED BY	REVIEWED BY
01	13/12/2022	Draft Issue for comment	<b>Dean Watt</b> <i>BEng (Chemical)(Hons)</i> <i>MEng (Fire Safety)</i>	<b>Graham Morris</b> <i>MEng (Structural and Fire Safety Engineering)</i> <i>MIEAust, CPEng, NER (Fire Safety)</i>
02	22/06/2023	Final Issue (updated for NCC 2022)		

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## EXECUTIVE SUMMARY

---

CORE Engineering Group has been engaged by Mirvac to develop a Fire Safety Strategy (FSS) for the construction of a speculative warehouse facility (WH2) at Lots 1–5 DP1285305 Mamre Road, Kemps Creek.

This FSS provides an overview of the design, construction and management requirements considered necessary to achieve an acceptable level of life safety within the building.

Due to the size and design of the site, a full prescriptive approach of complying with the National Construction Code Volume 1 2022 (BCA) [1] Deemed-to-Satisfy (DtS) provisions for occupant egress, fire resisting construction, fire services, and fire brigade intervention is unlikely to satisfy the desired architectural and client aspirations. As such, Performance Solutions to satisfy the Performance Requirements of the NCC have been proposed to account for the following items which have been identified through the BCA assessment report to not comply with the DtS Provisions:

- C3D5 – Rationalised perimeter vehicular access path.
- D2D5 – Extended travel distances to the nearest exit within the warehouse building.
- D2D6 – Extended travel distances between alternative exits within the warehouse building.
- E1D2 – External hydrants positioned beneath awnings & holistic hydrant design to AS2419.1:2021 despite building exceeding a volume of 108,000 m<sup>3</sup>.
- E1D4 – Location of sprinkler booster not being within sight of the main pedestrian entry.
- E2D10 – Rationalised automatic smoke exhaust system.

This FSS provides a holistic summary of the fire and life safety measures anticipated to be necessary in developing the above listed Performance Solutions. These measures include passive and active fire protection systems, egress provisions, occupant first aid firefighting, fire brigade intervention, and future building management provisions.

The complete fire engineering analysis will be included within the Fire Engineering Report (FER), undertaken in accordance with the Australian Fire Engineering Guidelines (AFEG), and as such is not documented herein.



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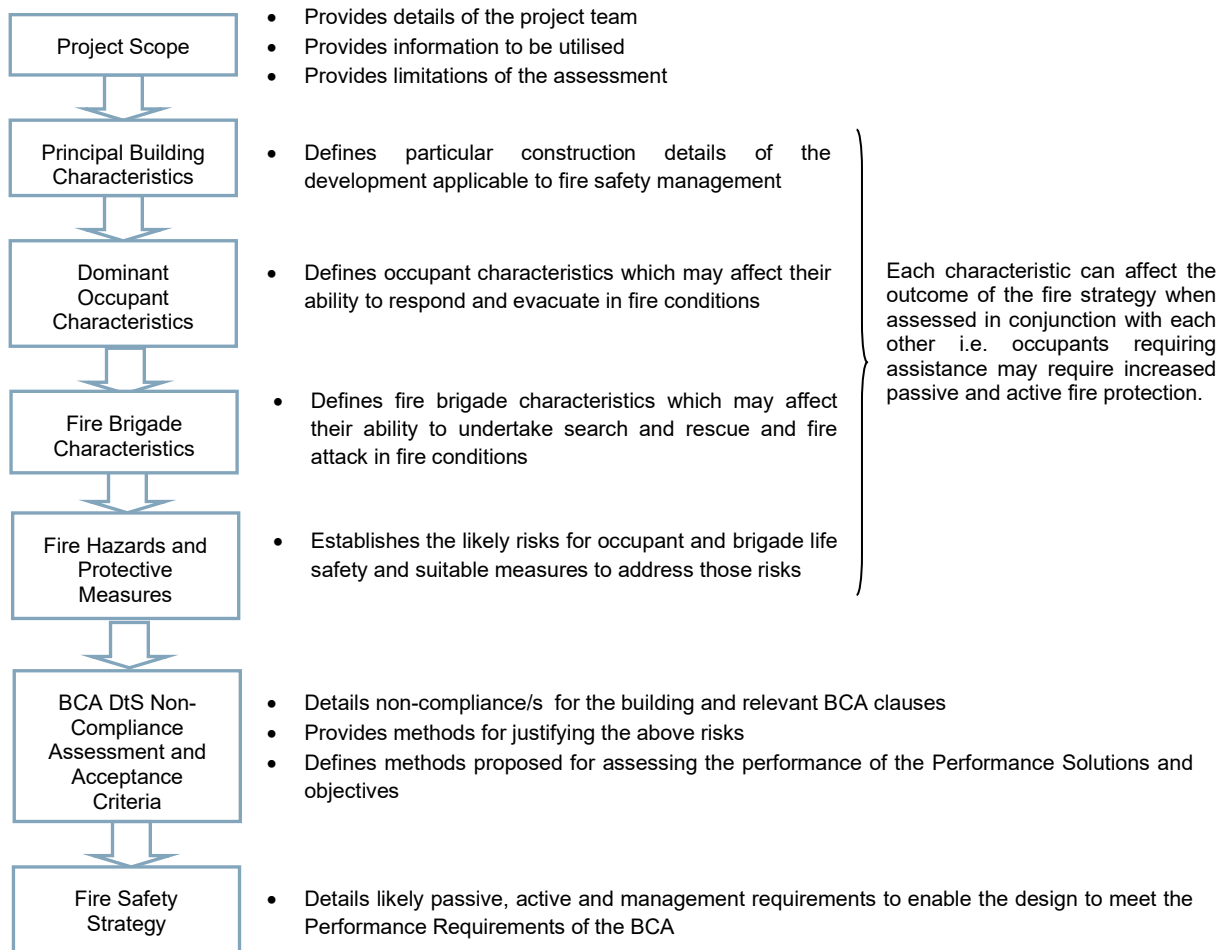
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# 1 INTRODUCTION

## 1.1 OVERVIEW

This Fire Safety Strategy has been undertaken to nominate proposed Performance Solutions for assessing compliance with the nominated Performance Requirements of the NCC [1] in accordance with the methodologies defined in the AFEG [4] and provide a workable and safe Fire Safety Strategy through a trial design. In order to develop and assess the nominated non-compliances the following flowchart process is to be adopted.



**Figure 1-1: Fire Safety Strategy Process**

The scope of the FSS is to detail the nominated departures that do not prescriptively meet the Deemed-to-Satisfy (DtS) Provisions of the BCA, assess these in regard to the appropriate Performance Requirements, and provide methodologies for establishing a workable and safe FSS to be verified further through the Performance Based Design Brief Process.

## 1.2 FIRE SAFETY OBJECTIVES

This FSS highlights the proposed Performance Solutions to be considered in the fire engineering assessment, for the development of a Fire Engineering Report (FER). This fire engineering assessment is one which will satisfy the performance requirements of the BCA whilst maintaining an acceptable level of life safety, protection of adjacent property, and provide adequate provisions for fire brigade intervention. At a community level, fire safety objectives are met if the relevant legislation and regulations (such as the BCA) are complied with. As stated in the BCA, “A Building Solution will comply with the BCA if it satisfies the Performance Requirements”. In addition to this, certain non-regulatory objectives exist as detailed below.



### 1.2.1 Building regulatory objectives

The following items are a summary of the fire and life safety objectives of the BCA:

- **Life safety of occupants** - the occupants must be able to leave the building (or remain in a safe refuge) without being subject to hazardous or untenable conditions. The objective of the Fire Engineering Assessment is to demonstrate that the proposed building design and fire safety systems would minimise the risk of exposing building occupants to hazardous or untenable conditions in an event of a fire.
- **Life safety of fire fighters** - firefighters must be given a reasonable time to rescue any remaining occupants before the onset of hazardous conditions or building collapse occurs. The objective of the fire engineering assessment is to demonstrate that the proposed building design and fire safety systems would facilitate fire brigade intervention and minimise the risk of exposing firefighters to hazardous or untenable conditions in an event of a fire.
- **Protection of adjoining buildings** - structures must not collapse onto adjacent property and fire spread by radiation should not occur. The objective of the fire engineering assessment is to demonstrate that the proposed building design and fire safety systems would minimise the risk of fire spreading from one building to another.

### 1.2.2 Fire Brigade objectives

The overall philosophical Fire Brigade objectives throughout Australia are to protect life, property and the environment from fire according to the Fire Brigade Intervention Model (FBIM) [6] as per the Fire Services State and Territory Acts and Regulations.

Over and above the requirements of the BCA, the Fire Brigade has functions with regard to property and environmental protection and considerations regarding occupational health and safety for its employees.

### 1.2.3 Non-prescribed objectives

Fire Engineering has an overarching benefit to many facets of the built environment where non-prescribed objectives can have an influence on the FSS adopted. Although not assessed within, the following can be considered if requested.

- **Business continuity** - will the loss of a particular facility due to fire / smoke damage result in excessive financial impact on the client? For example, is the facility critical to business continuity?
- **Public perception** - should a fire occur within the facility is there likely to be questionable public perception about the safety and operation of the facility?
- **Environmental protection** - fires of excessive sizes can have significant effects on the environment which may require a detailed risk assessment to minimise such outcomes.
- **Heritage salvation** - buildings can have a heritage value for both cultural and educational purposes which can be destroyed by insufficient fire protection.
- **Risk mitigation / insurance limitations** - are there specific limitations on insurance with respect to risk mitigation and fire safety design? i.e. Does the relevant insurer have concerns with respect to open voids through the building?
- **Future proofing (isolation of systems)** - what flexibility is required in the overall design to allow for future development or changes in building layout?
- **Occupational Health and Safety (OHS) requirements** - buildings may have specific fire safety requirements pertaining to OHS requirements.

## 1.3 REGULATORY FRAMEWORK OF THE FIRE ENGINEERING ASSESSMENT

### 1.3.1 Building Code of Australia

One of the goals of the BCA is the achievement and maintenance of acceptable standards of safety from fire for the benefit of the community. This goal extends no further than is necessary in the public interest and is considered to be cost effective and not needlessly onerous in its application.

Section A2G1 of the NCC [1] outlines how compliance with the Performance Requirements can be achieved, being satisfied by one of the following:

- (a) A Performance Solution which demonstrates—
  - (i) Compliance with all relevant Performance Requirements; or
  - (ii) The solution is at least equivalent to the Deemed-to-Satisfy Provisions; or



- (b) A Deemed-to-Satisfy Solution; or
- (c) a combination of (1) and (2).

Section A2G2 of the NCC provides several different methods for assessing that a Performance Solution complies with the Performance Requirements, through one or a combination of the following Assessment Methods:

- (a) Evidence of suitability that shows the use of a material, product, form of construction or design meets the relevant Performance Requirements.
- (b) A Verification Method including the following:
  - (i) the Verifications Methods in the NCC; or
  - (ii) other Verification Methods, accepted by the appropriate authority that show compliance with the relevant Performance Requirements.
- (c) Expert Judgement.
- (d) Comparison with the Deemed-to-Satisfy Provisions.

Where a Performance Requirement is satisfied entirely by a Performance Solution, the following method must be used to determine the Performance Requirements relevant to the Performance Solution:

- (a) Identify the relevant Performance Requirement from the Sections or Part to which the Performance Solution applies.
- (b) Identify Performance Requirements from other Sections of Parts that are relevant to any aspects of the Performance Solution proposed or that are affected by the application of the Performance Solution.

Under Section A2G4, the following method must be used to determine the relevant Performance Requirements when using a Performance Solution in combination with a Deemed-to-Satisfy Solution: These methods are summarised as follows:

- (a) Identify the relevant Deemed-to-Satisfy Provisions of each Section or Part that are to be the subject of the Performance Solution.
- (b) Identify the Performance Requirements from the same Section or Part that are relevant to the identified Deemed-to-Satisfy Provisions.
  - (i) Identify Performance Requirements from the other Sections and Parts that are relevant to any aspects of the Performance Solution proposed or that are affected by the application of the Deemed-to-Satisfy Provisions that are the subject of the Performance Solution.

Where a Performance Solution is proposed to satisfy the Performance Requirements, Provision A2G2(4) of NCC 2022 requires that the following steps be undertaken:

- (a) Prepare a performance-based design brief in consultation with relevant stakeholders
- (b) Carry out analysis, using one or more of the Assessment Methods listed in (2) (refer to Section 7 of this report), as proposed by the performance based design brief.
- (c) Evaluate results from (b) against the acceptance criteria in the performance based design brief
- (d) Prepare a final report that include –
  - i. All Performance Requirements and/or Deemed-to-satisfy Provisions identified through A2G2(3) or A2G4(3) as applicable; and
  - ii. Identification of the assessment methods used; and
  - iii. Details of steps (a) to (c)
  - iv. Confirmation that the Performance Requirement has been met; and
  - v. Details of conditions or limitations, if any exist, regarding the Performance Solution

The definition of a Performance Based Design Brief in the NCC is *“the process and the associated report that defines the scope of work for the performance-based analysis, the technical basis for the analysis, and the criteria for acceptance of any relevant Performance Solution as agreed by stakeholders”*



### **1.3.2 International Fire Engineering Guidelines**

The AFEG [4] document has been developed for use in fire safety design and assessment of buildings, and reflects international best practice. The document is intended to provide guidance for fire engineers as they work to develop and assess strategies that provide acceptable levels of safety.

The document is particularly useful in providing guidance in the design and assessment of Performance Solutions against the Performance Requirements of the BCA. The prescribed methodology set out in the AFEG will be generally adopted in the Fire Engineering Report.



## 2 PROJECT SCOPE

### 2.1 OVERVIEW



CORE Engineering Group has been engaged by Mirvac to develop a Fire Safety Strategy (FSS) for the construction of a speculative warehouse facility (WH2) at Lots 1–5 DP1285305 Mamre Road, Kemps Creek.

The purpose of this FSS is to outline the fire engineering principles to be considered in ensuring that built form proposed is capable of meeting the Performance Requirements of the BCA and thus permitting development approval.

The complete fire engineering analysis will be included within the FER, and as such is not documented herein. This document does however outline the construction and management requirements considered necessary to achieve an acceptable level of life safety within the building as a result of the Performance Solution and to satisfy the Performance Requirements of the BCA.

### 2.2 RELEVANT STAKEHOLDERS

This Performance Solution has been developed collaboratively with the relevant stakeholders as identified below:

**Table 2-1: Relevant Stakeholders**

ROLE	NAME	ORGANISATION
Development Manager	Susan Paul Stephen Foster	Mirvac
Project Manager	James Webb	RP Infrastructure
Principal Certifying Authority	Dean Goldsmith	Blackett Maguire + Goldsmith
Architect	Richard Prince	SBA Architects
Fire Engineer	Dean Watt	CORE Engineering Group
Register Certifier - Fire Safety	Graham Morris	

*It should be noted that at times some parties may have a vested interest in the outcome of the Fire Engineering assessment. Such parties can include local fire brigades, insurers, Environmental Protection Authority (EPA), project control groups, end users and community representatives. Although not always a legislative requirement, the design team should give due consideration to their inclusion in the Fire Engineering process. Where not required by legislation it is the client's decision to involve such parties, especially local fire brigade, to ensure a transparent and adequate fire safety solution for all. Where we are not notified of the inclusion of such parties it is assumed the client / representative has given due consideration to the above.*

### 2.3 SOURCES OF INFORMATION

The following sources of information have been provided by the design team:

- BCA assessment report (220480, Rev 1) provided by Blackett Maguire + Goldsmith, dated 14/06/23.
- SEPP33 assessment report (RCE-23012\_Mirvac\_SEPPRH\_Final\_9Jun23\_Rev(0)), provided by RiskCon Engineering, dated 09/06/23.
- Architectural plans by SBA Architects:
  - 22247-MP2-01 (Rev B), Lot 2 SSDA Estate Masterplan, dated 13/06/23.
  - 22247-DA210 (Rev P13), Lot 2 Site & Warehouse Floor Plan, dated 13/06/23.

### 2.4 LIMITATIONS AND ASSUMPTIONS

In this instance the FSS is developed based on applicable limitations and assumptions for the development which are listed as follows:

- This document represents the opinions of CORE Engineering Group based on the information known at the time of preparation of this document. Opinions, findings, and recommendations detailed in this



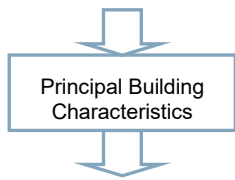
document are based on our understanding and interpretation of current statutory and regulatory obligations and standards and should not be construed as legal opinions.

- This report does not constitute a fire engineering report (FER) that addresses the Performance Requirements of the BCA. Any recommendations herein are subject to detailed fire engineering analysis, and the relevant approval process.
- This document has been prepared as a guidance document only, and any parties relying on this for pricing should be cognisant that the recommendations are preliminary and subject to detailed analysis and authority approvals.
- This Fire Safety Strategy has been prepared prior to receipt of an BCA report or advice. As such, the strategy herein is subject to change on receipt of BCA report.



## 3 PRINCIPAL BUILDING CHARACTERISTICS

### 3.1 OVERVIEW



Building characteristics are assessed as part of the fire engineering assessment due to the following:

1. The location can affect the time for fire brigade intervention and potential external fire exposure issues.
2. The structure will impact on the ability to resist a developing fire and support condition to allow occupants to escape the building and the fire brigade to undertake fire fighting to the degree necessary.
3. The floor area determines the potential fire size and area required to be evacuated in the event of a fire.
4. BCA details such as Type of Construction, Class and Height will dictate passive and active fire safety systems.

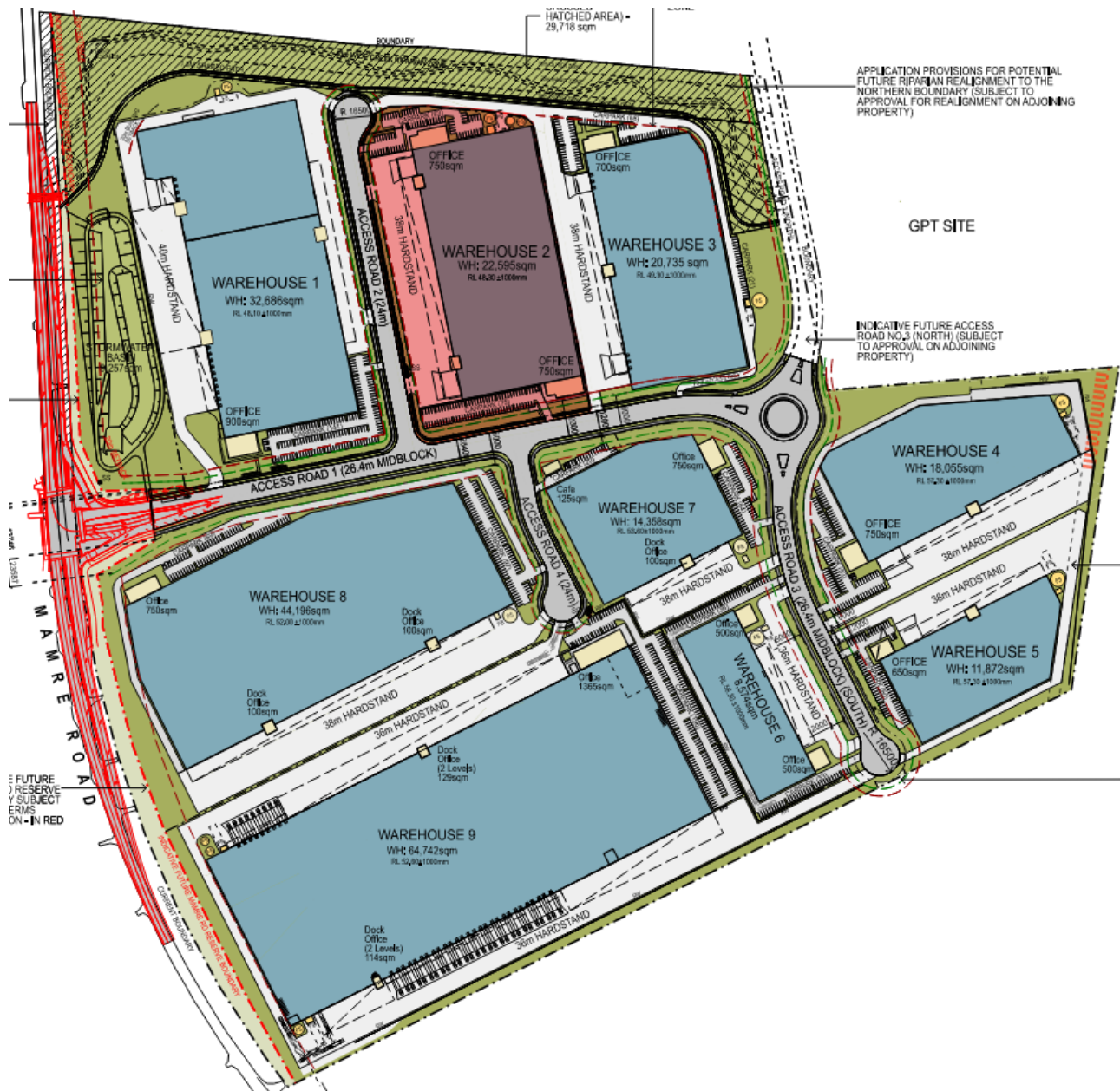
### 3.2 SITE LOCATION

The development site is located in Kemps Creek, approximately 40 km west of Sydney's central business district. The Kemps Creek site consists of nine lots located on Mamre Road Lots 1 – 5 on DP 1285305, under the SEARs SSD-58257960. The internal roads within the estate are yet to be named.



**Figure 3-1: Site Location**





**Figure 3-2: Lot 2 location with respect to Estate Masterplan**

The building site influences the likely fire brigade intervention times and given the close proximity to the nearest fire station is expected to facilitate a relatively convenient and expedient fire brigade response. Furthermore, being located in an outer suburb of a major city, the development is provided with the services and facilities expected in an urban setting. The two nearest fire brigade stations provided with permanent staff are St Marys and Bonnyrigg Heights approximately 10 km and 11 km from the site respectively when considering actual driving distances.

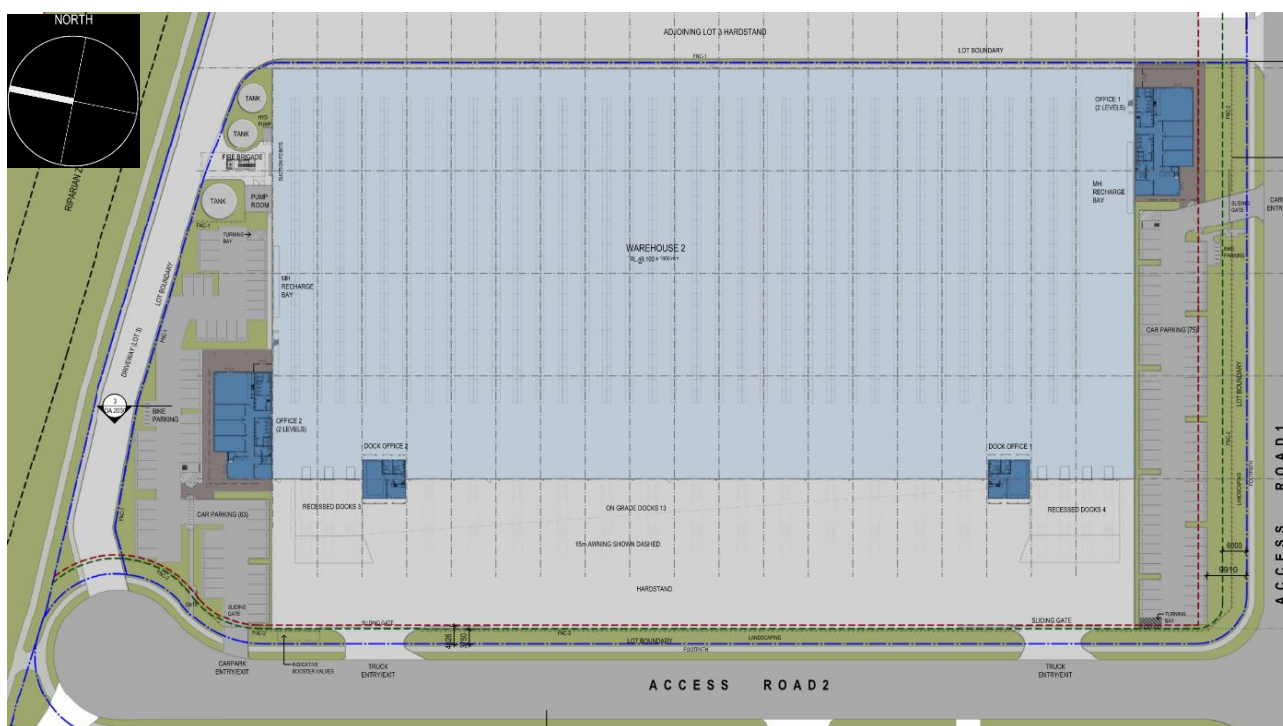
### 3.3 SITE LAYOUT

Lot 2 of the development plan consists of Warehouse 2 as illustrated in Figure 3-3. This report addresses the fire safety strategy for Lot 2 (Warehouse 2) specifically.

Lot 2 is located to the north of the site, between Lots 1 and 3. The total area of the Warehouse 2 site is approximately 40,172 m<sup>2</sup>. The facility is speculative and includes a warehouse with a floor area of 22,595 m<sup>2</sup>, in addition to 2 two-storey offices (750 m<sup>2</sup> each), and two dock offices (100 m<sup>2</sup> each), and the facility is proposed to operate 24 hours a day, 7 days a week.

Onsite external carparking is available to the north and south of the warehouse building. Loading docks and the associated hardstands for the warehouse are located on the western perimeter of the building, under awnings.





**Figure 3-3: Lot 2 Development Plan (spec)**

### 3.4 BUILDING STRUCTURE

The warehouse shall be constructed as a steel portal frame structure with dado panel walls and a metal sheet roof, in accordance with the requirements for Type C construction.

### 3.5 BCA ASSESSMENT SUMMARY

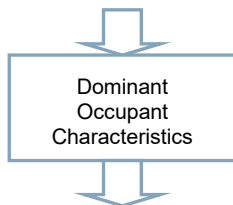
**Table 3-1: BCA Building Characteristics**

CHARACTERISTIC	DESCRIPTION
Classification	Class 7 (Storage); Class 5 (Office)
Construction Type	Type C (Large-Isolated Building)
Rise in Storeys	Two (2)
Effective Height	Less than 12 m
Floor Area and Volume	~24,295 m <sup>2</sup> (Greater than 18,000 m <sup>2</sup> and 108,000 m <sup>3</sup> )



## 4 DOMINANT OCCUPANT CHARACTERISTICS

### 4.1 OVERVIEW



The occupant characteristics are assessed within the Fire Safety Strategy due to the following:

1. Population numbers can dictate the time required to evacuate the building and the required life safety systems to be provided due to evacuation times.
2. Physical and mental attributes affect the occupants' capacity to respond to various fire cues and react accordingly.
3. Familiarity of occupants can affect the time taken to evacuate the building and subsequent active / passive requirements.

### 4.2 OCCUPANT NUMBERS AND DISTRIBUTION

The BCA assumes the following occupant densities per an area's function and use according to Table D2D18 [10]:

- Warehouse: 30m<sup>2</sup> per person
- Office: 10m<sup>2</sup> per person

In the absence of specific occupant numbers provided by the tenant, the population estimated from Table D2D18 of the BCA DtS Provisions will be utilised in the analysis, therefore providing a conservative population in the warehouse parts.

It is noted that these numbers provide conservative inputs to the fire engineering analysis and do not form the requirements for amenities and the like.

### 4.3 OCCUPANT ATTRIBUTES

Occupants in the building may be of mixed age, although the elderly and children are not expected to be present. The population is therefore expected to be that of the general working public and be adults between the ages of 16 to 70. Due to the nature of the work conducted the majority of occupants are assumed to be able bodied people, however there may be a small number of less mobile or visually impaired occupants in the office portion of the building.

All occupants are expected to be awake and alert adults or in the direct company of an adult, capable of entering the leaving the building under their own volition. Occupants in all of these areas are not expected to be adversely impaired by drugs, alcohol, fatigue or other adverse conditions to degrees greater than in other warehouse and office buildings.

### 4.4 OCCUPANT FAMILIARITY

The majority of occupants within the building are expected to be staff and therefore the population in general are likely to react favourably in an emergency situation.

- Staff, Maintenance and Security can be expected to have a good familiarity with the building and the fire safety systems provided and may be trained in emergency procedures; and
- Clients / Visitors may or may not be familiar with the layout of the building and may require assistance in locating the exits; and

### 4.5 EMERGENCY TRAINING

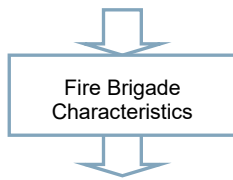
Occupants should be familiar with escape procedures through fire drills and designated fire wardens being appointed to mitigate risks under Workplace Health and Safety legislation (AS3745:2010). Clear escape routes should be maintained with doors unlocked, and no obstructions or rubbish to hinder evacuation.

Staff and visitors are not expected to have fire suppression training and such training is not relied upon for this building population; however staff are expected to possibly attempt to extinguish a fire or limit fire spread by removing objects in the vicinity of the fire in order to defend their belongings.



## 5 FIRE BRIGADE CHARACTERISTICS

### 5.1 OVERVIEW

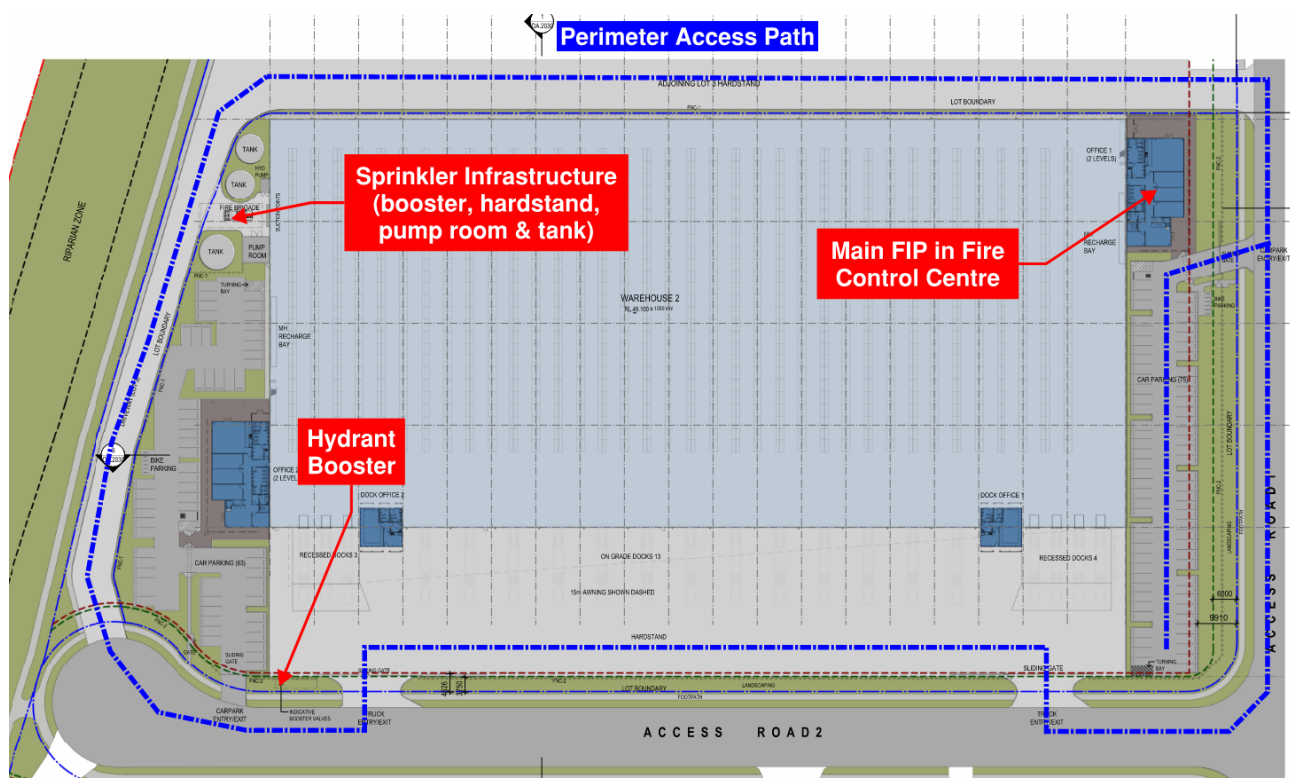


Fire brigade characteristics are assessed within the FSS as brigade characteristics can dictate the time required for fire brigade intervention including search and rescue, and fire attack.

### 5.2 FIRE BRIGADE ASSESSMENT

Figure 5-1 illustrates the site plan with respect to the fire services provided on the site. These include:

- Perimeter access provided around Lot 2 (noting there are associated non-compliances, such as reliance on the Lot 3 hardstand).
- Fire sprinkler tank and booster, pump room and dedicated appliance bay for Lot 2.
- Proposed location of Fire Control Centre (FCC).
- Proposed location of fire hydrant booster – noting it must be located more than 10 m from substations and outside the exclusion zone of the building.



**Figure 5-1: Fire Brigade Access and Site Facilities**

The building is located within the Fire and Rescue New South Wales (FRNSW) jurisdictional turnout area. The closest two fire stations to the site that are provided with permanent staff are located in St Marys and Bonnyrigg Heights approximately 10 km and 11 km.



## 6 FIRE HAZARDS AND PROTECTIVE MEASURES

### 6.1 OVERVIEW



The fire hazard analysis forms the basis for the review of non-compliances within the building. In assessing expected and statistically validated hazards, preventative and protective measures are developed commensurate with those expected risks. The following section reviews applicable hazards and recommends possible measures to address those risks. Furthermore, the hazards identified can form a justified basis for selected scenarios.

### 6.2 FIRE HAZARDS

Subsequent to a review of the relevant documentation, the identified fire hazards specific to Lot 3 of this site are summarised below.

#### 6.2.1 Combustible External Cladding

As the building requires Type C construction, there is no restriction on combustible materials within the external walls of the building. Regardless, should the design propose any combustible elements, a detailed review and risk assessment is recommended.

#### 6.2.2 Photovoltaic Cells

No PV cells have been identified at this stage; however, it is anticipated that these will be incorporated in the design. The following general design guidance is provided in order to limit any electrical exposure to evacuating occupants or attending fire fighters.

A schematic diagram (minimum A4 in size) must be provided at the FDCIE. This diagram must include:

- The location of the panels.
- The location of all associated isolation switches, AC & DC isolators for the shut-off of generated electricity.
- A statement of whether the system automatically isolates on fire trip.
- A statement in 8 mm font stating (or similar):
  - “Photovoltaic (PV) panels present. PV panels are mechanically fixed to the roof as depicted”.

#### 6.2.3 Insulated Sandwich Panels

At this stage of the project, it is understood that no insulated sandwich panels are proposed within WH2.

Should insulated sandwich panels be proposed within the subject facility (typically temperature-controlled areas or clean rooms), these shall be installed in accordance with the Code of Practice, IPCA Ltd Code of Practice (CoP) Version 4.3 dated 2017.

- ISPs must have a Group 1 Certificate when tested to AS ISO 9705 2003, or Class 1 to FM 4880 and their fire performance is to be in accordance with the CoP.
- Certification should be provided from the accredited installer (e.g. a Code Compliant Company with the Code of Practice) that the panels (All EPS must meet AS 1366.3 1992, use only 100% FR bead) and the installation complies with the requirements of the CoP.
- The use of ISP's should be identified in accordance with the requirements of the CoP e.g. labels (see Annexure B of CoP for examples) being placed on all doors leading into the rooms that have utilised ISP systems;
- The key diagram required by the CoP is to be located at the respective fire indicator panel. The key diagrams shall indicate the locations and specification of all ISPs in the building and can assist firefighters when making operational decisions.

#### 6.2.4 Dangerous Goods

At this stage of the project, no specific Dangerous Goods storage requirements have been outlined, and so no Dangerous Goods storage requirements have been identified. However, in order to provide flexibility to



accommodate potential tenants, RiskCon Engineering prepared an assessment report to apply SEPP 33 (RCE-23012\_Mirvac\_SEPPRH\_Final\_9Jun23\_Rev(0), dated 09/06/23).

The determination was that if the facility did not exceed the threshold quantities outlined in “Applying SEPP 33”, then the facility would not be deemed a potentially hazardous facility and not require a Preliminary Hazard Analysis.

Should the storage of Dangerous Goods be proposed, this must be in accordance with the relevant workplace health and safety regulations which will apply governing storage allowances (quantity) and requirements. The presence of DGs can also impact on the fire safety strategy and therefore must be reviewed in the context of fire spread, occupant evacuation and fire brigade intervention.

#### **6.2.5 Automatic Storage and Retrieval Systems**

There are various automated racking systems in the market for storage facilities as a general trend towards efficiency in distribution facilities. With the efficiency comes additional fire hazards to be considered. While automated racking systems have not been proposed in these facilities at this stage, the following potential hazards will need further consideration if such a system is proposed:

- The dense storage arrangement restricts access to maintenance personnel only, with subsequent egress being typically complex in nature.
- The restricted access limits the ability for firefighters by conventional means to access the racking arrangement to suppress a fire and/or confirm a fire is extinguished.
- The live electrical system can create additional hazards for attending firefighters.
- The automated nature (moving parts) can contribute to fire spread and result in multiple sprinkler heads operating.

Should an automated system be proposed, this is likely to alter the fire safety strategy and so detailed consideration of the inherent risks to fire spread, occupant evacuation and fire brigade intervention is required.

### **6.3 PREVENTATIVE AND PROTECTIVE MEASURES**

The following measures are anticipated within the building to limit fire spread and the exposure to occupants and fire brigade. These are categorised in accordance with the sub-systems listed in the IFEG.

#### **6.3.1 Fire Initiation and Development and Control (Sub-System A)**

To minimise the risk of fires initiating and growing to a size which may impact on the building occupants, fire safety systems are to be utilised within the building as listed in the following sections. The following general advice may also be provided to limit the likelihood of fire initiation and development.

- Flammable materials should be stored away from ignition sources where possible.
- Scheduled maintenance of all electrical equipment / switchboards
- Adhere to safe operating procedures for ‘hot work’ (e.g. welding).
- No smoking policy

#### **6.3.2 Smoke Development and Spread and Control (Sub-System B)**

It is recognised that smoke is one of the most serious threats to life safety in the event of a fire. Whilst the automatic smoke exhaust system for this facility shall be rationalised, the following are anticipated:

- Large smoke reservoir due to volume of building.
- Automatic smoke exhaust system initiated upon sprinkler activation, achieving a capacity of 1 volume air change per hour.

#### **6.3.3 Fire Spread and Impact and Control (Sub-System C)**

To limit the extent and impact of fire spread through the building, the following are to be implemented in the building.

- Type C construction
- Fire sprinkler system

#### **6.3.4 Fire Detection, Warning and Suppression (Sub-System D)**

The following active systems are to be used within the building to facilitate occupant warning and suppress a potential fire.

- Occupant warning system



- Storage sprinkler system at warehouse roof level
- Sprinkler system throughout other areas
- Fire hose reels
- Fire extinguishers

#### **6.3.5 Occupant Evacuation and Control (Sub-System E)**

The building is to be provided with the following systems to assist in the evacuation of occupants:

- Emergency lighting
- Exit signage
- Exits direct to outside
- Multiple exits located on all four sides of building

#### **6.3.6 Fire Services Intervention (Sub-System F)**

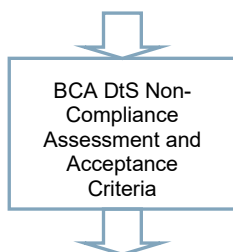
The building is to be provided with the following systems to assist in fire brigade intervention:

- Fire hydrant system, using external hydrants where possible.
- Automatic link to fire brigade
- Perimeter vehicular perimeter access in a forward direction.
- FCC within the main office lobby
- Sprinkler tank, booster and pump
- Local fire brigades in close vicinity supported by full time staff



## 7 BCA DTS NON-COMPLIANCE ASSESSMENT

### 7.1 OVERVIEW



In this instance the BCA DtS non-compliances have been formulated based on the anticipated regulatory review to be provided by the principal certifying authority. Where not listed herein the building is required to achieve compliance with relevant DtS provisions or if existing, comply with relevant codes, reports and / or Standards approved at the time of consideration.

The following table lists the departures from the DtS provisions of the BCA for the proposed building and the analysis methodology proposed for the Fire Engineering assessment, which is to be generally in accordance with the IFEG [3].

### 7.2 BCA DTS NON-COMPLIANCE ASSESSMENT

The non-compliances specific to Lot 2 are listed in Table 7-1 below.

*Table 7-1: Summary of Performance Solutions – Lot 2*

BCA DTS PROVISIONS	DETAILS OF PERFORMANCE BASED SOLUTION
<b>Perimeter Vehicular Access</b>  <b>BCA DtS Provisions</b>  Provision C3D5: Requirements for open spaces and vehicular access  <b>Performance Requirements</b> C1P9	<b>Relevant BCA DtS Provisions</b> <u>Provision C3D5(2)</u> : A large-isolated building must be provided with continuous vehicular access with a minimum unobstructed width of 6 m where the furthest distance from the external wall of the building and the path is not more than 18 m for emergency vehicle access. <b>DtS Variation</b> Perimeter vehicular access along the eastern perimeter relies on the use of the Lot 3 hardstand, and is greater than 18 m from the building along the southern and northern perimeters. <b>Performance Solution</b> The Performance Solution shall rely upon the following: <ul style="list-style-type: none"> <li>• Travel is provided around the facility in a forward motion.</li> <li>• Staging is available in proximity to all 4 corners of the building and on the western hardstand.</li> <li>• Southern carpark is loadbearing to accommodate the staging of FRNSW appliances.</li> <li>• Access path over the adjoining lot (Lot 3) being maintained clear and unobstructed, primarily via a lease agreement, or restriction on use easement registered with the Department for Lands and Property Information.</li> </ul>
<b>Extended Travel Distances and Smoke Hazard Management</b>  <b>BCA DtS Provisions</b>  Provision D2D5: Exit travel distances	<b>Relevant BCA DtS Provisions</b> <u>Provision D2D5</u> : In a Class 7b building, the maximum travel distance must not exceed 40 m when 2 or more exits are available. <u>Provision D2D6</u> : The distances between alternative exits must not exceed 60 m. <u>Provision E2D10</u> : Automatic smoke exhaust must be provided in Class 7b buildings which exceed 18,000 m <sup>2</sup> in floor area or 108,000 m <sup>3</sup> in volume. <b>DtS Variation</b> <ul style="list-style-type: none"> <li>• The overall travel paths in WH2 are likely to be up to 75 m to the nearest exit and 150 m between alternative exits (when including travel underneath the 15 m awning).</li> <li>• A rationalised automatic smoke exhaust system is proposed with a capacity of 1 volume air change per hour.</li> </ul>



BCA DTS PROVISIONS	DETAILS OF PERFORMANCE BASED SOLUTION
<p>Provision D2D6: Distance between alternative exits</p> <p>Provision E2D10: General requirements</p> <p><b>Performance Requirements</b> D1P4 and E2P2</p>	<p><b>Performance Solution</b></p> <p>The Performance Solution relies upon:</p> <ul style="list-style-type: none"> <li>• The volume of the warehouse enclosure providing a large smoke reservoir hence longer time is available for occupant egress before the smoke descends.</li> <li>• The automatic smoke exhaust system is initiated upon activation of the sprinkler system.</li> <li>• The population density inside the warehouse is expected to be low where the occupants are likely to be awake and able-bodied to evacuate while the tenability within the warehouse is maintained.</li> </ul>
<p><b>Fire hydrant system design</b></p> <p><b>BCA DtS Provisions</b></p> <p>Provision E1D2: Fire hydrant</p> <p><b>Performance Requirements</b> E1P3</p>	<p><b>Relevant BCA DtS Provisions</b></p> <p><u>Provision E1D2</u>: requires that a fire hydrant system is provided and installed in accordance with AS2419.1, which in turn requires the following:</p> <ul style="list-style-type: none"> <li>• Hydrants beneath awnings are to be considered as internal hydrants.</li> <li>• Internal hydrants must be located not more than 4 m from a required exit.</li> </ul> <p><b>DtS Variation</b></p> <p>The scope of AS2419.1:2021 does not include buildings with a total volume of more than 108,000 m<sup>3</sup>. However, the standard shall be applied, with additional measures to the building which exceeds 108,000 m<sup>3</sup>.</p> <ul style="list-style-type: none"> <li>• The hydrants under awnings are to be designed as external hydrants.</li> <li>• The provision of additional internal hydrants not within 4 m of an exit.</li> </ul> <p><b>Performance Solution</b></p> <p>The hydrants located beneath the awnings are to have all the requirements of an external hydrant per AS2419.1:2021, except that they are located under the building footprint.</p> <p>Fall-back hydrants are to provide coverage to hydrant located under the awnings.</p>
<p><b>Sprinkler Booster Location</b></p> <p><b>BCA DtS Provisions</b></p> <p>Provision E1D4: Sprinklers</p> <p><b>Performance Requirements</b> E1P4</p>	<p><b>Relevant BCA DtS Provisions</b></p> <p><u>Provision E1D4, Specification 17</u>: An automatic fire sprinkler system must comply with AS 2118.1 for all building classifications, which specifies that the fire brigade booster assembly shall conform to requirements of AS 2419.1. This requires fire brigade assemblies to be located within sight of the main entrance to the building.</p> <p><b>DtS Variation</b></p> <p>The location of the sprinkler booster is not within sight of the main entrance and therefore does not comply with the provisions above.</p> <p><b>Performance Solution</b></p> <p>The sprinkler booster shall be positioned such that it is accessible directly via the perimeter access path, having a dedicated hardstand in accordance with FRNSW guidelines that does not obstruct the perimeter access path.</p>



## 8 PROPOSED FIRE SAFETY STRATEGY

### 8.1 OVERVIEW



The FSS outlined below has been proposed to satisfy the fire and life safety objectives specified for this project by the relevant stakeholders. In addition, the FSS is required to adequately address the specific fire and life safety hazards identified for the proposed development, and as such have been generally derived from the preventative and protective measures outlined within the BCA, and fire engineering literature and research. Where items of non-compliance have not been identified by the design team in the concept design phase, it is expected that those items will be DtS solutions.

This section provides guidance for the design and application of fire safety measures. It highlights specific design considerations for a range of fire safety measures that will undergo analysis as part of the FER to ascertain whether the relevant Performance Requirements of the BCA are satisfied. Design guidance (general informative details and specific requirements) for a range of specific fire safety measures is provided. This list is not exhaustive and the use of other fire safety measures including new technologies will require additional review.

### 8.2 PASSIVE FIRE PROTECTION

#### 8.2.1 Type of Construction Required

The building shall be built in accordance with the BCA DtS provisions for Type C fire-resisting construction, as a large-isolated building.

Where the future fit-out would introduce mezzanines, these may affect the rise-in-storeys classification for the building which would drive a more onerous level of construction (i.e. Type A or B construction) – this has implications on FRLs being required for internal and external elements (as well as floors for Type A construction).

Namely, where the internal fit-out drives Type B construction requirements, the following requirements are applicable:

- External columns within 18 m of a fire source feature require an FRL of 240/--/--.
- Internal columns (other than those supporting only the roof) require an FRL of 240/--/--.
- Elements in the external walls must be non-combustible.
- Ancillary elements such as signage must comply with specific requirements. Specifically, signage must:
  - Achieve a Group number of 1 or 2.
  - Not extend beyond one storey.
  - Not extend beyond one fire compartment.
  - Be separated vertically from other signs.

#### 8.2.2 Combustibility of External Wall

As the building requires Type C construction, there is no prescriptive requirement for materials in the external wall build-up to be non-combustible. However, given the global scrutiny on combustible façade materials, it is recommended to specify non-combustible cladding materials.

### 8.3 VEHICULAR PERIMETER ACCESS

The vehicular perimeter access pathway should be provided around the whole of the building. This should be designed and constructed with an all-weather surface capable of supporting all FRNSW appliances in accordance with BCA Provision C3D4 and the FRNSW Fire Safety Guideline 'Access for Fire Brigade Vehicles and Firefighters', available at <http://www.fire.nsw.gov.au>, with the following exceptions permitted:



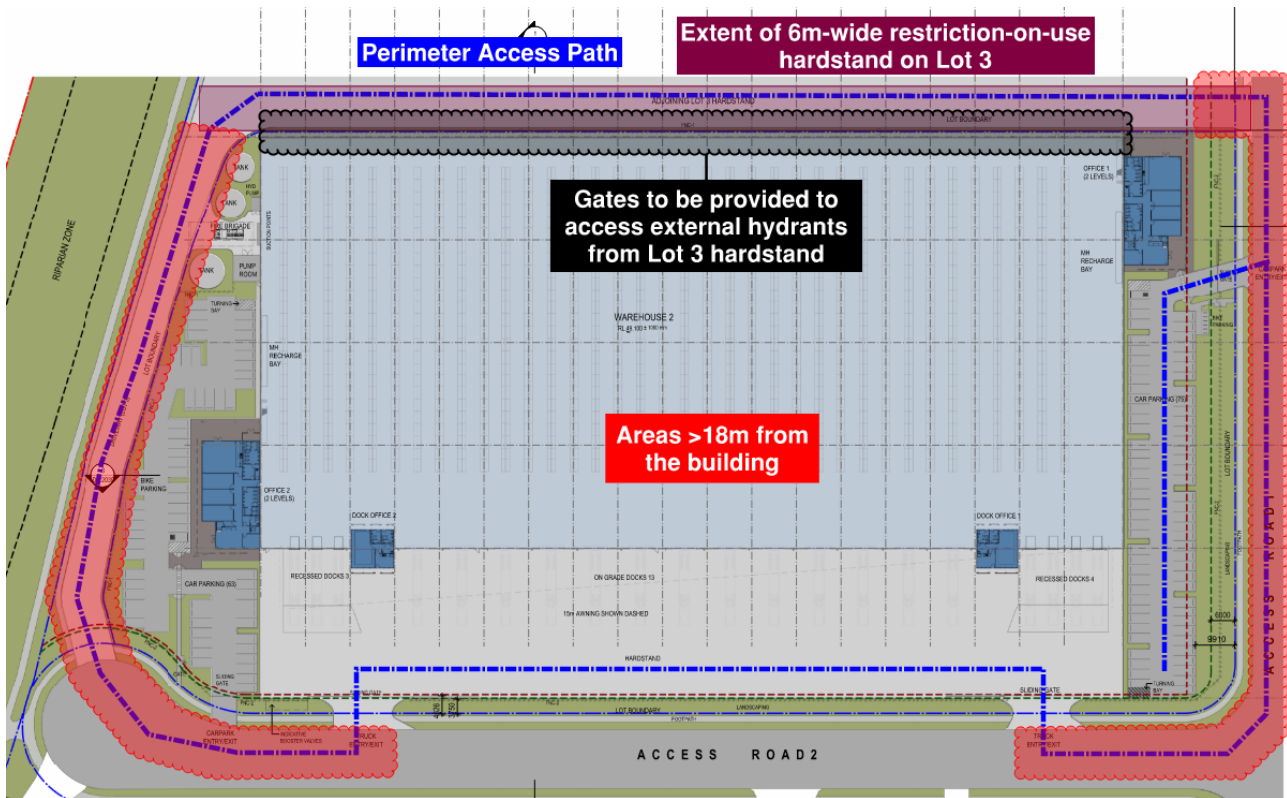
- Perimeter vehicular access along the southern and northern sides of the Lot 2 warehouse is greater than 18 m from the external wall of the building (Figure 8-1).
- The perimeter path along the eastern side of Lot 2 requires the use of the Lot 3 hardstand, being an adjoining lease boundary.

To facilitate the perimeter access non-conformances, the following measures should be provided as part of the Performance Solution:

- Gates in the security line around Warehouse 2 should be provided to enable access to the egress doors and fire hydrants directly from the Warehouse 3 hardstand – such that each external hydrant is located no greater than 50 m from a hardstand, as per AS2419.1:2021.<sup>1</sup>
- The load-bearing capacity and vehicle swept path of the vehicular access path and southern carpark must be compatible with fire brigade vehicle requirements in accordance with FRNSW's Guideline (i.e. designed with loadbearing capacity and swept paths for specialist appliances).
  - The southern carpark need not be provided with a turning circle or bay, as permissible under Clause 7.2.1 of FRNSW's guideline for carriageways with a length not greater than 120 m.
- To allow for brigade access to the eastern portion of the perimeter access path serving Warehouse 2, travel onto the adjoining lease boundary is required (Warehouse 3). As such, an area of no less than 6 m wide on the western portion of Warehouse 3 must be maintained free of obstructions and combustibles and is to provide the required vehicular access pathway for fire brigade appliances. The extent of the Restriction-on-Use hardstand is shown in Figure 8-1 below.
  - The building owner (Mirvac) shall make the tenant aware of the restriction in any leasing documents for Warehouses 2 and 3, with both parties agreeing to ensure the respective pathway is maintained. This is to be acknowledged by Mirvac prior to Section 40(2)(b) signoff.
  - Prior to any subdivision of the lots containing Warehouses 2 or 3, a Restriction-on-use or Section 88b instrument (under the Conveyancing Act 1919) for the western hardstand of Warehouse 3 is to be registered with the Department for Lands and Property Information. This requirement is to be listed on the fire safety schedule for both buildings, and shall ensure that no storage occurs for a minimum width of 6 m for the full extent along the designated pathway to facilitate the forward movement of brigade appliances.
- Sprinkler booster suction connection must be designed with a dedicated hardstand (6 m x 18 m) in which a fire truck can connect, whilst still allowing additional appliances to pass by.
- All gates, security fencing, and boom gates should be readily openable by the fire authorities. This can be achieved through one, or a combination of, the following [8]:
  - Any vehicle access gate that is required to be locked should be secured with a non-hardened metal chain and lock.
  - All locks fitted to vehicle access gates and security devices are to be keyed alike, and a copy of the key deposited with the two nearest FRNSW fire brigade stations or kept with the site security if 24/7 security is provided for the site.
  - Any electrically operated vehicle access gate or security device should incorporate either mechanical override, fail-safe open mode, or activated by site security so that fire appliances can access the site in the event of fire.

<sup>1</sup> Egress to the road is expected to be provided solely within the lease boundary, however should egress be required over the adjoining hardstand (as for the perimeter access), a Performance Solution is also possible for this.





**Figure 8-1 Warehouse 2 Perimeter Access**

## 8.4 EGRESS PROVISIONS

### 8.4.1 Evacuation Strategy

Activation of any sprinkler head or detector should initiate the evacuation of all areas of the building. Dedicated fire wardens from the warehouse and office areas should ensure that all clients, visitors, and staff are promptly evacuated.

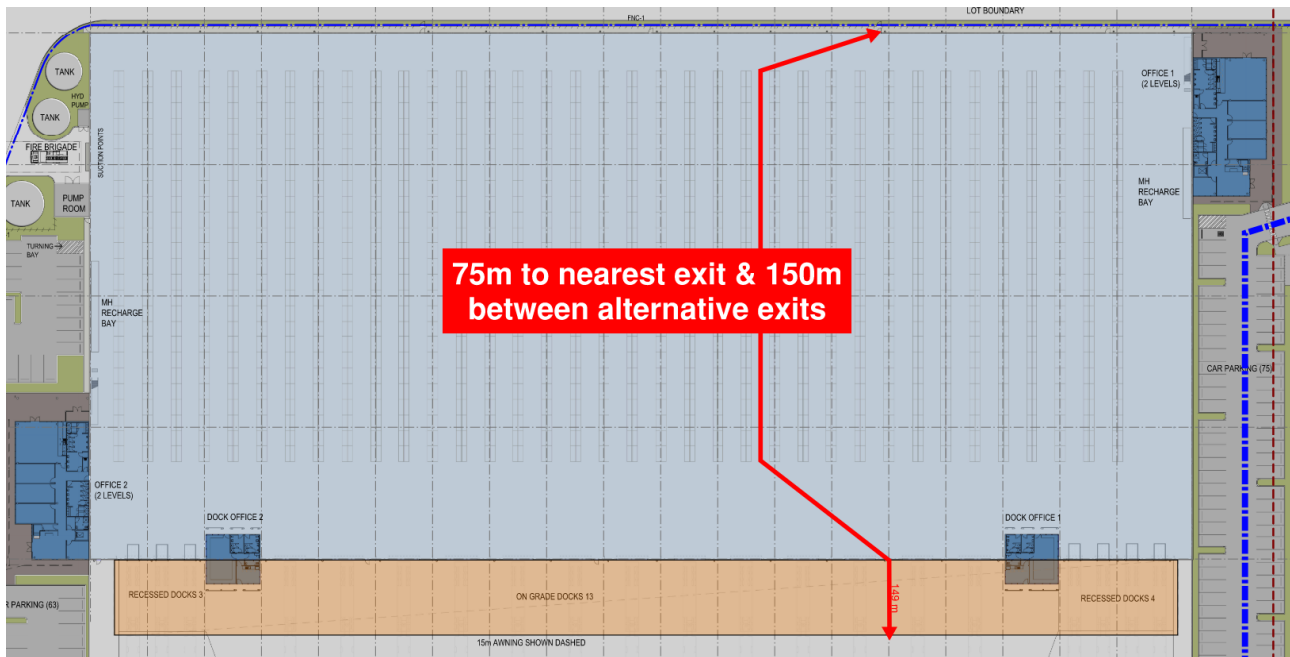
### 8.4.2 Travel Distances – Warehouse

In the warehouse, the following preliminary extended travel distances have been identified for Warehouse 2.

- Distances up to 75 m to the nearest exit and 150 m between alternative exits (inclusive of travel beneath awnings).

It is anticipated that these distances can be addressed through a Performance Solution involving detailed computational smoke modelling and evacuation analysis.





**Figure 8-2 Extended Travel Distances – Lot 2**

### 8.4.3 Travel Distances – Offices

Both main offices are proposed to be two-storeys. Depending on the final fit-out and location of the stair, it is possible that the distance of travel to a single exit from Level 1 would exceed 20 m, being approximately 25 m. To achieve a DtS-compliant solution, the design should consider the inclusion of an additional stair (into the warehouse), or locating the single stair centrally within the office. Alternatively, a Performance Solution is viable, which would rely on the provision of a smoke detection system within the office in question.

### 8.4.4 Door Hardware, Operation and Mechanisms

All exit doors and doors in a path of travel to an exit are required to be DtS compliant throughout the building. This includes the swing of doors, the applied latching and locking mechanisms and the force required on mechanism used to open doors.

## 8.5 FIRE FIGHTING EQUIPMENT

### 8.5.1 Fire Hydrants

A dedicated fire hydrant system is proposed in accordance with BCA Provision E1D2 and AS2419.1:2021. The following additional guidance is provided:

- As far as possible, the hydrant system should consist of external hydrants.
- All points on the floor shall be within 90 m of an external hydrant, as per Appendix C.4.4 of AS2419.1:2021.
- Where the size and design of the building requires the provision of internal fire hydrants to achieve floor coverage, such hydrants should be located to allow progressive movement of firefighters towards the central parts of the building. Note that the reliance on internal hydrants to achieve progressive coverage is a non-compliance to be addressed as a Performance Solution.
  - When working from an external hydrant, the next additional hydrant should be located into the building not more than 50 m from the external hydrant.
  - When working from an internal hydrant (either from within a fire isolated exit or passageway, within 4 m of an exit or another additional hydrant), the next additional hydrant should be located not more than 25 m from that hydrant.<sup>2</sup>
  - An external hydrant should be provided adjacent to or within close proximity of each external entry/exit point around the building.

<sup>2</sup> 25 m and 50 m distances have been recommended to make allowance for shorter-than-standard hoses (repairs etc.) and unknown variables in the building layout and fixtures etc.



- Hydrants located beneath the warehouse awnings can be considered as external for coverage of the internal warehouse parts, by way of a Performance Solution.
  - In this case, coverage of the area beneath the awning must be provided by compliant external hydrants i.e. additional fallback hydrants.
  - The hydrants under the awning must be designed with all requirements of external hydrants.
- Gates in the security line around Warehouse 2 should be provided to enable access to the egress doors and fire hydrants directly from the Warehouse 3 hardstand – such that each external hydrant is located no greater than 50 m from a hardstand, as per AS2419.1:2021.<sup>3</sup>
- The system serving the building must incorporate a ring main with isolation valves that are external to the building and numbered with the corresponding numbers indicated on the block plan at the booster assembly.
- All hose connections in the system are to be fitted in accordance with FRNSW Technical information sheet – FRNSW compatible hose connections (available at [firesafety.fire.nsw.gov.au](https://firesafety.fire.nsw.gov.au)). These couplings should be tested as part of the system when the commissioning tests are undertaken.
- At a minimum, system capacity must be capable of allowing 3 hydrants to operate simultaneously (i.e. 30 L/s). The presence of additional hazards due to fit-out (i.e. mezzanines, Dangerous Goods, automated racking, lithium-ion battery storage) presents an approval risk with FRNSW and may drive the requirement to consider additional flow capacity.
- The hydrant booster assembly for the building shall be located as per Figure 5-1 and provided with a strobe to assist identification by FRNSW, being within sight of the main building entry. The booster must also be located greater than 10 m from any substation or electrical hazards, and located outside the exclusion zone of the building as per Appendix C of AS2419.1:2021.
  - The proposed location of the hydrant booster is an approval risk subject to FRNSW review.

### 8.5.2 Fire Hose Reels

Fire hose reel shall be provided throughout the building in accordance with Provision E1D3 of the BCA and AS2441:2005.

All points on the floor should be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on the floor with a hose length not exceeding 36 m (i.e. a maximum of 40 m from the hydrant location).

However, it is possible to present a Performance Solution to enable the installation of 50 m fire hose reels – generally to enable hose reels located around the building perimeter only, or to limit the installation of hose reels in cold stores. Additional requirements to permit the use of 50m hose reels are as follows:

- 50 m fire hose reels must be tested and certified to AS/NZS1221.
- The pressure and flow at the nozzle of the 50 m hose reel is to achieve compliance with the pressure and flow requirements of AS2441.1-2005.
- Coverage is to be achieved with no more than two bends in the hose.
- Staff training in the use of the 50 m length fire hose reels is to occur at least every 12 months to maintain occupant familiarity with the increased weight and length of the extended hose reels.

### 8.5.3 Fire Sprinkler System

A fire sprinkler system shall be provided throughout the building in accordance with the relevant regulatory requirements.

- In the offices and beneath the warehouse awnings the system shall comply with NCC Specification E17 and AS2118.1:2017.
- In the warehouse a storage system shall be provided in accordance with NCC Specification E17 and AS2118.1:2017. Sprinkler activation temperature must be no greater than 101°C and have a Response Time Index (RTI) of less than  $50 \text{ m}^{1/2}\text{s}^{1/2}$  (i.e. fast response type).

Upon sprinkler activation the automatic smoke exhaust system and building occupant warning alarm shall be initiated, as well as the direct brigade notification.

At the fire sprinkler booster, a dedicated hardstand for fire brigade appliances is required. As per FRNSW's Guideline 'Access for fire brigade vehicles and firefighters' [8] this hardstand should be designed to be 18 m

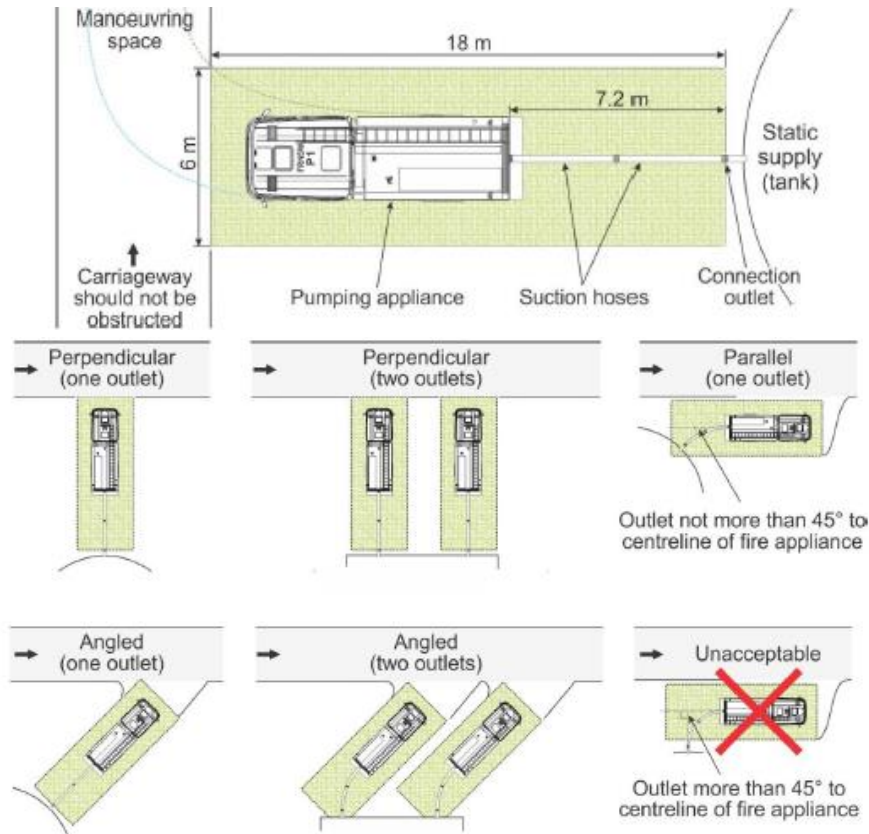
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<sup>3</sup> Egress to the road is expected to be provided solely within the lease boundary, however should egress be required over the adjoining hardstand (as for the perimeter access), a Performance Solution is also possible for this.



long by 6 m wide, whilst allowing other fire brigade appliances to pass. The hardstand area serving a suction-connection outlet is to be positioned at an angle not greater than 45° from the outlet's longitudinal direction.

- A Performance Solution is possible assess the location of the sprinkler booster in the indicated locations, being an approval risk subject to FRNSW review.



**Figure 8-3 Extract from FRNSW Guideline – Rigid Suction Connection Hardstand**

#### 8.5.4 Portable Fire Extinguishers

Portable fire extinguishers are to be provided throughout the building in accordance with Provision E1D14 of the NCC and selected, located, and distributed in accordance with AS2444:2001.

#### 8.5.5 Fire Control Centre

Warehouse 2 shall be provided with a compliant Fire Control Centre (FCC) at the main entry of the southern office. The Main FIP must be installed in accordance with BCA Specification 20 and AS1670.1:2018.

- Smoke exhaust fan controls shall be provided at the FIP which shall include clear signalling of the operational status of the fans.

In the instance where the warehouse enclosure is split to accommodate multiple tenants, it may be appropriate to also consider a Sub-FIP within the northern office (with relevant fans controls located on this panel instead).

### 8.6 SMOKE HAZARD MANAGEMENT

#### 8.6.1 Smoke Detection System

A smoke detection system for occupant warning is unlikely to be required throughout the warehouse due to its large volume.

- In the event of future subdivisions of the warehouse building into smaller tenancies, there might arise a need for smoke detection due to the reduced smoke reservoir volumes.
- In the event of travel distances in excess of the DtS Provisions being present within the offices, detection will likely be required throughout each affected office in accordance with AS1670.1:2018.



### 8.6.2 Automatic Smoke Exhaust System

A rationalised automatic smoke exhaust system shall be provided, designed to achieve the following minimum requirements.

- System capacity must be capable of an exhaust rate equal to one enclosure air change per hour, and initiated upon activation of the smoke detection or sprinkler system.
- Adequate make-up air should be provided at low level to facilitate the exhaust system's designed operational capacity, whilst ensuring the inlet velocity does not exceed 2.5 m/s. The make-up air should be provided at a low level by:
  - Permanently open natural ventilation louvers; and/or
  - Perforated roller shutters; and/or
  - Mechanically operated louvers that open upon activation of the fans. All motors and cables to automatic louvers, roller shutters, vents or supply fans must be fire rated to operate at 200°C for a period of 60 minutes.
- On/Auto/Off switches should be located at the FIP.
- Mechanical block plan depicting the location of all fans and make-up air points.
- Fire rated fans and fire rated cabling should be designed to operate at 200°C for a period no less than 60 minutes.
- The fans shall be served by essential power and the mechanical services board serving the fans shall be located in a fire-rated enclosure (FRL of 120/120/120) if located within the building.

### 8.6.3 Building Occupant Warning System

A building occupant warning system should be provided throughout all parts of the building. The system should be in accordance with the prescriptive requirements of Specification E17 and Clause 7 of Specification 20 and AS1670.1:2018.

- The occupant warning alarm should be sounded throughout all areas of the building upon activation of the sprinkler systems.

## 8.7 VISIBILITY IN AN EMERGENCY

Emergency lighting is to be provided throughout the building in accordance with DtS Provisions E4D2 and E4D4 of the NCC 2022 and AS2293.1:2018.

Exit signage is to be provided throughout the building in accordance with the DtS Provisions E4D5, E4D6, E4D8 of the NCC 2022 and AS2293.1:2018.

Whether through adjudication by the authority having jurisdiction (AHJ) or via a Performance Solution, it is anticipated that the directional signage at the end of the racking aisles and above block storage areas can be installed at a height greater than 2.7 m. Should a Performance Solution be desired, it shall consider the following:

- Exit signs and directional signs shall be “Jumbo size” to increase the visibility to occupants.
- The final height and location of the directional exit signs shall be determined through the fire engineering analysis.

## 8.8 BUILDING MANAGEMENT PROCEDURES

The ongoing management of the building is as important in maintaining a high level of life safety as the provisions recommended during the design phase of the building.

### 8.8.1 Maintenance of Fire Safety Equipment

The fire safety systems should be tested and maintained in accordance with Australian Standard AS1851 or suitable alternative testing and maintenance regime.

### 8.8.2 Evacuation Plan

An emergency management plan should be developed for the site in accordance with AS3745:2010. Where required, CORE Engineering Group can assist with the development of this document.



## 9 ACRONYMS

ACRONYM	EXPANSION
ABCB	Australian Building Codes Board
AFEG	Australian Fire Engineering Guidelines
AFSS	Annual Fire Safety Statement
ASET	Available Safe Egress Time
ASRS	Automated Storage and Retrieval System
BCA	Building Code of Australia
CFD	Computational Fluid Dynamics
DtS	Deemed-to-Satisfy
EPA	Environmental Protection Authority
FCC	Fire Control Centre
FER	Fire Engineering Report
FIP	Fire Indicator Panel
FRL	Fire Resistance Level
FRNSW	Fire Rescue NSW
FSS	Fire Safety Strategy
IFEG	International Fire Engineering Guidelines
NCC	National Construction Code
NFPA	National Fire Protection Association
OHS	Occupational Health and Safety
RSET	Required Safe Egress Time
RTI	Response Time Index



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# **Appendix U    Flood Emergency Response Plan**

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





# Aspect Industrial Estate – Stage 2 SSD58257960

## Flood Emergency Response Plan Warehouse 2

### Mirvac Industrial Developments

200 George Street  
Sydney NSW 2000

Prepared by:

**SLR Consulting Australia**

SLR Project No.: 630.031249

18 July 2024

Revision: v0.3



## Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
v0.3	9 July 2024	Paul Delaney	Alanna Ryan	Alanna Ryan
	Click to enter a date.			
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	Click to enter a date.			
	Click to enter a date.			

## Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Mirvac Industrial Developments (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.





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## 1.0 Introduction

### 1.1 Subject Property

The proposed Aspect Industrial Estate is a warehouse, distribution and industrial centre located at Kemps Creek within the Penrith local government area (LGA) which forms part of the broader Mamre Road Precinct located within the Western Sydney Employment Area (WSEA) (see Figure 1).

The Aspect Industrial Estate is located at 788-882 Mamre Road, Kemps Creek, on the property described as Lot 301 on DP1305254.

This Flood Emergency Response Plan (FERP) is specific to proposed Stage 3 of the Aspect Industrial Estate, which includes Warehouse 2, as per SSD 58257960. This site is called Warehouse 2 in revised concept layout as per SSD -10448 MOD-3.

### 1.2 Purpose

The FERP provides a plan of action that informs what measures should be taken once the threat of a flood is determined to be imminent. This will include requirements for evacuation. It involves planning for extreme events which are greater than those used to derive the Flood Planning Level ie events greater than the 1% AEP (or 100 year) flood.

This site-specific FERP is intended to identify requirements which are specific to the subject property, which supplement the general requirements of the Penrith City Local Flood Emergency Sub-Plan endorsed by the Penrith Local Emergency Management committee on 8<sup>th</sup> February 2022, administered by the NSW State Emergency Service (SES).

### 1.3 Consent

The development concept for Lot 2 Warehouse has been approved in SSD 58257960, while the concept for the broader AIE is approved in SSD 10448.

The requirement for a FERP is included in the development consent SSD 58257960, condition B24 reproduced in Table 1.

**Table 1: SSD-582579604 Conditions of Consent**

Condition	Where Addressed in this Document
<b><i>B24. Prior to the commencement of construction of the development, the Applicant must prepare a Flood Emergency Response Plan (FERP) to the satisfaction of the Planning Secretary. The Plan must form part of the CEMP and OEMP required by condition C2 and C5 and must:</i></b>	
be prepared by a suitably qualified and experienced person(s);	Section 9
be prepared in consultation with NSW State Emergency Services (SES);	Section 7
address the provisions of the Flood Risk Management Manual (DPE, 2023) and Support for emergency management planning (DPE, 2023); and	Section 3.4
d) include details of: (i) the flood emergency responses for both construction and operation phases of the development;	Sections 6 & 7
(ii) measures to eliminate or reduce downstream flood impact on properties to the west of Mamre Road for all flooding events;	Not relevant to this lan.





Condition	Where Addressed in this Document
	The response to this condition is detailed in Stantec letter provided in Appendix B.
(iii) predicted flood levels;	Section 4 (Stantec reports July 2023, Feb 2024 and Mar 2024)
(iv) flood warning time and flood notification;	Section 5.4
(v) assembly points and evacuation routes;	See Figure 5 Figure 5 assembly/ muster point shown
(vi) evacuation and refuge protocol; and	Section 5.4
(vii) awareness training for employees and contractors	Section 5.3
B25. The Applicant must:	
9a) not commence construction until the FERP required by condition B24 is approved by the Planning Secretary; and	Section 7
(b) implement the most recent version of the FERP approved by the Planning Secretary for the duration of the development.	Section 6
C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
a) detailed baseline data;	Section 5
b) details of:	Section 1.3
i. the relevant statutory requirements (including any relevant approval, licence or lease conditions);	
ii. any relevant limits or performance measures and criteria; and	Section 8 (requirements for review of FERP)
iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 8 – requirements for review of plan following occurrence of any major flood events, and changes in predicted flood levels
c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 6
d) a program to monitor and report on the:	
i. impacts and environmental performance of the development; and	Section 8 – effectiveness of emergency management to be monitored, and FERP to be reviewed for improvement opportunities periodically, if there are any changes to floor levels, following major flood events, and if predicted flood levels change.
ii. effectiveness of the management measures set out pursuant to paragraph (c) above;	
e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	
f) a program to investigate and implement ways to improve the environmental performance of the development over time;	
g) a protocol for managing and reporting any:	CEMP
i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	
i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	
ii. complaint;	





Condition	Where Addressed in this Document
h) a protocol for periodic review of the plan.	Section 8

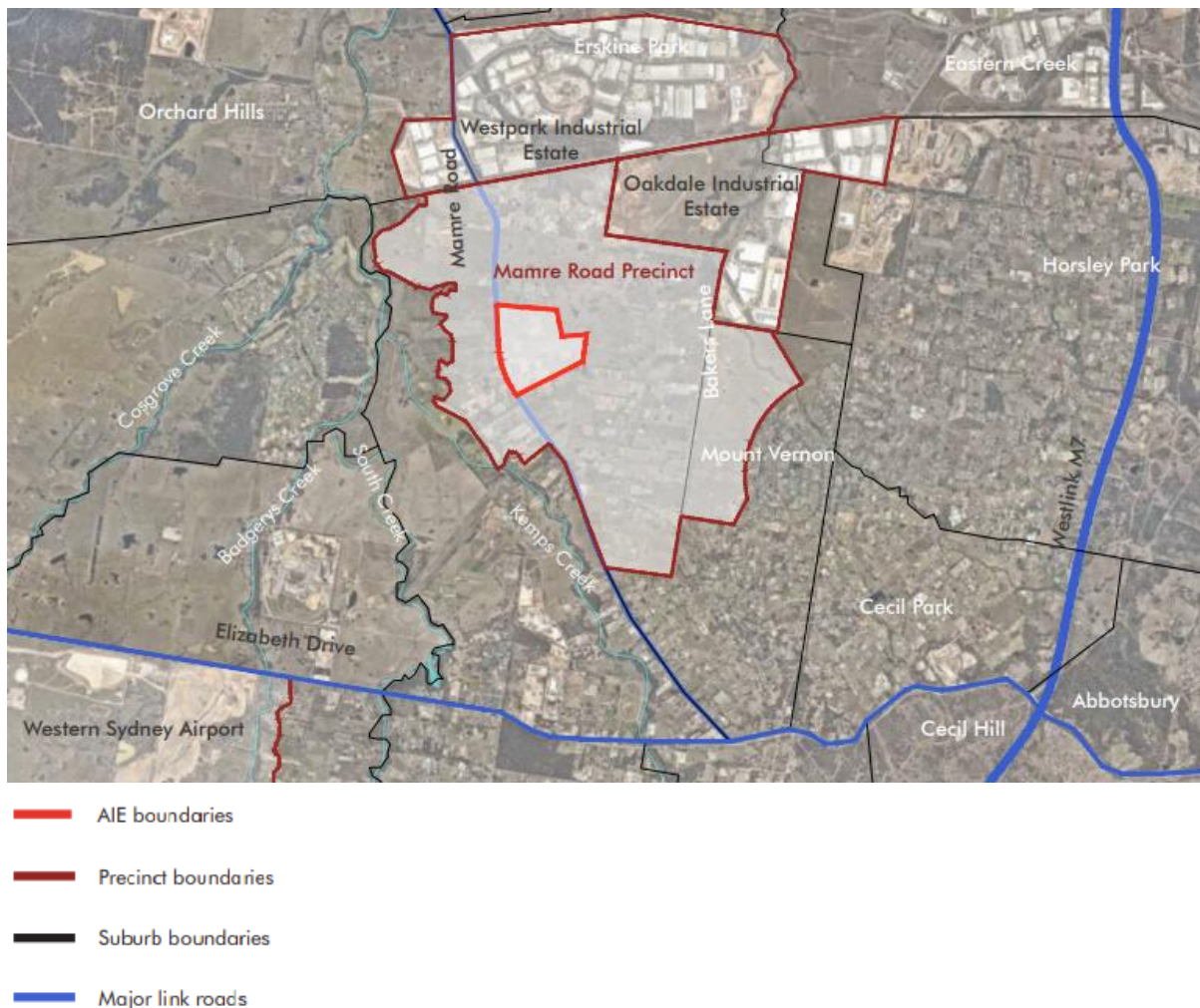
## 2.0 Development Description

### 2.1 Site Location

Aspect Industrial Estate (AIE) is a regional warehouse, distribution and industrial centre located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Mamre Road Precinct located within the Western Sydney Employment Area (WSEA) (see Figure 1).

AIE is located east of Mamre Road, Kemps Creek within the Penrith Local Government Area (LGA). The site has approximately 950m of direct frontage to Mamre Road with a proposed intersection providing vehicular access via Mamre Road to the M4 Motorway and Great Western Highway to the north and Elizabeth Drive to the south.

**Figure 1: Locality Plan**





## 2.2 Site Plan and Levels

The context of the site within the broader Aspect Industrial Estate, and the proposed concept site layout are shown on Error! Reference source not found. and Error! Reference source not found..

The Stage 1 works for the AIE (SSD-10448) included bulk earthworks to lots, estate roadworks, and trunk stormwater. The benched pad across the Warehouse 2 site is crested at an RL of 48.20, and an 'average lowest' level of 47.60 (Ref: at&I Civil Infrastructure Report, March 2024).

The finished floor level of the proposed warehouse and office buildings on Lot 2 has been set at RL 49.10 (Ref: Updated Architectural Plans, SBA, March 2024)

The proposed carpark north of the warehouse (within Lot 2) is adjacent to the 'upstream diversion channel' and has a lowest pavement level of 47.60 9Ref: at&I civil drawings, July 2023)

Road access is via the estate access roads.

## 2.3 Hydrological Context

The AIE is located within the catchment of South Creek. There are two overland flow paths which traverse the AIE generally from east to west, and these have been diverted as part of the estate stormwater works under SSD-10448. These overland flow paths do not affect Lot 2 Warehouse.

**Figure 2: Aspect Industrial Estate as per SSD 46516461 and SSD-10448-MOD-3**

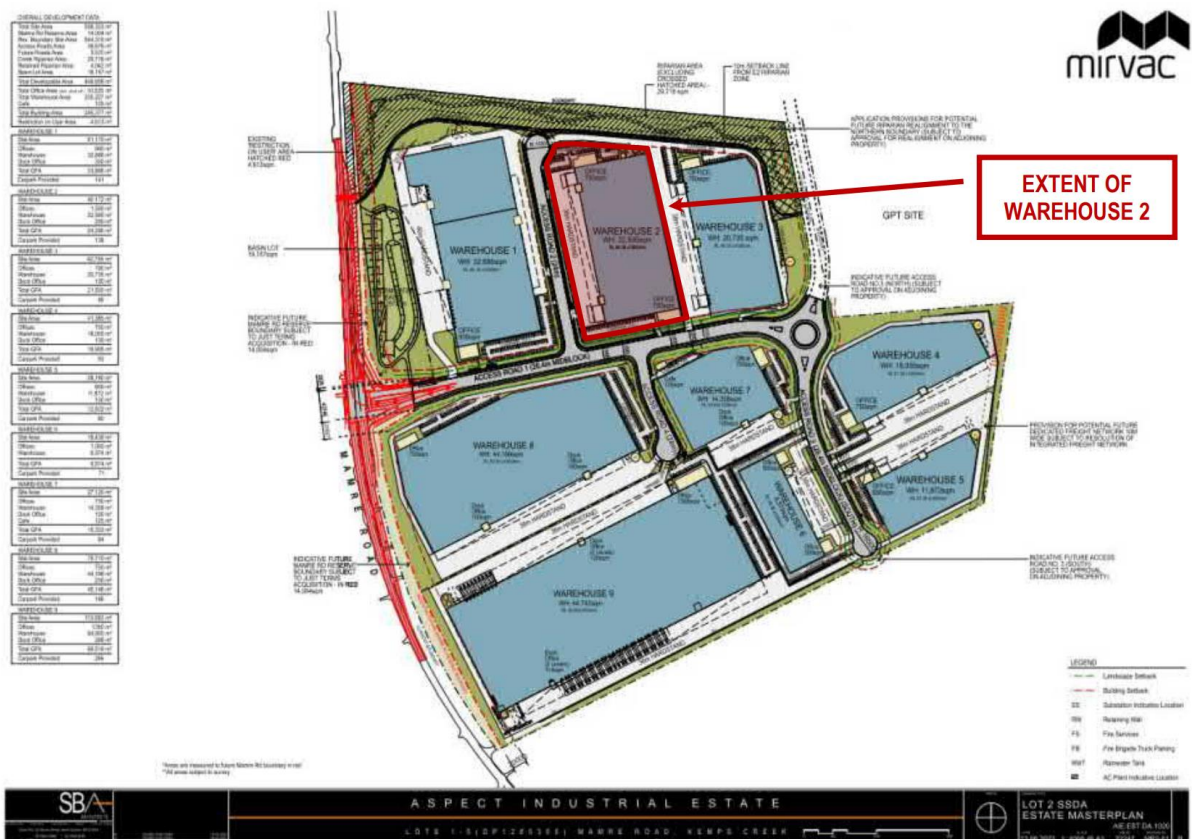




Figure 3: Site Plan – Lot 2 Warehouse as per SSD 58257960





## 3.0 Policy and Guidelines Framework

### 3.1 Principles

Key principles that are applied to emergency management in New South Wales are:

- **Prevention:** to eliminate or reduce the level of the risk or severity of emergencies;
- **Preparation:** to enhance capacity of agencies and communities to cope with the consequences of emergencies;
- **Response:** to ensure the immediate consequences of emergencies to communities are minimised; and
- **Recovery:** measures which support individuals and communities affected by emergencies in the reconstruction of physical infrastructure and restoration of physical, emotional, environmental and economic well-being.

### 3.2 Penrith Local Environmental Plan

The Penrith Local Environmental Plan (LEP) zones the land within the Penrith LGA and imposes standards to control development or implements a state or local policy outcome. The Penrith LEP provides the details of items which the consent authority must satisfy themselves of before providing development consent:

The LEP aims to ensure that the development:

- Is compatible with the flood hazard of the land;
- Is not likely to adversely affect flood behaviour, flow distributions or velocities resulting in detrimental increases in the potential flood affectation of other development or properties or the environment (including stability of waterways and riparian vegetation);
- Is not likely to adversely affect the safe and effective evacuation of the land and the surrounding area;
- Is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding; and
- Manages the risk to life from flood Risk Assessment Mirvac Aspect Industrial Estate 27 July 2022 Cardno now Stantec Page 3, Figure 2 Relationship of University of Aspect Industrial Estate to Precincts.

#### 3.2.1 Penrith City Local Emergency Sub Plan

The Penrith Flood Emergency Sub Plan is a sub plan of the Penrith Local Emergency Management Plan (EMPLAN). It has been prepared in accordance with the provisions of the *State Emergency Service Act 1989* (NSW) and is endorsed by the Local Emergency Management Committee in accordance with the provisions of the *State Emergency and Rescue Management Act 1989* (NSW).

The plan sets out Penrith City's local arrangements for prevention, preparation, response and initial recovery for flooding in Penrith City LGA.





## Prevention/Mitigation

The NSW Floodplain Development Manual outlines the NSW Government's Flood Prone Lands Policy and provides guidelines including the concept of a Flood Planning Level for use in land-use planning.

Flood risk at Warehouse 2 is mitigated by:

- The location of Warehouse 2 on land with an elevation above the estimated 100 year, 200 year and 500 year flood events, and with no significant flooding during (depths greater than 150mm) a PMF event and
- Elevation of ground floor levels well above the estimated PMF flood event.

## Preparation

Preparation includes arrangements or plans to deal with an emergency or the effects of an emergency.

- NSW SES develop, review and maintain Flood Sub Plans;
- Develop and review this FERP as required. Local Flood Plans outline the specific arrangements for management of flood events; and
- Awareness training for workers at Warehouse 9 as to risks associated with flooding.

## Response

### Information and Warnings to the Community – Triggers to start preparing for a flood event

The Bureau of Meteorology issue public weather and flood warnings before and during a flood.

The NSW SES issues: Three levels of warning in accordance with the Australian Warning System:

- Local Flood Advice and Bulletins;
- Three levels of warning in accordance with the Australian Warning System: These are Advice, Watch and Act and Emergency Warning

NSW SES will provide alerts and flood information using a variety of communication methods. These include

- Emergency Alert (SMS and voice message alerting system);

Road closure information is provided via Council websites and the Road and Maritime Services 'Live Traffic' website [www.livetraffic.com](http://www.livetraffic.com) or Transport InfoLine 131500.

## 3.3 Floodplain Risk Management Guideline (LFP, 2022)

NSW SES advocates for the recognition of emergency management considerations through participation in the floodplain risk management program. These actions include:

- NSW SES will provide coordinated and consistent emergency management advice to councils and other agencies in relation to the management of land that is subject to flooding or coastal inundation; and
- NSW SES will provide advice, support and technical resources for NSW SES representatives to contribute effectively to local Floodplain Management Committees.





## Australian Rainfall & Runoff 2016/2019

While it is recognised that AR&R2016 provides improved methodologies for flood estimation, and that climate change should be accounted for, the development approval for this site is based on flood studies that utilise rainfall temporal patterns from AR&R 1987. Given the non-criticality of flooding at this particular site ie, developed site is not inundated in a PMF event) it is recommended that a review of this FERP can be carried out when updated flood levels are available. A review period of 10 years maximum is recommended.

## 3.4 Flood risk management guideline EM01

This guideline provides advice on how the flood risk management (FRM) framework and process described in the Flood risk management manual: the policy and manual for the management of flood liable land (the manual; DPE 2023) can consider and support flood emergency management (EM). It outlines how the NSW State Emergency Service (NSW SES) as the combat agency for flood, storm and tsunami, plans for flooding, as well as the key EM principles and strategies it uses when undertaking EM planning for the community. . The guideline also provides an understanding of:

- how information from the FRM process is used to support flood EM planning
- key EM constraints and how these may impact FRM for communities
- the limitations of flood emergency response strategies and how these can inform decision-making.

The guideline states that one of the key information requirements to support NSW SES emergency management planning, is the Flood Emergency response Classification, or FERCC.

Using this classification the Warehouse 2 site is classified as a '**High Flood Island**', since it is not inundated by a PMF flood, but can be isolated by flooding along the road egress route.

It is also noted that the time of isolation is short (associated with local overland flooding rather than flooding along South Creek), and that occupants will be able to be safe and self sufficient for the duration of flooding (up to and including PMF flood event).





## 4.0 Flood Behaviour

### 4.1 Flooding Abbreviations/Terminology

**FPL** – Flood Planning Level – at Penrith this is the 1% AEP flood level plus an additional 0.50m.

**PMF** - The Probable Maximum Flood – this is the maximum conceivable flood that could occur at any location.

**1% AEP** - The 1 Percentile Annual Exceedance Probability – this is the event that has a 1% chance of being exceeded each year. It is equivalent to the former terminology ‘100-year ARI flood’ event.

**ARI** – Average Return Interval – indicates the average time between events

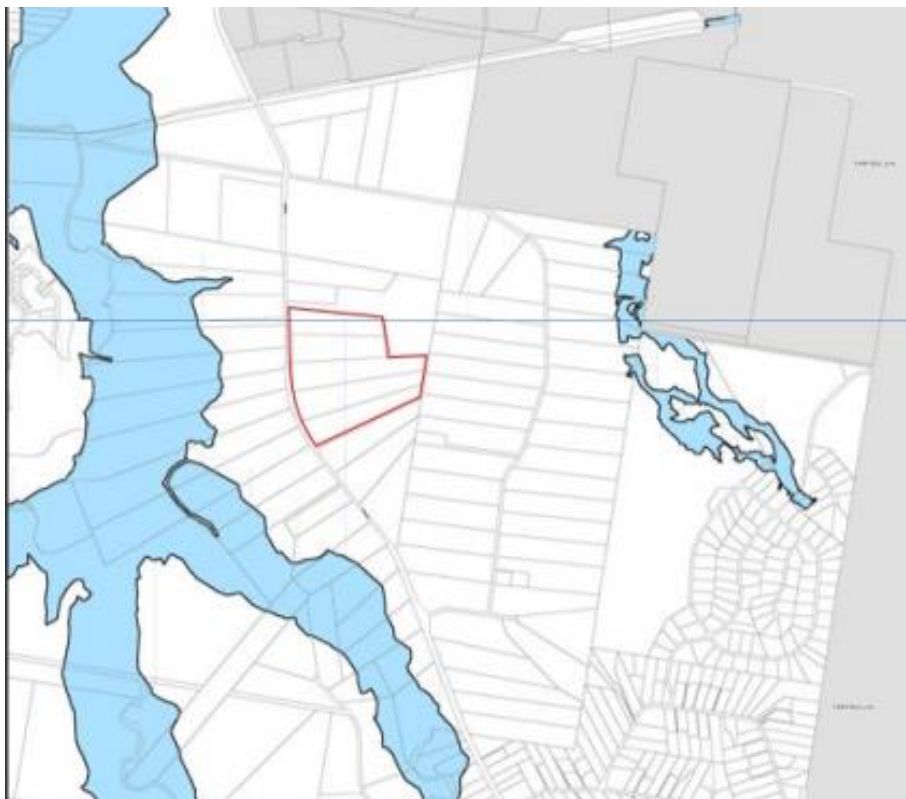
### 4.2 Flooding along South Creek

Flood behaviour along South Creek is well established and described in the Updated South Creek Flood Study, prepared by Worley Parsons in 2015 for Penrith Council. Flood levels predicted in the South Creek Flood Study have a nominated accuracy of 0.2m. The study does not appear to account for climate change impacts on the severity and frequency of extreme events.

The AIE is traversed by two first order watercourses which report to South Creek, but is located outside of the actual floodplain of South Creek.

The subject site is therefore not directly affected by flooding along South Creek, and is outside of the South Creek flood plain identified in the 2010 Local Environmental Plan.

**Figure 4: Extract from Penrith LEP 2010 Flood Planning Area and AIE**





## 4.3 Local Watercourses/Overland Flow

A Flood Risk Assessment was prepared by Stantec Australia in July 2023 for Lot 2. The Stantec study included flood modelling to estimate flood levels and flood hazards across a range of events ranging from a 1 in 5 year event, through to a 1 in 100 year, 1 in 500 year and PMF event.

A supplementary letter report was prepared by Stantec in February 2024, titled 'Responses to EHG Flooding Comments on SSd-58257960, Aspect Industrial Estate, Kemps Creek'. This report includes flood hazard mapping for 2 year through to PMF floods when Warehouse 2 is developed.

### Flooding of Warehouse 2

The Stantec flood modelling (July 2023) indicates that the Warehouse 2 site is not flooded in a 100, 200 or 500 year ARI events and is also not flooded during a PMF flood event. PMF flood levels come close to inundating carparks to the north-east and south-east of the warehouse.

The finished floor levels for Warehouse 2 in the updated architectural drawings is identified as RL49.6, which is above the estimated flood levels around the Lot 2 perimeter, indicating that the building floor level will not flood in a PMF event.

### Flooding on surrounding road network

The Stantec flood study identifies that Mamre Road is subject to low hazard flooding in 100 year ARI flood events at the creek crossing location north of the proposed AIE intersection, but commences overtopping in a 2 year ARI flood event. This flooding is likely to be short in duration and associated with localised intense rainfall, rather than longer duration flooding as can occur along South Creek.

Mamre Road is also cut by localised flooding at several other locations south of Aspect Industrial Estate. This flooding also occurs due to flash flooding associated with short duration rainfall events. There is no practical warning time for these events.

During a PMF event the Stantec Flood Study identifies that there are numerous locations within estate roads and along Mamre Road that have High Hazard Category.

It is very dangerous to cross any floodwaters in vehicles (even those with low hazard category). It is recommended that:

- Occupants remain on site if advised to do so by the Flood Warden
- If flood waters are encountered along Mamre Road during evacuation, then do not cross them. Either return to site, or remain in a safe location until the flood waters subside.

## 4.4 Flood Warning

### 4.4.1 Flood along South Creek

There are no flood warning gauges along South Creek. Severe weather warnings may provide warnings of imminent severe rainfall, and the need for site occupants to monitor conditions.

Any travel crossing South Creek will require use of Mamre Road, which as noted below, can flood with very little warning.

Warehouse 2 itself will not be inundated by flooding along South Creek.





#### **4.4.2 Flooding of Mamre Road**

Flooding of Mamre road can occur due to localised intense rainfall events, and can therefore occur with no practical warning time.

#### **4.4.3 Mamre Road (evacuation route)**

Mamre Road is subject to localised flooding where creeks cross the road. These flooding events may result from heavy rainfall over short durations and there is no reliable flood warning system. The Flood Warden should monitor Bureau of Meteorology Severe weather warnings which may indicate potential for flooding of Mamre Road, but are unlikely to be a reliable predictor of localised rainfall conditions that cause flooding of Mamre Road.





## 5.0 Flood Emergency Response Plan for Facility – Operational Phase

### 5.1 Use Approved Version

During the operational phase always, *‘implement the most recent version of the Flood Emergency Response Plan approved by the Planning Secretary for the duration of the development’*.

### 5.2 Prevention

Flooding risk at the Facility has been minimised by the land planning process such that the subject site is elevated above the FPL. It is also not flood-prone during the extreme flood events including the estimated PMF event.

### 5.3 Preparation/Training

Site occupants should undergo flood awareness training as part of site induction processes. At a minimum training should include:

- Occupants be made aware of the Flood Emergency Response Plan, and where to find it;
- That the Warehouse 2 site and building floor level are flood-prone;
- The proximity of flood waters to the building perimeter during PMF flood events, including deep water and fast flowing water along the creek diversion channel to the north, and areas of high hazard along estate roads and Mamre Road;
- The muster location in the event of flooding shown by the red dot on **Figure 5**;
- The recommended egress route along Mamre Road, noting the possibility of floodwaters crossing Mamre Road at several locations in events as frequent as a 5% AEP rainfall, and that this overtopping may occur with no practical warning
- The high risks of crossing floodwaters in vehicles or on foot;
- Since the flood response strategy relies heavily on human behaviour, it is important that all occupants understand the importance of complying with instructions from the Flood Warden.

Facility management should ensure that a Flood Warden (or delegate) is present on site at all times when a flood warning is active.

#### **People with a disability:**

Identify a care or support person if required for people with disabilities to assist them during flood events.





**Figure 5: Muster Location (red dot)**



Source: Updated Architectural Drawings in SSD-58257960

## 5.4 Response

If a major flood appears likely based on weather forecasts either along South Creek or localised flooding on Mamre Road the situation should be monitored by the Flood Warden, who should advise occupants accordingly.

- **NSW SES Website** – for Flood Bulletins - [www.ses.nsw.gov.au](http://www.ses.nsw.gov.au);
- **SES Penrith City Local Headquarters** - phone-in information service including information on river heights, flood behaviour, and road closures - 132 500;
- **The Bureau (of Meteorology) website** for the latest Flood Forecasts and warnings - [bom.gov.au/nsw/](http://bom.gov.au/nsw/); and
- Road Closures at the **Live Traffic website** - [livetraffic.com.au](http://livetraffic.com.au).
- Safest Egress Route
- Listen to your local radio station for local warnings, updates and information:

The building provides extensive floor areas not subject to flooding in a PMF event, so evacuation or egress from the facility to avoid 'threat to life' flooding is not necessary.

An egress route is shown on Figure 6. This route is unlikely to provide a safe route free of floodwaters across the road in any rainfall event of 5 years ARI or above, since localised overland flows events short duration can result in overtopping of Mamre Road at several





locations. Since this flooding may occur with no practical warning this makes Mamre Road an unreliable egress route once severe rainfall events have commenced or are imminent. If flooding or extreme weather is predicted then the Flood Warden should decide:

- If egress can be safely achieved in advance of flooding; or
- If occupants should take refuge in the Lot 9 warehouse building.

The Flood Warden's decision on whether it is safe to leave the site should be informed by weather warnings and rainfall radar, and road closure information via Council websites, the Road and Maritime Services 'Live Traffic' website [www.livetraffic.com](http://www.livetraffic.com) or Transport InfoLine 131500. If severe rainfall is imminent then evacuation is not recommended.

If any doubt exists then refuge on site within the building is recommended. The threat to life from people unnecessarily crossing flooded roads is far greater than that associated with refuge on site.

In a flood emergency site occupants should assemble at the Muster Point and take direction from the Flood Warden, who will provide direction on the safest refuge location to wait until floodwaters recede.

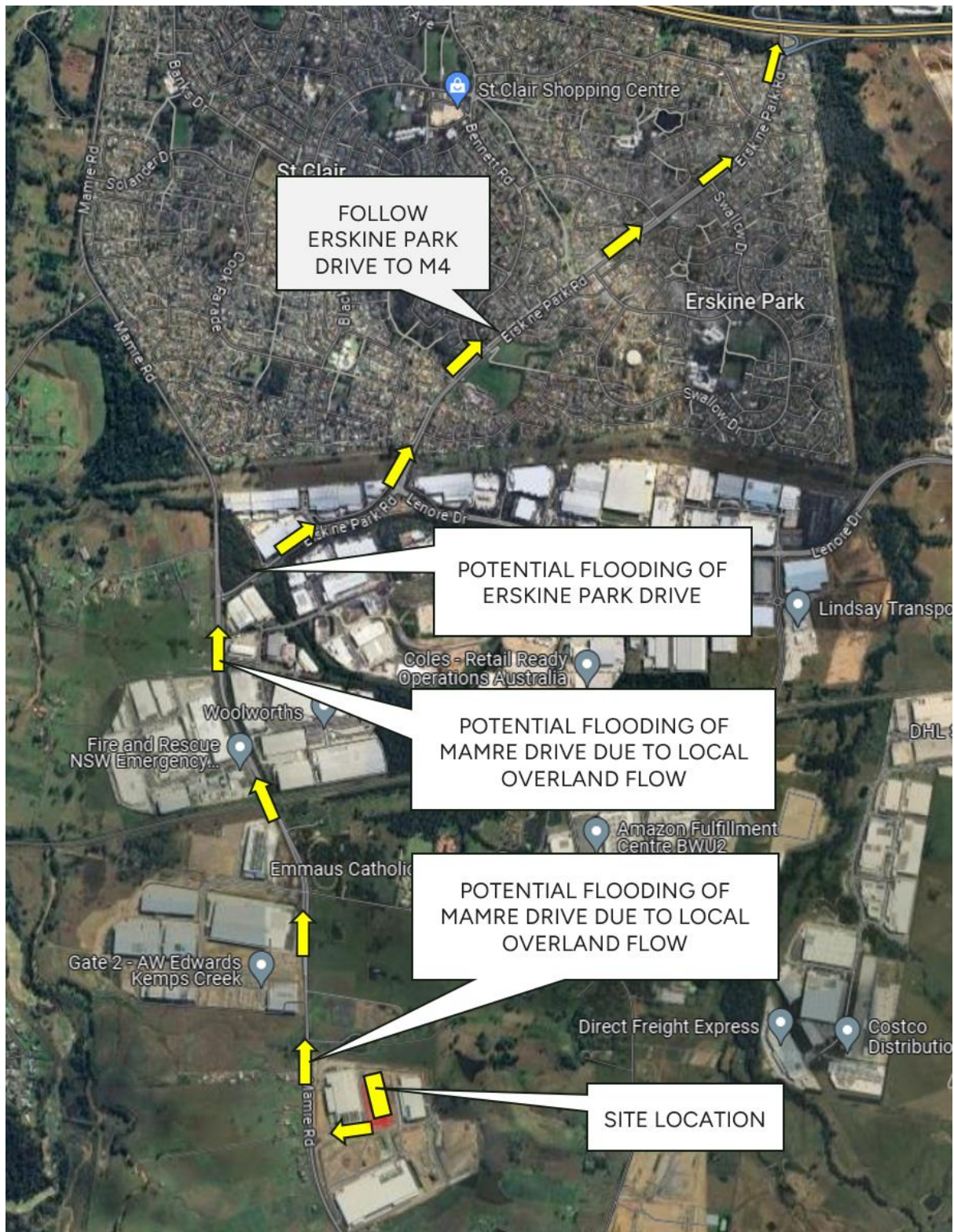
If occupants take refuge, they should only leave when advised by the Flood Warden that it is safe to do so. The Flood Warden should monitor road closure advice on the [livetraffic.com.au](http://livetraffic.com.au) website.

The Flood Warden role is very important in informing occupants on the flood risk, and preventing people from leaving site when flooding along local roads has occurred or appears likely. It is important that a Flood Warden be on site during periods of potential flooding, and noting that access to site may be cut off it is recommended that several people be trained to perform this role.





**Figure 6: Evacuation Route**





Emergency phone contacts:

- Police/Ambulance 000
- SES (for life threatening situations call 000) 132500

## 5.5 Recovery

Recovery is the process of returning an affected community to its proper level of functioning after an emergency. It will generally commence simultaneously with the Response phase.

Recovery operations will be initiated and conducted as outlined in the NSW State EMPLAN and as further detailed in the NSW Recovery Supporting Plan.





## **6.0 Flood Emergency Response Plan for Facility – Construction Phase**

The conditions of planning approval require that, *‘Prior to the commencement of construction of the Stage 2 Development, the Applicant must prepare a Flood Emergency Response Plan (FERP) to the satisfaction of the Planning Secretary’*

The requirements for construction phase are the same as for the operational phase.





## **7.0 Consultation with SES**

This plan is based on the FERP for Warehouse 9 for which consultation was carried out with EHG and SES.

EHG and SES comments on this plan for Warehouse 2 and the responses are provided in Appendix A of this report.





## 8.0 Review of this Plan

This plan should be reviewed periodically.

An initial review should be carried out if there are any changes (reductions) to proposed floor levels.

The minimum period for review should be every 10 years, or sooner if new flood study information materially affects the flood susceptibility of the site.

Reviews should also be carried out if any updated flood information becomes available for Kemps Creek, which materially alter predicted flood levels. Updated flood information may become available from Council. For example, the provision of a formal drainage system downstream of Mamre Road (in accordance with Sydney Water's masterplan for drainage, or future roadworks along Mamre Road – may reduce the frequency of flood overtopping on Mamre Road adjacent to the Aspect Industrial Estate.

Performance of the Plan should also be reviewed following any major flood events.

Reviews should consider the performance of emergency responses, and if necessary amendments should be made to the Plan to capture any identified improvements.

Any updated plan should be approved by the Planning Secretary.

During the operational phase always, *'implement the most recent version of the Flood Emergency Response Plan approved by the Planning Secretary for the duration of the development'*.





## **9.0 Plan Preparation by Suitably Qualified and Experienced Persons**

This FERP has been prepared by Paul Delaney B. Eng. (Hons) MEA, a Civil Engineer with over 30 years' experience in stormwater management, flood assessment, hydrology and surface water assessments.





## 10.0 References

- NSW Floodplain Development Manual, 2005
- Floodplain Risk Management Guidelines, OEH 2007
- Flood Risk Management Manual, NSW Department of Planning and Environment, 2022
- Support for emergency management planning, Flood risk management guideline EM01, NSW Department of Planning and Environment, June 2023
- SES (2022) - Penrith Local Emergency Management Plan
- Flood Impact Assessment, Aspect Industrial Estate (AIE), Cardno now Stantec (2022) - Final Report, Version 2B.
- Flood Impact Assessment, Aspect Industrial Estate (AIE – Lot 2 SSDA, Stantec, July 2023
- Responses to EHG Flooding Comments on SSD-5827960, aspect Industrial Estate, Kemps Creek NSW, Stantec 21 February 2024.
- Supplementary Responses to EHG Flooding Comments on SSD-58257960, Aspect Industrial Estate, Kemps Creek, NSW, Stantec 27 March 2024
- Urbis (2023) Environmental Impact Statement – Warehouse 2 (SSD-58257960) Aspect Industrial Estate







# Appendix A Consultation with EHG and SES

## **Aspect Industrial Estate – Stage 2 SSD58257960**

**Flood Emergency Response Plan  
Warehouse 2**

**Mirvac Industrial Developments**

SLR Project No.: 630.031249

18 July 2024



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# **Appendix B     Stantec letter addressing condition B24 d 9ii)**

## **Aspect Industrial Estate – Stage 2 SSD58257960**

### **Flood Emergency Response Plan Warehouse 2**

**Mirvac Industrial Developments**

SLR Project No.: 630.031249

18 July 2024







**Stantec Australia Pty Ltd**  
Level 16, 207 Kent Street  
Sydney NSW 2000  
AUSTRALIA  
ABN 17 007 820 322

16 July 2024

Project/File: 304600135

**The Development Manager**  
Integrated Investment Portfolio  
Mirvac  
Level 28, 200 George Street  
**SYDNEY NSW 2000**

Attention: Meg Horan  
E: [meg.horan@mirvac.com](mailto:meg.horan@mirvac.com)

**RESPONSE TO CONDITION B24 OF CONSENT FOR SSD-58257960,  
ASPECT INDUSTRIAL ESTATE, KEMPS CREEK, NSW**

Dear Meg,

Development Consent was granted to SSD-5827960 on 5 July 2024 subject to the conditions specified in Part B of the consent.

Conditions relating to flood management include, in part:

*Flood Management*

*B24. Prior to the commencement of construction, the Applicant must prepare a Flood Emergency Response Plan (FERP). The Plan must:*

- (a) be prepared by a suitably qualified and experienced person(s)*
- (b) be prepared in consultation with the NSW State Emergency Services (SES);*
- (c) address the provisions of the Flood Risk Management Manual (DPE, 2023) and Support for emergency management planning (DPE, 2023); and*
- (d) include details of:*
  - (i) the flood emergency responses for both construction and operation phases of the development;*
  - (ii) measures to eliminate or reduce downstream flood impact on properties to the west of Mamre Road for all flooding events;*
  - (iii) predicted flood levels;*
  - (iv) flood warning time and flood notification;*
  - (v) assembly points and evacuation routes;*
  - (vi) evacuation and refuge protocol; and*
  - (vii) awareness training for employees and contractors.*



Re: RESPONSE TO CONDITION B24 OF CONSENT FOR SSD-58257960, ASPECT INDUSTRIAL ESTATE, KEMPS CREEK, NSW

## 1. BACKGROUND

On 27 July 2022 Stantec now Cardno prepared a Flood Risk Assessment and Flood Impact Assessment of Modification 3 of the approved Stage 1 development for the Aspect Industrial Estate as well as Modification 3 of the approved Final Masterplan. Modification 3 was approved on 2 March 2023.

On 19 December 2023, the Environment and Heritage Group (EHG) provided comments on the EIS for the Aspect Industrial Estate Warehouse 2 SSDA (SSD-58257960). Responses to the EHG comments were provided in the letter advice prepared by Stantec Australia dated 23 February 2024.

On 20 March 2024 Mirvac advised that further comments were requested on the following comment:

*The FIA shows that in very frequent flood events, there is an adverse impact on the properties adjacent to Mamre Road downstream of the Estate. There is also significant increase in flood depth on Mamre Road. The FIA needs to identify how these impacts can be minimised and managed.*

The additional impact on flood levels of the development proposed under the Warehouse 2 (SSD-58257960) in comparison to the approved Modification 3 Masterplan development were identified in plots of incremental flood level differences for the 2 yr ARI, 5 yr ARI, 100 yr ARI, 200 yr ARI, 500 yr ARI and PMF attached to the letter advice dated 27 March 2024 (Stantec, 2024<sup>1</sup>).

Stantec, 2024 concluded that on adjacent properties west (downstream) of Mamre Road that in comparison with the already approved flood levels:

- (i) There is no increase in flood levels while in the southern side of the flood extents there is a local reduction in the 2 yr ARI, 5 yr ARI, 100 yr ARI, 200 yr ARI flood levels;
- (ii) There are local reductions on the southern side of the 500 yr ARI flood extent and a small zone of minor increase on the northern side of the 500 yr ARI flood extent; and
- (iii) There are zones of local increase and decrease in PMF levels with the areas subject to decrease being far greater than the areas of local increase.

## 2. 2022 FERP – CONSTRUCTION

In May 2022 a detailed Flood Emergency Response Plan (FERP) was prepared for the construction phase of the Aspect Industrial Estate development<sup>2</sup>. This provides a comprehensive template for the operations FERP.

The FERP describes:

- Flood behaviour on the site in floods up to a Probable Maximum Flood (PMF) at different stages of the site development,

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<sup>1</sup> Stantec (2024) "Supplementary Responses To EHG Flooding Comments on SSD-58257960, Aspect Industrial Estate, Kemps Creek, NSW", *Letter Report*, prepared for Mirvac, March, 3 pp.

<sup>2</sup> Cardno now Stantec (2022) "Flood Emergency Response Plan, Aspect Industrial Estate (AIE), Kemps Creek", Revision 2, prepared for Mirvac, May, 33 pp + Apps



Re: RESPONSE TO CONDITION B24 OF CONSENT FOR SSD-58257960, ASPECT INDUSTRIAL ESTATE, KEMPS CREEK, NSW

- A Flood Emergency Response Plan for the construction phase, including:
  - Flood risks both on the project site and external to the project site;
  - Evacuation strategy, measures, procedures, and plan; and
  - A FloodSafe Plan

It identifies that actions that must be co-ordinated by the Flood Wardens.

- Monitoring rainfall and any runoff entering the site and any flooding on the site;
- Assessing if site operations can continue safely during inclement weather;
- Restricting any site operations that continue during inclement weather to areas well away from any flooding on the site;
- If it is unsafe for site operations to continue then directing workers on the site to retreat to the designated flood refuges located in the Site Compound; and
- Monitoring any regional flooding and road closures through Council's Disaster Dashboard and the Live Traffic Website and advising whether it is safe for workers to depart the site depending on their planned destination(s).

The FERP describes flood risks under<sup>3</sup>:

- Current conditions
- Interim Conditions
- Stage 1 Conditions and
- Masterplan Conditions

### 3. **CONDITION B24 (d) (ii)**

The condition requires that the FERP include a description of:

- (ii) *measures to eliminate or reduce downstream flood impact on properties to the west of Mamre Road for all flooding events;*

It is considered that the measures already included in the Lot 2 Masterplan comply with this requirement based on the assessment of downstream impacts.

The Flood Impact Assessment for the Aspect Industrial Estate prepared by Stantec in July 2023<sup>4</sup> described the assessment of the impact of Lot 2 SSDA on the Lot 2 Masterplan.

The AEP of the PMF is 1 in 10,000,000. The PMF was estimated based on centring the PMP ellipses over the centroid of the local catchment not over the centroid of the South Creek catchment.

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<sup>3</sup> Cardno now Stantec (2022) "Flood Emergency Response Plan, Aspect Industrial Estate (AIE), Kemps Creek", Revision 2, prepared for Mirvac, May, 33 pp + Apps

<sup>4</sup> Stantec (2023) "Flood Impact Assessment, Aspect Industrial Estate (AIE) Lot 2 SSDA", *Final Report*, Version 2, prepared for Mirvac, 23 pp + Apps



Re: RESPONSE TO CONDITION B24 OF CONSENT FOR SSD-58257960, ASPECT INDUSTRIAL ESTATE, KEMPS CREEK, NSW

Under Lot 2 Masterplan Conditions, flood level difference plots disclosed negligible adverse impacts on flood levels downstream of Mamre Road in the 2 yr ARI, 5 yr ARI, 100 yr ARI, 200 yr ARI and 500 yr ARI events. There is some change in the extent of shallow inundation. In a PMF greater decreases in the flood levels are experienced downstream of Mamre Road over a wide extent. There are minor increases downstream of Mamre Road north of the new intersection. There are some small increases upstream of the southern boundary in an existing farm dam which it is expected would be resolved when a drainage corridor is re-established in this area. Overland flows that spilled from the southwest corner of the Estate under Benchmark Conditions have been eliminated in the 2 yr ARI, 5 yr ARI, 100 yr ARI, 200 yr ARI, 500 yr ARI events and reduced to a minor overflow only in the PMF event.

Under Lot 2 Masterplan Conditions, flood velocity difference plots disclosed minor impacts in the watercourse downstream of Mamre Road and negligible adverse impacts on flood velocities elsewhere downstream of Mamre Road in the 2 yr ARI, 5 yr ARI, 100 yr ARI, 200 yr ARI and 500 yr ARI events. In a PMF there are localised modest increases in the flood velocities downstream of Mamre Road north of the new intersection. Overland flows that spilled from the southwest corner of the Estate under Benchmark Conditions have been eliminated in the 2 yr ARI, 5 yr ARI, 100 yr ARI, 200 yr ARI, 500 yr ARI events and reduced to a minor overflow only in the PMF event.

### Flood Management Measures

The development responds to the flooding risks by separating upstream runoff from local internal runoff and implementing the following measures:

- (i) Capturing upstream runoff just inside the southern site boundary and conveying this via the proposed diversion line comprising a 1500 mm diameter conduit with a 1.5 m x 1.5 m RCBC road crossing to convey upstream runoff to the head of the extended riparian corridor which conveys the combined upstream runoff from the southern and eastern drainage lines to the existing Mamre Road crossing in all events up to the 100 yr ARI event as a minimum; and
- (ii) Directing all runoff from within the development to a dual purpose basin in order to mitigate the impacts on the rate of runoff in all events up to the 100 yr ARI event and to mitigate impacts on stormwater quality. The basin is sized on the masterplan conditions when all stages of development of the industrial estate have been completed.

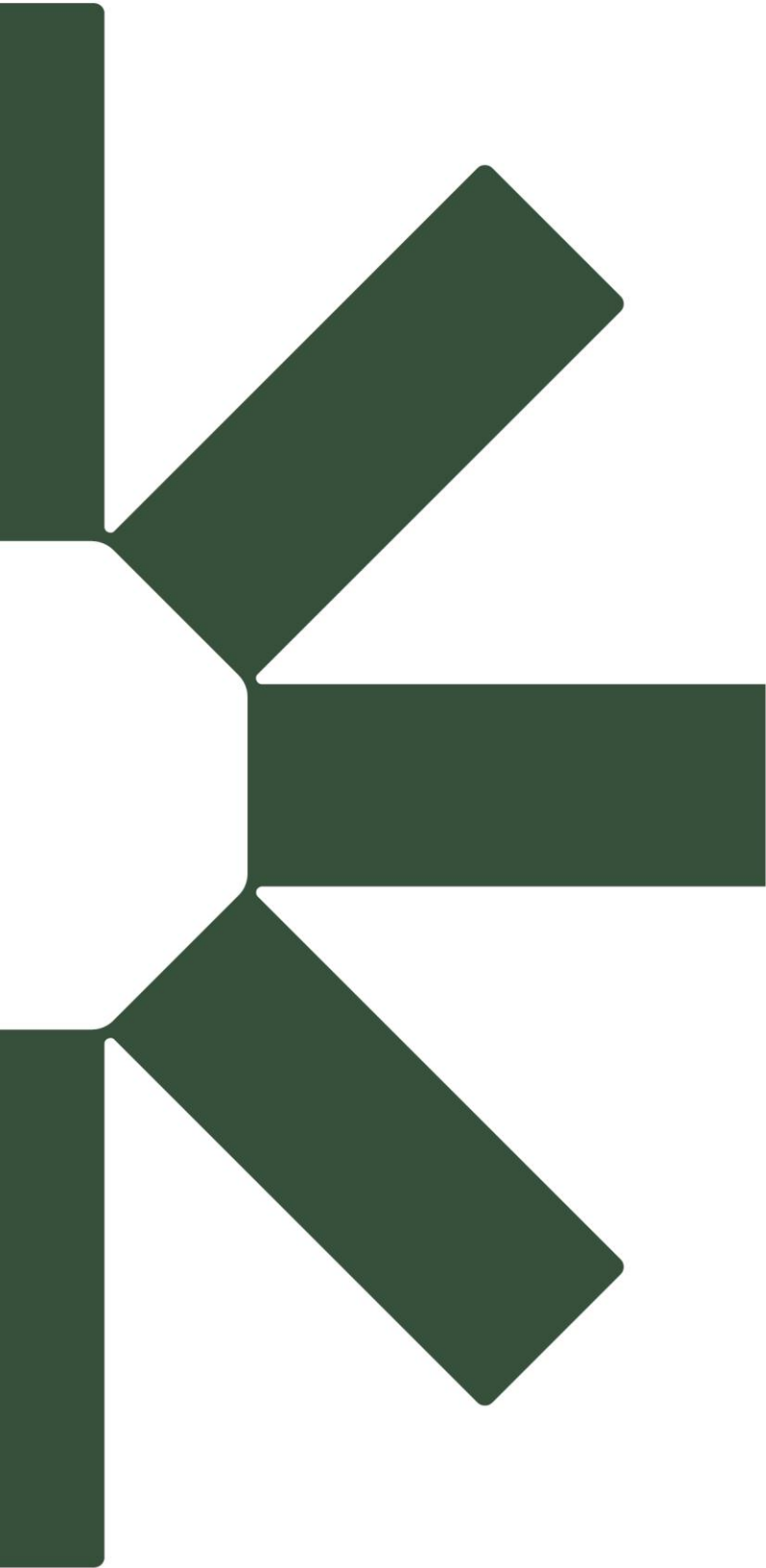
Yours faithfully,

**STANTEC AUSTRALIA PTY LTD**



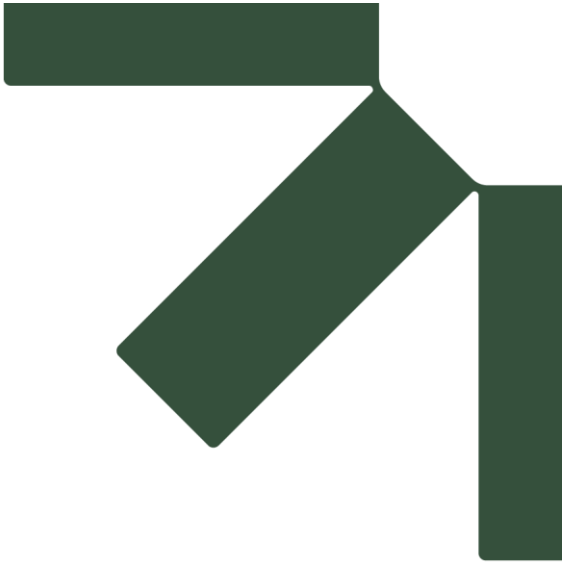
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Making Sustainability Happen





# Appendix V    ESD Report

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024



# Aspect Industrial Estate

## Warehouse 2

### ESD Report

**Prepared for:** Mirvac

**Attention:** Ali Altajjar

**Date:** 19<sup>th</sup> July 2023

**Prepared by:** Tianlu Yang

**Ref:** 301351154

**Stantec Australia Pty Ltd**

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# Revision

Revision	Date	Comment	Prepared By	Approved By
01	17.02.2023	Draft Issue	TY	RD
02	16.06.2023	Issue for DA	TY	RD
02	19.07.2023	Issue for DA	TY	RD

## Disclaimer

This report has been developed based on the Development level of information provided to Stantec. Stantec has taken every effort to ensure the information presented in this report is an accurate reflection of the development but cannot guarantee the final performance of the building. The content of the development, including systems, materiality and finishes is subject to final architectural and client approval and subject to change.



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# 1. Executive Summary

This Ecological Sustainable Development Report has been prepared for Mirvac for the proposed new Warehouse 2 at Aspect Industrial Estate development located at Mamre Road, Kemps Creek, NSW 2178. This report is intended to provide an overview of the ecologically sustainable design (ESD) principles and greenhouse gas and energy efficiency measures that will be implemented and is intended to form part of the Environmental Impact Statement (EIS) for the application to Development Consent SSD-58257960 for Warehouse 2 at Aspect Industrial Estate at 804-882 Mamre Road, Kemps Creek.

This is a direct design response to the ESD and energy efficiency components of Planning Secretary's Environmental Assessment Requirements (SEARs) issued for the proposals SSD-58257960 and SSD-10448, and also to other regulatory frameworks as listed below. Information contained within this report has been prepared in direct response to:

- The Secretary's Environmental Assessment Requirements (SEARs) for the development (SSD-58257960 and SSD-10448);
  - Greenhouse gas and energy efficiency;
  - Ecologically sustainable development.
- The NSW Environmental Planning and Assessment Act 1979;
- The NSW Environmental Planning and Assessment Regulation 2021;
- State Environmental Planning Policy (Industry and Employment) 2021;
- Penrith Council DCP (2014) ; and
- Mamre Road Precinct Development Control Plan (DCP) 2021

The report includes:

- An overview of the sustainability drivers for the project (both regulatory & identified project drivers);
- Detail regarding specific ecological sustainable development initiatives through all phases of the project;
- Initiatives that will minimise the consumption of energy, water and material resources, whilst maintaining a high indoor environmental quality for occupants.

In order to achieve the above main goals, drivers and SEARs requirements, the project will implement a number of greenhouse gas and energy efficiency initiatives and sustainable design principles, including:

- Buildings to be net positive for carbon emissions where determined by Mirvac to be appropriate;
- On-site Renewable Energy Production;
  - 1. Warehouse 2: 200 kW Solar System
- Environmental outcome benchmarked to a minimum of 5 Star Green Star Buildings;
- Smart metering;
- Electric car and truck charging future provisioning;
- Rainwater harvesting and reuse for irrigation;
- Explore opportunities to reduce embodied energy reduction associated to construction material selection;
- Others as presented in the following Sections.





## 2. Introduction

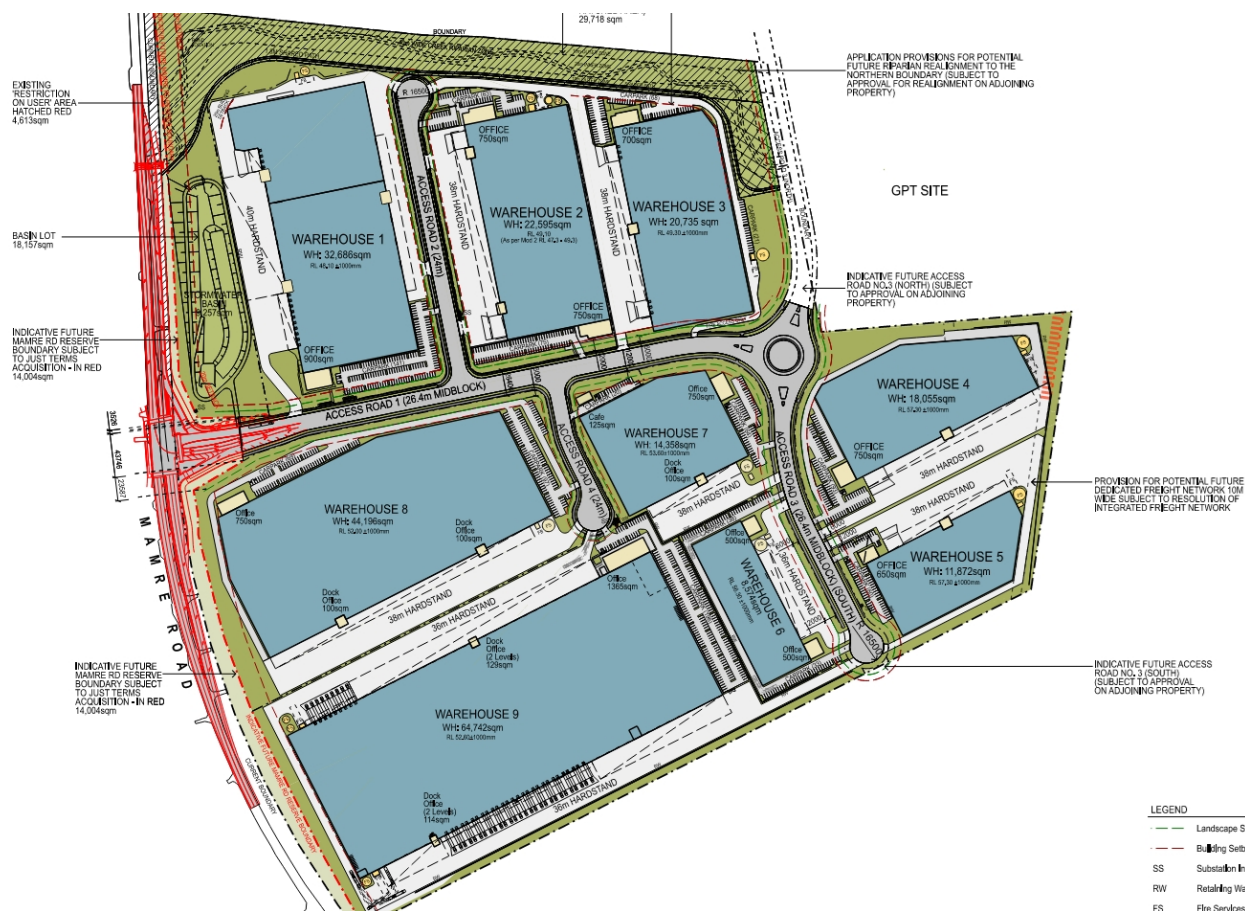
### 2.1 Aspect Industrial Estate Concept Masterplan & Warehouse 2

Aspect Industrial Estate (the site) is legally described as Lots 1 – 5 in DP 1285305, with an area of approximately 56.3 hectares (ha). The site is located on the Aspect Industrial Estate, Mamre Road, Kemps Creek, for the purposes of 'warehouse and distribution centre'. The site has approximately 950m of direct frontage to Mamre Road with a proposed intersection providing vehicular access via Mamre Road to the M4 Motorway and Great Western Highway to the north and Elizabeth Drive to the south. The site is located approximately 4km north-west of the future Western Sydney Nancy-Bird Walton Airport, 13km south-east of the Penrith CBD and 40km west of the Sydney CBD.

The Department of Planning, Industry and Environment (DPIE) rezoned Mamre Road Precinct, including the site, in June 2020 under the State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP). The rezoning of this precinct responds to the demand for industrial land in Western Sydney. The site primarily zoned IN1 General Industrial with a small sliver of land zoned E2 Environmental Conservation.

Consistent with the above, this report has been prepared to support a Development Application under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) for the purpose of:

- A Concept Masterplan for the site comprising 8 industrial buildings, internal road network layout, building locations, gross floor area (GFA), car parking, concept landscaping, building heights, setbacks and built form parameters.





### 2.1.1 New Warehouse 2 SSD-58257960

Concept Consent was granted for the development of AIE by way of SSD-10448 on 24 May 2022.

This proposal involves the preparation of a subsequent stage SSDA for the development of the warehouse building, on Lot 2 of Aspect Industrial Estate, Mamre Road Kemps Creek, for the purposes of 'warehouse and distribution centre'.

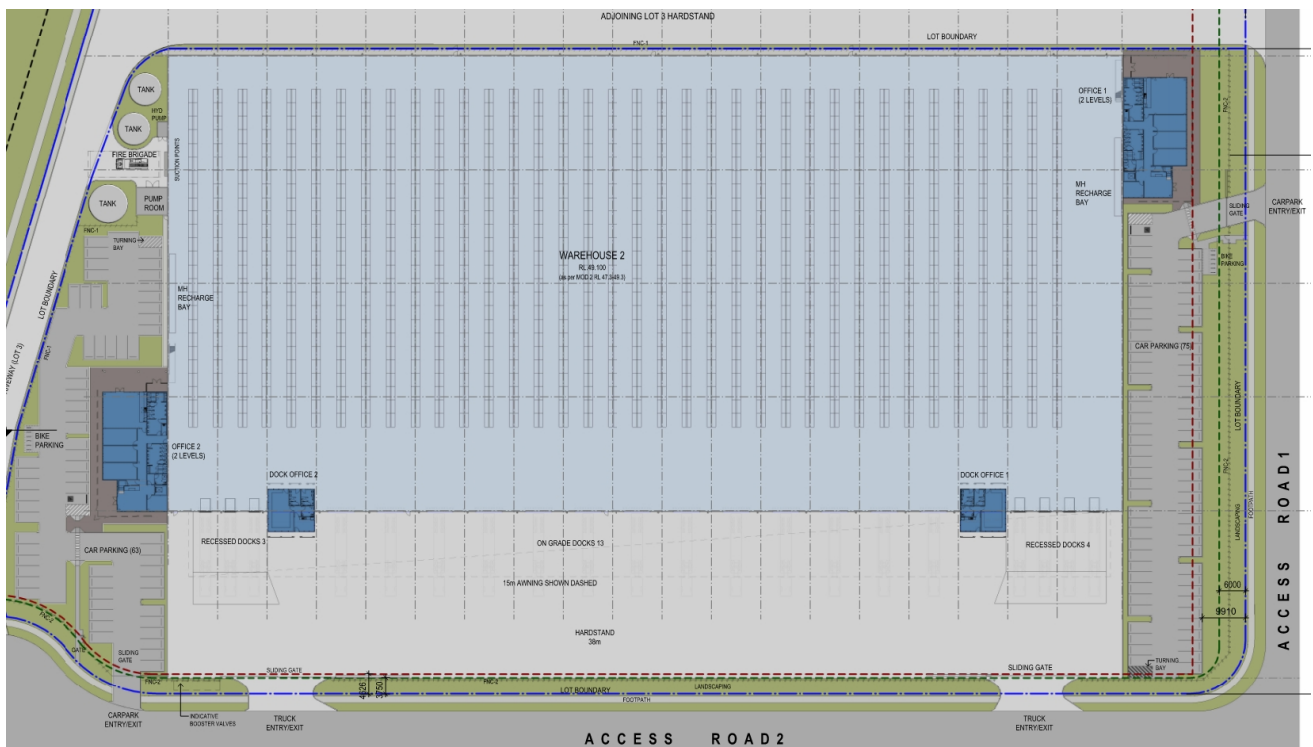
Generally, the proposed development on Lot 2 within AIE includes minor on lot earthworks, installation of on-lot infrastructure, and the construction of a warehouse, landscaping, hardstand and car parking.

The lot location and built form configuration will align with that intended to be established under the SSD-10448 MOD 2 (approved by DPE 30th November 2022).

Warehouse 2 on AIE Lot 2 is proposed to be used for warehouse and distribution premises 24 hours a day 7 days a week.

The design includes a 22,595sqm warehouse space, 1,500sqm office, 200sqm dock office and 138 car parking spaces.

No specific operator has been secured for Warehouse 2 as yet.



**Figure 2 – Lot 2 Site Plan (SBA Architects)**





<b>LOT 2 GFA AREA SCHEDULE</b>	
GROSS FLOOR AREA DEFINED AS PER PENRITH LEP 2010	
SITE AREA	40,172 m <sup>2</sup>
OFFICE 1 (2 LEVELS)	750 m <sup>2</sup>
OFFICE 2 (2 LEVELS)	750 m <sup>2</sup>
DOCK OFFICE 1	100 m <sup>2</sup>
DOCK OFFICE 2	100 m <sup>2</sup>
WAREHOUSE	22,595 m <sup>2</sup>
TOTAL GFA	24,295 m <sup>2</sup>
SITE COVERAGE	60 %
CARPARKING SPACES REQUIRED	113
CARPARKING SPACES PROVIDED	138

**Table 1 - Lot 2 Site Plan – Warehouse 2 Lot Areas (SBA Architects)**

### 3. Sustainable Design Framework

The proposed sustainability response for the project includes various associated drivers, including the following regulatory frameworks:

- The Secretary's Environmental Assessment Requirements (SEARs) for the development (SSD-58257960 and SSD-10448);
  - Greenhouse gas and energy efficiency;
  - Ecologically sustainable development.
- The NSW Environmental Planning and Assessment Act 1979;
- The NSW Environmental Planning and Assessment Regulation 2021;
- State Environmental Planning Policy (Industry and Employment) 2021;
- Penrith Council DCP (2014) ; and
- Mamre Road Precinct Development Control Plan (DCP) 2021

#### 3.1 Secretary's Environmental Assessment Requirements for the development (SSD-58257960 and SSD-10448)

The following key issues from the Secretary's Environmental Assessment Requirements SSD-58257960 and SD-10448 are addressed in this report:

- **Greenhouse gas and energy efficiency** – including an assessment of the energy use of the proposal and all reasonable and feasible measures that will be implemented on site to minimise the proposal's greenhouse gas emissions, reflecting the Government's goal of net zero emissions by 2050.





The NSW Government has committed to an aspirational objective of achieving net-zero emissions by 2050. The intent of this aspirational objective is to provide a clear statement of the government's intent, commitment, and level of ambition and to set expectations about future emissions pathways that will help the private sector and government agencies to plan and act. It is consistent with the Paris Agreement which the Commonwealth Government has committed to ratifying, and is intended to complement, rather than replicate or duplicate the Commonwealth Government's shorter term national emissions reduction targets.

- **Ecologically sustainable development** – including a description of how the development will incorporate the principles of ecologically sustainable development in the design, construction and ongoing operation of the development.

## 3.2 The NSW Environmental Planning and Assessment Regulation 2021

Schedule 193 of Division 5 of Part 8 of the Environmental Planning and Assessment Regulation 2021 states:

### 193 Principles of ecologically sustainable development

- 1) *The principles of ecologically sustainable development are the following—*
  - a) *the precautionary principle,*
  - b) *inter-generational equity,*
  - c) *conservation of biological diversity and ecological integrity,*
  - d) *improved valuation, pricing and incentive mechanisms.*
- 2) *The precautionary principle is that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*
- 3) *In applying the precautionary principle, public and private decisions should be guided by—*
  - a) *careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
  - b) *an assessment of the risk-weighted consequences of various options.*
- 4) *The principle of inter-generational equity is that the present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*
- 5) *The principle of the conservation of biological diversity and ecological integrity is that the conservation of biological diversity and ecological integrity should be a fundamental consideration.*
- 6) *The principle of improved valuation, pricing and incentive mechanisms is that environmental factors should be included in the valuation of assets and services, such as—*
  - a) *polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, and*
  - b) *the users of goods and services should pay prices based on the full life cycle of the costs of providing the goods and services, including the use of natural resources and assets and the ultimate disposal of waste, and*
  - c) *established environmental goals should be pursued in the most cost effective way by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

## 3.3 State Environmental Planning Policy (Industry and Employment) 2021

**Chapter 2 Western Sydney employment area** of the State Environmental Planning Policy (Industry and Employment) 2021 states:

### Part 2.4 Principal development standards

#### 2.19 Ecologically sustainable development

*The consent authority must not grant consent to development on land to which this Chapter applies unless it is satisfied that the development contains measures designed to minimise-*

- a) *the consumption of potable water, and*





b) greenhouse gas emissions.

## 3.4 Penrith Development Control Plan (DCP) 2014

The Penrith Development Control Plan 2014 has been prepared in accordance with Section 74C of the Environmental Planning and Assessment Act 1979 and clause 16 of the Environmental Planning and Assessment Regulation 2021.

Chapter **C1 Site Planning and Design Principles** of the Penrith Development Control Plan 2014 states:

### **“1.2. Design Principles**

#### **B. Objectives**

- b) To ensure that development is designed on a ‘whole of building’ approach by:
  - ii. responding to climatic and contemporary environmental conditions by:
    - encouraging passive solar building design;
    - allowing reasonable daylight access to all developments and the public domain;
    - reducing the necessity for, or improve the control of, mechanical heating and cooling;
    - reducing the energy consumed by installed appliances and equipment;
    - improving the indoor environmental quality of occupants;
    - minimising greenhouse gas emissions;

#### **1.2.2. Built Form – Energy Efficiency and Conservation**

- a) The selection criteria for construction materials, including internal fit-out work, should include detailed documentation of their energy efficiency properties.
- b) Buildings should be designed on passive solar design principles which:
  - i. Respond to orientation to maximise the northerly aspect and solar access in the cooler periods;
  - ii. Reduce overheating in summer and promote solar gain in winter; and
  - iii. Ensure there is adequate cross flow of air by utilising natural ventilation, resulting in a reduction in the use of mechanical ventilation and/or air-conditioning systems.
- c) The future use and occupants of the building should be considered in the design and location of building services/equipment to ensure that:
  - i. The thermal comfort of occupants is optimised through zoning sections of the floor area to
  - ii. of building services is provided enable individual control of heating and cooling;
  - iii. Lighting systems and fittings have reduced energy consumption that are also appropriate for the use/activity located in that part of the building;
  - iv. The equipment or service will be used and its future use will not affect other elements of sustainability; and
  - v. Sub-metering to individual tenancies within the development to enable individual monitoring of consumption performance.
- d) Common and service areas in the building should incorporate energy and water efficiency/conservation measures in their design and location.

Chapter **C3 Water Management** of the Penrith Development Control Plan 2014 states:

#### **C. Controls**

##### **3) Proposed Industrial Land Uses**

The following controls apply to new industrial buildings and significant alterations/additions to industrial buildings:

- b) All proposed industrial sites with a hard surface area (including roof area, driveways, parking areas, loading bays, covered storage areas, etc.) greater than 1,000m<sup>2</sup> shall submit a water management plan which estimates required water needs, and includes an investigation into the feasibility of the measures listed below, outlines those to be adopted on the site and explains why any measures not adopted were unable to be implemented:
  - i. Rainwater tanks connected to roof and gutter systems and installed to enable reuse of rainwater for irrigation, industrial processes, toilet flushing or other non-drinking purposes;
  - ii. Stormwater detention systems installed and maintained to enable the reuse of stored water for irrigation, industrial processes, toilet flushing or other non-drinking purposes, and to minimise the impact of runoff from the site;





- iii. *Roof gardens, either for recreational purposes or as a means to reduce hard stand area.*

## 3.5 Penrith Local Environmental Plan (LEP) 2010

Part 7.4 of the Penrith Local Environmental Plan 2010 states:

### ***“Part 7 Additional local provisions***

#### ***7.4 Sustainable development***

*In deciding whether to grant development consent for development, the consent authority must have regard to the principles of sustainable development as they relate to the development based on a “whole of building” approach by considering each of the following—*

- a) conserving energy and reducing carbon dioxide emissions,*
- b) embodied energy in materials and building processes,*
- c) building design and orientation,*
- d) passive solar design and day lighting,*
- e) natural ventilation,*
- f) energy efficiency and conservation,*
- g) water conservation and water reuse,*
- h) waste minimisation and recycling,*
- i) reduction of vehicle dependence,*
- j) potential for adaptive reuse.”*

## 3.6 Mamre Road Precinct Development Control Plan (DCP) 2021

The Mamre Road Precinct Development Control Plan 2021 provides detailed planning controls for industrial development in Mamre Road Precinct within the Western Sydney Employment Area.

**Chapter 4 General Requirements for Industrial Development** of the Mamre Road Precinct Development Control Plan 2021 states:

### ***4.2 Built form design controls***

#### ***4.2.5 Building Design***

##### ***Objectives***

- a) To encourage innovation and a high standard of architectural design, utilising quality materials and finishes.*
- b) To ensure buildings achieve a high level of sustainability and environmental performance.*
- f) To embed circular economy design principles to maximise recycling and reuse of materials.*

##### ***Controls***

- 1) Developments with a construction cost of \$1 million or more are to demonstrate a commitment to achieving no less than 4 stars under Green Star or 4.5 stars under the Australian Building Greenhouse Rating system (now part of the National Australian Built Environment Rating System (NABERS)).*

##### ***Siting/Building Orientation***

- 2) Buildings should take advantage of a north or north-easterly aspect to maximise passive solar illumination, heating and natural cross-ventilation for cooling.*

##### ***Architectural Design***

- 7) External finishes should contain a mix of materials and colours and low reflectivity to minimise glare and reflection.*
- 11) Energy efficient design principles shall be employed in all building designs (Figure 3).*





17) Roof design must provide natural illumination to the interior of the building.

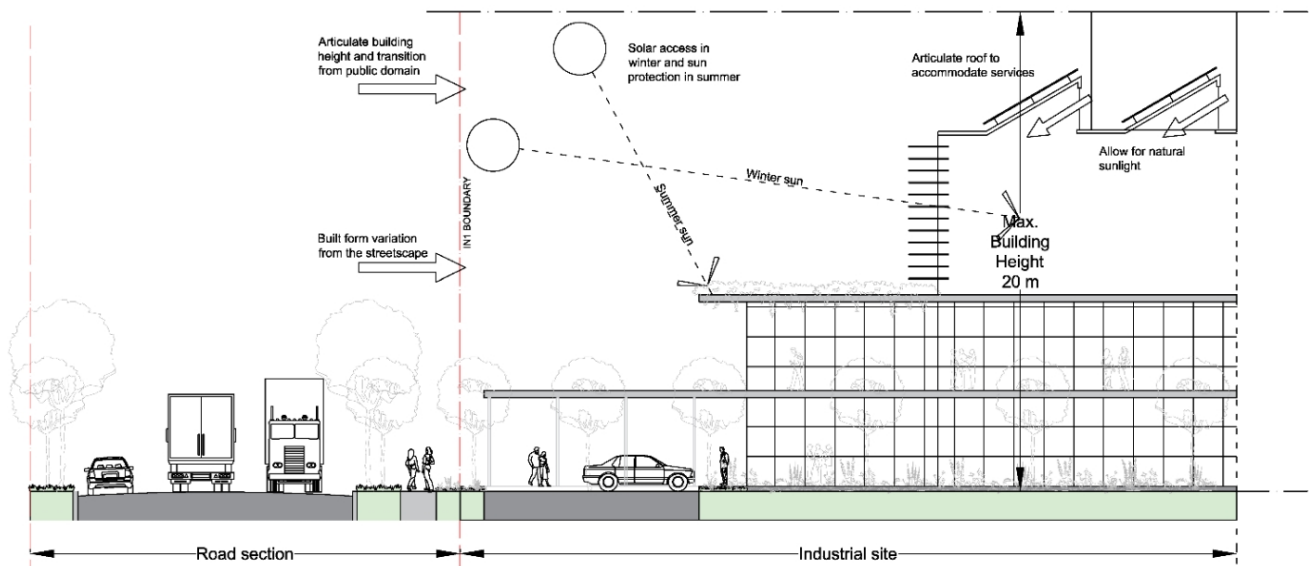


Figure 3- Energy efficient design (Source: Mamre Road Precinct DCP 2021)

### Environmentally Sustainable Design

18) Development applications shall demonstrate Ecological Sustainable Design (ESD) measures have been incorporated into the design, including a consideration of:

- Building and window orientation;
- Window size and glass type;
- Materials, colour and surface treatment (note control 19 in relation to roof colour);
- Insulation;
- Landscaping and trees to provide shade and moderate the building microclimate;
- Natural ventilation and light with generous, all weather openings;
- Utilise extensive roof areas for energy and water collection;
- Air flow, ventilation and building morphology to support cooling; and
- Circular economy in the design, construction and operation of buildings, public domain, infrastructure, and energy, water and waste systems.

19) Light coloured materials should be used in roof construction to reduce the urban heat effect.

20) Building services, excluding manufacturing plant and operations, should promote:

- Separate metering of water and electricity for multiple uses or tenants;
- Shut-off valves at stormwater outlets to trap toxic spills;
- Waterless urinals;
- Energy efficient lighting;
- Gas boosted solar hot water for staff amenities (kitchen, toilets, showers);





- *Rainwater and recycled water for toilet flushing, irrigation or other non-potable uses;*
- *Waste heat recovery systems;*
- *Integrated systems for energy generation- waste and water;*
- *Air-cooled systems, ground source heat rejection or pond heat rejection; and*
- *Energy storage systems combined with the use of photo voltaic cells for roof areas.*

21) *Measures to improve air quality and visual and thermal comfort to be considered include:*

- *Low VOC paints and low-formaldehyde floor covering, adhesives and furniture;*
- *Glazed facades to be shaded and/or use performance glass to control radiant heat;*
- *Occupant control of comfort parameters (e.g., operable windows, control of air flow);*
- *Protection from noise (e.g. open windows or between production and office areas);*
- *Provision of high quality landscaped outdoor amenity areas for staff;*
- *Hydronic heating and ceiling fans; and*
- *Materials with low reflectance values.*

#### **4.6 Access and Parking**

##### **4.6.1 Parking and Manoeuvring Areas**

##### **Objectives**

8) *Parking areas should incorporate dedicated parking bays for electric vehicle charging.*

25) *The following bicycle destination facilities for staff are to be provided: o For ancillary office and retail space with a gross floor area over 2500m<sup>2</sup> , at least 1 shower cubicle with ancillary change rooms; o For industrial activities with a gross floor area over 4000m<sup>2</sup> , at least 1 shower cubicle with ancillary change rooms; o Change and shower facilities are to be located close to the bicycle storage areas; and o Where the building is strata-titled, the facilities are to be available to all occupants.*

26) *Bicycle parking, facilities and storage must be in convenient locations, visible, secure, and provide weather protection for the bicycle.*

## **3.7 Project Design Response**

The project team has assessed the energy use profile of the development and will implement a number of energy efficiency measures that will reduce significantly the greenhouse gas emissions and footprint of the project. Also, as listed below, a series of best practice sustainable initiatives will be incorporated so that potential environmental impacts are mitigated substantially.

There are no perceived threats of serious or irreversible environmental damage as a result of locating the Aspect Industrial Estate development on the desired site. The site is currently zoned RU2 Rural Landscape under the Penrith Local Environmental Plan 2010 and is not listed within the Schedule 5 Environmental Heritage – Part 1 Heritage items of the Penrith Local Environmental Plan 2010. The proposed development will have predominantly the same uses as the current industrial warehouses and developments from the surroundings.

The development will give strong consideration to potential environmental impacts by reducing it through application of best practice design and processes such as the many ESD commitments and initiatives listed in the following Section. The documented initiatives to be implemented – which are the basis for the response to the Sustainable Design Frameworks outlined above - include:





- Buildings to be net positive for carbon emissions where determined by Mirvac to be appropriate;
- On-site Renewable Energy Production;
  1. Warehouse 2: 200 kW Solar System
- Environmental outcome benchmarked to a minimum 5 Star Green Star Buildings;
- Smart metering;
- Electric car and truck charging future provisioning;
- Rainwater harvesting and reuse for irrigation;
- Energy Efficient lighting systems (internal and external) and lighting controls;
- Best Practice Façade Thermal Performance / Building Thermal Mass;
- Solar Gain Reduction / Shading;
- Efficient HVAC System Equipment (Office spaces);
- Explore opportunities to reduce embodied energy reduction associated to construction material selection;
- Increased access to natural daylight where possible;
- Water efficient fixtures and fittings (WELS rating);
- Selection of native & low water plants / trees;
- Application of Water Sensitive Urban Design (WSUD) principles;
- Increased Indoor & Outdoor Environmental Quality;
- Waste Management Plan;
- Bike racks and end-of-trip facilities;
- Others as presented in the following Sections.

Any further concerns will be addressed through development of a Construction Environmental Management Plan that incorporates mitigation measures to ensure that environmental impacts to the site are minimised during construction. Contractors will also be requested to provide and abide by an Environmental Management System to be in accordance with NSW Environmental Management Systems Guidelines or a similar standard. This places a value on environmentally responsible building practices to ensure they are held responsible for the environmental management of the building site as they complete their work.

Once the new development is under activity, operational guidelines, best practice procedures and appropriate monitoring and control measures will be defined by the building owner. This will be in accordance to the sustainable strategies adopted by the development, and will be distributed to the tenants to ensure environmental impacts associated with operational processes are minimised wherever possible.

## 4. ESD Opportunities & Initiatives

The following section addresses the Greenhouse Gas, Energy Efficiency and Ecologically Sustainable Development aspects in response to the Sustainable Design Frameworks (as per Section 3) for the project. It uses best practice sustainable design principals and borrows elements from external sustainability tools to develop a set of metrics for the site.





There are several Ecological Sustainable Development opportunities and initiatives that will be implemented in the project. The following examples are to be read in conjunction with design documentation prepared by SBA Architects. Stantec note the design is in its very early stages, and the following concepts will be considered going forward.

Fundamental to the success of improving the ESD outcome for the project is the adoption of strong design philosophy. Passive design features have the ability to:

- Lower operational energy demand via improved thermal performance;
- Promote greater indoor environmental quality;
- Reduce the buildings' reliance on HVAC systems;
- Improve building occupant comfort; and
- Improve the project's capacity to deliver a responsible development.

The warehouse design will include several passive design options and provide a robust and environmentally sensitive framework. Furthermore, several energy efficiencies measures and intelligent selection of systems are being proposed in order to improve the environmental outcome of the development while maintaining occupant level comfort and well-being.

## 4.1 Australian Excellence ESD Framework (Green Star)

The project's as-built environmental performance will be equivalent to a 5 Star Green Star project, based on the Green Star Design & As-Built v1.3 tool. As proposed by the Green Star framework, a holistic approach will be taken towards the environmental performance of the development, where relevant ESD principles will be applied and voluntarily accessed against the Green Star scheme so that the project can be benchmarked to achieve the equivalent of a 5 Star Green Star v1.3 standard – which represents Australian Excellence within the built environment.

Green Star is currently accepted within the building and construction industry as representative of Australian Excellence in design & construction with reference to environmental conservation and performance. Green Star is Australia's foremost holistic built environment assessment tool and outlines a series of environmental performance criteria design to improve environmental sustainability & building performance. There are nine performance categories within Green Star, as follows:

- Energy (GHG Emissions);
- Water;
- Materials;
- Indoor Environmental Quality (IEQ);
- Building Management;
- Transport;
- Land Use & Ecology;
- Emissions; and
- Innovation.

The development may not target a formal Green Star certification, but further investigation is being undertaken by Mirvac on the certification pathway.

## 4.2 Greenhouse Gas & Energy Efficiency

A variety of greenhouse gas and energy efficiency measures are applicable to the proposed development and form part of the initial design and operation plan for the warehouses. The final strategy will be a combination of sustainability, operational feasibility, architectural intent and site-specific appropriateness.

The energy efficiency strategy follows the hierarchy pyramid below. Best practice energy conservation dictates that in the first instance demand is reduced. This has a much greater benefit to the overall long-term sustainability of the site compared to efficiency measures or renewables/offsets. As such, the focus will be on the elements that provide the greatest impact and return on investment.





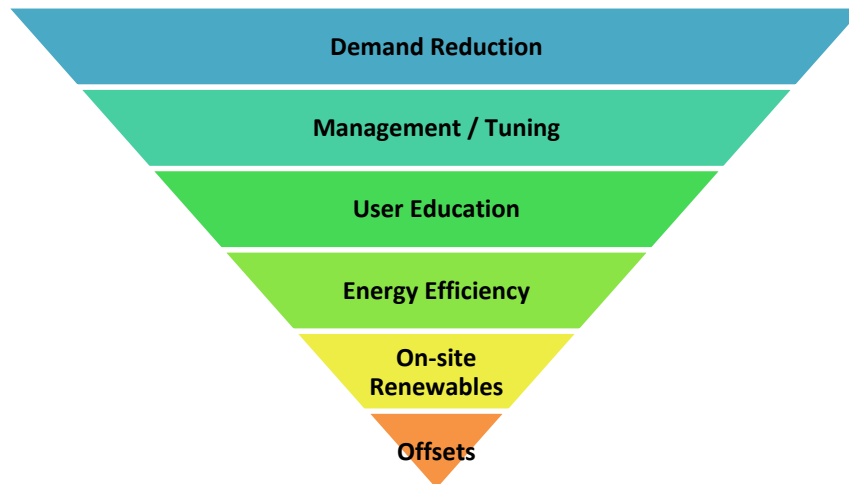


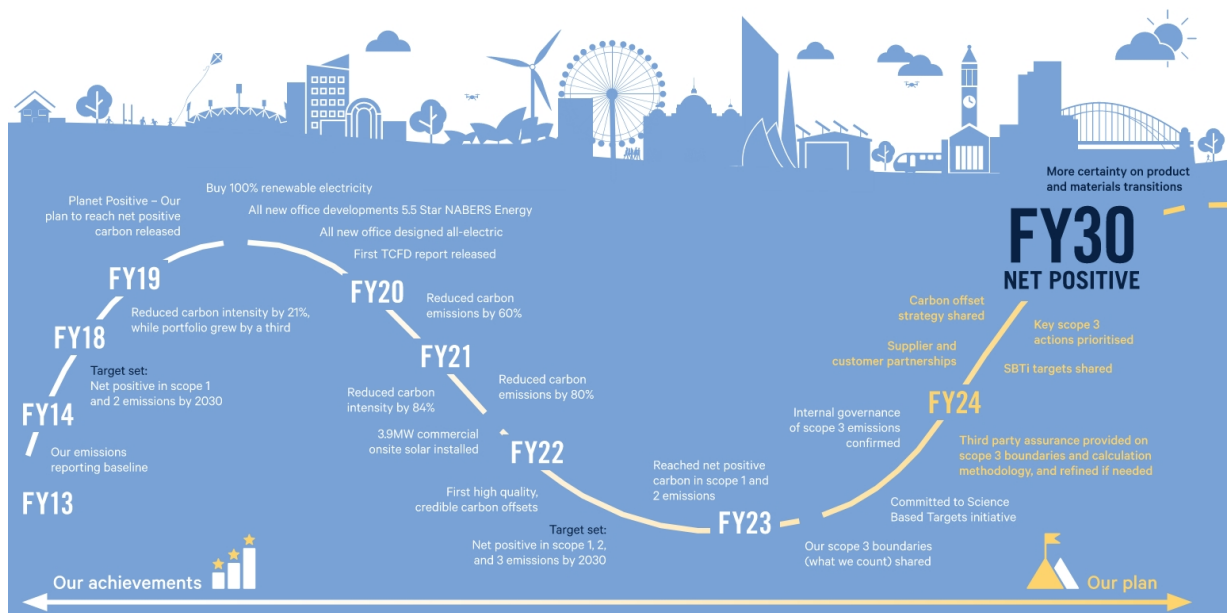
Figure 4 - Energy Efficiency Strategy Hierarchy

#### 4.2.1 Site-wide Energy Strategies

Methods to achieve the greenhouse gas & energy efficiency goals of the projects will go above and beyond the regulatory requirements and industry benchmarks. The below is proposed to be implemented:

- Buildings to be net positive for carbon emissions**

The development site is proposed not only to be net carbon zero but to potentially go above and beyond industry benchmarks and deliver a net positive development for embodied carbon emissions. This accounts for scope 1 and 2 greenhouse gas (GHG) emissions from the development site. Reaching net positive carbon by 2030 is part of Mirvac's plan for the future. This is outlined in Mirvac's plan released in 2022 [“Carbon Emissions | Mirvac”](#).



Source: Mirvac's Net positive carbon by 2030 infographic

*“It’s important to emphasise that being net positive involves going a step further than reaching net zero. For us, net positive means that our positive actions (energy efficiency, renewable energy, transitioning away from fossil fuels, and either minimising or offsetting other emissions) outweigh the carbon emissions from our buildings.” Planet Positive – Mirvac’s Plan to reach net positive carbon by 2030.*





- **On-site Renewable Energy Production – Min. 100 kW Solar System per building:**

On-site Renewable Energy Production will be implemented in the design to minimise utilisation of energy from the grid system. The system will be designed so that renewable energy is prioritised for use. Consideration can also be given to selling excess energy back into the grid or storage on site for peak reduction.

Further feasibility will be completed regarding the ideal system configuration, sizing, annual energy generation, etc., but it is anticipated that there will be a minimum 100 kW Solar System provided to each building. It is noted the electricity consumption from the site is still to be estimated where the appropriate renewable energy contribution will depend on the final architectural design, industrial arrangement, building services design and tenants operational requirements.

**While there is a minimum target of 100 kW Solar System to be provided to each warehouse, Warehouse 2 is proposed to have a 200 kW capacity solar system**, which represents a fantastic initiative that will have a tremendous impact on the Warehouse 2 operational carbon footprint.



*Source: Google images*

- **Electric car and truck charging future provisioning;**

By including conduit provisions and dedicated bays in the design for Electrical Vehicle charging, the development will provide incentive to the use of low-emissions vehicles, which reduces the harmful air pollution associated to vehicles exhaust emissions. Further consideration will be given to the implementation of some Electrical Vehicle charging units. Furthermore, if renewable energy is used to feed the stations (either through the solar systems or Green Power) then this can represent a complete transition away from fossil fuels related to transport.

- **Energy Efficient lighting systems (internal and external):**

Energy Efficient lighting selection (LED lighting) and system can reduce the electrical load on the grid significantly for the same illuminance output in comparison to traditional incandescent lights. Further, LED globes have a longer life, reducing replacement periods which demands less maintenance, as well as reducing landfill of precious materials. Mirvac will be utilising LED lighting throughout all buildings for the Aspect development.

- **Controls of lighting systems:**

This can include zoned switching, lighting control systems with time clocks and may include lighting sensors where appropriate. This will reduce base building energy consumption by assuring artificial lighting is turned off when not required.

- **Façade Thermal Performance / Building Thermal Mass:**





Building envelope thermal performance to comply with NCC 2019 Section J requirements (conditioned spaces). This will reduce reliance on mechanical cooling and heating and therefore bringing down HVAC operational energy consumption.

The warehouses roof material and colour will be reflective of solar radiation, and consideration will be given to building overall thermal mass and to application of thermal insulation appropriate to the local weather profile.

- **Solar Gain Reduction / Shadings:**

External shading devices will be implemented in the architectural design adjacent to conditioned spaces in order to reduce solar exposure / solar gains thus reducing the reliance on mechanical systems for internal conditioning. Awnings will be provided at each access point to the warehouses. This will be provided on the warehouse edge where trucks load/unload to provide sun protection for employees.

The building roof is designed to be light coloured (low solar absorptance), which also reduces solar gains by reflecting light and is beneficial to the local heat island effect.

- **Efficient HVAC System Equipment (Office spaces):**

Efficient and bespoke HVAC systems with high COPs will be appropriately designed and sized for the development. This will include high efficiency centralised plant.

- **Embodied Energy reduction associated to construction material selection.**

Construction materials are a highly carbon intensive component of any development. They often involve energy intensive production processes, large amounts of raw materials including water and energy, and long transport distances to reach the location of the development. However, there are a number of environmentally friendly practices starting to become accepted by the construction industry. Depending on the materials selected for the constructions, and the options available in the area, use of low embodied energy and water materials with preference for sourcing from local or sustainable materials suppliers will be adopted – where possible – during material selection and pre-construction process. This can also include materials with high recycled content.

#### 4.2.2 Warehouse Areas

The warehouse floor area represents a large portion of the site area (40,174 m<sup>2</sup>) and as such is responsible for the significant component of energy consumption within the site. A number of initiatives are proposed to reduce the greenhouse gas emissions and environmental impacts associated to the warehouse component on the development. These include:

- Energy Efficient lighting systems (internal and external);
- Controls of lighting systems, including zoned switching, motion sensors and time clocks / lighting sensors as appropriate;
- Large solar PV array to offset the energy consumption of the warehouse machinery and building services.

#### 4.2.3 Office Areas

The office has been analysed for a number of different design elements and configurations. These include:

- Energy Efficient lighting systems (internal and external);
- Controls of lighting systems, including zoned switching, motion sensors and time clocks / lighting sensors as appropriate;
- High thermally performing glazing and general façade materials – to meet NCC 2022 Section J requirements;
- Increased mechanical equipment performance;
- Zoned mechanical systems (centre/perimeter);





- Wider temperature control band.

By combining all the above elements within the office design, there is a potential for the office energy consumption to be reduced significantly in comparison to a standard office space (considering business as usual systems in line with the BCA and standard operational procedures).

## 4.3 Water Efficiency

A variety of water efficiency measures can be applied to the proposed development. These best practice water efficiency measures implemented to reduce water consumption include:

- **Water efficient fixtures and fittings (WELS rating):**

By implementing low-flow water fixtures, the consumption associated with amenities can be reduced. This includes taps, wash basins, WCs, Urinals, showers and supplementary water uses.

- **Water efficient appliances (WELS rating):**

Where applicable, priority will be given to efficient water appliances, such as dishwashers for the office spaces.

- **Rainwater harvesting and reuse:**

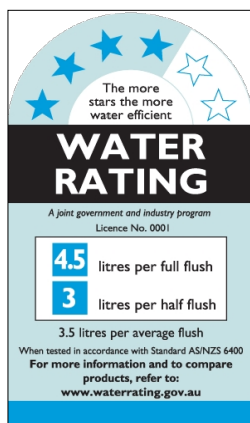
A rainwater tank will be implemented as required. Further feasibility will be completed regarding the ideal tank sizing, capture area and end-use for any non-potable water collected. Rainwater on this site is particularly advantageous given the significant collection area across the building roofs. The captured water can offset irrigation water consumption and toilet flushing.

- **Water use metering and monitoring:**

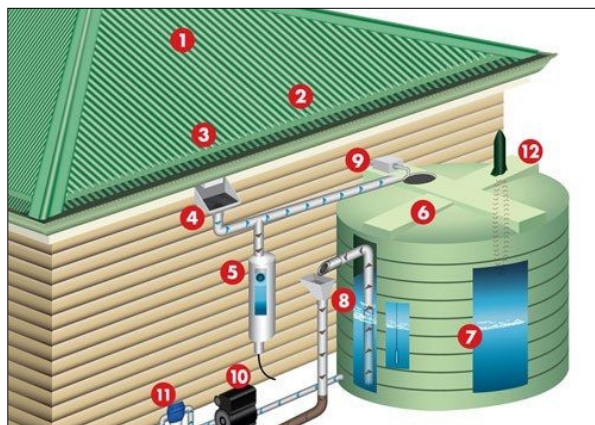
Which can identify leaks and amend losses before greater loss occurs.

- **Selection of native & low water plants / trees:**

Native plants are designed to thrive in the Australian environment and are typically more resilient than their exotic counterparts. Low water species will reduce even more irrigation demand.



**Figure 5 - Illustration of WELS rating label.**



**Figure 6 - Illustration of a Rainwater Harvesting System.**

The above initiatives are sufficient to allow the project to meet best practice consumption benchmarks considering the HVAC mechanical design will most likely apply waterless heat rejection systems due to the size and volume of the commercial office spaces within the development.





### 4.3.1 Water Sensitive Urban Design (WSUD)

The WSUD principles outlined in Chapter C3 Water Management - Water Sensitive Urban Design - of the Penrith DCP will be considered for implementation by the project. These include:

- To maintain the natural water balance;
- To make more efficient use of water resources by conserving water, particularly potable (drinking) water;
- To reduce general flood risk;
- To reduce erosion of waterways, slopes and banks;
- To control stormwater and waste water pollution and improve water quality in waterways and groundwater;
- To integrate stormwater management with water supply and waste water treatment; and
- To integrate stormwater treatment into the landscape so as to maximise the visual and recreational amenity of urban development.
- To collect the rainwater and use the collected water for refrigerating condensers.

## 4.4 Indoor & Outdoor Environmental Quality

Internal Environmental Quality and occupant comfort will be a key consideration in the warehouses design. A comfortable workplace encourages greater productivity, workplace satisfaction and tangible health benefits. These benefits range from reduction in stress, increased physical and mental health and general quality of life. Therefore, provision of more thermally comfortable spaces for employees and allowance to natural daylight are being envisaged.

Initiatives being contemplated that would improve overall occupants' comfort and internal environmental quality include:

- **Preference for reflective roof sheeting:**

Solar heat is expected to be passively absorbed by the warehouse's roof sheeting, which shall drive the internal temperatures of the building up. By using a more reflective roofing material – which has a lower solar absorptance (SA) – the internal heat gains are reduced, thus reducing the average internal temperature of the building throughout the year.

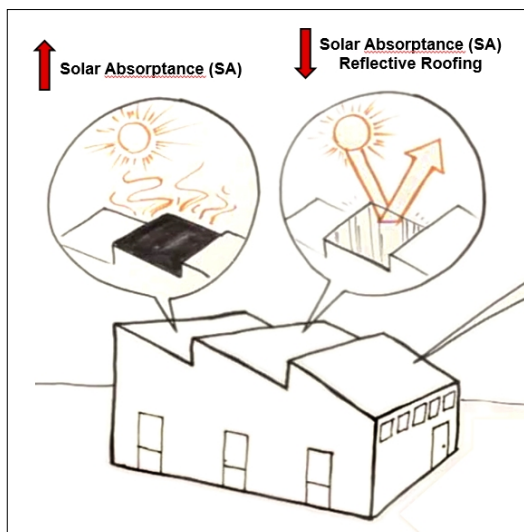


Figure 7 - Effect of roofing solar absorption (SA).



Figure 8 - Illustration of a light coloured (reflective) roof sheeting.

- **Application of translucent skylights:**





Skylights are an excellent source of natural light. Natural light is preferred over artificial light because it falls in a more natural spectrum, is energy efficient and connects occupants to the outside.

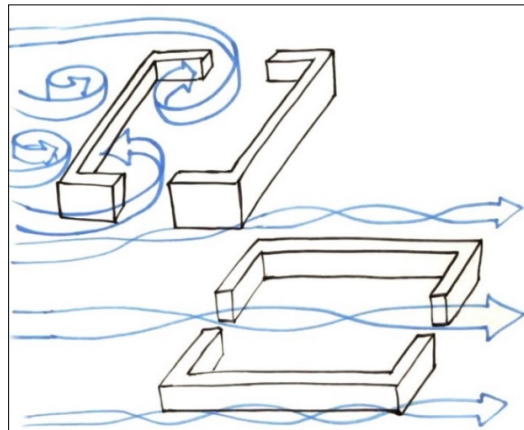
Considerations will be given to skylights sizing and heat transmissivity (HT), given these may allow more heat transfer to the warehouse interior, which is not desirable. Therefore, products with lower heat transmissivity will be prioritized.

It may be preferable to reduce the skylight proportion over the staging areas, while leaving skylights in place in the storage areas. This allows a diffuse light into non-critical operation areas.

- **Increased natural ventilation:**

Louvres or other openings in the walls/roof will allow cross-ventilation in the work zone, manageably increasing the air velocity and air change rates, what will passively reduce heat build-up in the space. The increased air movement provides a lower apparent temperature for the employees, as well as continuous introduction of fresh air.

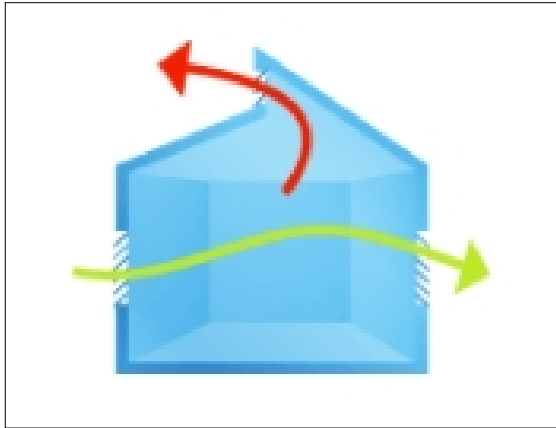
Even though outdoor air will eventually carry higher temperatures than the indoor air, the increased air speed allowed by louvres / openings can bring the occupants a greater thermal comfort than stagnant indoor air. This occurs because when the human body starts to overheat, it loses its capacity to remove that heat. Air movement is an important factor in thermal comfort and across the skin will remove the perspiration (sweat) heat very fast and offer a rapid drop in temperature. A lack of air movement can give a feeling of stuffiness.



**Figure 9 - Effects of opening placement in relation to wind directions.**  
**Source: Autodesk Sustainability Workshop**

Another efficient way to naturally cool a space is to locate exhausts at high levels. This can be through clerestory waterproof louvres, or preferably smoke exhaust fans can carry out the role. This is effective because rising hot air is able to escape the space through the high up fans, helping to keep the space cool. Roof exhaust fans effectively double the length of possible cross-ventilation by allowing exhaust air to exit at half the building's width.





**Figure 10 - Thermal Chimney Effect**  
(<http://www.windowwarehouseqld.com.au/windows/louvres>)



**Figure 11 - Motorised smoke exhaust fans can enable hot air to escape through roof, facilitating air ventilation.**

**Note:** Consideration will need to be given to the nature of the warehouse and its contents. In spaces where specific levels of air quality are required or strict humidity control, the design of louvres / openings must be more carefully considered. Additionally, there may be pollution, acoustic or dust issues with installation, which must be considered by the appropriate professional. Wind-driven rain may also provide a path for water ingress if louvres are not designed appropriately for their location.

- **Amenity Area**

An amenity area is currently being considered within the office area. This will be developed for occupants' amusement and well-being. A high-quality breakout area with access to daylight and spaces for staff to relax and socialise could be included in such an amenity zone.

- **End-of-trip facilities**

Showers and changing areas will be developed for the use of regular occupants to encourage active transport to-and-from the site, and active break activities.

## 4.5 Building Management

Via the implementation of industry recognised best practice frameworks, the project design and built form will seek to respond to the ongoing environmental challenges of urban development and ensure the project implements a range of ESD initiatives aimed at improving ongoing building management.

Through specific contractual commitments and documented design intent the project proposes to address environmental management & building operational performance through the following initiatives.

- **Building Commissioning & Tuning Procedures:**

Prior to practical completion / 12 months post practical completion. By implementing this via project contract documents the project ensures operational efficiency & building operation is optimised in accordance with the intended building design.

- **Smart Metering:**

Smart metering will provide relevant data for the use & management of building staff. This will provide detailed information about the project energy use and profile on a regular basis and through an easily accessible online platform. This information will help in the understanding of the usage profile so that adjustments can be made to guarantee optimal performance. This ensures operational efficiency is maintained and also facilitates detection of systems failures, thus improving maintenance and tuning processes.



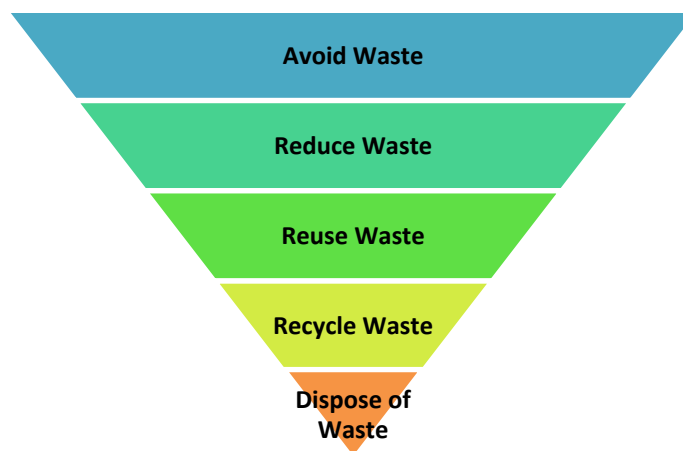
- **Waste provisions:**

Appropriate waste provisions are going to be included within the project to ensure recycling rates & reduced waste to landfill is optimised.

## 4.6 Waste Management

In order to facilitate sustainable waste management within the City of Penrith in accordance with the principles of Ecologically Sustainable Development, waste minimisation and resource recovery, easy access to waste systems, pollution prevention associated with waste management practices will be taken into consideration as part of waste management strategy.

The Industrial Estate development is targeting to increase on-site recycling and resource optimisation through adoption of the Waste Management Hierarchy with the ultimate goal of reducing waste going to landfill, which is in line with the *The Waste Avoidance and Resource Recovery Act, 2001* and the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*. The waste reduction strategy follows the hierarchy pyramid below.



**Figure 12 - The "Waste Hierarchy"**

Best practice initiatives will be explored through a development of a Waste Management Plan, which is going to address Demolition, Early Works, Construction and Operation Waste Management Strategies, where appropriate.

The key objectives for the management of waste generated by the demolition, early works and construction will include:

- Minimise waste generation on site;
- Segregate waste on site to maximise recycling;
- Store wastes on site appropriately to prevent cross-contamination and/or mixing of different waste;
- Segregate hazardous waste for appropriate treatment and disposal, where applicable;
- Where appropriate, set targets for demolition and construction waste diversion from landfill;
- Where appropriate, analyse potential operational waste generation profile from the warehouses and propose best practice Waste Management Strategies.





## 5. Summary of Design Response

Ecologically Sustainable Design continues to be a driving consideration in the ongoing development of the Warehouse 2, Aspect Industrial Estate, Kemps Creek development. Warehouse 2 will incorporate a number of ESD initiatives - which are aligned with the applicable - to complement the initiatives undertaken to reduce the greenhouse gas emissions, potable water consumption and material resources of the site. These constitute the sustainability response from the project to the site applicable sustainable design frameworks, as listed within Section 3. Sustainable Design Framework.

The ESD initiatives outlined in this report are intended to be used as a design guide for the development. The specific initiatives that will be installed across the precinct will be determined throughout the development application stage for each individual building and will be subject to feasibility analysis, including that of the final use and layout. The initiatives are being designed to comply with the guidelines set out by the relevant authorities.

The development's commitment to reducing the overall environmental impact is evident of the holistic approach taken to long-term sustainability. Documented initiatives cover a range of categories including:

- Energy & Greenhouse gas emissions reduction
- Potable Water reduction
- Minimising Waste to landfill
- The Indoor Environment
- Occupant Amenity and Comfort
- Building Management

We trust this report provides sufficient overview of the project commitment to environmentally sustainable design and greenhouse gas and energy efficiency vision for the Warehouse 2 development.





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For more information please visit  
[www.stantec.com](http://www.stantec.com)







# Appendix W    Weekly Inspection Checklist

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024





PROJECT NAME	Aspect Industrial Estate – Warehouse 3	DATE FROM		DATE TO	
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COMPLETED BY	POSITION	PROJECT MANAGER	SITE MANAGER	LEADING HAND	EHS COORDINATOR
	NAME				
	POSITION	CONSTRUCTION MANAGER	EHS MANAGER	EHS MANAGER	OTHER: . . . . .
	NAME				

## INSTRUCTIONS FOR COMPLETION

General	<p>This form must be completed by the project team <b>over the period of a week</b>. Topics should be reviewed on different days of the week to evidence that the inspection by different team members at different times.</p> <p><b>NOTE:</b> Activity reviews must note <b>compliant</b> <u>and</u> <b>non-compliant</b> activities.</p>
SECTION 1	<b>HIGH RISK ACTIVITIES (PTW):</b> The project team is to review <b>ALL</b> Activities that are being completed during the week where a <b>PTW is current</b> ).
SECTION 2	<b>REVIEW AGAINST SWMS:</b> The project team is required to review <b>actual site performance</b> of selected subcontractors against their approved SWMS.
SECTION 3	<b>GENERAL SITE ACTIVITIES:</b> The project team is required to review these activities over the course of each week.





## 1. HIGH RISK ACTIVITIES (Permits to Work)

\* Copy and attach additional pages if more than 4 permits

PERMIT TYPE ISSUED (e.g. Hot Works)	SUBCONTRACTOR ISSUED TO	COMMENTS  Provide a description of whether the <b>Control Measures</b> listed on the permit are being complied with	COMPLIANT (✓)		PROPOSED CORRECTIVE ACTION (CA)	REQUIRED CA DATE	CA COMPLETE (Date / Initial)
			C	NC			
Date Reviewed / /							
Date Reviewed / /							
Date Reviewed / /							
Date Reviewed / /							





## 2. REVIEW AGAINST SWMS – (is the subcontractor working as per their approved SWMS)

COMPANY NAME / and TITLE OF SWMS	DATE OF REVIEW	COMMENTS  List the Control Measures from the subcontractors SWMS. Observe whether work is being performed in accordance with the SWMS	COMPLIANT?		PROPOSED CORRECTIVE ACTION (CA)  (Non-compliant activities)	REQUIRED CA DATE	CA COMPLETE (Date / Initial)
			C	NC			





### 3. GENERAL SITE ACTIVITIES – (review of selected site activities)

ACTIVITY	DATE OF REVIEW	PROVIDE A GENERAL DESCRIPTION OF WHAT WAS REVIEWED	COMPLIANT?		PROPOSED CORRECTIVE ACTION (CA) (Non-compliant activities)	REQUIRED CA DATE	CA COMPLETE (Date / Initial)
			Y	N			
<b>EMERGENCY MANAGEMENT</b>							
Emergency management provisions are suitable for current working conditions.							
<b>OHS MANAGEMENT</b>							
Traffic Management Plan completed today							
Workers have safe access to work areas							
Services Plan up to date							
Exclusion zones implemented. (Plant/workers/activity)							
Work platforms/ladders compliant.							
Public Areas are free from hazards							
Temporary services clearly identified.							
Edge protection installed and compliant.							
Electrical equipment compliant. (Includes test/tag)							
Excavations barricaded/protected.							
Penetrations covered and identified.							





ACTIVITY	DATE OF REVIEW	PROVIDE A GENERAL DESCRIPTION OF WHAT WAS REVIEWED	COMPLIANT?		PROPOSED CORRECTIVE ACTION (CA) (Non-compliant activities)	REQUIRED CA DATE	CA COMPLETE (Date / Initial
			Y	N			
Access / egress area clean / tidy / free of obstructions.							
Lighting supplied to common areas and emergency paths.							
Mandatory site and activity PPE worn.							
Site fencing compliant, secured.							
Site signage in place where required.							
Site amenities clean / tidy.							
Site Induction Script reflects site conditions.							
<b>ENVIRONMENTAL MANAGEMENT</b>							
Environmental Plan is up to date and reflects site conditions							
CPESC Inspection has occurred at required intervals (List last inspection date)							
Silt fences inspected. Cleaned and repaired as required.							
Silt protection for stormwater entries in place and cleaned as required.							
Recycled materials/ waste materials sorted into relevant bins							
Run off be diverted to sediment basin(s)							





ACTIVITY	DATE OF REVIEW	PROVIDE A GENERAL DESCRIPTION OF WHAT WAS REVIEWED	COMPLIANT?		PROPOSED CORRECTIVE ACTION (CA) (Non-compliant activities)	REQUIRED CA DATE	CA COMPLETE (Date / Initial
			Y	N			
Silt laden water being treated, tested and signed off prior to pumping from sediment basins							
Sediment Basin Capacity maintained as per SECP							
Water Cart on Site During Earthworks Activity							
Crushed rock in place to building pads and exposed traffic areas wherever possible							
Risk assessment occurring in high wind conditions to assess dust risk from activities							
Monthly recycling reports available							
Site entry(s)/ exit(s) established with crushed rock and rumble grids as per approved SECP Maintained as required.							
Wheel wash equipment in place							
Spill Kits in place and contents checked							
Hazardous materials Storage area in place							
Re-Fuelling zone established							
Stockpiles managed to reduce dust and run-off. Sediment fence perimeter in place for medium / long term stockpiles (20 days +)							





ACTIVITY	DATE OF REVIEW	PROVIDE A GENERAL DESCRIPTION OF WHAT WAS REVIEWED	COMPLIANT?		PROPOSED CORRECTIVE ACTION (CA) (Non-compliant activities)	REQUIRED CA DATE	CA COMPLETE (Date / Initial
			Y	N			
Substances stored correctly.							
Concrete Wash-out area established and compliant.							
Paint/ grout wash-out established and compliant.							
Tree protection zones in place and maintained.							
Any Fauna Encounters to the site since the last inspection							
Plant and Equipment to the Site fitted with noise reducing attachments							
Noise levels compliant with planning requirements. Noisy activities being planned so not occurring simultaneously.							
Note any Work outside approved work hours and confirm approval received							
Any unexpected Finds since last Inspection							
Other:							
Other:							





# Appendix X   Induction and Training

## **Aspect Industrial Estate Construction Environmental Management Plan – Warehouse 2**

**SSD 10448 and SSD 58257960**

SLR Project No.: 630.031249.00001

26 August 2024

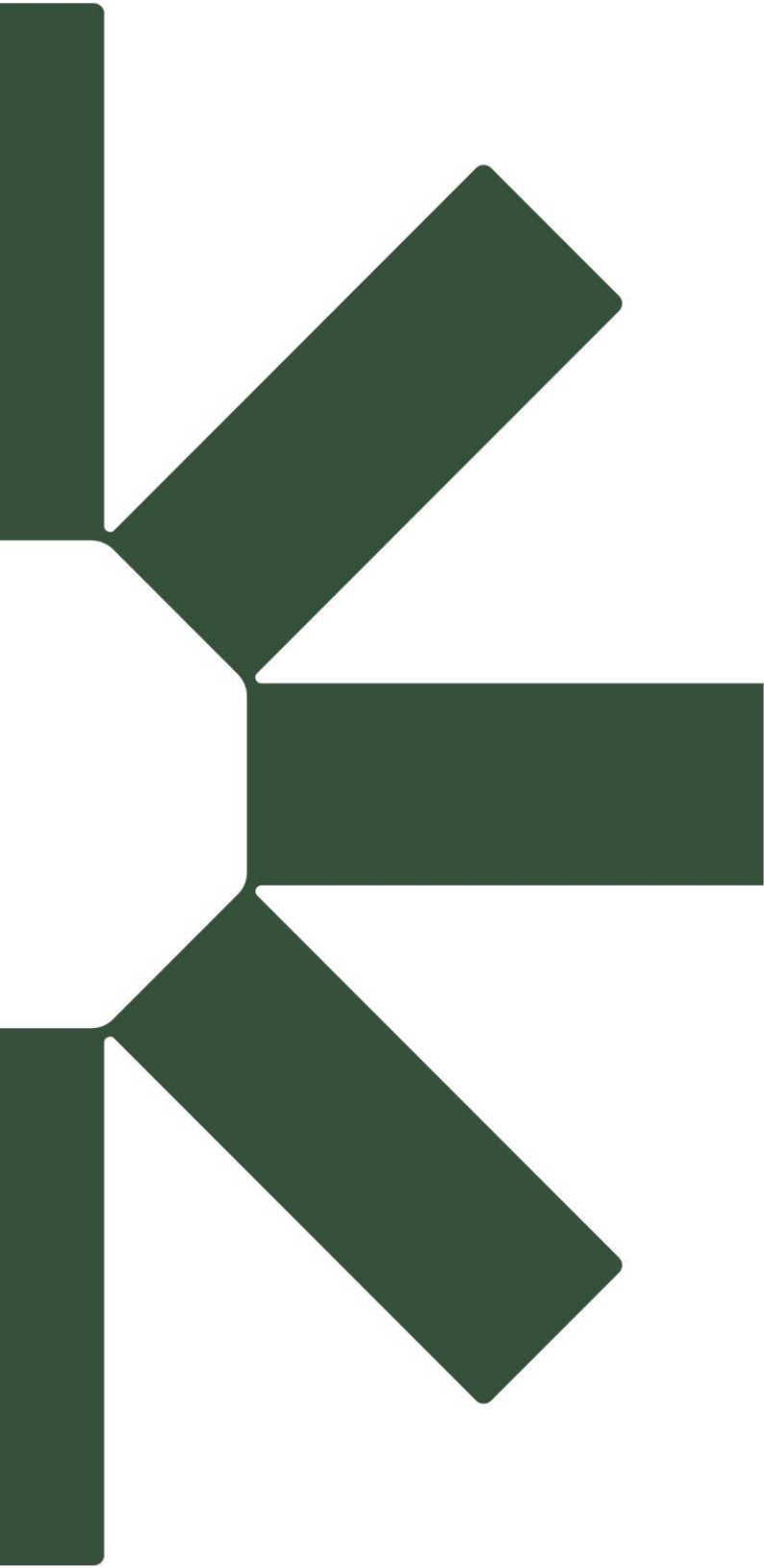


## ACKNOWLEDGEMENT OF PROJECT CEMP AND RISK REGISTER

I have read and been informed about the content, requirements, and expectations of the Project CEMP and Environmental Risk Register.

[illegible]





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